



PROJECT MANUAL

MODERNIZATION OF STATE & HUD AIDED PUBLIC HOUSING



50 SUMMER STREET ELEVATOR UPGRADE

U.S. HUD-AIDED DEVELOPMENT: AMP3
LOWELL, MASSACHUSETTS

<p>LOWELL HOUSING AUTHORITY 350 Moody Street Lowell, MA 01854 (978) 937-3500 FAX: (978) 937-5758 (All bids to be delivered, opened and read at this address.)</p>	<p>PROJECT ADDRESS: South Common Village 50 Summer Street Lowell, MA 01852 Dennis Mercier, Property Manager</p>
<p>Philip L. Shea, Chairperson Mony Var, Vice-Chairperson Rodney Elliott, Commissioner</p>	<p>Matthew Marr, Commissioner Joanie Bernes, Commissioner Dr. Gary K. Wallace, Executive Director</p>

Procurement Director

Rita V. Brousseau
Chief Procurement Officer
T: (978) 364-5341
F: (888) 364-8835
rbrousseau@lhma.org

(Note: all communication for this IFB must be by and through the Procurement Department.)

Architect

Livermore, Edwards and Associates
14 Spring Street
Waltham, MA 02451

Capital Asset Manager

Jonathan C. Goldfield
T: (978) 364-5333
build@lhma.org

BID RELEASE DATE: July 27, 2022

PRE-BID SITE VISIT: August 17, 2022 @ 10:00 AM

LAST DAY TO SUBMIT WRITTEN QUESTIONS: August 18, 2022 by 3:00 PM

FILED SUB BIDS DUE: August 24, 2022 @ 11:00 AM

GC BIDS DUE: August 31, 2022 @ 11:00 AM

All documents may be downloaded from: www.lhma.org/bids



TABLE OF CONTENTS

PROCUREMENT DOCUMENTS

TITLE SHEET FOR PROJECT MANUAL	1
TABLE OF CONTENTS	3
CONTRACTORS BID SUBMISSION CHECKLIST	1
ADVERTISEMENT	1
INSTRUCTIONS TO BIDDERS CONTRACTS, HUD-5369.....	5
REPRESENTATIONS, CERTIFICATIONS, AND OTHER STATEMENTS OF BIDDERS, HUD-5369-A	4
PREVIOUS PARTICIPATION CERTIFICATION, FORM HUD-2530	4
FORM OF GENERAL BID	2
FORM FOR FILED SUB-BID	3
DCAMM PRIME/GENERAL CONTRACTOR UPDATE STATEMENT	11
DCAMM SUB CONTRACTOR UPDATE STATEMENT.....	10
NON-COLLUSION AFFIDAVIT OF GENERAL BIDDER	1
NON-COLLUSION AFFIDAVIT OF SUB BIDDER	1
CERTIFICATE OF TAX COMPLIANCE	1
FORM W9.....	6

CONTRACT REQUIREMENTS

FORM OF CONTRACT.....	2
CERTIFICATE OF VOTE AUTHORIZATION	1
PERFORMANCE BOND.....	1
LABOR AND MATERIALS PAYMENT BOND.....	1

GENERAL CONDITIONS

GENERAL CONTRACT CONDITIONS FOR SMALL CONSTRUCTION, HUD-5370	19
SUPPLEMENTARY CONDITIONS OF THE CONTRACT FOR CONSTRUCTION, HUD-92554M	11
CONTRACTOR'S AFFIRMATIVE ACTION REQUIREMENTS, HUD-98198	9
EEO CERTIFICATION, HUD-92010	2
EQUAL EMPLOYMENT OPPORTUNITY REQUIREMENTS	3
FORM OF CONTRACTOR'S EQUAL EMPLOYMENT CERTIFICATIONS	1
CONTRACT AND SUBCONTRACT ACTIVITY, HUD-2516	2
CONTRACTOR'S WEEKLY MANPOWER REPORT	1
SUPPLIER DIVERSITY PROGRAM, EXECUTIVE ORDER 524	4
SDO CERTIFIED MBE/WBE PARTICIPATION SCHEDULE	1
SDO LETTER OF INTENT	1
CONTRACTOR'S AFFIDAVIT OF PAYMENT TO SDO	1
SECTION 3 PACKAGE	2

PREVAILING WAGES AND LABOR REGULATIONS

EMPLOYEE RIGHTS	1
HUD FEDERAL LABOR STANDARDS COMPLAINT INTAKE FORM, HUD-4731	2
CERTIFIED PAYROLL FORM	2
PROJECT WAGE RATE SHEET, HUD-4720	1
FEDERAL LABOR STANDARDS PROVISIONS, HUD-4010	5
DAVIS BACON WAGE RATES, MA, BUILDING	21

TECHNICAL SPECIFICATIONS

DIVISION 00 – INSTRUCTIONS TO BIDDERS

SECTION 00 00 00 INSTRUCTIONS TO BIDDERS	8
------------------------------------------------	---

DIVISION 01 – GENERAL REQUIREMENTS

50 Summer Street Elevator Upgrade
IFB 2022-12

SECTION 01 01 00 SUMMARY OF WORK	4
SECTION 01 07 00 CUTTING AND PATCHING	4
SECTION 01 09 00 REFERENCE STANDARDS	2
SECTION 01 20 00 PROJECT MEETINGS	4
SECTION 01 30 00 SUBMITTALS	3
SECTION 01 34 00 SHOP DRAWINGS.....	6
SECTION 01 51 00 TEMPORARY UTILITIES.....	3
SECTION 01 53 00 BARRIERS AND ENCLOSURES	2
SECTION 01 56 00 TEMPORARY CONTROLS	3
SECTION 01 60 00 MATERIAL AND EQUIPMENT	4
SECTION 01 70 00 CONTRACT CLOSEOUT	1
SECTION 01 71 00 CLEANING	2
SECTION 01 72 00 PROJECT RECORD DOCUMENTS.....	3
SECTION 01 73 00 OPERATING AND MAINTENANCE	7
SECTION 01 74 00 WARRANTIES AND BONDS.....	2
DIVISION 02 – EXISTING CONDITIONS	
SECTION 02 11 20 SELECTIVE DEMOLITION AND CLEANING	4
DIVISION 04 – MASONRY	
SECTION 04 20 00 UNIT MASONRY	16
DIVISION 05 – METALS	
SECTION 05 50 00 METAL FABRICATIONS	10
DIVISION 06 – WOOD, PLASTICS AND COMPOSITES	
SECTION 06 20 00 FINISH CARPENTRY.....	5
DIVISION 07 – THERMAL AND MOISTURE PROTECTION	
SECTION 07 27 10 FIRE PENETRATION SEALANTS.....	3
SECTION 07 92 00 JOINT SEALANTS	8
DIVISION 08 – OPENINGS	
SECTION 08 10 00 STEEL DOORS AND FRAMES.....	6
SECTION 08 71 00 FINISH HARDWARE.....	7
DIVISION 09 – FINISHES	
SECTION 09 25 00 GYPSUM DRYWALL	15
SECTION 09 66 00 RESILIENT FLOORING	6
SECTION 09 90 00 PAINTING AND COATING	12
DIVISION 10 – SPECIALTIES	
SECTION 10 52 20 FIRE EXTINGUISHERS.....	2
DIVISION 14 – CONVEYING EQUIPMENT (FILED SUB-BID REQUIRED)	
SECTION 14 21 23 ELECTRIC TRACTION ELEVATORS.....	70
SECTION 14 24 23 HYDRAULIC PASSENGER ELEVATORS.....	60
DIVISION 23 – HVAC	
SECTION 23 00 00 HVAC	25
DIVISION 26 – ELECTRICAL (FILED SUB-BID REQUIRED)	
SECTION 26 00 00 ELECTRICAL	SEE DRAWINGS

50 Summer Street Elevator Upgrade
IFB 2022-12

DRAWINGS

G0-1 CODE AND SITE PLANS

ARCHITECTURAL

A0-1 EXISTING AND DEMO PLANS

A1-1 BASEMENT AND SITE PLAN

A1-2 PROPOSED PLANS

A2-1 ELEVATIONS

ELEVATOR

VT01 ELEVATOR DETAILS

VT02 ELEVATOR DETAILS

HVAC

H1.0 HVAC LEGEND & GENERAL NOTES

H1.1 HVAC PART PLANS

H1.2 PART PLANS PROPOSED HVAC

H2.1 HVAC DETAILS

ELECTRICAL

E0-1 ELECTRICAL LEGEND & GENERAL NOTES

E0-2 ELECTRICAL ONE LINE DIAGRAM

E1-1 ELECTRICAL BASEMENT PLAN

E1-2 ELECTRICAL FIRST FLOOR PLAN

E1-3 ELECTRICAL 2ND -6TH & 7TH FLOOR PLANS

FA0-1 FIRE ALARM LEGENDS & GENERAL NOTES

FA1-1 FIRE ALARM BASEMENT PLANS

FA1-2 FIRE ALARM FIRST FLOOR PLAN

FA1-3 FIRE ALARM 2ND - 6TH & 7TH FLOOR PLANS

END OF TABLE OF CONTENTS

CONTRACTOR BID SUBMISSION CHECKLIST

The following list of forms must be included in your bid to be considered responsive. Please include this form with your submission.

- _____ Form for General Bid or Filed Sub bid (bid pricing sheet)
- _____ 5% Bid Bond
- _____ Non-Collusion Form
- _____ Tax Compliance Certification
- _____ Form W9
- _____ DCAMM Update Statement & Certificate of Eligibility
- _____ Representations, Certifications and Other Statements of Bidders Public and Indian Housing Programs Form HUD 5369-A
- _____ Section 3 Business Preference (if applicable)
- _____ Acknowledgement of Addenda

ADVERTISEMENT FOR IFB # 2022-12

The Lowell Housing Authority and the Board of Commissioners, the Awarding Authority, invite sealed bids from Contractors for Elevator Upgrade at 50 Summer Street at the South Common Village for the Lowell Housing Authority in Lowell, Massachusetts, in accordance with the documents prepared by Livermore, Edwards and Associates.

The Project consists of: upgrades to both a traction and hydraulic elevators.

The work is estimated to cost **\$1,058,605.00**.

Bids are subject to M.G.L. c.149 §44A-J and to minimum wage rates as required by M.G.L. c.149 §§26 to 27H inclusive, Davis Bacon Wage Determination for Building Construction (MA1), 40 U.S.C. 276, 29 C.F.R. 1.

A Pre-Bid Site Visit shall take place on **August 17, 2022 @ 10:00 AM**. Interested Contractors shall meet at 50 Summer Street, Lowell, MA 01852.

The IFB is available to download at www.lhma.org/bids as of July 27, 2022. **Filed Sub-Bids** are due at the Lowell Housing Authority Dept. of Finance & Procurement, 350 Moody Street Lowell, MA 01854 by **11:00 AM on August 24, 2022** and **General Contractor Bids** are due by **11:00 AM on August 31, 2022**.

All Bids should be clearly labeled and delivered to: Lowell Housing Authority, 350 Moody St., Lowell, MA 01854 **Attn: Dept. of Finance & Procurement**, and received no later than the date and time specified above.

All bids shall be accompanied by a bid deposit that is not less than five (5%) of the greatest possible bid amount (considering all alternates) and made payable to the Lowell Housing Authority.

Bid Forms and Contract Documents will be available to download from www.lhma.org/bids.

General bidders must agree to contract with minority and women business enterprises as certified by the Supplier Diversity Office (SDO), formerly known as SOMWBA. The combined goal reserved for such enterprises shall not be less than 10.4% of the final contract price including accepted alternates. See Contractor's Affirmative Action Requirements for additional information.

The LHA reserves the right to cancel the IFB, reject any or all bids and waive informalities.

END OF SECTION

**U.S. Department of Housing and
Urban Development**
Office of Public and Indian Housing

**Instructions to Bidders for Contracts
Public and Indian Housing Programs**

Lowell Housing Authority
350 Moody Street, P.O.Box 60
Lowell, MA 01853-0060

Instructions to Bidders for Contracts

Public and Indian Housing Programs

Table of Contents

Clause	Page
1. Bid Preparation and Submission	1
2. Explanations and Interpretations to Prospective Bidders	1
3. Amendments to Invitations for Bids	1
4. Responsibility of Prospective Contractor	1
5. Late Submissions, Modifications, and Withdrawal of Bids	1
6. Bid Opening	2
7. Service of Protest	2
8. Contract Award	2
9. Bid Guarantee	3
10. Assurance of Completion	3
11. Preconstruction Conference	3
12. Indian Preference Requirements	3

1. Bid Preparation and Submission

(a) Bidders are expected to examine the specifications, drawings, all instructions, and, if applicable, the construction site (see also the contract clause entitled **Site Investigation and Conditions Affecting the Work** of the *General Conditions of the Contract for Construction*). Failure to do so will be at the bidders' risk.

(b) All bids must be submitted on the forms provided by the Public Housing Agency/Indian Housing Authority (PHA/IHA). Bidders shall furnish all the information required by the solicitation. Bids must be signed and the bidder's name typed or printed on the bid sheet and each continuation sheet which requires the entry of information by the bidder. Erasures or other changes must be initialed by the person signing the bid. Bids signed by an agent shall be accompanied by evidence of that agent's authority. (Bidders should retain a copy of their bid for their records.)

(c) Bidders must submit as part of their bid a completed form HUD-5369-A, "Representations, Certifications, and Other Statements of Bidders."

(d) All bid documents shall be sealed in an envelope which shall be clearly marked with the words "Bid Documents," the Invitation for Bids (IFB) number, any project or other identifying number, the bidder's name, and the date and time for receipt of bids.

(e) If this solicitation requires bidding on all items, failure to do so will disqualify the bid. If bidding on all items is not required, bidders should insert the words "No Bid" in the space provided for any item on which no price is submitted.

(f) Unless expressly authorized elsewhere in this solicitation, alternate bids will not be considered.

(g) Unless expressly authorized elsewhere in this solicitation, bids submitted by telegraph or facsimile (fax) machines will not be considered.

(h) If the proposed contract is for a Mutual Help project (as described in 24 CFR Part 905, Subpart E) that involves Mutual Help contributions of work, material, or equipment, supplemental information regarding the bid advertisement is provided as an attachment to this solicitation.

LOWELL HOUSING AUTHORITY

LOWELL, MASSACHUSETTS

2. Explanations and Interpretations to Prospective Bidders

(a) Any prospective bidder desiring an explanation or interpretation of the solicitation, specifications, drawings, etc., must request it at least 7 days before the scheduled time for bid opening. Requests may be oral or written. Oral requests must be confirmed in writing. The only oral clarifications that will be provided will be those clearly related to solicitation procedures, i.e., not substantive technical information. No other oral explanation or interpretation will be provided. Any information given a prospective bidder concerning this solicitation will be furnished promptly to all other prospective bidders as a written amendment to the solicitation, if that information is necessary in submitting bids, or if the lack of it would be prejudicial to other prospective bidders.

(b) Any information obtained by, or provided to, a bidder other than by formal amendment to the solicitation shall not constitute a change to the solicitation.

3. Amendments to Invitations for Bids

(a) If this solicitation is amended, then all terms and conditions which are not modified remain unchanged.

(b) Bidders shall acknowledge receipt of any amendment to this solicitation (1) by signing and returning the amendment, (2) by identifying the amendment number and date on the bid form, or (3) by letter, telegram, or facsimile, if those methods are authorized in the solicitation. The PHA/IHA must receive acknowledgement by the time and at the place specified for receipt of bids. Bids which fail to acknowledge the bidder's receipt of any amendment will result in the rejection of the bid if the amendment(s) contained information which substantively changed the PHA's/IHA's requirements.

(c) Amendments will be on file in the offices of the PHA/IHA and the Architect at least 7 days before bid opening.

4. Responsibility of Prospective Contractor

(a) The PHA/IHA will award contracts only to responsible prospective contractors who have the ability to perform successfully under the terms and conditions of the proposed contract. In determining the responsibility of a bidder, the PHA/IHA will consider such matters as the bidder's:

- (1) Integrity;
- (2) Compliance with public policy;
- (3) Record of past performance; and
- (4) Financial and technical resources (including construction and technical equipment).

(b) Before a bid is considered for award, the bidder may be requested by the PHA/IHA to submit a statement or other documentation regarding any of the items in paragraph (a) above. Failure by the bidder to provide such additional information shall render the bidder nonresponsible and ineligible for award.

5. Late Submissions, Modifications, and Withdrawal of Bids

(a) Any bid received at the place designated in the solicitation after the exact time specified for receipt will not be considered unless it is received before award is made and it:

(1) Was sent by registered or certified mail not later than the fifth calendar day before the date specified for receipt of offers (e.g., an offer submitted in response to a solicitation requiring receipt of offers by the 20th of the month must have been mailed by the 15th);

(2) Was sent by mail, or if authorized by the solicitation, was sent by telegram or via facsimile, and it is determined by the PHA/IHA that the late receipt was due solely to mishandling by the PHA/IHA after receipt at the PHA/IHA; or

(3) Was sent by U.S. Postal Service Express Mail Next Day Service - Post Office to Addressee, not later than 5:00 p.m. at the place of mailing two working days prior to the date specified for receipt of proposals. The term "working days" excludes weekends and observed holidays.

(b) Any modification or withdrawal of a bid is subject to the same conditions as in paragraph (a) of this provision.

(c) The only acceptable evidence to establish the date of mailing of a late bid, modification, or withdrawal sent either by registered or certified mail is the U.S. or Canadian Postal Service postmark both on the envelope or wrapper and on the original receipt from the U.S. or Canadian Postal Service. Both postmarks must show a legible date or the bid, modification, or withdrawal shall be processed as if mailed late. "Postmark" means a printed, stamped, or otherwise placed impression (exclusive of a postage meter machine impression) that is readily identifiable without further action as having been supplied and affixed by employees of the U.S. or Canadian Postal Service on the date of mailing. Therefore, bidders should request the postal clerk to place a hand cancellation bull's-eye postmark on both the receipt and the envelope or wrapper.

(d) The only acceptable evidence to establish the time of receipt at the PHA/IHA is the time/date stamp of PHA/IHA on the proposal wrapper or other documentary evidence of receipt maintained by the PHA/IHA.

(e) The only acceptable evidence to establish the date of mailing of a late bid, modification, or withdrawal sent by Express Mail Next Day Service-Post Office to Addressee is the date entered by the post office receiving clerk on the "Express Mail Next Day Service-Post Office to Addressee" label and the postmark on both the envelope or wrapper and on the original receipt from the U.S. Postal Service. "Postmark" has the same meaning as defined in paragraph (c) of this provision, excluding postmarks of the Canadian Postal Service. Therefore, bidders should request the postal clerk to place a legible hand cancellation bull's eye postmark on both the receipt and Failure by a bidder to acknowledge receipt of the envelope or wrapper.

(f) Notwithstanding paragraph (a) of this provision, a late modification of an otherwise successful bid that makes its terms more favorable to the PHA/IHA will be considered at any time it is received and may be accepted.

(g) Bids may be withdrawn by written notice, or if authorized by this solicitation, by telegram (including mailgram) or facsimile machine transmission received at any time before the exact time set for opening of bids; provided that written confirmation of telegraphic or facsimile withdrawals over the signature of the bidder is mailed and postmarked prior to the specified bid opening time. A bid may be withdrawn in person by a bidder or its authorized representative if, before the exact time set for opening of bids, the identity of the person requesting withdrawal is established and the person signs a receipt for the bid.

6. Bid Opening

All bids received by the date and time of receipt specified in the solicitation will be publicly opened and read. The time and place of opening will be as specified in the solicitation. Bidders and other interested persons may be present.

7. Service of Protest

(a) Definitions. As used in this provision:

"Interested party" means an actual or prospective bidder whose direct economic interest would be affected by the award of the contract.

"Protest" means a written objection by an interested party to this solicitation or to a proposed or actual award of a contract pursuant to this solicitation.

(b) Protests shall be served on the Contracting Officer by obtaining written and dated acknowledgement from —

Lowell Housing Authority
Department of Finance and Procurement
350 Moody Street
Lowell, MA 01854

[Contracting Officer designate the official or location where a protest may be served on the Contracting Officer]

(c) All protests shall be resolved in accordance with the PHA's/IHA's protest policy and procedures, copies of which are maintained at the PHA/IHA.

8. Contract Award

(a) The PHA/IHA will evaluate bids in response to this solicitation without discussions and will award a contract to the responsible bidder whose bid, conforming to the solicitation, will be most advantageous to the PHA/IHA considering only price and any price-related factors specified in the solicitation.

(b) If the apparent low bid received in response to this solicitation exceeds the PHA's/IHA's available funding for the proposed contract work, the PHA/IHA may either accept separately priced items (see 8(e) below) or use the following procedure to determine contract award. The PHA/IHA shall apply in turn to each bid (proceeding in order from the apparent low bid to the high bid) each of the separately priced bid deductible items, if any, in their priority order set forth in this solicitation. If upon the application of the first deductible item to all initial bids, a new low bid is within the PHA's/IHA's available funding, then award shall be made to that bidder. If no bid is within the available funding amount, then the PHA/IHA shall apply the second deductible item. The PHA/IHA shall continue this process until an evaluated low bid, if any, is within the PHA's/IHA's available funding. If upon the application of all deductibles, no bid is within the PHA's/IHA's available funding, or if the solicitation does not request separately priced deductibles, the PHA/IHA shall follow its written policy and procedures in making any award under this solicitation.

(c) In the case of tie low bids, award shall be made in accordance with the PHA's/IHA's written policy and procedures.

(d) The PHA/IHA may reject any and all bids, accept other than the lowest bid (e.g., the apparent low bid is unreasonably low), and waive informalities or minor irregularities in bids received, in accordance with the PHA's/IHA's written policy and procedures.

(e) Unless precluded elsewhere in the solicitation, the PHA/IHA may accept any item or combination of items bid.

(f) The PHA/IHA may reject any bid as nonresponsive if it is materially unbalanced as to the prices for the various items of work to be performed. A bid is materially unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated for other work.

(g) A written award shall be furnished to the successful bidder within the period for acceptance specified in the bid and shall result in a binding contract without further action by either party.

9. Bid Guarantee (applicable to construction and equipment contracts exceeding \$25,000)

All bids must be accompanied by a negotiable bid guarantee which shall not be less than five percent (5%) of the amount of the bid. The bid guarantee may be a certified check, bank draft, U.S. Government Bonds at par value, or a bid bond secured by a surety company acceptable to the U.S. Government and authorized to do business in the state where the work is to be performed. In the case where the work under the contract will be performed on an Indian reservation area, the bid guarantee may also be an irrevocable Letter of Credit (see provision 10, Assurance of Completion, below). Certified checks and bank drafts must be made payable to the order of the PHA/IHA. The bid guarantee shall insure the execution of the contract and the furnishing of a method of assurance of completion by the successful bidder as required by the solicitation. Failure to submit a bid guarantee with the bid shall result in the rejection of the bid. Bid guarantees submitted by unsuccessful bidders will be returned as soon as practicable after bid opening.

10. Assurance of Completion

(a) Unless otherwise provided in State law, the successful bidder shall furnish an assurance of completion prior to the execution of any contract under this solicitation. This assurance may be [Contracting Officer check applicable items] —

[X] (1) a performance and payment bond in a penal sum of 100 percent of the contract price; or, as may be required or permitted by State law;

[] (2) separate performance and payment bonds, each for 50 percent or more of the contract price;

[] (3) a 20 percent cash escrow;

[] (4) a 25 percent irrevocable letter of credit; or,

[] (5) an irrevocable letter of credit for 10 percent of the total contract price with a monitoring and disbursements agreement with the IHA (applicable only to contracts awarded by an IHA under the Indian Housing Program).

(b) Bonds must be obtained from guarantee or surety companies acceptable to the U.S. Government and authorized to do business in the state where the work is to be performed. Individual sureties will not be considered. U.S. Treasury Circular Number 570, published annually in the Federal Register, lists companies approved to act as sureties on bonds securing Government contracts, the maximum underwriting limits on each contract bonded, and the States in which the company is licensed to do business. Use of companies listed in this circular is mandatory. Copies of the circular may be downloaded on the U.S. Department of Treasury website <http://www.fms.treas.gov/c570/index.html>, or ordered for a minimum fee by contacting the Government Printing Office at (202) 512-2168.

(c) Each bond shall clearly state the rate of premium and the total amount of premium charged. The current power of attorney for the person who signs for the surety company must be attached to the bond. The effective date of the power of attorney shall not precede the date of the bond. The effective date of the bond shall be on or after the execution date of the contract.

(d) Failure by the successful bidder to obtain the required assurance of completion within the time specified, or within such extended period as the PHA/IHA may grant based upon reasons determined adequate by the PHA/IHA, shall render the bidder ineligible for award. The PHA/IHA may then either award the contract to the next lowest responsible bidder or solicit new bids. The PHA/IHA may retain the ineligible bidder's bid guarantee.

11. Preconstruction Conference (applicable to construction contracts)

After award of a contract under this solicitation and prior to the start of work, the successful bidder will be required to attend a preconstruction conference with representatives of the PHA/IHA and its architect/engineer, and other interested parties convened by the PHA/IHA. The conference will serve to acquaint the participants with the general plan of the construction operation and all other requirements of the contract (e.g., Equal Employment Opportunity, Labor Standards). The PHA/IHA will provide the successful bidder with the date, time, and place of the conference.

12. Indian Preference Requirements (applicable only if this solicitation is for a contract to be performed on a project for an Indian Housing Authority)

(a) HUD has determined that the contract awarded under this solicitation is subject to the requirements of section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450e(b)). Section 7(b) requires that any contract or subcontract entered into for the benefit of Indians shall require that, to the greatest extent feasible

(1) Preferences and opportunities for training and employment (other than core crew positions; see paragraph (h) below) in connection with the administration of such contracts or subcontracts be given to qualified "Indians." The Act defines "Indians" to mean persons who are members of an Indian tribe and defines "Indian tribe" to mean any Indian tribe, band, nation, or other organized group or community, including any Alaska Native village or regional or village corporation as defined in or established pursuant to the Alaska Native Claims Settlement Act, which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians; and,

(2) Preference in the award of contracts or subcontracts in connection with the administration of contracts be given to Indian organizations and to Indian-owned economic enterprises, as defined in section 3 of the Indian Financing Act of 1974 (25 U.S.C. 1452). That Act defines "economic enterprise" to mean any Indian-owned commercial, industrial, or business activity established or organized for the purpose of profit, except that the Indian ownership must constitute not less than 51 percent of the enterprise; "Indian organization" to mean the governing body of any Indian tribe or entity established or recognized by such governing body; "Indian" to mean any person who is a member of any tribe, band, group, pueblo, or community which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs and any "Native" as defined in the Alaska Native Claims Settlement Act; and Indian "tribe" to mean any Indian tribe, band, group, pueblo, or community including Native villages and Native groups (including

corporations organized by Kenai, Juneau, Sitka, and Kodiak) as defined in the Alaska Native Claims Settlement Act, which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs.

(b) (1) The successful Contractor under this solicitation shall comply with the requirements of this provision in awarding all subcontracts under the contract and in providing training and employment opportunities.

(2) A finding by the IHA that the contractor, either (i) awarded a subcontract without using the procedure required by the IHA, (ii) falsely represented that subcontracts would be awarded to Indian enterprises or organizations; or, (iii) failed to comply with the contractor's employment and training preference bid statement shall be grounds for termination of the contract or for the assessment of penalties or other remedies.

(c) If specified elsewhere in this solicitation, the IHA may restrict the solicitation to qualified Indian-owned enterprises and Indian organizations. If two or more (or a greater number as specified elsewhere in the solicitation) qualified Indian-owned enterprises or organizations submit responsive bids, award shall be made to the qualified enterprise or organization with the lowest responsive bid. If fewer than the minimum required number of qualified Indian-owned enterprises or organizations submit responsive bids, the IHA shall reject all bids and readvertise the solicitation in accordance with paragraph (d) below.

(d) If the IHA prefers not to restrict the solicitation as described in paragraph (c) above, or if after having restricted a solicitation an insufficient number of qualified Indian enterprises or organizations submit bids, the IHA may advertise for bids from non-Indian as well as Indian-owned enterprises and Indian organizations. Award shall be made to the qualified Indian enterprise or organization with the lowest responsive bid if that bid is -

(1) Within the maximum HUD-approved budget amount established for the specific project or activity for which bids are being solicited; and

(2) No more than the percentage specified in 24 CFR 905.175(c) higher than the total bid price of the lowest responsive bid from any qualified bidder. If no responsive bid by a qualified Indian-owned economic enterprise or organization is within the stated range of the total bid price of the lowest responsive bid from any qualified enterprise, award shall be made to the bidder with the lowest bid.

(e) Bidders seeking to qualify for preference in contracting or subcontracting shall submit proof of Indian ownership with their bids. Proof of Indian ownership shall include but not be limited to:

(1) Certification by a tribe or other evidence that the bidder is an Indian. The IHA shall accept the certification of a tribe that an individual is a member.

(2) Evidence such as stock ownership, structure, management, control, financing and salary or profit sharing arrangements of the enterprise.

(f) (1) All bidders must submit with their bids a statement describing how they will provide Indian preference in the award of subcontracts. The specific requirements of that statement and the factors to be used by the IHA in determining the statement's adequacy are included as an attachment to this solicitation. Any bid that fails to include the required statement shall be rejected as nonresponsive. The IHA may require that comparable statements be provided by subcontractors to the successful Contractor, and may require the Contractor to reject any bid or proposal by a subcontractor that fails to include the statement.

(2) Bidders and prospective subcontractors shall submit a certification (supported by credible evidence) to the IHA in any instance where the bidder or subcontractor believes it is infeasible to provide Indian preference in subcontracting. The acceptance or rejection by the IHA of the certification shall be final. Rejection shall disqualify the bid from further consideration.

(g) All bidders must submit with their bids a statement detailing their employment and training opportunities and their plans to provide preference to Indians in implementing the contract; and the number or percentage of Indians anticipated to be employed and trained. Comparable statements from all proposed subcontractors must be submitted. The criteria to be used by the IHA in determining the statement(s)'s adequacy are included as an attachment to this solicitation. Any bid that fails to include the required statement(s), or that includes a statement that does not meet minimum standards required by the IHA shall be rejected as nonresponsive.

(h) Core crew employees. A core crew employee is an individual who is a bona fide employee of the contractor at the time the bid is submitted; or an individual who was not employed by the bidder at the time the bid was submitted, but who is regularly employed by the bidder in a supervisory or other key skilled position when work is available. Bidders shall submit with their bids a list of all core crew employees.

(i) Preference in contracting, subcontracting, employment, and training shall apply not only on-site, on the reservation, or within the IHA's jurisdiction, but also to contracts with firms that operate outside these areas (e.g., employment in modular or manufactured housing construction facilities).

(j) Bidders should contact the IHA to determine if any additional local preference requirements are applicable to this solicitation.

(k) The IHA [] does [X] does not [Contracting Officer check applicable box] maintain lists of Indian-owned economic enterprises and Indian organizations by specialty (e.g., plumbing, electrical, foundations), which are available to bidders to assist them in meeting their responsibility to provide preference in connection with the administration of contracts and subcontracts.

**U.S. Department of Housing
and Urban Development**
Office of Public and Indian Housing

**Representations, Certifications,
and Other Statements of Bidders**
Public and Indian Housing Programs

Representations, Certifications, and Other Statements of Bidders

Public and Indian Housing Programs

Table of Contents

Clause	Page
1. Certificate of Independent Price Determination	1
2. Contingent Fee Representation and Agreement	1
3. Certification and Disclosure Regarding Payments to Influence Certain Federal Transactions	1
4. Organizational Conflicts of Interest Certification	2
5. Bidder's Certification of Eligibility	2
6. Minimum Bid Acceptance Period	2
7. Small, Minority, Women-Owned Business Concern Representation	2
8. Indian-Owned Economic Enterprise and Indian Organization Representation	2
9. Certification of Eligibility Under the Davis-Bacon Act	3
10. Certification of Nonsegregated Facilities	3
11. Clean Air and Water Certification	3
12. Previous Participation Certificate	3
13. Bidder's Signature	3

1. Certificate of Independent Price Determination

(a) The bidder certifies that--

(1) The prices in this bid have been arrived at independently, without, for the purpose of restricting competition, any consultation, communication, or agreement with any other bidder or competitor relating to (i) those prices, (ii) the intention to submit a bid, or (iii) the methods or factors used to calculate the prices offered;

(2) The prices in this bid have not been and will not be knowingly disclosed by the bidder, directly or indirectly, to any other bidder or competitor before bid opening (in the case of a sealed bid solicitation) or contract award (in the case of a competitive proposal solicitation) unless otherwise required by law; and

(3) No attempt has been made or will be made by the bidder to induce any other concern to submit or not to submit a bid for the purpose of restricting competition.

(b) Each signature on the bid is considered to be a certification by the signatory that the signatory--

(1) Is the person in the bidder's organization responsible for determining the prices being offered in this bid or proposal, and that the signatory has not participated and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) above; or

(2) (i) Has been authorized, in writing, to act as agent for the following principals in certifying that those principals have not participated, and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) above.

_____ [insert full name of person(s) in the bidder's organization responsible for determining the prices offered in this bid or proposal, and the title of his or her position in the bidder's organization];

(ii) As an authorized agent, does certify that the principals named in subdivision (b)(2)(i) above have not participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) above; and

(iii) As an agent, has not personally participated, and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) above.

(c) If the bidder deletes or modifies subparagraph (a)2 above, the bidder must furnish with its bid a signed statement setting forth in detail the circumstances of the disclosure.

[X] [Contracting Officer check if following paragraph is applicable]

(d) Non-collusive affidavit. (applicable to contracts for construction and equipment exceeding \$50,000)

(1) Each bidder shall execute, in the form provided by the PHA/IHA, an affidavit to the effect that he/she has not colluded with any other person, firm or corporation in regard to any bid submitted in response to this solicitation. If the successful bidder did not submit the affidavit with his/her bid, he/she must submit it within three (3) working days of bid opening. Failure to submit the affidavit by that date may render the bid nonresponsive. No contract award will be made without a properly executed affidavit.

(2) A fully executed "Non-collusive Affidavit" [] is, [] is not included with the bid.

2. Contingent Fee Representation and Agreement

(a) Definitions. As used in this provision:

"Bona fide employee" means a person, employed by a bidder and subject to the bidder's supervision and control as to time, place, and manner of performance, who neither exerts, nor proposes to exert improper influence to solicit or obtain contracts nor holds out as being able to obtain any contract(s) through improper influence.

"Improper influence" means any influence that induces or tends to induce a PHA/IHA employee or officer to give consideration or to act regarding a PHA/IHA contract on any basis other than the merits of the matter.

(b) The bidder represents and certifies as part of its bid that, except for full-time bona fide employees working solely for the bidder, the bidder:

(1) [] has, [] has not employed or retained any person or company to solicit or obtain this contract; and

(2) [] has, [] has not paid or agreed to pay to any person or company employed or retained to solicit or obtain this contract any commission, percentage, brokerage, or other fee contingent upon or resulting from the award of this contract.

(c) If the answer to either (a)(1) or (a)(2) above is affirmative, the bidder shall make an immediate and full written disclosure to the PHA/IHA Contracting Officer.

(d) Any misrepresentation by the bidder shall give the PHA/IHA the right to (1) terminate the contract; (2) at its discretion, deduct from contract payments the amount of any commission, percentage, brokerage, or other contingent fee; or (3) take other remedy pursuant to the contract.

3. Certification and Disclosure Regarding Payments to Influence Certain Federal Transactions (applicable to contracts exceeding \$100,000)

(a) The definitions and prohibitions contained in Section 1352 of title 31, United States Code, are hereby incorporated by reference in paragraph (b) of this certification.

(b) The bidder, by signing its bid, hereby certifies to the best of his or her knowledge and belief as of December 23, 1989 that:

(1) No Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with the awarding of a contract resulting from this solicitation;

(2) If any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with this solicitation, the bidder shall complete and submit, with its bid, OMB standard form LLL, "Disclosure of Lobbying Activities;" and

(3) He or she will include the language of this certification in all subcontracts at any tier and require that all recipients of subcontract awards in excess of \$100,000 shall certify and disclose accordingly.

(c) Submission of this certification and disclosure is a prerequisite for making or entering into this contract imposed by section 1352, title 31, United States Code. Any person who makes an expenditure prohibited under this provision or who fails to file or amend the disclosure form to be filed or amended by this provision, shall be subject to a civil penalty of not less than \$10,000, and not more than \$100,000, for each such failure.

(d) Indian tribes (except those chartered by States) and Indian organizations as defined in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450B) are exempt from the requirements of this provision.

4. Organizational Conflicts of Interest Certification

The bidder certifies that to the best of its knowledge and belief and except as otherwise disclosed, he or she does not have any organizational conflict of interest which is defined as a situation in which the nature of work to be performed under this proposed contract and the bidder's organizational, financial, contractual, or other interests may, without some restriction on future activities:

- (a) Result in an unfair competitive advantage to the bidder; or,
- (b) Impair the bidder's objectivity in performing the contract work.

[] In the absence of any actual or apparent conflict, I hereby certify that to the best of my knowledge and belief, no actual or apparent conflict of interest exists with regard to my possible performance of this procurement.

5. Bidder's Certification of Eligibility

(a) By the submission of this bid, the bidder certifies that to the best of its knowledge and belief, neither it, nor any person or firm which has an interest in the bidder's firm, nor any of the bidder's subcontractors, is ineligible to:

(1) Be awarded contracts by any agency of the United States Government, HUD, or the State in which this contract is to be performed; or,

(2) Participate in HUD programs pursuant to 24 CFR Part 24.

(b) The certification in paragraph (a) above is a material representation of fact upon which reliance was placed when making award. If it is later determined that the bidder knowingly rendered an erroneous certification, the contract may be terminated for default, and the bidder may be debarred or suspended from participation in HUD programs and other Federal contract programs.

6. Minimum Bid Acceptance Period

(a) "Acceptance period," as used in this provision, means the number of calendar days available to the PHA/IHA for awarding a contract from the date specified in this solicitation for receipt of bids.

(b) This provision supersedes any language pertaining to the acceptance period that may appear elsewhere in this solicitation.

(c) The PHA/IHA requires a minimum acceptance period of [30] calendar days or per statute.

(d) In the space provided immediately below, bidders may specify a longer acceptance period than the PHA's/IHA's minimum requirement. The bidder allows the following acceptance period: calendar days.

(e) A bid allowing less than the PHA's/IHA's minimum acceptance period will be rejected.

(f) The bidder agrees to execute all that it has undertaken to do, in compliance with its bid, if that bid is accepted in writing within (1) the acceptance period stated in paragraph (c) above or (2) any longer acceptance period stated in paragraph (d) above.

7. Small, Minority, Women-Owned Business Concern Representation

The bidder represents and certifies as part of its bid/ offer that it --

(a) [] is, [] is not a small business concern. "Small business concern," as used in this provision, means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding, and qualified as a small business under the criteria and size standards in 13 CFR 121.

(b) [] is, [] is not a women-owned business enterprise. "Women-owned business enterprise," as used in this provision, means a business that is at least 51 percent owned by a woman or women who are U.S. citizens and who also control and operate the business.

(c) [] is, [] is not a minority business enterprise. "Minority business enterprise," as used in this provision, means a business which is at least 51 percent owned or controlled by one or more minority group members or, in the case of a publicly owned business, at least 51 percent of its voting stock is owned by one or more minority group members, and whose management and daily operations are controlled by one or more such individuals. For the purpose of this definition, minority group members are:

(Check the block applicable to you)

- | | |
|------------------------|------------------------------|
| [] Black Americans | [] Asian Pacific Americans |
| [] Hispanic Americans | [] Asian Indian Americans |
| [] Native Americans | [] Hasidic Jewish Americans |

8. Indian-Owned Economic Enterprise and Indian Organization Representation (applicable only if this solicitation is for a contract to be performed on a project for an Indian Housing Authority)

The bidder represents and certifies that it:

(a) [] is, [] is not an Indian-owned economic enterprise. "Economic enterprise," as used in this provision, means any commercial, industrial, or business activity established or organized for the purpose of profit, which is at least 51 percent Indian owned. "Indian," as used in this provision, means any person who is a member of any tribe, band, group, pueblo, or community which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs and any "Native" as defined in the Alaska Native Claims Settlement Act.

(b) [] is, [] is not an Indian organization. "Indian organization," as used in this provision, means the governing body of any Indian tribe or entity established or recognized by such governing body. Indian "tribe" means any Indian tribe, band, group, pueblo, or

community including Native villages and Native groups (including corporations organized by Kenai, Juneau, Sitka, and Kodiak) as defined in the Alaska Native Claims Settlement Act, which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs.

9. Certification of Eligibility Under the Davis-Bacon Act (applicable to construction contracts exceeding \$2,000)

(a) By the submission of this bid, the bidder certifies that neither it nor any person or firm who has an interest in the bidder's firm is a person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(b) No part of the contract resulting from this solicitation shall be subcontracted to any person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(c) The penalty for making false statements is prescribed in the U. S. Criminal Code, 18 U.S.C. 1001.

10. Certification of Nonsegregated Facilities (applicable to contracts exceeding \$10,000)

(a) The bidder's attention is called to the clause entitled **Equal Employment Opportunity** of the General Conditions of the Contract for Construction.

(b) "Segregated facilities," as used in this provision, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees, that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin because of habit, local custom, or otherwise.

(c) By the submission of this bid, the bidder certifies that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The bidder agrees that a breach of this certification is a violation of the Equal Employment Opportunity clause in the contract.

(d) The bidder further agrees that (except where it has obtained identical certifications from proposed subcontractors for specific time periods) prior to entering into subcontracts which exceed \$10,000 and are not exempt from the requirements of the Equal Employment Opportunity clause, it will:

- (1) Obtain identical certifications from the proposed subcontractors;
- (2) Retain the certifications in its files; and
- (3) Forward the following notice to the proposed subcontractors (except if the proposed subcontractors have submitted identical certifications for specific time periods):

Notice to Prospective Subcontractors of Requirement for Certifications of Nonsegregated Facilities

A Certification of Nonsegregated Facilities must be submitted before the award of a subcontract exceeding \$10,000 which is not exempt from the provisions of the Equal Employment Opportunity clause of the prime contract. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semiannually, or annually).

Note: The penalty for making false statements in bids is prescribed in 18 U.S.C. 1001.

11. Clean Air and Water Certification (applicable to contracts exceeding \$100,000)

The bidder certifies that:

(a) Any facility to be used in the performance of this contract [] is, [] is not listed on the Environmental Protection Agency List of Violating Facilities:

(b) The bidder will immediately notify the PHA/IHA Contracting Officer, before award, of the receipt of any communication from the Administrator, or a designee, of the Environmental Protection Agency, indicating that any facility that the bidder proposes to use for the performance of the contract is under consideration to be listed on the EPA List of Violating Facilities; and,

(c) The bidder will include a certification substantially the same as this certification, including this paragraph (c), in every nonexempt subcontract.

12. Previous Participation Certificate (applicable to construction and equipment contracts exceeding \$50,000)

(a) The bidder shall complete and submit with his/her bid the Form HUD-2530, "Previous Participation Certificate." If the successful bidder does not submit the certificate with his/her bid, he/she must submit it within three (3) working days of bid opening. Failure to submit the certificate by that date may render the bid nonresponsive. No contract award will be made without a properly executed certificate.

(b) A fully executed "Previous Participation Certificate" [] is, [] is not included with the bid.

13. Bidder's Signature

The bidder hereby certifies that the information contained in these certifications and representations is accurate, complete, and current.

(Signature and Date)

(Typed or Printed Name)

(Title)

(Company Name)

(Company Address)

US Department of Housing and Urban Development
Office of Housing/Federal Housing Commissioner

US Department of Agriculture
Farmers Home Administration

Part I to be completed by Principals of Multifamily Projects (See instructions)		For HUD HQ/FmHA use only	
Reason for submission:			
1. Agency name and City where the application is filed		2. Project Name, Project Number, City and Zip Code	
3. Loan or Contract amount \$	4. Number of Units or Beds	5. Section of Act	6. Type of Project (check one) <input type="checkbox"/> Existing <input type="checkbox"/> Rehabilitation <input type="checkbox"/> Proposed (New)

7. List all proposed Principals and attach organization chart for all organizations

Name and address of Principals and Affiliates (Name: Last, First, Middle Initial) proposing to participate	8 Role of Each Principal in Project	9. SSN or IRS Employer Number

Certifications: The principal(s) listed above hereby apply to HUD or USDA FmHA, as the case maybe, for approval to participate as principal(s) in the role(s) and project listed above. The principal(s) each certify that all the statements made on this form are true, complete and correct to the best of their knowledge and belief and are made in good faith, including any Exhibits attached to this form. **Warning:** HUD will prosecute false claims and statements. Conviction may result in criminal and/or civil penalties. The principal(s) further certify that to the best of their knowledge and belief:

1. Schedule A contains a listing, for the last ten years, of every project assisted or insured by HUD, USDA FmHA and/or State and local government housing finance agencies in which the principal(s) have participated or are now participating.
2. For the period beginning 10 years prior to the date of this certification, and except as shown on the certification:
 - a. No mortgage on a project listed has ever been in default, assigned to the Government or foreclosed, nor has it received mortgage relief from the mortgagee;
 - b. The principals have no defaults or noncompliance under any Conventional Contract or Turnkey Contract of Sale in connection with a public housing project;
 - c. There are no known unresolved findings as a result of HUD audits, management reviews or other Governmental investigations concerning the principals or their projects;
 - d. There has not been a suspension or termination of payments under any HUD assistance contract due to the principal's fault or negligence;
 - e. The principals have not been convicted of a felony and are not presently the subject of a complaint or indictment charging a felony. (A felony is defined as any offense punishable by imprisonment for a term exceeding one year, but does not include any offense classified as a misdemeanor under the laws of a State and punishable by imprisonment of two years or less);
 - f. The principals have not been suspended, debarred or otherwise restricted by any Department or Agency of the Federal Government or of a State Government from doing business with such Department or Agency;
 - g. The principals have not defaulted on an obligation covered by a surety or performance bond and have not been the subject of a claim under an employee fidelity bond;
3. All the names of the principals who propose to participate in this project are listed above.
4. None of the principals is a HUD/FmHA employee or a member of a HUD/FmHA employee's immediate household as defined in Standards of Ethical Conduct for Employees of the Executive Branch in 5 C.F.R. Part 2635 (57 FR 35006) and HUD's Standard of Conduct in 24 C.F.R. Part 0 and USDA's Standard of Conduct in 7 C.F.R. Part 0 Subpart B.
5. None of the principals is a participant in an assisted or insured project as of this date on which construction has stopped for a period in excess of 20 days or which has been substantially completed for more than 90 days and documents for closing, including final cost certification, have not been filed with HUD or FmHA.
6. None of the principals have been found by HUD or FmHA to be in noncompliance with any applicable fair housing and civil rights requirements in 24 CFR 5.105(a). (If any principals or affiliates have been found to be in noncompliance with any requirements, attach a signed statement explaining the relevant facts, circumstances, and resolution, if any).
7. None of the principals is a Member of Congress or a Resident Commissioner nor otherwise prohibited or limited by law from contracting with the Government of the United States of America.
8. Statements above (if any) to which the principal(s) cannot certify have been deleted by striking through the words with a pen, and the relevant principal(s) have initialed each deletion (if any) and have attached a true and accurate signed statement (if applicable) to explain the facts and circumstances.

Name of Principal	Signature of Principal	Certification Date(mm/dd/yyyy)	Area Code and Tel. No.
This form prepared by (print name)			Area Code and Tel. No.

Previous Participation Certification

OMB Approval No. 2502-0118
(Exp. 05/31/2019)

Schedule A: List of Previous Projects and Section 8 Contracts. Below is a complete list of the principals' previous participation projects and participation history in multifamily Housing programs of HUD/FmHA, State and local Housing Finance Agencies. **Note:** Read and follow the instruction sheet carefully. Make full disclosure. Add extra sheets if you need more space. Double check for accuracy. If no previous projects, write by your name, **"No previous participation, First Experience"**.

1. Principals Name (Last, First)	2. List of previous projects (Project name, project ID and, Govt. agency involved)	3. List Principals' Role(s) (indicate dates participated, and if fee or identity of interest participant)	4. Status of loan (current, defaulted, assigned, foreclosed)	5. Was the Project ever in default during your participation Yes No If yes, explain		6. Last MOR rating and Physical Insp. Score and date

Part II- For HUD Internal Processing Only

Received and checked by me for accuracy and completeness; recommend approval or refer to Headquarters after checking appropriate box.

Date (mm/dd/yyyy)	Tel No. and area code	<input type="checkbox"/> A. No adverse information; form HUD-2530 approval recommended. <input type="checkbox"/> B. Name match in system <input type="checkbox"/> C. Disclosure or Certification problem <input type="checkbox"/> D. Other (attach memorandum)	
Staff	Processing and Control		
Supervisor	Director of Housing/Director, Multifamily Division	Approved <input type="checkbox"/> Yes <input type="checkbox"/> No	Date (mm/dd/yyyy)

Instructions for Completing the Previous Participation Certificate, form HUD-2530

Carefully read these instructions and the applicable regulations. A copy of those regulations published at 24 C.F.R. 200.210 to 200.245 can be obtained from the Multifamily Housing Representative at any HUD Office. Type or print neatly in ink when filling out this form. Mark answers in all blocks of the form. If the form is not filled completely, it will delay approval of your application.

Attach extra sheets as you need them. Be sure to indicate "Continued on Attachments" wherever appropriate. Sign each additional page that you attach if it refers to you or your record.

Carefully read the certification before you sign it. Any questions regarding the form or how to complete it can be answered by your HUD Office Multifamily Housing Representative.

Purpose: This form provides HUD with a certified report of all previous participation in HUD multifamily housing projects by those parties making application. The information requested in this form is used by HUD to determine if you meet the standards established to ensure that all principal participants in HUD projects will honor their legal, financial and contractual obligations and are acceptable risks from the underwriting standpoint of an insurer, lender or governmental agency. HUD requires that you certify your record of previous participation in HUD/USDA-FmHA, State and Local Housing Finance Agency projects by completing and signing this form, before your project application or participation can be approved.

HUD approval of your certification is a necessary precondition for your participation in the project and in the capacity that you propose. If you do not file this certification, do not furnish the information requested accurately, or do not meet established standards, HUD will not approve your certification.

Note that approval of your certification does not obligate HUD to approve your project application, and it does not satisfy all other HUD program requirements relative to your qualifications.

Who Must Sign and File Form HUD-2530:

Form HUD-2530 must be completed and signed by all principals applying to participate in HUD multifamily housing projects, including those who have no previous participation. The form must be signed and filed by all principals and their affiliates who propose participating in the HUD project. Use a separate form for each role in the project unless there is an identity of interest.

Principals include all individuals, joint ventures,

partnerships, corporations, trusts, non-profit organizations, any other public or private entity that will participate in the proposed project as a sponsor, owner, prime contractor, turnkey developer, managing agent, nursing home administrator or operator, packager, or consultant. Architects and attorneys who have any interest in the project other than an arm's length fee arrangement for professional services are also considered principals by HUD.

In the case of partnerships, all general partners regardless of their percentage interest and limited partners having a 25 percent or more interest in the partnership are considered principals. In the case of public or private corporations or governmental entities, principals include the president, vice president, secretary, treasurer and all other executive officers who are directly responsible to the board of directors, or any equivalent governing body, as well as all directors and each stockholder having a 10 percent or more interest in the corporation.

Affiliates are defined as any person or business concern that directly or indirectly controls the policy of a principal or has the power to do so. A holding or parent corporation would be an example of an affiliate if one of its subsidiaries is a principal.

Exception for Corporations – All principals and affiliates must personally sign the certificate except in the following situation. When a corporation is a principal, all of its officers, directors, trustees and stockholders with 10 percent or more of the common (voting) stock need not sign personally if they all have the same record to report. The officer who is authorized to sign for the corporation or agency will list the names and title of those who elect not to sign. However, any person who has a record of participation in HUD projects that is separate from that of his or her organization must report that activity on this form and sign his or her name. The objective is full disclosure.

Exemptions – The names of the following parties do not need to be listed on form HUD-2530: Public Housing Agencies, tenants, owners of less than five condominium or cooperative units and all others whose interests were acquired by inheritance or court order.

Where and When Form HUD-2530 Must Be Filed:

The original of this form must be submitted to the HUD Office where your project application will be processed at the same time you file your initial project application. This form must be filed with applications for projects, or when otherwise required in the situations listed below:

- Projects to be financed with mortgages insured under the National Housing Act (FHA).
- Projects to be financed according to Section 202 of the Housing Act of 1959 (Elderly and

Handicapped).

- Projects in which 20 percent or more of the units are to receive a subsidy as described in 24 C.F.R. 200.213.
- Purchase of a project subject to a mortgage insured or held by the Secretary of HUD.
- Purchase of a Secretary-owned project.
- Proposed substitution or addition of a principal or principal participation in a different capacity from that previously approved for the same project.
- Proposed acquisition by an existing limited partner of an additional interest in a project resulting in a total interest of 25 percent or more or proposed acquisition by a corporate stockholder of an additional interest in a project resulting in a total interest of 10 percent or more.
- Projects with U.S.D.A., Farmers Home Administration, or with state or local government housing finance agencies that include rental assistance under Section 8 of the Housing Act of 1937. For projects of this type, form HUD-2530 should be filed with the appropriate applications directly to those agencies.

Review of Adverse Determination: If approval of your participation in a HUD project is denied, withheld, or conditionally granted on the basis of your record of previous participation, you will be notified by the HUD Office. You may request reconsideration by the HUD Review Committee. Alternatively, you may request a hearing before a Hearing Officer. Either request must be made in writing within 30 days from your receipt of the notice of determination.

If you do request reconsideration by the Review Committee and the reconsideration results in an adverse determination, you may then request a hearing before a Hearing Officer. The Hearing Officer will issue a report to the Review Committee. You will be notified of the final ruling by certified mail.

Specific Line Instructions:

Reason for submitting this Certification: e.g., refinance, change in ownership, change in management agent, transfer of physical assets, etc.

Block 1: Fill in the name of the agency to which you are applying. For example: HUD Office, Farmers Home Administration District office, or the name of a State or local housing finance agency. Below that, fill in the name of the city where the office is located.

Block 2: Fill in the name of the project, such as "Greenwood Apts." If the name has not yet been selected, write "Name unknown." Below that, enter the HUD contract or project identification number, the Farmers Home Administration project number, or the State or local housing finance agency project or contract number. Include **all** project or contract

identification numbers that are relevant to the project. Also enter the name of the city in which the project is located, and the ZIP Code.

Block 3: Fill in the dollar amount requested in the proposed mortgage, or the annual amount of rental assistance requested.

Block 4: Fill in the number of apartment units proposed, such as "40 units." For hospital projects or nursing homes, fill in the number of beds proposed, such as "100 beds."

Block 5: Fill in the section of the Housing Act under which the application is filed.

Block 7: Definitions of all those who are considered principals and affiliates are given above in the section titled "Who Must Sign and File...."

Block 8: Beside the name of each principal, fill in the appropriate role. The following are examples of possible roles that the principals may assume: Owner/Mortgagor, Managing Agent, Sponsor, Developer, General Con-tractor, Packager, Consultant, Nursing Home Administrator etc.

Block 9: Fill in the Social Security Number or IRS employer number of every principal listed, including affiliates.

Instructions for Completing Schedule A:

Be sure that Schedule A is filled-in completely, accurately and the certification is properly dated and signed, because it will serve as a legal record of your previous experience. All Multifamily Housing projects involving HUD/ FmHA, and State and local Housing Finance Agencies in which you have previously participated **must be** listed. Applicants are reminded that previous participation pertains to the individual principal within an entity as well as the entity itself. A newly formed company may not have previous participation, but the principals within the company may have had extensive participation and disclosure of that activity is required.

Column 2. All previous projects must be listed or your certification cannot be processed. Include the name of all projects, project number, city where it is located and the governmental agency (HUD, USDA-FmHA or state or local housing finance agency) that was involved.

Column 3. List the role(s) as a principal, dates participated and if fee or identity of interest (IOI) with owners.

Column 4. Indicate the current status of the loan. Except for current loan, the date associated with the status is required. Loans under a workout arrangement are considered assigned. For all noncurrent loans, an explanation of the status is required.

Column 5. Explain any project defaults during your participation.

Column 6. Provide the latest Management Review (MOR) rating and Physical Inspection score.

Certification: After you have completed all other parts of

form HUD-2530, including schedule A, read the Certification carefully. In the box below the statement of the certification, fill in the names of all principals and affiliates as listed in block 7. Each principal should sign the certification with the exception in some cases of individuals associated with a corporation (see "Exception for Corporations" in the section of the instructions titled "Who Must Sign and File Form HUD-2530). Principal who is signing on behalf of the entity should attach signature authority document. Each principal who signs the form should fill in the date of the signature and

a telephone number. By providing a telephone number, HUD can reach you in the event of any questions.

If you cannot certify and sign the certification as it is printed because some statements do not correctly describe your record, use a pen to strike through those parts that differ with your record, and then sign and certify.

Attach a signed statement of explanation of the items you have struck out on the certification. Item 2e. relates to felony convictions within the past 10 years. If you are convicted of

a felony within the past 10 years, strike out 2e. and attach statement of explanation. A felony conviction will not necessarily cause your participation to be disapproved unless there is a criminal record or other evidence that your previous conduct or method of doing business has been such that your participation in the project would make it an unacceptable risk from the underwriting stand point of an insurer, lender or governmental agency.

The Department of Housing and Urban Development (HUD) is authorized to collect this information by law (42 U.S.C. 3535(d) and 24 C.F.R. 200.217) and by regulation at 24 CFR 200.210. This information is needed so that principals applying to participate in multifamily programs can become HUD-approved participants. The information you provide will enable HUD to evaluate your record with respect to established standards of performance, responsibility and eligibility. Without prior approval, a principal may not participate in a proposed or existing multifamily project. HUD uses this information to evaluate whether or not principals pose an unsatisfactory underwriting risk. The information is used to evaluate the potential principals and approve only individuals and organizations that will honor their legal, financial and contractual obligations.

Privacy Act Statement: The Housing and Community Development Act of 1987, 42 U.S.C. 3543 requires persons applying for a Federally-insured or guaranteed loan to furnish his/her Social Security Number (SSN). HUD must have your SSN for identification of your records. HUD may use your SSN for automated processing of your records and to make requests for information about you and your previous records with other public agencies and private sector sources. HUD may disclose certain information to Federal, State and local agencies when relevant to civil, criminal, or regulatory investigations and prosecutions. It will not be otherwise disclosed or released outside of HUD, except as required and permitted by law. You must provide all of the information requested in this application, including your SSN.

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. This agency may not collect this information, and you are not required to complete this form, unless it displays a currently valid OMB control number.

A response is mandatory. Failure to provide any of the information will result in your disapproval of participation in this HUD program.



FORM FOR GENERAL BID

TO THE AWARDING AUTHORITY:

A. The undersigned proposes to furnish all labor and materials required for **IFB 2022-12 50 Summer Street Elevator Upgrade**, for the Lowell Housing Authority in Lowell Massachusetts with the accompanying plans and specifications prepared by Livermore, Edwards and Associates, for the contract price specified below, subject to additions and deductions according to terms of the specifications.

B. This bid includes addenda # _____

C. The Proposed Contract Price:

_____ dollars (\$ _____).
Bid Amount in Words Amount in Numbers

For Alternate No. 1 VVVF Emergency Return/Auxiliary Power System

Deduct \$ _____

(Repeat preceding line for each alternate)

D. The subdivision of the proposed contract price is as follows:

Item 1. The work of the general contractor, being all work other than that covered by Item 2. \$ _____.

Item 2. Sub-bids as follows:

Sub-Trade	Name of Sub-Bidder	Amount	Bonds required Indicated by "Yes" or "No"
_____	_____	\$ _____	_____
_____	_____	\$ _____	_____
_____	_____	\$ _____	_____
Total of Item 2		\$ _____	

The undersigned agrees that each of the above-named sub-bidders will be used for the work indicated at the amount stated, unless a substitution is made. The undersigned further agrees to pay the premiums for the performance and payment bonds furnished by

sub-bidders as requested herein and that all of the cost of all such premiums is included in the amount set forth in Item 1 of this bid. The undersigned agrees that if he is selected as general contractor, he will promptly confer with the awarding authority on the question of sub-bidders; and that the awarding authority may substitute for any sub-bid listed above a sub-bid filed with the awarding authority by another sub-bidder for the sub-trade against whose standing and ability the undersigned makes no objection; and that the undersigned will use all such finally selected sub-bidders at the amounts named in their respective sub-bids and be in every way as responsible for them and their work as if they had been originally named in this general bid, the total contract price being adjusted to conform thereto.

- E. The undersigned agrees that, if he is selected as general contractor, he will within five days, Saturdays, Sundays and legal holidays excluded, after presentation thereof by the awarding authority, execute a contract in accordance with the terms of this bid and furnish a performance bond and also a labor and materials or payment bond, each of a surety company qualified to do business under the laws of the Commonwealth and satisfactory to the awarding authority and each in the sum of the contract price, the premiums for which are to be paid by the general contractor and are included in the contract price; provided, however, that if there is more than 1 surety company, the surety companies shall be jointly and severally liable.

The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work; that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee and that he will comply fully with all laws and regulations applicable to awards made subject to section 44A.

The undersigned further certifies under the penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this subsection the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity. The undersigned further certifies under penalty of perjury that the said undersigned is not presently debarred from doing public construction work in the commonwealth under the provisions of section twenty-nine F of chapter twenty-nine, or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation promulgated thereunder.

Date: _____

(Name of General Bidder)

By _____
(Name of Person Signed Bid and Title)

(Business Address)

(City and State)

(Phone)

(Email Address)



FORM FOR FILED SUB-BID

To all General Bidders Except those Excluded:

A. The undersigned proposes to furnish all labor and materials required for completing, in accordance with the hereinafter described plans, specifications and addenda, all the work specified in Section No. _____ of the specifications and in any plans specified in such section, prepared by _____ (name of architect or engineer) for _____ (project) in _____ (city or town), Massachusetts, for the contract sum of _____ dollars (\$_____).

For Alternate No. _____; Add \$_____ Subtract \$_____

[Repeat preceding line for each alternate]

B. This sub-bid includes addenda numbered _____

C. This sub-bid

may be used by any general bidder except:

may only be used by the following general bidders:

[To exclude general bidders, insert "X" in one box only and fill in blank following that box. Do not answer C if no general bidders are excluded.]

D. The undersigned agrees that, if he is selected as a sub-bidder, he will, within 5 days, Saturdays, Sundays and legal holidays excluded, after presentation of a subcontract by the general bidder selected as the general contractor, execute with such general bidder a subcontract in accordance with the terms of this sub-bid, and contingent upon the execution of the general contract, and, if requested so to do in the general bid by the general bidder, who shall pay the premiums therefor, or if prequalification is required pursuant to section 44D 3/4, furnish a performance and payment bond of a surety company qualified to do business under the laws of the commonwealth and satisfactory to the awarding authority, in the full sum of the subcontract price.

E. The names of all persons, firms and corporations furnishing to the undersigned labor or labor and materials for the class or classes or part thereof of work for which the provisions of the section of the specifications for this sub-trade require a listing in this paragraph, including the undersigned if customarily furnished by persons on his own payroll and in the absence of a contrary provision in the specifications, the

name of each such class of work or part thereto and the bid price for such class of work or part thereof are:

Name	Class of Work	Bid Price
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

[Do not give bid price for any class or part thereof furnished by undersigned.]

F. The undersigned agrees that the above list of bids to the undersigned represents bona fide bids based on the hereinbefore described plans, specifications and addenda and that, if the undersigned is awarded the contract, they will be used for the work indicated at the amounts stated, if satisfactory to the awarding authority.

G. The undersigned further agrees to be bound to the general contractor by the terms of the hereinbefore described plans, specifications, including all general conditions stated therein, and addenda, and to assume toward him all the obligations and responsibilities that he, by those documents, assumes toward the owner.

H. The undersigned offers the following information as evidence of his qualifications to perform the work as bid upon according to all the requirements of the plans and specifications: -

1. Have been in business under present business name _____ years.

2. Ever failed to complete any work awarded? _____

3. List one or more recent buildings with names of the general contractor and architect on which you served as a sub-contractor for work of similar character as required for the above-named building.

Building	Architect	General Contractor	Amount of Contract
(a) _____	_____	_____	_____
(b) _____	_____	_____	_____
(c) _____	_____	_____	_____

4. Bank reference _____

I. The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work; that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and that he will comply fully with all laws and regulations applicable to awards of subcontracts subject to section forty-four F.

The undersigned further certifies under penalties of perjury that this sub-bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this subsection the word "person" shall mean any natural person, joint

venture, partnership, corporation or other business or legal entity. The undersigned further certifies under penalty of perjury that the said undersigned is not presently debarred from doing public construction work in the commonwealth under the provisions of section twenty-nine F of chapter twenty-nine, or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation promulgated thereunder.

Date: _____

(Name of General Bidder)

By _____
(Name of Person Signed Bid and Title)

(Business Address)

(City and State)

(Phone)

(Email Address)

**PRIME/GENERAL UPDATE STATEMENTS ARE NOT PUBLIC RECORDS AND
ARE NOT OPEN TO PUBLIC INSPECTION (M.G.L. C.149, §44D)**

TO ALL BIDDERS AND AWARDING AUTHORITIES

A COMPLETED AND SIGNED PRIME/GENERAL CONTRACTOR UPDATE STATEMENT MUST BE SUBMITTED WITH EVERY PRIME/GENERAL BID FOR A CONTRACT PURSUANT TO M.G.L. c.149, §44A AND M.G.L. c. 149A. ANY PRIME/GENERAL BID SUBMITTED WITHOUT AN APPROPRIATE UPDATE STATEMENT IS INVALID AND MUST BE REJECTED.

Caution: This form is to be used for submitting Prime/General Contract bids. It is not to be used for submitting Filed Sub-Bids or Trade Sub-Bids.

AWARDING AUTHORITIES

If the Awarding Authority determines that the bidder does not demonstrably possess the skill, ability and integrity necessary to perform the work on the project, it must reject the bid.

BIDDER'S AFFIDAVIT

I swear under the pains and penalties of perjury that I am duly authorized by the bidder named below to sign and submit this Prime/General Contractor Update Statement on behalf of the bidder named below, that I have read this Prime/General Contractor Update Statement, and that all of the information provided by the bidder in this Prime/General Contractor Update Statement is true, accurate, and complete as of the bid date.

Bid Date

Print Name of Prime/General Contractor

Project Number
(or name if no number)

Business Address

Awarding Authority

Telephone Number

SIGNATURE⇒

Bidder's Authorized Representative

INSTRUCTIONS

INSTRUCTIONS TO BIDDERS

- This form must be completed and submitted by all Prime/General contractors bidding on projects pursuant to M.G.L. c. 149, §44A and M.G.L. c. 149A.
- You must give complete and accurate answers to all questions and provide all of the information requested. MAKING A MATERIALLY FALSE STATEMENT IN THIS UPDATE STATEMENT IS GROUNDS FOR REJECTING YOUR BID AND FOR DEBARRING YOU FROM ALL PUBLIC CONTRACTING.
- **This Update Statement must include all requested information that was not previously reported on the Application used for your firm's most recently issued (not extended or amended) Prime/General Contractor Certificate of Eligibility. The Update Statement must cover the entire period since the date of your Application, NOT since the date of your Certification.**
- You must use this official form of Update Statement. Copies of this form may be obtained from the awarding authority and from the Asset Management Web Site: www.mass.gov/dcam .
- If additional space is needed, please copy the appropriate page of this Update Statement and attach it as an additional sheet.
- See the section entitled "Bidding Limits" in the *Instructions to Awarding Authorities* for important information concerning your bidding limits.

INSTRUCTIONS TO AWARDING AUTHORITIES

Determination of Bidder Qualifications

- It is the awarding authority's responsibility to determine who is the lowest eligible and responsible bidder. You must consider all of the information in the low bidder's Update Statement in making this determination. Remember: this information was not available to the Division of Capital Asset Management and Maintenance at the time of certification.
- The bidder's performance on the projects listed in Parts 1 and 2 must be part of your review. Contact the project references.
- AWARDING AUTHORITIES ARE STRONGLY ENCOURAGED TO REVIEW THE LOW BIDDER'S

ENTIRE CERTIFICATION FILE AT THE DIVISION OF CAPITAL ASSET MANAGEMENT AND MAINTENANCE. Telephone (617) 727-9320 for an appointment.

Bidding Limits

Single Project Limit: The total amount of the bid, including all alternates, may not exceed the bidder's Single Project Limit.

Aggregate Work Limit: The annual value of the work to be performed on the contract for which the bid is submitted, when added to the annual cost to complete the bidder's other currently held contracts, may not exceed the bidder's Aggregate Work Limit. Use the following procedure to determine whether the low bidder is within its Aggregate Work Limit:

Step 1 Review Update Statement Question #2 to make sure that all requested information is provided and that the bidder has accurately calculated and totaled the annualized value of all incomplete work on its currently held contracts (column 9).

Step 2 Determine the annual dollar value of the work to be performed on your project. This is done as follows:

(i) If the project is to be completed in less than 12 months, the annual dollar value of the work is equal to the full amount of the bid.

(ii) If the project will take more than 12 months to complete, calculate the number of years given to complete the project by dividing the total number of months in the project schedule by 12 (calculate to 3 decimal places), then divide the amount of the bid by the calculated number of years to find the annual dollar value of the work.

Step 3 Add the annualized value of all of the bidder's incomplete contract work (the

total of column 9 on page 5) to the annual dollar value of the work to be performed on your project. **The total may not exceed the bidder's Aggregate Work Limit.**

Correction of Errors and Omissions in Update Statements

Matters of Form: An awarding authority shall not reject a contractor's bid because there are mistakes or omissions of form in the Update Statement submitted with the bid, provided the contractor promptly

corrects those mistakes or omissions upon request of the awarding authority. [810 CMR 8.05(1)].

Correction of Other Defects: An awarding authority may, in its discretion, give a contractor notice of defects, other than mistakes or omissions of form, in the contractor's Update Statement, and an opportunity to correct such defects, provided the correction of such defects is not prejudicial to fair competition. An awarding authority may reject a corrected Update Statement if it contains unfavorable information about the contractor that was omitted from the Update Statement filed with the contractor's bid. [810 CMR 8.05(2)].

PART 1 - COMPLETED PROJECTS

LIST ALL PUBLIC AND PRIVATE *BUILDING* PROJECTS YOUR FIRM HAS COMPLETED SINCE THE DATE OF APPLICATION FOR YOUR MOST RECENTLY ISSUED (NOT EXTENDED OR AMENDED) DCAM CERTIFICATE OF ELIGIBILITY. YOU MUST REPORT ALL REQUESTED INFORMATION NOT PREVIOUSLY REPORTED ON THAT DCAM APPLICATION*.

PROJECT TITLE & LOCATION	WORK CATEGORY	CONTRACT PRICE	START DATE	DATE COMPLETED

Attach additional sheets if necessary

* If your firm has been terminated from a project prior to completion of the work or has failed or refused to complete its work under any contract, full details and an explanation must be provided. See Part 3 of this Update Statement.

PROVIDE THE FOLLOWING REFERENCE INFORMATION FOR EACH COMPLETED PROJECT LISTED ON THE PREVIOUS PAGE.

PROJECT TITLE	COMPANY NAME	CONTACT PERSON	TELEPHONE
	OWNER: Owner	Contact Person	Telephone
	DESIGNER: Designer	Contact Person	Telephone
	GC: GC	Contact Person	Telephone
	OWNER: Owner	Contact Person	Telephone
	DESIGNER: Designer	Contact Person	Telephone
	GC: GC	Contact Person	Telephone
	OWNER: Owner	Contact Person	Telephone
	DESIGNER: Designer	Contact Person	Telephone
	GC: GC	Contact Person	Telephone
	OWNER: Owner	Contact Person	Telephone
	DESIGNER: Designer	Contact Person	Telephone
	GC: GC	Contact Person	Telephone
	OWNER: Owner	Contact Person	Telephone
	DESIGNER: Designer	Contact Person	Telephone
	GC: GC	Contact Person	Telephone

Is your company or any individual who owns, manages or controls your company affiliated with any owner, designer or general contractor named above, either through a business or family relationship? YES NO

Are any of the contact persons named above affiliated with your company or any individual who owns, manages or control your company, either through a business or family relationship? YES NO

If you have answered YES to either question, explain. _____

PART 2 - CURRENTLY HELD CONTRACTS

LIST ALL PUBLIC AND PRIVATE BUILDING AND NON-BUILDING *CONSTRUCTION* PROJECTS YOUR FIRM HAS UNDER CONTRACT ON THIS DATE REGARDLESS OF WHEN OR WHETHER THE WORK COMMENCED.

1	2	3	4	5	6	7	8	9
PROJECT TITLE & LOCATION	WORK CATEGORY	START AND END DATES	ON SCHEDULE (yes / no)	CONTRACT PRICE	% NOT COMPLETE	\$ VALUE OF WORK NOT COMPLETE (col. 5 X col. 6)	NO. OF YEARS REMAINING (see note below)	ANNUALIZED VALUE OF INCOMPLETE WORK (col. 7 ÷ col. 8) (divided by)

ANNUALIZED VALUE OF ALL INCOMPLETE CONTRACT WORK (Total of Column 9)

\$ _____

- Column 8
- If less than one year is left in the project schedule, write 1.
 - If more than 12 months are left in the project schedule, divide the number of months left in the project schedule by 12 (calculate to three decimal places).

PROVIDE THE FOLLOWING REFERENCE INFORMATION FOR EACH INCOMPLETE PROJECT LISTED ON THE PREVIOUS PAGE.

PROJECT TITLE	COMPANY NAME	CONTACT PERSON	TELEPHONE
	OWNER: Owner	Contact Person	Telephone
	DESIGNER: Designer	Contact Person	Telephone
	GC: GC	Contact Person	Telephone
	OWNER: Owner	Contact Person	Telephone
	DESIGNER: Designer	Contact Person	Telephone
	GC: GC	Contact Person	Telephone
	OWNER: Owner	Contact Person	Telephone
	DESIGNER: Designer	Contact Person	Telephone
	GC: GC	Contact Person	Telephone
	OWNER: Owner	Contact Person	Telephone
	DESIGNER: Designer	Contact Person	Telephone
	GC: GC	Contact Person	Telephone
	OWNER: Owner	Contact Person	Telephone
	DESIGNER: Designer	Contact Person	Telephone
	GC: GC	Contact Person	Telephone

Is your company or any individual who owns, manages or controls your company affiliated with any owner, designer or general contractor named above either through a business or family relationship? YES NO

Are any of the contact persons named above affiliated with your company or any individual who owns, manages or control your company, either through a business or family relationship? YES NO

If you have answered YES to either question, explain. _____

PART 3 - PROJECT PERFORMANCE

For Parts 3 and 4, if you answer YES to any question, please provide on a separate page a complete explanation. Information you provide herein must supplement the Application for your most recently issued (not extended or amended) DCAM Certificate of Eligibility. You must report all requested information not previously reported on that DCAM Application for Prime/General Certificate of Eligibility. Include all details [project name(s) and location(s), names of all parties involved, relevant dates, etc.].

	YES	NO
1. Has your firm been terminated on any contract prior to completing a project or has any officer, partner or principal of your firm been an officer, partner or principal of another firm that was terminated or failed to complete a project?	<input type="checkbox"/>	<input type="checkbox"/>
2. Has your firm failed or refused either to perform or complete any of its work under any contract prior to substantial completion?	<input type="checkbox"/>	<input type="checkbox"/>
3. Has your firm failed or refused to complete any punch list work under any contract?	<input type="checkbox"/>	<input type="checkbox"/>
4. Has your firm filed for bankruptcy, or has any officer, principal or individual with a financial interest in your current firm been an officer, principal or individual with a financial interest in another firm that filed for bankruptcy?	<input type="checkbox"/>	<input type="checkbox"/>
5. Has your surety taken over or been asked to complete any of your work under any contract?	<input type="checkbox"/>	<input type="checkbox"/>
6. Has a payment or performance bond been invoked against your current firm, or has any officer, principal or individual with a financial interest in your current firm been an officer, principal or individual with a financial interest in another firm that had a payment or performance bond invoked?	<input type="checkbox"/>	<input type="checkbox"/>
7. Has your surety made payment to a materials supplier or other party under your payment bond on any contract?	<input type="checkbox"/>	<input type="checkbox"/>
8. Has any subcontractor filed a demand for direct payment with an awarding authority for a public project on any of your contracts?	<input type="checkbox"/>	<input type="checkbox"/>
9. Have any of your subcontractors or suppliers filed litigation to enforce a mechanic's lien against property in connection with work performed or materials supplied under any of your contracts?	<input type="checkbox"/>	<input type="checkbox"/>
10. Have there been any deaths of an employee or others occurring in connection with any of your projects?	<input type="checkbox"/>	<input type="checkbox"/>
11. Has any employee or other person suffered an injury in connection with any of your projects resulting in their inability to return to work for a period in excess of one year?	<input type="checkbox"/>	<input type="checkbox"/>

PART 4 - Legal or Administrative Proceedings; Compliance with Laws

Please answer the following questions. Information must supplement all judicial and administrative proceedings involving bidder’s firm, which were instituted or concluded (adversely or otherwise) since your firm’s Application for your most recently issued (not extended or amended) Certificate of Eligibility. You must report all requested information not previously reported on that DCAM Application for Prime/General Certificate of Eligibility.

The term “administrative proceeding” as used in this Prime/General Contractor Update Statement includes (i) any action taken or proceeding brought by a governmental agency, department or officer to enforce any law, regulation, code, legal, or contractual requirement, except for those brought in state or federal courts, or (ii) any action taken by a governmental agency, department or officer imposing penalties, fines or other sanctions for failure to comply with any such legal or contractual requirement.

The term “anyone with a financial interest in your firm” as used in this Section “I”, shall mean any person and/or entity with a 5% or greater ownership interest in the applicant’s firm.

If you answer YES to any question, on a separate page provide a complete explanation of each proceeding or action and any judgment, decision, fine or other sanction or result. Include all details (name of court or administrative agency, title of case or proceeding, case number, date action was commenced, date judgment or decision was entered, fines or penalties imposed, etc.).

	YES	NO
1. Have any civil, judicial or administrative proceedings involving your firm or a principal or officer or anyone with a financial interest in your firm been brought, concluded, or settled relating to the procurement or performance of any construction contract, including but not limited to actions to obtain payment brought by subcontractors, suppliers or others?	<input type="checkbox"/>	<input type="checkbox"/>
2. Have any criminal proceedings involving your firm or a principal or officer or anyone with a financial interest in your firm been brought, concluded, or settled relating to the procurement or performance of any construction contract including, but not limited to, any of the following offenses: fraud, graft, embezzlement, forgery, bribery, falsification or destruction of records, or receipt of stolen property?	<input type="checkbox"/>	<input type="checkbox"/>
3. Have any judicial or administrative proceedings involving your firm or a principal or officer or anyone with a financial interest in your firm been brought, concluded, or settled relating to a violation of any state’s or federal procurement laws arising out of the submission of bids or proposals?	<input type="checkbox"/>	<input type="checkbox"/>
4. Have any judicial or administrative proceedings involving your firm or a principal or officer or anyone with a financial interest in your firm been brought, concluded, or settled relating to a violation of M.G.L. Chapter 268A, the State Ethics Law?	<input type="checkbox"/>	<input type="checkbox"/>

PART 4 - Legal or Administrative Proceedings; Compliance with Laws (continued)

	YES	NO
5. Have any judicial or administrative proceedings involving your firm or a principal or officer or anyone with a financial interest in your firm been brought, concluded, or settled relating to a violation of any state or federal law regulating hours of labor, unemployment compensation, minimum wages, prevailing wages, overtime pay, equal pay, child labor or worker's compensation?	<input type="checkbox"/>	<input type="checkbox"/>
6. Have any judicial or administrative proceedings involving your firm or a principal or officer or anyone with a financial interest in your firm been brought, concluded, or settled relating to a violation of any state or federal law prohibiting discrimination in employment?	<input type="checkbox"/>	<input type="checkbox"/>
7. Have any judicial or administrative proceedings involving your firm or a principal or officer or anyone with a financial interest in your firm been brought, concluded, or settled relating to a claim of repeated or aggravated violation of any state or federal law regulating labor relations?	<input type="checkbox"/>	<input type="checkbox"/>
8. Have any proceedings by a municipal, state, or federal agency been brought, concluded, or settled relating to decertification, debarment, or suspension of your firm or any principal or officer or anyone with a financial interest in your firm from public contracting?	<input type="checkbox"/>	<input type="checkbox"/>
9. Have any judicial or administrative proceedings involving your firm or a principal or officer or anyone with a financial interest in your firm been brought, concluded, or settled relating to a violation of state or federal law regulating the environment?	<input type="checkbox"/>	<input type="checkbox"/>
10. Has your firm been fined by OSHA or any other state or federal agency for violations of any laws or regulations related to occupational health or safety? Note: this information may be obtained from OSHA's Web Site at www.osha.gov	<input type="checkbox"/>	<input type="checkbox"/>
11. Has your firm been sanctioned for failure to achieve DBE/MBE/WBE goals, workforce goals, or failure to file certified payrolls on any public projects?	<input type="checkbox"/>	<input type="checkbox"/>
12. Other than previously reported in the above paragraphs of this Section I, have any administrative proceedings or investigations involving your firm or a principal or officer or anyone with a financial interest in your firm been brought, concluded, or settled by any local, state or federal agency relating to the procurement or performance of any construction contract?	<input type="checkbox"/>	<input type="checkbox"/>
13. Are there any other issues that you are aware which may affect your firm's responsibility and integrity as a building contractor?	<input type="checkbox"/>	<input type="checkbox"/>

PART 5 - SUPERVISORY PERSONNEL

List all supervisory personnel, such as project managers and superintendents, who will be assigned to the project if your firm is awarded the contract. **Attach the resume of each person listed below.**

NAME	TITLE OR FUNCTION

PART 6 - CHANGES IN BUSINESS ORGANIZATION OR FINANCIAL CONDITION

Have there been any changes in your firm’s business organization, financial condition or bonding capacity since the date your current Certificate of Eligibility was issued? Yes No

If YES, attach a separate page providing complete details.

PART 7 – LIST OF COMPLETED CONSTRUCTION PROJECTS SUBMITTED TO THE DIVISION OF CAPITAL ASSET MANAGEMENT AND MAINTENANCE.

Attach here a copy of the list of completed construction projects which was submitted with your firm’s DCAM Application for your most recently issued (not extended or amended) DCAM Certificate of Eligibility. The Attachment must include a complete copy of the entire Section G – “Completed Projects” and the final page – “Certification” (Section J) containing the signature and date that the Completed Projects list (Section G) was submitted to the Division of Capital Asset Management and Maintenance.



**SUB-BIDDERS' UPDATE STATEMENTS ARE NOT PUBLIC RECORDS AND
ARE NOT OPEN TO PUBLIC INSPECTION (M.G.L. C.149, §44D)**

Sub-Bidder Update Statement

TO ALL SUB-BIDDERS, TRADE CONTRACTORS AND AWARDING AUTHORITIES

A COMPLETED AND SIGNED SUB-BIDDER UPDATE STATEMENT MUST BE SUBMITTED WITH EVERY FILED SUB-BID PURSUANT TO M.G.L. c.149, §44F AND EVERY TRADE SUB-BID PURSUANT TO M.G.L. c. 149A. ANY FILED SUB-BID OR TRADE SUB-BID SUBMITTED WITHOUT AN APPROPRIATE SUB-BIDDER UPDATE STATEMENT IS INVALID AND MUST BE REJECTED.

Caution: This form is to be used for submitting Filed Sub-Bids and Trade Sub-Bids Only

AWARDING AUTHORITIES

If the Awarding Authority determines that the Sub-Bidder is not competent to perform the work as specified on the project, it should reject the bid.

SUB-BIDDER'S AFFIDAVIT

I swear under the pains and penalties of perjury that I am duly authorized by the bidder named below to sign and submit this Sub-Bidder Update Statement on behalf of the bidder named below, that I have read this Sub-Bidder Update Statement, and that all of the information provided by the bidder in this Sub-Bidder Update Statement is true, accurate, and complete as of the bid date.

Bid Date

Print Name of Sub-Bidder or Trade Contractor

Project Number
(or name if no number)

Business Address

Awarding Authority

Telephone Number

SIGNATURE⇒

Bidder's Authorized Representative

INSTRUCTIONS

INSTRUCTIONS TO SUB-BIDDERS

- This form must be completed and submitted by all Filed Sub-Bidders bidding on projects and Trade Contractors bidding on projects.
- You must give complete and accurate answers to all questions and provide all of the information requested. MAKING A MATERIALLY FALSE STATEMENT IN THIS SUB-BIDDER UPDATE STATEMENT IS GROUNDS FOR REJECTING YOUR BID AND FOR DEBARRING YOU FROM ALL PUBLIC CONTRACTING.
- This Sub-Bidder Update Statement must include all requested information that was not previously reported on the application used for your company's most recently issued (not extended or amended) Sub-Bidder Certificate of Eligibility. **The Sub-Bidder Update Statement must cover the entire period since the date of that application, NOT since the date of your Certification.**
- You must use this official form of Sub-Bidder Update Statement. Copies of this form may be obtained from the awarding authority or from the DCAMM Web Site:
www.mass.gov/DCAMM/certification.
- If additional space is needed, please copy the appropriate page of this Sub-Bidder Update Statement and attach it as an additional sheet.
- It is acceptable to attach your projects in progress and completed projects spreadsheet for Part 7.

INSTRUCTIONS TO AWARDING AUTHORITIES

Determination of Sub-Bidder Qualifications

- It is the awarding authority's responsibility to determine each responsible bidder. You must consider all of the information in the bidder's Sub-Bidder Update Statement in making this determination. **Remember: this information was not available to the Division of Capital Asset Management and Maintenance at the time of certification.**
- The Sub-Bidder's performance on the projects listed in Parts 1 and 2 must be part of your review.
- Contact the project references.
- AWARDING AUTHORITIES ARE STRONGLY ENCOURAGED TO REVIEW THE LOW BIDDERS CERTIFICATION FILE. WITH THE IMPLEMENTATION OF ELECTRONIC DOCUMENT MANAGEMENT FILE REVIEWS CAN BE PROVIDED ELECTRONICALLY. To discuss your request/options contact DCAMM's Contractor Certification (857) 204-1305.

Correction of Errors and Omissions in Sub-Bidder Update Statements

Matters of Form: An awarding authority shall not reject a Sub-Bidder's bid because there are mistakes or omissions of form in the Sub-Bidder Update Statement submitted with the bid provided the Sub-Bidder promptly corrects those mistakes or omissions upon request of the awarding authority.

Correction of Other Defects: An awarding authority may, in its discretion, give a Sub-Bidder notice of minor defects and omissions as to form in the Sub-Bidder's Update Statement and provide an opportunity to correct its Sub-Bidder Update Statement. However, the Sub-Bidder shall not be allowed to make corrections to a Sub-Bidder Update Statement if material information about the Sub-Bidder was omitted from the Sub-Bidder Update Statement filed with the Sub-Bidder's bid. The Awarding Authority shall advise DCAMM of any material omissions in a Sub-Bidder's Update Statement.

PART 1 - COMPLETED PROJECTS

List All Public And Private Projects Of \$20,000 or more your company has completed since the date of application for your most recently issued (not extended or amended) Sub-Bidder Certificate Of Eligibility*.

PROJECT TITLE & LOCATION	WORK CATEGORY	CONTRACT PRICE	START DATE	DATE COMPLETED

Attach additional sheets if necessary

* If your company has been terminated from a project prior to completion of the work or has failed or refused to complete its work under any contract, full details and an explanation must be provided. See Part 3 of this Sub-Bidder Update Statement.

PROVIDE THE FOLLOWING REFERENCE INFORMATION FOR EACH COMPLETED PROJECT LISTED ON THE PREVIOUS PAGE.

PROJECT TITLE		COMPANY NAME	CONTACT PERSON	TELEPHONE	EMAIL ADDRESS
	OWNER:				
	DESIGNER				
	GC:				
	OWNER:				
	DESIGNER				
	GC:				
	OWNER:				
	DESIGNER				
	GC:				
	OWNER:				
	DESIGNER				
	GC:				
	OWNER:				
	DESIGNER				
	GC:				
	OWNER:				
	DESIGNER				
	GC:				

Is your company or any individual who owns, manages or controls your company affiliated with any owner, designer or general contractor named above, either through a business or family relationship? YES NO

Are any of the contact persons named above affiliated with your company or any individual who owns, manages or control your company, either through a business or family relationship? YES NO

If you have answered YES to either question, explain. _____

PART 2 – PROJECTS IN PROGRESS CONTRACTS

List all public and private projects of \$20,000 or more your company has under contract on this date regardless of when or whether the work commenced.

1	2	3	4	5	6	7
PROJECT TITLE & LOCATION	WORK CATEGORY	START AND END DATES (MM/YYYY)	ON SCHEDULE (yes / no)	CONTRACT PRICE	% NOT COMPLETE	\$ VALUE OF WORK NOT COMPLETE (col. 5 X col. 6)

PROVIDE THE FOLLOWING REFERENCE INFORMATION FOR EACH INCOMPLETE PROJECT LISTED ON THE PREVIOUS PAGE.

PROJECT TITLE		COMPANY NAME	CONTACT PERSON	TELEPHONE	EMAIL ADDRESS
	OWNER:				
	DESIGNER				
	GC:				
	OWNER:				
	DESIGNER				
	GC:				
	OWNER:				
	DESIGNER				
	GC:				
	OWNER:				
	DESIGNER				
	GC:				
	OWNER:				
	DESIGNER				
	GC:				

Is your company or any individual who owns, manages or controls your company affiliated with any owner, designer or general contractor named above either through a business or family relationship? YES NO

Are any of the contact persons named above affiliated with your company or any individual who owns, manages or control your company, either through a business or family relationship? YES NO

If you have answered YES to either question, explain. _____

PART 3 - GENERAL PERFORMANCE (in the prime update it's called Project Performance – can we change it?)

For Parts 3 and 4, if you answer YES to any question, please provide on a separate page a complete explanation. Information you provide herein must supplement the application for your most recently issued (not extended or amended) DCAMM Sub-Bidder Certificate of Eligibility. You must report all requested information not previously reported on that application. Include all details [project name(s) and location(s), names of all parties involved, relevant dates, etc.].

	YES	NO
1. Has your company been terminated on any contract prior to completing a project or has any officer, partner or principal of your company been an officer, partner or principal of another company that was terminated or failed to complete a project?	<input type="checkbox"/>	<input type="checkbox"/>
2. Has your company failed or refused either to perform or complete any of its work under any contract prior to substantial completion?	<input type="checkbox"/>	<input type="checkbox"/>
3. Has your company failed or refused to complete any punch list work under any contract?	<input type="checkbox"/>	<input type="checkbox"/>
4. Has your company filed for bankruptcy, or has any officer, principal or individual with a financial interest in your current company been an officer, principal or individual with a financial interest in another company that filed for bankruptcy?	<input type="checkbox"/>	<input type="checkbox"/>
5. Has your surety taken over or been asked to complete any of your work under any contract?	<input type="checkbox"/>	<input type="checkbox"/>
6. Has a payment or performance bond been invoked against your current company, or has any officer, principal or individual with a financial interest in your current company been an officer, principal or individual with a financial interest in another company that had a payment or performance bond invoked?	<input type="checkbox"/>	<input type="checkbox"/>
7. Has your surety made payment to a materials supplier or other party under your payment bond on any contract?	<input type="checkbox"/>	<input type="checkbox"/>
8. Has any subcontractor filed a demand for direct payment with an awarding authority for a public project on any of your contracts?	<input type="checkbox"/>	<input type="checkbox"/>
9. Have any of your subcontractors or suppliers filed litigation to enforce a mechanic's lien against property in connection with work performed or materials supplied under any of your contracts?	<input type="checkbox"/>	<input type="checkbox"/>
10. Have there been any deaths of an employee or others occurring in connection with any of your projects?	<input type="checkbox"/>	<input type="checkbox"/>
11. Has any employee or other person suffered an injury in connection with any of your projects resulting in their inability to return to work for a period in excess of one year?	<input type="checkbox"/>	<input type="checkbox"/>

PART 4 - Legal or Administrative Proceedings; Compliance with Laws

Please answer the following questions. Information must supplement all judicial and administrative proceedings involving bidder’s company, which were instituted or concluded (adversely or otherwise) since your company’s Application for your most recently issued (not extended or amended) Sub-Bidder Certificate of Eligibility. You must report all requested information not previously reported on that DCAMM Application.

The term “administrative proceeding” as used in this Sub-Bidder Update Statement includes (i) any action taken or proceeding brought by a governmental agency, department or officer to enforce any law, regulation, code, legal, or contractual requirement, except for those brought in state or federal courts, or (ii) any action taken by a governmental agency, department or officer imposing penalties, fines or other sanctions for failure to comply with any such legal or contractual requirement.

The term “anyone with a financial interest in your company” as used in this Section “1”, shall mean any person and/or entity with a 5% or greater ownership interest in the applicant’s company.

If you answer YES to any question, on a separate page provide a complete explanation of each proceeding or action and any judgment, decision, fine or other sanction or result. Include all details (name of court or administrative agency, title of case or proceeding, case number, date action was commenced, date judgment or decision was entered, fines or penalties imposed, etc.).

	YES	NO
1. Have any civil, judicial or administrative proceedings involving your company or a principal or officer or anyone with a financial interest in your company been brought, concluded, or settled relating to the procurement or performance of any construction contract, including but not limited to actions to obtain payment brought by subcontractors, suppliers or others?	<input type="checkbox"/>	<input type="checkbox"/>
2. Have any criminal proceedings involving your company or a principal or officer or anyone with a financial interest in your company been brought, concluded, or settled relating to the procurement or performance of any construction contract including, but not limited to, any of the following offenses: fraud, graft, embezzlement, forgery, bribery, falsification or destruction of records, or receipt of stolen property?	<input type="checkbox"/>	<input type="checkbox"/>
3. Have any judicial or administrative proceedings involving your company or a principal or officer or anyone with a financial interest in your company been brought, concluded, or settled relating to a violation of any state’s or federal procurement laws arising out of the submission of bids or proposals?	<input type="checkbox"/>	<input type="checkbox"/>
4. Have any judicial or administrative proceedings involving your company or a principal or officer or anyone with a financial interest in your company been brought, concluded, or settled relating to a violation of M.G.L. Chapter 268A, the State Ethics Law?	<input type="checkbox"/>	<input type="checkbox"/>

PART 4 - Legal or Administrative Proceedings; Compliance with Laws (continued)

	YES	NO
5. Have any judicial or administrative proceedings involving your company or a principal or officer or anyone with a financial interest in your company been brought, concluded, or settled relating to a violation of any state or federal law regulating hours of labor, unemployment compensation, minimum wages, prevailing wages, overtime pay, equal pay, child labor or worker’s compensation?	<input type="checkbox"/>	<input type="checkbox"/>
6. Have any judicial or administrative proceedings involving your company or a principal or officer or anyone with a financial interest in your company been brought, concluded, or settled relating to a violation of any state or federal law prohibiting discrimination in employment?	<input type="checkbox"/>	<input type="checkbox"/>
7. Have any judicial or administrative proceedings involving your company or a principal or officer or anyone with a financial interest in your company been brought, concluded, or settled relating to a claim of repeated or aggravated violation of any state or federal law regulating labor relations?	<input type="checkbox"/>	<input type="checkbox"/>
8. Have any proceedings by a municipal, state, or federal agency been brought, concluded, or settled relating to decertification, debarment, or suspension of your company or any principal or officer or anyone with a financial interest in your company from public contracting?	<input type="checkbox"/>	<input type="checkbox"/>
9. Have any judicial or administrative proceedings involving your company or a principal or officer or anyone with a financial interest in your company been brought, concluded, or settled relating to a violation of state or federal law regulating the environment?	<input type="checkbox"/>	<input type="checkbox"/>
10. Has your company been fined by OSHA or any other state or federal agency for violations of any laws or regulations related to occupational health or safety? Note: this information may be obtained from OSHA’s Web Site at www.osha.gov	<input type="checkbox"/>	<input type="checkbox"/>
11. Has your company been sanctioned for failure to achieve DBE/MBE/WBE goals, workforce goals, or failure to file certified payrolls on any public projects?	<input type="checkbox"/>	<input type="checkbox"/>
12. Other than previously reported in the above paragraphs of this Section I, have any administrative proceedings or investigations involving your company or a principal or officer or anyone with a financial interest in your company been brought, concluded, or settled by any local, state or federal agency relating to the procurement or performance of any construction contract?	<input type="checkbox"/>	<input type="checkbox"/>
13. Are there any other issues that you are aware which may affect your company’s responsibility and integrity as a building contractor?	<input type="checkbox"/>	<input type="checkbox"/>

PART 5 - SUPERVISORY PERSONNEL

List all supervisory personnel who will be assigned to the project if your company is awarded the contract.

Attach the resume of each person listed below.

NAME	TITLE OR FUNCTION

PART 6 - CHANGES IN BUSINESS ORGANIZATION OR FINANCIAL CONDITION

Have there been any changes in your company’s business organization, financial condition or bonding capacity since the date your current Contractor Certificate of Eligibility was issued? Yes No

If YES, attach a separate page providing complete details.

PART 7 – LIST OF COMPLETED CONSTRUCTION PROJECTS SUBMITTED TO THE DIVISION OF CAPITAL ASSET MANAGEMENT AND MAINTENANCE ALONG WITH CERTIFICATION SIGNATURE PAGE.

Attach here a copy of the list of completed construction projects which was submitted with your company’s application for your most recently issued (not extended or amended) Sub-Bidder Certificate of Eligibility. The Attachment must include a complete copy of the entire Completed Projects spreadsheet and the final page Certification Page of the online application, containing the signature and date the completed projects list was submitted to the Division of Capital Asset Management and Maintenance.

NON-COLLUSIVE AFFIDAVIT OF GENERAL BIDDER

State of _____

SS.

County of _____

_____ being first duly sworn, deposes and says that:

1. Affiant is _____ (an officer) of _____
The bidder that has submitted the attached bid.
2. Affiant is fully informed respecting the preparation and contents of the attached bid and of all pertinent circumstances respecting such bid.
3. Such bid is genuine and is not a collusive or sham bid.
4. Neither the said bidder nor any of its officers, partners, owners, agents, representative, employees or parties in interest, including this affiant has in any way colluded conspired, connived, or agreed, directly or indirectly, with any other Bidder Firm or Person to submit a collusive or sham bid in connection with the Contract for which the attached bid has been submitted or to refrain from bidding in connection with such contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication to conference with any other Bidder, Firm, or Person to fix the price or prices in the attached bid or of any other Bidder, or to fix an overhead profit, or cost element of the bid price or the bid price of any other bidder, or to secure through any collusion, conspiracy, connivance, or unlawful agreement any advantage the Lowell Housing Authority or any person or any person interested in the proposed Contract.
5. The price quoted in the attached bid is fair and proper and is not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the Bidders or any of its agents, representative or employees, owners or parties in interest including this affiant.

By: _____

Title: _____

Subscribed and sworn to before me this _____ day of _____, 201 .

(Name) (Title)

My commission expires _____

NON-COLLUSIVE AFFIDAVIT OF SUB BIDDER

State of _____

SS.

County of _____

_____ being first duly sworn, deposes and says that:

1. Affiant is _____ (an officer) of _____
The bidder that has submitted the attached bid.
2. Affiant is fully informed respecting the preparation and contents of the attached bid and of all pertinent circumstances respecting such bid.
3. Such bid is genuine and is not a collusive or sham bid.
4. Neither the said bidder nor any of its officers, partners, owners, agents, representative, employees or parties in interest, including this affiant has in any way colluded conspired, connived, or agreed, directly or indirectly, with any other Bidder Firm or Person to submit a collusive or sham bid in connection with the Contract for which the attached bid has been submitted or to refrain from bidding in connection with such contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication to conference with any other Bidder, Firm, or Person to fix the price or prices in the attached bid or of any other Bidder, or to fix an overhead profit, or cost element of the bid price or the bid price of any other bidder, or to secure through any collusion, conspiracy, connivance, or unlawful agreement any advantage the Lowell Housing Authority or any person or any person interested in the proposed Contract.
5. The price quoted in the attached bid is fair and proper and is not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the Bidders or any of its agents, representative or employees, owners or parties in interest including this affiant.

By: _____

Title: _____

Subscribed and sworn to before me this _____ day of _____, 201 .

(Name) (Title)

My commission expires _____

BIDDER'S REFERENCE FORM

Bidders Name _____ Phone: () _____

LHA/Project Title: _____ Email: _____

The bidder must provide five (5) business references for projects performed & completed within the past five (5) years. Attach additional pages if necessary.

(1) Reference Name: _____ Phone: () _____

Address: _____ Email: _____ Description

and date(s) of work: _____

(2) Reference Name: _____ Phone: () _____

Address: _____ Email: _____

Description and date(s) of work: _____

(3) Reference Name: _____ Phone: () _____

Address: _____ Email: _____

Description and date(s) of work: _____

(4) Reference Name: _____ Phone: () _____

Address: _____ Email: _____

Description and date(s) of work: _____

(5) Reference Name: _____ Phone: () _____

Address: _____ Email: _____

Description and date(s) of work: _____

References will be contacted to confirm the bidder's skills, abilities and qualifications to faithfully perform the work as specified.



CERTIFICATE OF TAX COMPLIANCE

Pursuant to M.G.L. c. 62C, §49A, I certify under the penalties of perjury that, to the best of my knowledge and belief that I, or the company for which I am completing this bid, is in compliance with all laws of the Commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

Federal Identification Number or
SS #

Signature of Individual or Corporate Name

Corporate Officer Signature

Request for Taxpayer Identification Number and Certification

**Give Form to the
 requester. Do not
 send to the IRS.**

▶ Go to www.irs.gov/FormW9 for instructions and the latest information.

Print or type. See Specific Instructions on page 3.	<p>1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.</p> <hr/> <p>2 Business name/disregarded entity name, if different from above</p> <hr/> <p>3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only one of the following seven boxes.</p> <p><input type="checkbox"/> Individual/sole proprietor or single-member LLC <input type="checkbox"/> C Corporation <input type="checkbox"/> S Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Trust/estate</p> <p><input type="checkbox"/> Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ▶ _____</p> <p>Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is not disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner.</p> <p><input type="checkbox"/> Other (see instructions) ▶ _____</p>	<p>4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):</p> <p>Exempt payee code (if any) _____</p> <p>Exemption from FATCA reporting code (if any) _____</p> <p style="font-size: small;">(Applies to accounts maintained outside the U.S.)</p>
	<p>5 Address (number, street, and apt. or suite no.) See instructions.</p> <hr/> <p>6 City, state, and ZIP code</p> <hr/> <p>7 List account number(s) here (optional)</p>	<p>Requester's name and address (optional)</p> <hr/>

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.

Note: If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number											
				-			-				
or											
Employer identification number											
				-							

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here	Signature of U.S. person ▶	Date ▶
------------------	----------------------------	--------

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to www.irs.gov/FormW9.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-INT (interest earned or paid)

- Form 1099-DIV (dividends, including those from stocks or mutual funds)
 - Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
 - Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
 - Form 1099-S (proceeds from real estate transactions)
 - Form 1099-K (merchant card and third party network transactions)
 - Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
 - Form 1099-C (canceled debt)
 - Form 1099-A (acquisition or abandonment of secured property)
- Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, later.

By signing the filled-out form, you:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and
4. Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct. See *What is FATCA reporting*, later, for further information.

Note: If you are a U.S. person and a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien;
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States;
- An estate (other than a foreign estate); or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax under section 1446 on any foreign partners' share of effectively connected taxable income from such business. Further, in certain cases where a Form W-9 has not been received, the rules under section 1446 require a partnership to presume that a partner is a foreign person, and pay the section 1446 withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid section 1446 withholding on your share of partnership income.

In the cases below, the following person must give Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States.

- In the case of a disregarded entity with a U.S. owner, the U.S. owner of the disregarded entity and not the entity;
- In the case of a grantor trust with a U.S. grantor or other U.S. owner, generally, the U.S. grantor or other U.S. owner of the grantor trust and not the trust; and
- In the case of a U.S. trust (other than a grantor trust), the U.S. trust (other than a grantor trust) and not the beneficiaries of the trust.

Foreign person. If you are a foreign person or the U.S. branch of a foreign bank that has elected to be treated as a U.S. person, do not use Form W-9. Instead, use the appropriate Form W-8 or Form 8233 (see Pub. 515, *Withholding of Tax on Nonresident Aliens and Foreign Entities*).

Nonresident alien who becomes a resident alien. Generally, only a nonresident alien individual may use the terms of a tax treaty to reduce or eliminate U.S. tax on certain types of income. However, most tax treaties contain a provision known as a "saving clause." Exceptions specified in the saving clause may permit an exemption from tax to continue for certain types of income even after the payee has otherwise become a U.S. resident alien for tax purposes.

If you are a U.S. resident alien who is relying on an exception contained in the saving clause of a tax treaty to claim an exemption from U.S. tax on certain types of income, you must attach a statement to Form W-9 that specifies the following five items.

1. The treaty country. Generally, this must be the same treaty under which you claimed exemption from tax as a nonresident alien.
2. The treaty article addressing the income.
3. The article number (or location) in the tax treaty that contains the saving clause and its exceptions.
4. The type and amount of income that qualifies for the exemption from tax.
5. Sufficient facts to justify the exemption from tax under the terms of the treaty article.

Example. Article 20 of the U.S.-China income tax treaty allows an exemption from tax for scholarship income received by a Chinese student temporarily present in the United States. Under U.S. law, this student will become a resident alien for tax purposes if his or her stay in the United States exceeds 5 calendar years. However, paragraph 2 of the first Protocol to the U.S.-China treaty (dated April 30, 1984) allows the provisions of Article 20 to continue to apply even after the Chinese student becomes a resident alien of the United States. A Chinese student who qualifies for this exception (under paragraph 2 of the first protocol) and is relying on this exception to claim an exemption from tax on his or her scholarship or fellowship income would attach to Form W-9 a statement that includes the information described above to support that exemption.

If you are a nonresident alien or a foreign entity, give the requester the appropriate completed Form W-8 or Form 8233.

Backup Withholding

What is backup withholding? Persons making certain payments to you must under certain conditions withhold and pay to the IRS 24% of such payments. This is called "backup withholding." Payments that may be subject to backup withholding include interest, tax-exempt interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, payments made in settlement of payment card and third party network transactions, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

You will not be subject to backup withholding on payments you receive if you give the requester your correct TIN, make the proper certifications, and report all your taxable interest and dividends on your tax return.

Payments you receive will be subject to backup withholding if:

1. You do not furnish your TIN to the requester,
2. You do not certify your TIN when required (see the instructions for Part II for details),
3. The IRS tells the requester that you furnished an incorrect TIN,
4. The IRS tells you that you are subject to backup withholding because you did not report all your interest and dividends on your tax return (for reportable interest and dividends only), or
5. You do not certify to the requester that you are not subject to backup withholding under 4 above (for reportable interest and dividend accounts opened after 1983 only).

Certain payees and payments are exempt from backup withholding. See *Exempt payee code*, later, and the separate Instructions for the Requester of Form W-9 for more information.

Also see *Special rules for partnerships*, earlier.

What is FATCA Reporting?

The Foreign Account Tax Compliance Act (FATCA) requires a participating foreign financial institution to report all United States account holders that are specified United States persons. Certain payees are exempt from FATCA reporting. See *Exemption from FATCA reporting code*, later, and the Instructions for the Requester of Form W-9 for more information.

Updating Your Information

You must provide updated information to any person to whom you claimed to be an exempt payee if you are no longer an exempt payee and anticipate receiving reportable payments in the future from this person. For example, you may need to provide updated information if you are a C corporation that elects to be an S corporation, or if you no longer are tax exempt. In addition, you must furnish a new Form W-9 if the name or TIN changes for the account; for example, if the grantor of a grantor trust dies.

Penalties

Failure to furnish TIN. If you fail to furnish your correct TIN to a requester, you are subject to a penalty of \$50 for each such failure unless your failure is due to reasonable cause and not to willful neglect.

Civil penalty for false information with respect to withholding. If you make a false statement with no reasonable basis that results in no backup withholding, you are subject to a \$500 penalty.

Criminal penalty for falsifying information. Willfully falsifying certifications or affirmations may subject you to criminal penalties including fines and/or imprisonment.

Misuse of TINs. If the requester discloses or uses TINs in violation of federal law, the requester may be subject to civil and criminal penalties.

Specific Instructions

Line 1

You must enter one of the following on this line; **do not** leave this line blank. The name should match the name on your tax return.

If this Form W-9 is for a joint account (other than an account maintained by a foreign financial institution (FFI)), list first, and then circle, the name of the person or entity whose number you entered in Part I of Form W-9. If you are providing Form W-9 to an FFI to document a joint account, each holder of the account that is a U.S. person must provide a Form W-9.

a. **Individual.** Generally, enter the name shown on your tax return. If you have changed your last name without informing the Social Security Administration (SSA) of the name change, enter your first name, the last name as shown on your social security card, and your new last name.

Note: ITIN applicant: Enter your individual name as it was entered on your Form W-7 application, line 1a. This should also be the same as the name you entered on the Form 1040/1040A/1040EZ you filed with your application.

b. **Sole proprietor or single-member LLC.** Enter your individual name as shown on your 1040/1040A/1040EZ on line 1. You may enter your business, trade, or “doing business as” (DBA) name on line 2.

c. **Partnership, LLC that is not a single-member LLC, C corporation, or S corporation.** Enter the entity’s name as shown on the entity’s tax return on line 1 and any business, trade, or DBA name on line 2.

d. **Other entities.** Enter your name as shown on required U.S. federal tax documents on line 1. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on line 2.

e. **Disregarded entity.** For U.S. federal tax purposes, an entity that is disregarded as an entity separate from its owner is treated as a “disregarded entity.” See Regulations section 301.7701-2(c)(2)(iii). Enter the owner’s name on line 1. The name of the entity entered on line 1 should never be a disregarded entity. The name on line 1 should be the name shown on the income tax return on which the income should be reported. For example, if a foreign LLC that is treated as a disregarded entity for U.S. federal tax purposes has a single owner that is a U.S. person, the U.S. owner’s name is required to be provided on line 1. If the direct owner of the entity is also a disregarded entity, enter the first owner that is not disregarded for federal tax purposes. Enter the disregarded entity’s name on line 2, “Business name/disregarded entity name.” If the owner of the disregarded entity is a foreign person, the owner must complete an appropriate Form W-8 instead of a Form W-9. This is the case even if the foreign person has a U.S. TIN.

Line 2

If you have a business name, trade name, DBA name, or disregarded entity name, you may enter it on line 2.

Line 3

Check the appropriate box on line 3 for the U.S. federal tax classification of the person whose name is entered on line 1. Check only one box on line 3.

IF the entity/person on line 1 is a(n) . . .	THEN check the box for . . .
• Corporation	Corporation
• Individual • Sole proprietorship, or • Single-member limited liability company (LLC) owned by an individual and disregarded for U.S. federal tax purposes.	Individual/sole proprietor or single-member LLC
• LLC treated as a partnership for U.S. federal tax purposes, • LLC that has filed Form 8832 or 2553 to be taxed as a corporation, or • LLC that is disregarded as an entity separate from its owner but the owner is another LLC that is not disregarded for U.S. federal tax purposes.	Limited liability company and enter the appropriate tax classification. (P= Partnership; C= C corporation; or S= S corporation)
• Partnership	Partnership
• Trust/estate	Trust/estate

Line 4, Exemptions

If you are exempt from backup withholding and/or FATCA reporting, enter in the appropriate space on line 4 any code(s) that may apply to you.

Exempt payee code.

- Generally, individuals (including sole proprietors) are not exempt from backup withholding.
- Except as provided below, corporations are exempt from backup withholding for certain payments, including interest and dividends.
- Corporations are not exempt from backup withholding for payments made in settlement of payment card or third party network transactions.
- Corporations are not exempt from backup withholding with respect to attorneys’ fees or gross proceeds paid to attorneys, and corporations that provide medical or health care services are not exempt with respect to payments reportable on Form 1099-MISC.

The following codes identify payees that are exempt from backup withholding. Enter the appropriate code in the space in line 4.

- 1—An organization exempt from tax under section 501(a), any IRA, or a custodial account under section 403(b)(7) if the account satisfies the requirements of section 401(f)(2)
- 2—The United States or any of its agencies or instrumentalities
- 3—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities
- 4—A foreign government or any of its political subdivisions, agencies, or instrumentalities
- 5—A corporation
- 6—A dealer in securities or commodities required to register in the United States, the District of Columbia, or a U.S. commonwealth or possession
- 7—A futures commission merchant registered with the Commodity Futures Trading Commission
- 8—A real estate investment trust
- 9—An entity registered at all times during the tax year under the Investment Company Act of 1940
- 10—A common trust fund operated by a bank under section 584(a)
- 11—A financial institution
- 12—A middleman known in the investment community as a nominee or custodian
- 13—A trust exempt from tax under section 664 or described in section 4947

The following chart shows types of payments that may be exempt from backup withholding. The chart applies to the exempt payees listed above, 1 through 13.

IF the payment is for . . .	THEN the payment is exempt for . . .
Interest and dividend payments	All exempt payees except for 7
Broker transactions	Exempt payees 1 through 4 and 6 through 11 and all C corporations. S corporations must not enter an exempt payee code because they are exempt only for sales of noncovered securities acquired prior to 2012.
Barter exchange transactions and patronage dividends	Exempt payees 1 through 4
Payments over \$600 required to be reported and direct sales over \$5,000 ¹	Generally, exempt payees 1 through 5 ²
Payments made in settlement of payment card or third party network transactions	Exempt payees 1 through 4

¹ See Form 1099-MISC, Miscellaneous Income, and its instructions.

² However, the following payments made to a corporation and reportable on Form 1099-MISC are not exempt from backup withholding: medical and health care payments, attorneys' fees, gross proceeds paid to an attorney reportable under section 6045(f), and payments for services paid by a federal executive agency.

Exemption from FATCA reporting code. The following codes identify payees that are exempt from reporting under FATCA. These codes apply to persons submitting this form for accounts maintained outside of the United States by certain foreign financial institutions. Therefore, if you are only submitting this form for an account you hold in the United States, you may leave this field blank. Consult with the person requesting this form if you are uncertain if the financial institution is subject to these requirements. A requester may indicate that a code is not required by providing you with a Form W-9 with "Not Applicable" (or any similar indication) written or printed on the line for a FATCA exemption code.

A—An organization exempt from tax under section 501(a) or any individual retirement plan as defined in section 7701(a)(37)

B—The United States or any of its agencies or instrumentalities

C—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities

D—A corporation the stock of which is regularly traded on one or more established securities markets, as described in Regulations section 1.1472-1(c)(1)(i)

E—A corporation that is a member of the same expanded affiliated group as a corporation described in Regulations section 1.1472-1(c)(1)(i)

F—A dealer in securities, commodities, or derivative financial instruments (including notional principal contracts, futures, forwards, and options) that is registered as such under the laws of the United States or any state

G—A real estate investment trust

H—A regulated investment company as defined in section 851 or an entity registered at all times during the tax year under the Investment Company Act of 1940

I—A common trust fund as defined in section 584(a)

J—A bank as defined in section 581

K—A broker

L—A trust exempt from tax under section 664 or described in section 4947(a)(1)

M—A tax exempt trust under a section 403(b) plan or section 457(g) plan

Note: You may wish to consult with the financial institution requesting this form to determine whether the FATCA code and/or exempt payee code should be completed.

Line 5

Enter your address (number, street, and apartment or suite number). This is where the requester of this Form W-9 will mail your information returns. If this address differs from the one the requester already has on file, write NEW at the top. If a new address is provided, there is still a chance the old address will be used until the payor changes your address in their records.

Line 6

Enter your city, state, and ZIP code.

Part I. Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. If you are a resident alien and you do not have and are not eligible to get an SSN, your TIN is your IRS individual taxpayer identification number (ITIN). Enter it in the social security number box. If you do not have an ITIN, see *How to get a TIN* below.

If you are a sole proprietor and you have an EIN, you may enter either your SSN or EIN.

If you are a single-member LLC that is disregarded as an entity separate from its owner, enter the owner's SSN (or EIN, if the owner has one). Do not enter the disregarded entity's EIN. If the LLC is classified as a corporation or partnership, enter the entity's EIN.

Note: See *What Name and Number To Give the Requester*, later, for further clarification of name and TIN combinations.

How to get a TIN. If you do not have a TIN, apply for one immediately. To apply for an SSN, get Form SS-5, Application for a Social Security Card, from your local SSA office or get this form online at www.SSA.gov. You may also get this form by calling 1-800-772-1213. Use Form W-7, Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN, or Form SS-4, Application for Employer Identification Number, to apply for an EIN. You can apply for an EIN online by accessing the IRS website at www.irs.gov/Businesses and clicking on Employer Identification Number (EIN) under Starting a Business. Go to www.irs.gov/Forms to view, download, or print Form W-7 and/or Form SS-4. Or, you can go to www.irs.gov/OrderForms to place an order and have Form W-7 and/or SS-4 mailed to you within 10 business days.

If you are asked to complete Form W-9 but do not have a TIN, apply for a TIN and write "Applied For" in the space for the TIN, sign and date the form, and give it to the requester. For interest and dividend payments, and certain payments made with respect to readily tradable instruments, generally you will have 60 days to get a TIN and give it to the requester before you are subject to backup withholding on payments. The 60-day rule does not apply to other types of payments. You will be subject to backup withholding on all such payments until you provide your TIN to the requester.

Note: Entering "Applied For" means that you have already applied for a TIN or that you intend to apply for one soon.

Caution: A disregarded U.S. entity that has a foreign owner must use the appropriate Form W-8.

Part II. Certification

To establish to the withholding agent that you are a U.S. person, or resident alien, sign Form W-9. You may be requested to sign by the withholding agent even if item 1, 4, or 5 below indicates otherwise.

For a joint account, only the person whose TIN is shown in Part I should sign (when required). In the case of a disregarded entity, the person identified on line 1 must sign. Exempt payees, see *Exempt payee code*, earlier.

Signature requirements. Complete the certification as indicated in items 1 through 5 below.

1. Interest, dividend, and barter exchange accounts opened before 1984 and broker accounts considered active during 1983.

You must give your correct TIN, but you do not have to sign the certification.

2. Interest, dividend, broker, and barter exchange accounts opened after 1983 and broker accounts considered inactive during 1983.

You must sign the certification or backup withholding will apply. If you are subject to backup withholding and you are merely providing your correct TIN to the requester, you must cross out item 2 in the certification before signing the form.

3. Real estate transactions.

You must sign the certification. You may cross out item 2 of the certification.

4. Other payments. You must give your correct TIN, but you do not have to sign the certification unless you have been notified that you have previously given an incorrect TIN. "Other payments" include payments made in the course of the requester's trade or business for rents, royalties, goods (other than bills for merchandise), medical and health care services (including payments to corporations), payments to a nonemployee for services, payments made in settlement of payment card and third party network transactions, payments to certain fishing boat crew members and fishermen, and gross proceeds paid to attorneys (including payments to corporations).

5. Mortgage interest paid by you, acquisition or abandonment of secured property, cancellation of debt, qualified tuition program payments (under section 529), ABLE accounts (under section 529A), IRA, Coverdell ESA, Archer MSA or HSA contributions or distributions, and pension distributions. You must give your correct TIN, but you do not have to sign the certification.

What Name and Number To Give the Requester

For this type of account:	Give name and SSN of:
1. Individual	The individual
2. Two or more individuals (joint account) other than an account maintained by an FFI	The actual owner of the account or, if combined funds, the first individual on the account ¹
3. Two or more U.S. persons (joint account maintained by an FFI)	Each holder of the account
4. Custodial account of a minor (Uniform Gift to Minors Act)	The minor ²
5. a. The usual revocable savings trust (grantor is also trustee)	The grantor-trustee ¹
b. So-called trust account that is not a legal or valid trust under state law	The actual owner ¹
6. Sole proprietorship or disregarded entity owned by an individual	The owner ³
7. Grantor trust filing under Optional Form 1099 Filing Method 1 (see Regulations section 1.671-4(b)(2)(i)(A))	The grantor*
For this type of account:	Give name and EIN of:
8. Disregarded entity not owned by an individual	The owner
9. A valid trust, estate, or pension trust	Legal entity ⁴
10. Corporation or LLC electing corporate status on Form 8832 or Form 2553	The corporation
11. Association, club, religious, charitable, educational, or other tax-exempt organization	The organization
12. Partnership or multi-member LLC	The partnership
13. A broker or registered nominee	The broker or nominee

For this type of account:	Give name and EIN of:
14. Account with the Department of Agriculture in the name of a public entity (such as a state or local government, school district, or prison) that receives agricultural program payments	The public entity
15. Grantor trust filing under the Form 1041 Filing Method or the Optional Form 1099 Filing Method 2 (see Regulations section 1.671-4(b)(2)(i)(B))	The trust

¹ List first and circle the name of the person whose number you furnish. If only one person on a joint account has an SSN, that person's number must be furnished.

² Circle the minor's name and furnish the minor's SSN.

³ You must show your individual name and you may also enter your business or DBA name on the "Business name/disregarded entity" name line. You may use either your SSN or EIN (if you have one), but the IRS encourages you to use your SSN.

⁴ List first and circle the name of the trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.) Also see *Special rules for partnerships*, earlier.

*Note: The grantor also must provide a Form W-9 to trustee of trust.

Note: If no name is circled when more than one name is listed, the number will be considered to be that of the first name listed.

Secure Your Tax Records From Identity Theft

Identity theft occurs when someone uses your personal information such as your name, SSN, or other identifying information, without your permission, to commit fraud or other crimes. An identity thief may use your SSN to get a job or may file a tax return using your SSN to receive a refund.

To reduce your risk:

- Protect your SSN,
- Ensure your employer is protecting your SSN, and
- Be careful when choosing a tax preparer.

If your tax records are affected by identity theft and you receive a notice from the IRS, respond right away to the name and phone number printed on the IRS notice or letter.

If your tax records are not currently affected by identity theft but you think you are at risk due to a lost or stolen purse or wallet, questionable credit card activity or credit report, contact the IRS Identity Theft Hotline at 1-800-908-4490 or submit Form 14039.

For more information, see Pub. 5027, Identity Theft Information for Taxpayers.

Victims of identity theft who are experiencing economic harm or a systemic problem, or are seeking help in resolving tax problems that have not been resolved through normal channels, may be eligible for Taxpayer Advocate Service (TAS) assistance. You can reach TAS by calling the TAS toll-free case intake line at 1-877-777-4778 or TTY/TDD 1-800-829-4059.

Protect yourself from suspicious emails or phishing schemes.

Phishing is the creation and use of email and websites designed to mimic legitimate business emails and websites. The most common act is sending an email to a user falsely claiming to be an established legitimate enterprise in an attempt to scam the user into surrendering private information that will be used for identity theft.

The IRS does not initiate contacts with taxpayers via emails. Also, the IRS does not request personal detailed information through email or ask taxpayers for the PIN numbers, passwords, or similar secret access information for their credit card, bank, or other financial accounts.

If you receive an unsolicited email claiming to be from the IRS, forward this message to phishing@irs.gov. You may also report misuse of the IRS name, logo, or other IRS property to the Treasury Inspector General for Tax Administration (TIGTA) at 1-800-366-4484. You can forward suspicious emails to the Federal Trade Commission at spam@uce.gov or report them at www.ftc.gov/complaint. You can contact the FTC at www.ftc.gov/idtheft or 877-IDTHEFT (877-438-4338). If you have been the victim of identity theft, see www.IdentityTheft.gov and Pub. 5027.

Visit www.irs.gov/IdentityTheft to learn more about identity theft and how to reduce your risk.

Privacy Act Notice

Section 6109 of the Internal Revenue Code requires you to provide your correct TIN to persons (including federal agencies) who are required to file information returns with the IRS to report interest, dividends, or certain other income paid to you; mortgage interest you paid; the acquisition or abandonment of secured property; the cancellation of debt; or contributions you made to an IRA, Archer MSA, or HSA. The person collecting this form uses the information on the form to file information returns with the IRS, reporting the above information. Routine uses of this information include giving it to the Department of Justice for civil and criminal litigation and to cities, states, the District of Columbia, and U.S. commonwealths and possessions for use in administering their laws. The information also may be disclosed to other countries under a treaty, to federal and state agencies to enforce civil and criminal laws, or to federal law enforcement and intelligence agencies to combat terrorism. You must provide your TIN whether or not you are required to file a tax return. Under section 3406, payers must generally withhold a percentage of taxable interest, dividend, and certain other payments to a payee who does not give a TIN to the payer. Certain penalties may also apply for providing false or fraudulent information.

CONTRACT REQUIREMENTS

OWNER-CONTRACTOR AGREEMENT**LOWELL HOUSING AUTHORITY**

This agreement made the day of , 2017 by and between the Lowell Housing Authority hereinafter called the "Owner", and hereinafter called the "Contractor", witnesseth, that the Owner and the Contractor, for the consideration hereinunder named, agree as follows:

Article 1. Scope of Work: The Contractor shall perform all Work required by the Contract Documents for U.S. HUD-Aided Development MA 1-3 referred to in the Contract Documents prepared by Description of Project Robert Willam Hannon, Architect acting as and referred to as the "Architect".

Article 2. Time of Completion: The Contractor shall commence work under this Contract on the date specified in the written "Notice to Proceed" and shall bring the Work to Substantial Completion within calendar days of said date. Damages for delays in the performance of the Work shall be in accordance with Article 9 of the General Conditions of the Contract.

Article 3. Contract Sum: The Owner shall pay the Contractor, in current funds, for the performance of the Work, subject to additions and deductions by Change Order, of the Contract Sum of:

\$

Contract Amount in Words

Contract Amount in Dollars

Schedule of Unit Prices: Project Manual Section and the cost to be paid by the Owner or credited by the Contractor per unit specified:

No. 1. N/A

No. 2. N/A

No. 3. N/A

Article 4. The Contract Documents: The following, together with this Agreement, form the Contract and all are as fully a part of the contract as if attached to this Agreement or repeated herein: The Advertisement, Bidding Documents, Contract Forms, Conditions of the Contract, and Specifications as enumerated in the Table of Contents, the drawings as enumerated in the List of Contract Drawings, HUD forms HUD-5370 or HUD-5370-EZ, HUD-5370-C Sections I and II, HUD-92554M. Forms and all Modifications issued after execution of the Contract. Terms used in this Agreement which are defined in the Conditions of the Contract shall have the meanings designated in those Conditions. Link: <http://bit.ly/HUD-FORMS>

Article 5. Alternates: The following Alternates have been accepted and their costs are included in the Contract Sum stated in Article 3 of this Agreement:

Alternate No(s): none through none

Article 6. REAP Certification: Pursuant to G.L. c.62(c) §49(a), the individual signing this Contract on behalf of the Contractor, hereby certifies, under the penalties of perjury, that to the best of their knowledge and belief the Contractor has complied with all laws of the Commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting child support. (St.1983, c.233, Revenue Enforcement and Protection Program (REAP) as amended).

Article 7. Worker Documentation Certification: In accordance with Executive Order 481 the undersigned further certifies under the penalties of perjury that the Contractor shall not knowingly use undocumented workers in connection with the performance of this contract; that pursuant to federal requirements, the Contractor shall verify the immigration status of all workers assigned to such contract without engaging in unlawful discrimination; and that it shall not knowingly or recklessly alter, falsify, or accept altered or falsified documents from any such worker(s). The Contractor understands and agrees that breach of any of these terms during the contract period may be regarded as a material breach, subjecting the Contractor to sanctions, including but not limited to monetary penalties, withholding of payments, contract suspension or termination.

Article 8. Conflict of Interest: The Contractor covenants, that (1) presently, there is no financial interest and shall not acquire any such interest, direct or indirect, which would conflict in any manner or degree with the performance of services required to be performed under this Agreement or which would violate M.G.L. c.268A, as amended; (2) in the performance of this Contract, no person having any such interest shall be employed by the Contractor or engaged as a subcontractor by the contractor; and (3) no partner or employee of the firm is related

by blood or marriage to any Board Member or employee of the Awarding Authority.

Article 9. Conflicts of Interest, organizational, federal requirements:

(a) The Contractor warrants that to the best of its knowledge and belief and except as otherwise disclosed, it does not have any organizational conflict of interest which is defined as a situation in which the nature of work under this contract and a contractor's organizational, financial, contractual or other interests are such that:

- (i) Award of the contract may result in an unfair competitive advantage; or
- (ii) The Contractor's objectivity in performing the contract work may be impaired.

(b) The Contractor agrees that if after award it discovers an organizational conflict of interest with respect to this contract or any task/delivery order under the contract, he or she shall make an immediate and full disclosure in writing to the Contracting Officer which shall include a description of the action which the Contractor has taken or intends to take to eliminate or neutralize the conflict. The LHA may, however, terminate the contract or task/delivery order for the convenience of the LHA if it would be in the best interest of the LHA.

(c) In the event the Contractor was aware of an organizational conflict of interest before the award of this contract and intentionally did not disclose the conflict to the Contracting Officer, the LHA may terminate the contract for default.

Article 10. Submittals and Invoicing: Contractor shall comply with all federal and state laws or regulations under which this Contract is issued, including without limitation submission of certified payrolls. [Federal Form WH-347](#) or [MA Prev. Wage Forms](#) as applicable may be used for this purpose.

- | | |
|-------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| 10.1 A unique invoice number; | 10.7 Service time period, total hours billed per-service, per-site, the approved rate and product delivery date(s); |
| 10.2 Contractor's name, address and telephone number; | 10.8 Work order approved by LHA designee; |
| 10.3 Date of invoice and/or billing period; | 10.9 Total U.S. (\$) dollar amount billed; and |
| 10.4 Applicable contract number; | 10.10 A Certified Payrolls for each week, Federal Form WH-347 or MA Prev. Wage Forms as applicable. |
| 10.5 Applicable purchase order number; | |
| 10.6 Description of goods/services rendered; | |

Article 11. Validation: This Contract will not be valid until signed by the Executive Director of the Lowell Housing Authority.

In Witness Whereof, the Parties Hereto Have Caused This Instrument to be Executed Under Seal.

¹ CONTRACTOR:

² AWARDING AUTHORITY:

Lowell Housing Authority
PO Box 60, 350 Moody St.
Lowell, MA 01853

By: _____

Name & Title

By: _____
Gary K. Wallace, Executive Director

Name & Title

Witness: _____

Certified as to Fund Availability:

Fund/Appropriation

Adam J. Garvey, CFO

Attest: _____

¹ If a Corporation, attach a notarized copy of the Corporate Vote authorizing signatory to sign Contract.

² If signed by someone other than a Housing Authority Board member, attach a copy of Certified Board Vote authorizing the signatory to sign the Contract.

CERTIFICATE OF VOTE SIGNATORY AUTHORIZATION

_____, 2017

I hereby certify that a meeting of the Board of Directors of the _____ duly called and held at _____ on the _____ day of _____, 2017. At which a quorum was present and acting, it was voted that _____ of _____ be and hereby is authorized to execute and deliver for _____ and on behalf of the Corporation a Contract with Lowell Housing Authority, for _____ work to be done at (HUD) (State -Aided) Housing Project No. _____ in the City of Lowell, MA.; and to act as principal to execute bids, contracts and bonds in connection therewith, which Bids, Contracts and/or Bonds were presented to and made part of the records of said meeting.

I further certify that _____ is duly qualified and acting _____ of the Corporation and that said vote has not been Repealed, Rescinded or Amended.

A true copy of the record,

ATTEST: _____

(CORPORATE SEAL)

On this _____ day of _____ 2017, before me, the undersigned Notary Public, personally appeared _____, duly designated by the board of directors and proved to me, through satisfactory evidence of identification, which was _____, that s/he is the person whose name is signed on the foregoing documents, and acknowledged to me that s/he signed it voluntarily for its stated purpose and that it was her/his free act and deed.

Notary Public

My Commission Expires: _____

CERTIFICATE OF CORPORATE VOTE OF AUTHORIZATION

Date: _____ 20__

I hereby certify that a meeting of the Board of Directors of the:

NAME OF CORPORATION

duly called and held at _____ on the ___ day of _____ 20__

at which a quorum was present and acting, it was voted that _____

NAME OF CORPORATE OFFICER

of the _____, be and hereby is authorized to execute and deliver

NAME OF CORPORATION

for and on behalf of the Corporation, a Contract with _____ Housing Authority, for

work to be done at State-Aided Housing Development No. _____ in the City/Town of _____

And to act as principal to execute bonds in connection therewith, which Contract and Bonds were

presented to and made part of the records of said meeting.

I further certify that _____ is duly qualified and acting

NAME OF CORPORATE OFFICER

_____ of the Corporation and that said vote has not been repealed,

TITLE

rescinded or amended.

A true copy of the record,

ATTEST: _____

(CORPORATE SEAL)

On this ___ day of _____ 20__, before me, the undersigned Notary Public, personally appeared _____, duly designated by the board of directors and proved to me, through satisfactory evidence of identification, which was _____, that s/he is the person whose name is signed on the foregoing documents, and acknowledged to me that s/he signed it voluntarily for its stated purpose and that it was her/his free act and deed.

Notary Public

My Commission Expires:

PERFORMANCE BOND

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

KNOW ALL MEN BY THESE PRESENTS:

That we, _____, as **Principal**, and
_____, as **Surety**,
are held and firmly bound unto the _____ **HOUSING AUTHORITY**, as **Obligee**,
in the sum of _____ **dollars (\$ _____)**
to be paid to the Obligee, for which payments, well and truly to be made, we bind ourselves, our respective
heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the said **Principal** has made a contract with the **Obligee**, bearing the date of _____, **20__**
for the _____ in _____, Massachusetts.
PROJECT TITLE

NOW, the condition of this obligation is such that if the **Principal** and all Subcontractors under said contract shall well and truly keep and perform all the undertakings, covenants, agreement, terms and conditions of said contract on its part to be kept and performed during the original term of said contract and any extensions thereof that may be granted by the Obligee, with or without notice to the **Surety**, and during the life and any guarantee required under the contract, and shall also well and truly keep and perform all the undertakings, covenants, agreements, terms and conditions of any and all duly authorized modifications, alterations changes or additions to said contract that may hereafter be made, notice to the **Surety** of such modifications, alterations, changes or additions being hereby waived, then this obligation shall become null and void; otherwise, it shall remain in full force and virtue.

IN THE EVENT, that the contract is abandoned by the **Principal**, or in the event that the Obligee, under the provisions of Article 19 of the General Conditions of said contract terminates the employment of the **Principal** or the authority of the **Principal** to continue the work, said **Surety** hereby further agrees that said **Surety** shall, if requested in writing by the Obligee, take such action as is necessary to complete said contract.

IN WITNESS WHEREOF, the **Principal** and **Surety** have hereunto set their hands and seals this:
_____ Day of _____ 20__

PRINCIPAL _____

SURETY _____

By: _____

By: _____

SEAL

ATTORNEY-IN FACT

Attest: _____

Attest: _____

The rate for this bond is _____% for the first \$_____ and _____% for the next \$_____

The total premium for this bond is \$_____

BOND NO. _____

PAYMENT BOND

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

KNOW ALL MEN BY THESE PRESENTS:

That we, _____, as **Principal**, and _____, as **Surety**, are held and firmly bound unto the _____ **HOUSING AUTHORITY**, as **Obligee**, in the sum of _____ **dollars (\$_____)** to be paid to the Obligee, for which payments, well and truly to be made, we bind ourselves, our respective heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the said **Principal** has made a contract with the **Obligee**, bearing the date of _____, **20__** for the _____ in _____, Massachusetts.
PROJECT TITLE

NOW the conditions of this obligation are such that if the **Principal** and all subcontractors under said contract shall pay for all labor performed or furnished and for all materials used or employed in said contract and in any and all duly authorized modifications, alterations, extensions of time, changes or additions to said contract that may hereafter be made, notice to the **Surety** of such modifications, alterations, extensions of time, changes or additions being hereby waived, the foregoing to include any other purposes or items set out in, and to be subject to, provisions of M.G.L. c.30 §39A, and M.G.L. c.149 §29, as amended, then this obligation shall become null and void; otherwise it shall remain in full force and virtue.

IN WITNESS WHEREOF, the **Principal** and **Surety** have hereunto set their hands and seals this:
_____ Day of _____ 20__

PRINCIPAL _____
By: _____
SEAL

SURETY _____
By: _____
ATTORNEY-IN FACT

Attest: _____

Attest: _____

The rate for this bond is _____% for the first \$_____ and _____% for the next \$_____

The total premium for this bond is \$_____

GENERAL CONDITIONS

General Conditions for Construction Contracts - Public Housing Programs

U.S. Department of Housing and Urban Development
 Office of Public and Indian Housing
 OMB Approval No. 2577-0157 (exp. 11/30/2023)

Applicability. This form is applicable to any construction/development contract greater than \$150,000.

Public reporting burden for this collection of information is estimated to average 1 hour. This includes the time for collecting, reviewing, and reporting the data. The information requested is required to obtain a benefit. This form includes those clauses required by OMB's common rule on grantee procurement, implemented at HUD in 2 CFR 200, and those requirements set forth in Section 3 of the Housing and Urban Development Act of 1968 and its amendment by the Housing and Community Development Act of 1992, implemented by HUD at 24 CFR Part 135. The form is required for construction contracts awarded by Public Housing Agencies (PHAs). The form is used by Housing Authorities in solicitations to provide necessary contract clauses. If the form were not used, PHAs would be unable to enforce their contracts.. There are no assurances of confidentiality. HUD may not conduct or sponsor, and an applicant is not required to respond to a collection of information unless it displays a currently valid OMB control number.

Clause		Page	Clause		Page
1.	Definitions	2	Administrative Requirements		
2.	Contractor's Responsibility for Work	2	25.	Contract Period	9
3.	Architect's Duties, Responsibilities and Authority	2	26.	Order of Precedence	9
4.	Other Contracts	3	27.	Payments	9
Construction Requirements			28.	Contract Modifications	10
5.	Preconstruction Conference and Notice to Proceed	3	29.	Changes	10
6.	Construction Progress Schedule	3	30.	Suspension of Work	11
7.	Site Investigation and Conditions Affecting the Work	3	31.	Disputes	11
8.	Differing Site Conditions	4	32.	Default	11
9.	Specifications and Drawings for Construction	4	33.	Liquidated	12
10.	As-Built Drawings	5	34.	Termination of Convenience	12
11.	Material and Workmanship	5	35.	Assignment of Contract	12
12.	Permits and Codes	5	36.	Insurance	12
13.	Health, Safety, and Accident Prevention	6	37.	Subcontracts	13
14.	Temporary Buildings and Transportation Materials	6	38.	Subcontracting with Small and Minority Firms, Women's Business Enterprise, and Labor Surplus Area Firms	13
15.	Availability and Use of Utility Services	6	39.	Equal Employment Opportunity	13
16.	Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements	6	40.	Employment, Training, and Contracting Opportunities for Low-Income Persons, Section 3 of the Housing and Urban Development Act of 1968	14
17.	Temporary Buildings and Transportation Materials	7	41.	Interest of Members of Congress	15
18.	Clean Air and Water	7	42.	Interest of Members, Officers, or Employees and Former Members, Officers, or Employees	15
19.	Energy Efficiency	7	43.	Limitations on Payments Made to Influence	15
20.	Inspection and Acceptance of Construction	7	44.	Royalties and Patents	15
21.	Use and Possession Prior to	8	45.	Examination and Retention of Contractor's Records	15
22.	Warranty of Title	8	46.	Labor Standards-Davis-Bacon and Related Acts	15
23.	Warranty of	8	47.	Non-Federal Prevailing Wage Rates	19
24.	Prohibition Against Liens	9	48.	Procurement of Recovered Materials	19

1. Definitions

- (a) "Architect" means the person or other entity engaged by the PHA to perform architectural, engineering, design, and other services related to the work as provided for in the contract. When a PHA uses an engineer to act in this capacity, the terms "architect" and "engineer" shall be synonymous. The Architect shall serve as a technical representative of the Contracting Officer. The Architect's authority is as set forth elsewhere in this contract.
 - (b) "Contract" means the contract entered into between the PHA and the Contractor. It includes the forms of Bid, the Bid Bond, the Performance and Payment Bond or Bonds or other assurance of completion, the Certifications, Representations, and Other Statements of Bidders (form HUD-5370), these General Conditions of the Contract for Construction (form HUD-5370), the applicable wage rate determinations from the U.S. Department of Labor, any special conditions included elsewhere in the contract, the specifications, and drawings. It includes all formal changes to any of those documents by addendum, change order, or other modification.
 - (c) "Contracting Officer" means the person delegated the authority by the PHA to enter into, administer, and/or terminate this contract and designated as such in writing to the Contractor. The term includes any successor Contracting Officer and any duly authorized representative of the Contracting Officer also designated in writing. The Contracting Officer shall be deemed the authorized agent of the PHA in all dealings with the Contractor.
 - (d) "Contractor" means the person or other entity entering into the contract with the PHA to perform all of the work required under the contract.
 - (e) "Drawings" means the drawings enumerated in the schedule of drawings contained in the Specifications and as described in the contract clause entitled Specifications and Drawings for Construction herein.
 - (f) "HUD" means the United States of America acting through the Department of Housing and Urban Development including the Secretary, or any other person designated to act on its behalf. HUD has agreed, subject to the provisions of an Annual Contributions Terms and Conditions (ACC), to provide financial assistance to the PHA, which includes assistance in financing the work to be performed under this contract. As defined elsewhere in these General Conditions or the contract documents, the determination of HUD may be required to authorize changes in the work or for release of funds to the PHA for payment to the Contractor. Notwithstanding HUD's role, nothing in this contract shall be construed to create any contractual relationship between the Contractor and HUD.
 - (g) "Project" means the entire project, whether construction or rehabilitation, the work for which is provided for in whole or in part under this contract.
 - (h) "PHA" means the Public Housing Agency organized under applicable state laws which is a party to this contract.
 - (i) "Specifications" means the written description of the technical requirements for construction and includes the criteria and tests for determining whether the requirements are met.
 - (l) "Work" means materials, workmanship, and manufacture and fabrication of components.
- (a) The Contractor shall furnish all necessary labor, materials, tools, equipment, and transportation necessary for performance of the work. The Contractor shall also furnish all necessary water, heat, light, and power not made available to the Contractor by the PHA pursuant to the clause entitled Availability and Use of Utility Services herein.
 - (b) The Contractor shall perform on the site, and with its own organization, work equivalent to at least [] (12 percent unless otherwise indicated) of the total amount of work to be performed under the order. This percentage may be reduced by a supplemental agreement to this order if, during performing the work, the Contractor requests a reduction and the Contracting Officer determines that the reduction would be to the advantage of the PHA.
 - (c) At all times during performance of this contract and until the work is completed and accepted, the Contractor shall directly superintend the work or assign and have on the work site a competent superintendent who is satisfactory to the Contracting Officer and has authority to act for the Contractor.
 - (d) The Contractor shall be responsible for all damages to persons or property that occur as a result of the Contractor's fault or negligence, and shall take proper safety and health precautions to protect the work, the workers, the public, and the property of others. The Contractor shall hold and save the PHA, its officers and agents, free and harmless from liability of any nature occasioned by the Contractor's performance. The Contractor shall also be responsible for all materials delivered and work performed until completion and acceptance of the entire work, except for any completed unit of work which may have been accepted under the contract.
 - (e) The Contractor shall lay out the work from base lines and bench marks indicated on the drawings and be responsible for all lines, levels, and measurements of all work executed under the contract. The Contractor shall verify the figures before laying out the work and will be held responsible for any error resulting from its failure to do so.
 - (f) The Contractor shall confine all operations (including storage of materials) on PHA premises to areas authorized or approved by the Contracting Officer.
 - (g) The Contractor shall at all times keep the work area, including storage areas, free from accumulations of waste materials. After completing the work and before final inspection, the Contractor shall (1) remove from the premises all scaffolding, equipment, tools, and materials (including rejected materials) that are not the property of the PHA and all rubbish caused by its work; (2) leave the work area in a clean, neat, and orderly condition satisfactory to the Contracting Officer; (3) perform all specified tests; and, (4) deliver the installation in complete and operating condition.
 - (h) The Contractor's responsibility will terminate when all work has been completed, the final inspection made, and the work accepted by the Contracting Officer. The Contractor will then be released from further obligation except as required by the warranties specified elsewhere in the contract.

3. Architect's Duties, Responsibilities, and Authority

- (a) The Architect for this contract, and any successor, shall be designated in writing by the Contracting Officer.

2. Contractor's Responsibility for Work

- (b) The Architect shall serve as the Contracting Officer's technical representative with respect to architectural, engineering, and design matters related to the work performed under the contract. The Architect may provide direction on contract performance. Such direction shall be within the scope of the contract and may not be of a nature which: (1) institutes additional work outside the scope of the contract; (2) constitutes a change as defined in the Changes clause herein; (3) causes an increase or decrease in the cost of the contract; (4) alters the Construction Progress Schedule; or (5) changes any of the other express terms or conditions of the contract.
- (c) The Architect's duties and responsibilities may include but shall not be limited to:
- (1) Making periodic visits to the work site, and on the basis of his/her on-site inspections, issuing written reports to the PHA which shall include all observed deficiencies. The Architect shall file a copy of the report with the Contractor's designated representative at the site;
 - (2) Making modifications in drawings and technical specifications and assisting the Contracting Officer in the preparation of change orders and other contract modifications for issuance by the Contracting Officer;
 - (3) Reviewing and making recommendations with respect to - (i) the Contractor's construction progress schedules; (ii) the Contractor's shop and detailed drawings; (iii) the machinery, mechanical and other equipment and materials or other articles proposed for use by the Contractor; and, (iv) the Contractor's price breakdown and progress payment estimates; and,
 - (4) Assisting in inspections, signing Certificates of Completion, and making recommendations with respect to acceptance of work completed under the contract.

4. Other Contracts

The PHA may undertake or award other contracts for additional work at or near the site of the work under this contract. The Contractor shall fully cooperate with the other contractors and with PHA employees and shall carefully adapt scheduling and performing the work under this contract to accommodate the additional work, heeding any direction that may be provided by the Contracting Officer. The Contractor shall not commit or permit any act that will interfere with the performance of work by any other contractor or by PHA employees

Construction Requirements

5. Pre-construction Conference and Notice to Proceed

- (a) Within ten calendar days of contract execution, and prior to the commencement of work, the Contractor shall attend a preconstruction conference with representatives of the PHA, its Architect, and other interested parties convened by the PHA. The conference will serve to acquaint the participants with the general plan of the construction operation and all other requirements of the contract. The PHA will provide the Contractor with the date, time, and place of the conference.
- (b) The contractor shall begin work upon receipt of a written Notice to Proceed from the Contracting Officer or designee. The Contractor shall not begin work prior to receiving such notice.

6. Construction Progress Schedule

- (a) The Contractor shall, within five days after the work commences on the contract or another period of time determined by the Contracting Officer, prepare and submit to the Contracting Officer for approval three copies of a practicable schedule showing the order in which the Contractor proposes to perform the work, and the dates on which the Contractor contemplates starting and completing the several salient features of the work (including acquiring labor, materials, and equipment). The schedule shall be in the form of a progress chart of suitable scale to indicate appropriately the percentage of work scheduled for completion by any given date during the period. If the Contractor fails to submit a schedule within the time prescribed, the Contracting Officer may withhold approval of progress payments or take other remedies under the contract until the Contractor submits the required schedule.
- (b) The Contractor shall enter the actual progress on the chart as required by the Contracting Officer, and immediately deliver three copies of the annotated schedule to the Contracting Officer. If the Contracting Officer determines, upon the basis of inspection conducted pursuant to the clause entitled Inspection and Acceptance of Construction, herein that the Contractor is not meeting the approved schedule, the Contractor shall take steps necessary to improve its progress, including those that may be required by the Contracting Officer, without additional cost to the PHA. In this circumstance, the Contracting Officer may require the Contractor to increase the number of shifts, overtime operations, days of work, and/or the amount of construction plant, and to submit for approval any supplementary schedule or schedules in chart form as the Contracting Officer deems necessary to demonstrate how the approved rate of progress will be regained.
- (c) Failure of the Contractor to comply with the requirements of the Contracting Officer under this clause shall be grounds for a determination by the Contracting Officer that the Contractor is not prosecuting the work with sufficient diligence to ensure completion within the time specified in the Contract. Upon making this determination, the Contracting Officer may terminate the Contractor's right to proceed with the work, or any separable part of it, in accordance with the Default clause of this contract.

7. Site Investigation and Conditions Affecting the Work

- (a) The Contractor acknowledges that it has taken steps reasonably necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the general and local conditions which can affect the work or its cost, including but not limited to, (1) conditions bearing upon transportation, disposal, handling, and storage of materials; (2) the availability of labor, water, electric power, and roads; (3) uncertainties of weather, river stages, tides, or similar physical conditions at the site; (4) the conformation and conditions of the ground; and (5) the character of equipment and facilities needed preliminary to and during work performance. The Contractor also acknowledges that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is

reasonably ascertainable from an inspection of the site, including all exploratory work done by the PHA, as well as from the drawings and specifications made a part of this contract. Any failure of the Contractor to take the actions described and acknowledged in this paragraph will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to the PHA.

- (b) The PHA assumes no responsibility for any conclusions or interpretations made by the Contractor based on the information made available by the PHA. Nor does the PHA assume responsibility for any understanding reached or representation made concerning conditions which can affect the work by any of its officers or agents before the execution of this contract, unless that understanding or representation is expressly stated in this contract.

8. Differing Site Conditions

- (a) The Contractor shall promptly, and before the conditions are disturbed, give a written notice to the Contracting Officer of (1) subsurface or latent physical conditions at the site which differ materially from those indicated in this contract, or (2) unknown physical conditions at the site(s), of an unusual nature, which differ materially from those ordinarily encountered and generally recognized as inhering in work of the character provided for in the contract.
- (b) The Contracting Officer shall investigate the site conditions promptly after receiving the notice. Work shall not proceed at the affected site, except at the Contractor's risk, until the Contracting Officer has provided written instructions to the Contractor. If the conditions do materially so differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performing any part of the work under this contract, whether or not changed as a result of the conditions, the Contractor shall file a claim in writing to the PHA within ten days after receipt of such instructions and, in any event, before proceeding with the work. An equitable adjustment in the contract price, the delivery schedule, or both shall be made under this clause and the contract modified in writing accordingly.
- (c) No request by the Contractor for an equitable adjustment to the contract under this clause shall be allowed, unless the Contractor has given the written notice required; provided, that the time prescribed in (a) above for giving written notice may be extended by the Contracting Officer.
- (d) No request by the Contractor for an equitable adjustment to the contract for differing site conditions shall be allowed if made after final payment under this contract.

9. Specifications and Drawings for Construction

- (a) The Contractor shall keep on the work site a copy of the drawings and specifications and shall at all times give the Contracting Officer access thereto. Anything mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In case of difference between drawings and specifications, the specifications shall govern. In case of discrepancy in the figures, in the drawings, or in the specifications, the matter shall be

promptly submitted to the Contracting Officer, who shall promptly make a determination in writing. Any adjustment by the Contractor without such a determination shall be at its own risk and expense. The Contracting Officer shall furnish from time to time such detailed drawings and other information as considered necessary, unless otherwise provided.

- (b) Wherever in the specifications or upon the drawings the words "directed", "required", "ordered", "designated", "prescribed", or words of like import are used, it shall be understood that the "direction", "requirement", "order", "designation", or "prescription", of the Contracting Officer is intended and similarly the words "approved", "acceptable", "satisfactory", or words of like import shall mean "approved by", or "acceptable to", or "satisfactory to" the Contracting Officer, unless otherwise expressly stated.
- (c) Where "as shown" "as indicated", "as detailed", or words of similar import are used, it shall be understood that the reference is made to the drawings accompanying this contract unless stated otherwise. The word "provided" as used herein shall be understood to mean "provide complete in place" that is "furnished and installed".
- (d) "Shop drawings" means drawings, submitted to the PHA by the Contractor, subcontractor, or any lower tier subcontractor, showing in detail (1) the proposed fabrication and assembly of structural elements and (2) the installation (i.e., form, fit, and attachment details) of materials of equipment. It includes drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, and similar materials furnished by the Contractor to explain in detail specific portions of the work required by the contract. The PHA may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.
- (e) If this contract requires shop drawings, the Contractor shall coordinate all such drawings, and review them for accuracy, completeness, and compliance with other contract requirements and shall indicate its approval thereon as evidence of such coordination and review. Shop drawings submitted to the Contracting Officer without evidence of the Contractor's approval may be returned for resubmission. The Contracting Officer will indicate an approval or disapproval of the shop drawings and if not approved as submitted shall indicate the PHA's reasons therefore. Any work done before such approval shall be at the Contractor's risk. Approval by the Contracting Officer shall not relieve the Contractor from responsibility for any errors or omissions in such drawings, nor from responsibility for complying with the requirements of this contract, except with respect to variations described and approved in accordance with (f) below.
- (f) If shop drawings show variations from the contract requirements, the Contractor shall describe such variations in writing, separate from the drawings, at the time of submission. If the Architect approves any such variation and the Contracting Officer concurs, the Contracting Officer shall issue an appropriate modification to the contract, except that, if the variation is minor or does not involve a change in price or in time of performance, a modification need not be issued.
- (g) It shall be the responsibility of the Contractor to make timely requests of the PHA for such large scale and full size drawings, color schemes, and other additional information, not already in his possession, which shall be

required in the planning and production of the work. Such requests may be submitted as the need arises, but each such request shall be filed in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay.

- (h) The Contractor shall submit to the Contracting Officer for approval four copies (unless otherwise indicated) of all shop drawings as called for under the various headings of these specifications. Three sets (unless otherwise indicated) of all shop drawings, will be retained by the PHA and one set will be returned to the Contractor. As required by the Contracting Officer, the Contractor, upon completing the work under this contract, shall furnish a complete set of all shop drawings as finally approved. These drawings shall show all changes and revisions made up to the time the work is completed and accepted.
- (i) This clause shall be included in all subcontracts at any tier. It shall be the responsibility of the Contractor to ensure that all shop drawings prepared by subcontractors are submitted to the Contracting Officer.

10. As-Built Drawings

- (a) "As-built drawings," as used in this clause, means drawings submitted by the Contractor or subcontractor at any tier to show the construction of a particular structure or work as actually completed under the contract. "As-built drawings" shall be synonymous with "Record drawings."
- (b) As required by the Contracting Officer, the Contractor shall provide the Contracting Officer accurate information to be used in the preparation of permanent as-built drawings. For this purpose, the Contractor shall record on one set of contract drawings all changes from the installations originally indicated, and record final locations of underground lines by depth from finish grade and by accurate horizontal offset distances to permanent surface improvements such as buildings, curbs, or edges of walks.
- (c) This clause shall be included in all subcontracts at any tier. It shall be the responsibility of the Contractor to ensure that all as-built drawings prepared by subcontractors are submitted to the Contracting Officer.

11. Material and Workmanship

- (a) All equipment, material, and articles furnished under this contract shall be new and of the most suitable grade for the purpose intended, unless otherwise specifically provided in this contract. References in the contract to equipment, material, articles, or patented processes by trade name, make, or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition. The Contractor may, at its option, use any equipment, material, article, or process that, in the judgment of, and as approved by the Contracting Officer, is equal to that named in the specifications, unless otherwise specifically provided in this contract.
- (b) Approval of equipment and materials.
 - (1) The Contractor shall obtain the Contracting Officer's approval of the machinery and mechanical and other equipment to be incorporated into the work. When requesting approval, the Contractor shall furnish to the Contracting Officer the name of the manufacturer, the model number, and other information concerning the performance, capacity, nature, and rating of the

machinery and mechanical and other equipment. When required by this contract or by the Contracting Officer, the Contractor shall also obtain the Contracting Officer's approval of the material or articles which the Contractor contemplates incorporating into the work. When requesting approval, the Contractor shall provide full information concerning the material or articles. Machinery, equipment, material, and articles that do not have the required approval shall be installed or used at the risk of subsequent rejection.

- (2) When required by the specifications or the Contracting Officer, the Contractor shall submit appropriately marked samples (and certificates related to them) for approval at the Contractor's expense, with all shipping charges prepaid. The Contractor shall label, or otherwise properly mark on the container, the material or product represented, its place of origin, the name of the producer, the Contractor's name, and the identification of the construction project for which the material or product is intended to be used.
- (3) Certificates shall be submitted in triplicate, describing each sample submitted for approval and certifying that the material, equipment or accessory complies with contract requirements. The certificates shall include the name and brand of the product, name of manufacturer, and the location where produced.
- (4) Approval of a sample shall not constitute a waiver of the PHA right to demand full compliance with contract requirements. Materials, equipment and accessories may be rejected for cause even though samples have been approved.
- (5) Wherever materials are required to comply with recognized standards or specifications, such specifications shall be accepted as establishing the technical qualities and testing methods, but shall not govern the number of tests required to be made nor modify other contract requirements. The Contracting Officer may require laboratory test reports on items submitted for approval or may approve materials on the basis of data submitted in certificates with samples. Check tests will be made on materials delivered for use only as frequently as the Contracting Officer determines necessary to insure compliance of materials with the specifications. The Contractor will assume all costs of retesting materials which fail to meet contract requirements and/or testing materials offered in substitution for those found deficient.
- (6) After approval, samples will be kept in the Project office until completion of work. They may be built into the work after a substantial quantity of the materials they represent has been built in and accepted.
- (c) Requirements concerning lead-based paint. The Contractor shall comply with the requirements concerning lead-based paint contained in the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. 4821-4846) as implemented by 24 CFR Part 35.

12. Permits and Codes

- (a) The Contractor shall give all notices and comply with all applicable laws, ordinances, codes, rules and regulations. Notwithstanding the requirement of the Contractor to comply with the drawings and specifications in the contract, all work installed shall comply with all applicable codes and regulations as amended by any

waivers. Before installing the work, the Contractor shall examine the drawings and the specifications for compliance with applicable codes and regulations bearing on the work and shall immediately report any discrepancy it may discover to the Contracting Officer. Where the requirements of the drawings and specifications fail to comply with the applicable code or regulation, the Contracting Officer shall modify the contract by change order pursuant to the clause entitled Changes herein to conform to the code or regulation.

- (b) The Contractor shall secure and pay for all permits, fees, and licenses necessary for the proper execution and completion of the work. Where the PHA can arrange for the issuance of all or part of these permits, fees and licenses, without cost to the Contractor, the contract amount shall be reduced accordingly.

13. Health, Safety, and Accident Prevention

- (a) In performing this contract, the Contractor shall:
 - (1) Ensure that no laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his/her health and/or safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation;
 - (2) Protect the lives, health, and safety of other persons;
 - (3) Prevent damage to property, materials, supplies, and equipment; and,
 - (4) Avoid work interruptions.
- (b) For these purposes, the Contractor shall:
 - (1) Comply with regulations and standards issued by the Secretary of Labor at 29 CFR Part 1926. Failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act (Public Law 91-54, 83 Stat. 96), 40 U.S.C. 3701 et seq.; and
 - (2) Include the terms of this clause in every subcontract so that such terms will be binding on each subcontractor.
- (c) The Contractor shall maintain an accurate record of exposure data on all accidents incident to work performed under this contract resulting in death, traumatic injury, occupational disease, or damage to property, materials, supplies, or equipment, and shall report this data in the manner prescribed by 29 CFR Part 1904.
- (d) The Contracting Officer shall notify the Contractor of any noncompliance with these requirements and of the corrective action required. This notice, when delivered to the Contractor or the Contractor's representative at the site of the work, shall be deemed sufficient notice of the noncompliance and corrective action required. After receiving the notice, the Contractor shall immediately take corrective action. If the Contractor fails or refuses to take corrective action promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. The Contractor shall not base any claim or request for equitable adjustment for additional time or money on any stop order issued under these circumstances.
- (e) The Contractor shall be responsible for its subcontractors' compliance with the provisions of this clause. The Contractor shall take such action with respect to any subcontract as the PHA, the Secretary of Housing and Urban Development, or the Secretary of Labor shall direct as a means of enforcing such provisions.

14. Temporary Heating

The Contractor shall provide and pay for temporary heating, covering, and enclosures necessary to properly protect all work and materials against damage by dampness and cold, to dry out the work, and to facilitate the completion of the work. Any permanent heating equipment used shall be turned over to the PHA in the condition and at the time required by the specifications.

15. Availability and Use of Utility Services

- (a) The PHA shall make all reasonably required amounts of utilities available to the Contractor from existing outlets and supplies, as specified in the contract. Unless otherwise provided in the contract, the amount of each utility service consumed shall be charged to or paid for by the Contractor at prevailing rates charged to the PHA or, where the utility is produced by the PHA, at reasonable rates determined by the Contracting Officer. The Contractor shall carefully conserve any utilities furnished without charge.
- (b) The Contractor, at its expense and in a manner satisfactory to the Contracting Officer, shall install and maintain all necessary temporary connections and distribution lines, and all meters required to measure the amount of each utility used for the purpose of determining charges. Before final acceptance of the work by the PHA, the Contractor shall remove all the temporary connections, distribution lines, meters, and associated paraphernalia.

16. Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements

- (a) The Contractor shall preserve and protect all structures, equipment, and vegetation (such as trees, shrubs, and grass) on or adjacent to the work site, which are not to be removed under this contract, and which do not unreasonably interfere with the work required under this contract.
- (b) The Contractor shall only remove trees when specifically authorized to do so, and shall avoid damaging vegetation that will remain in place. If any limbs or branches of trees are broken during performance of this contract, or by the careless operation of equipment, or by workmen, the Contractor shall trim those limbs or branches with a clean cut and paint the cut with a tree-pruning compound as directed by the Contracting Officer.
- (c) The Contractor shall protect from damage all existing improvements and utilities (1) at or near the work site and (2) on adjacent property of a third party, the locations of which are made known to or should be known by the Contractor. Prior to disturbing the ground at the construction site, the Contractor shall ensure that all underground utility lines are clearly marked.
- (d) The Contractor shall shore up, brace, underpin, secure, and protect as necessary all foundations and other parts of existing structures adjacent to, adjoining, and in the vicinity of the site, which may be affected by the excavations or other operations connected with the construction of the project.
- (e) Any equipment temporarily removed as a result of work under this contract shall be protected, cleaned, and replaced in the same condition as at the time of award of this contract.

- (f) New work which connects to existing work shall correspond in all respects with that to which it connects and/or be similar to existing work unless otherwise required by the specifications.
- (g) No structural members shall be altered or in any way weakened without the written authorization of the Contracting Officer, unless such work is clearly specified in the plans or specifications.
- (h) If the removal of the existing work exposes discolored or unfinished surfaces, or work out of alignment, such surfaces shall be refinished, or the material replaced as necessary to make the continuous work uniform and harmonious. This, however, shall not be construed to require the refinishing or reconstruction of dissimilar finishes previously exposed, or finished surfaces in good condition, but in different planes or on different levels when brought together by the removal of intervening work, unless such refinishing or reconstruction is specified in the plans or specifications.
- (i) The Contractor shall give all required notices to any adjoining or adjacent property owner or other party before the commencement of any work.
- (j) The Contractor shall indemnify and save harmless the PHA from any damages on account of settlement or the loss of lateral support of adjoining property, any damages from changes in topography affecting drainage, and from all loss or expense and all damages for which the PHA may become liable in consequence of such injury or damage to adjoining and adjacent structures and their premises.
- (k) The Contractor shall repair any damage to vegetation, structures, equipment, utilities, or improvements, including those that are the property of a third party, resulting from failure to comply with the requirements of this contract or failure to exercise reasonable care in performing the work. If the Contractor fails or refuses to repair the damage promptly, the Contracting Officer may have the necessary work performed and charge the cost to the Contractor.

17. Temporary Buildings and Transportation of Materials

- (a) Temporary buildings (e.g., storage sheds, shops, offices, sanitary facilities) and utilities may be erected by the Contractor only with the approval of the Contracting Officer and shall be built with labor and materials furnished by the Contractor without expense to the PHA. The temporary buildings and utilities shall remain the property of the Contractor and shall be removed by the Contractor at its expense upon completion of the work. With the written consent of the Contracting Officer, the buildings and utilities may be abandoned and need not be removed.
- (b) The Contractor shall, as directed by the Contracting Officer, use only established roadways, or use temporary roadways constructed by the Contractor when and as authorized by the Contracting Officer. When materials are transported in prosecuting the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by any federal, state, or local law or regulation. When it is necessary to cross curbs or sidewalks, the Contractor shall protect them from damage. The Contractor shall repair or pay for the repair of any damaged curbs, sidewalks, or roads.

18. Clean Air and Water

The contractor shall comply with the Clean Air Act, as amended, 42 USC 7401 et seq., the Federal Water Pollution Control Water Act, as amended, 33 U.S.C. 1251 et seq., and standards issued pursuant thereto in the facilities in which this contract is to be performed.

19. Energy Efficiency

The Contractor shall comply with mandatory standards and policies relating to energy efficiency which are contained in the energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Pub.L. 94-163) for the State in which the work under the contract is performed.

20. Inspection and Acceptance of Construction

- (a) Definitions. As used in this clause -
 - (1) "Acceptance" means the act of an authorized representative of the PHA by which the PHA approves and assumes ownership of the work performed under this contract. Acceptance may be partial or complete.
 - (2) "Inspection" means examining and testing the work performed under the contract (including, when appropriate, raw materials, equipment, components, and intermediate assemblies) to determine whether it conforms to contract requirements.
 - (3) "Testing" means that element of inspection that determines the properties or elements, including functional operation of materials, equipment, or their components, by the application of established scientific principles and procedures.
- (b) The Contractor shall maintain an adequate inspection system and perform such inspections as will ensure that the work performed under the contract conforms to contract requirements. All work is subject to PHA inspection and test at all places and at all reasonable times before acceptance to ensure strict compliance with the terms of the contract.
- (c) PHA inspections and tests are for the sole benefit of the PHA and do not: (1) relieve the Contractor of responsibility for providing adequate quality control measures; (2) relieve the Contractor of responsibility for loss or damage of the material before acceptance; (3) constitute or imply acceptance; or, (4) affect the continuing rights of the PHA after acceptance of the completed work under paragraph (j) below.
- (d) The presence or absence of the PHA inspector does not relieve the Contractor from any contract requirement, nor is the inspector authorized to change any term or condition of the specifications without the Contracting Officer's written authorization. All instructions and approvals with respect to the work shall be given to the Contractor by the Contracting Officer.
- (e) The Contractor shall promptly furnish, without additional charge, all facilities, labor, and material reasonably needed for performing such safe and convenient inspections and tests as may be required by the Contracting Officer. The PHA may charge to the Contractor any additional cost of inspection or test when work is not ready at the time specified by the Contractor for inspection or test, or when prior rejection makes reinspection or retest necessary. The PHA shall perform all inspections and tests in a manner that will not unnecessarily delay the work. Special, full size, and performance tests shall be performed as described in the contract.

- (f) The PHA may conduct routine inspections of the construction site on a daily basis.
- (g) The Contractor shall, without charge, replace or correct work found by the PHA not to conform to contract requirements, unless the PHA decides that it is in its interest to accept the work with an appropriate adjustment in contract price. The Contractor shall promptly segregate and remove rejected material from the premises.
- (h) If the Contractor does not promptly replace or correct rejected work, the PHA may (1) by contract or otherwise, replace or correct the work and charge the cost to the Contractor, or (2) terminate for default the Contractor's right to proceed.
- (i) If any work requiring inspection is covered up without approval of the PHA, it must, if requested by the Contracting Officer, be uncovered at the expense of the Contractor. If at any time before final acceptance of the entire work, the PHA considers it necessary or advisable, to examine work already completed by removing or tearing it out, the Contractor, shall on request, promptly furnish all necessary facilities, labor, and material. If such work is found to be defective or nonconforming in any material respect due to the fault of the Contractor or its subcontractors, the Contractor shall defray all the expenses of the examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the contract, the Contracting Officer shall make an equitable adjustment to cover the cost of the examination and reconstruction, including, if completion of the work was thereby delayed, an extension of time.
- (j) The Contractor shall notify the Contracting Officer, in writing, as to the date when in its opinion all or a designated portion of the work will be substantially completed and ready for inspection. If the Architect determines that the state of preparedness is as represented, the PHA will promptly arrange for the inspection. Unless otherwise specified in the contract, the PHA shall accept, as soon as practicable after completion and inspection, all work required by the contract or that portion of the work the Contracting Officer determines and designates can be accepted separately. Acceptance shall be final and conclusive except for latent defects, fraud, gross mistakes amounting to fraud, or the PHA's right under any warranty or guarantee.

21. Use and Possession Prior to Completion

- (a) The PHA shall have the right to take possession of or use any completed or partially completed part of the work. Before taking possession of or using any work, the Contracting Officer shall furnish the Contractor a list of items of work remaining to be performed or corrected on those portions of the work that the PHA intends to take possession of or use. However, failure of the Contracting Officer to list any item of work shall not relieve the Contractor of responsibility for complying with the terms of the contract. The PHA's possession or use shall not be deemed an acceptance of any work under the contract.
- (b) While the PHA has such possession or use, the Contractor shall be relieved of the responsibility for (1) the loss of or damage to the work resulting from the PHA's possession or use, notwithstanding the terms of the clause entitled Permits and Codes herein; (2) all maintenance costs on the areas occupied; and, (3) furnishing heat, light, power, and water used in the areas

occupied without proper remuneration therefore. If prior possession or use by the PHA delays the progress of the work or causes additional expense to the Contractor, an equitable adjustment shall be made in the contract price or the time of completion, and the contract shall be modified in writing accordingly.

22. Warranty of Title

The Contractor warrants good title to all materials, supplies, and equipment incorporated in the work and agrees to deliver the premises together with all improvements thereon free from any claims, liens or charges, and agrees further that neither it nor any other person, firm or corporation shall have any right to a lien upon the premises or anything appurtenant thereto.

23. Warranty of Construction

- (a) In addition to any other warranties in this contract, the Contractor warrants, except as provided in paragraph (j) of this clause, that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, or workmanship performed by the Contractor or any subcontractor or supplier at any tier. This warranty shall continue for a period of _____ (one year unless otherwise indicated) from the date of final acceptance of the work. If the PHA takes possession of any part of the work before final acceptance, this warranty shall continue for a period of (one year unless otherwise indicated) from the date that the PHA takes possession.
- (b) The Contractor shall remedy, at the Contractor's expense, any failure to conform, or any defect. In addition, the Contractor shall remedy, at the Contractor's expense, any damage to PHA-owned or controlled real or personal property when the damage is the result of—
 - (1) The Contractor's failure to conform to contract requirements; or
 - (2) Any defects of equipment, material, workmanship or design furnished by the Contractor.
- (c) The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for (one year unless otherwise indicated) from the date of repair or replacement.
- (d) The Contracting Officer shall notify the Contractor, in writing, within a reasonable time after the discovery of any failure, defect or damage.
- (e) If the Contractor fails to remedy any failure, defect, or damage within a reasonable time after receipt of notice, the PHA shall have the right to replace, repair or otherwise remedy the failure, defect, or damage at the Contractor's expense.
- (f) With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall:
 - (1) Obtain all warranties that would be given in normal commercial practice;
 - (2) Require all warranties to be executed in writing, for the benefit of the PHA; and,
 - (3) Enforce all warranties for the benefit of the PHA.
- (g) In the event the Contractor's warranty under paragraph (a) of this clause has expired, the PHA may bring suit at its own expense to enforce a subcontractor's, manufacturer's or supplier's warranty.

- (h) Unless a defect is caused by the negligence of the Contractor or subcontractor or supplier at any tier, the Contractor shall not be liable for the repair of any defect of material or design furnished by the PHA nor for the repair of any damage that results from any defect in PHA furnished material or design.
- (i) Notwithstanding any provisions herein to the contrary, the establishment of the time periods in paragraphs (a) and (c) above relate only to the specific obligation of the Contractor to correct the work, and have no relationship to the time within which its obligation to comply with the contract may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to its obligation other than specifically to correct the work.
- (j) This warranty shall not limit the PHA's rights under the Inspection and Acceptance of Construction clause of this contract with respect to latent defects, gross mistakes or fraud.

24. Prohibition Against Liens

The Contractor is prohibited from placing a lien on the PHA's property. This prohibition shall apply to all subcontractors at any tier and all materials suppliers.

Administrative Requirements

25. Contract Period

The Contractor shall complete all work required on this contract within **244** calendar days of the effective date of the contract, or within the time schedule established in the notice to proceed issued by the Contracting Officer.

26. Order of Provisions

In the event of a conflict between these General Conditions and the Specifications, the General Conditions shall prevail. In the event of a conflict between the contract and any applicable state or local law or regulation, the state or local law or regulation shall prevail; provided that such state or local law or regulation does not conflict with, or is less restrictive than applicable federal law, regulation, or Executive Order. In the event of such a conflict, applicable federal law, regulation, and Executive Order shall prevail.

27. Payments

- (a) The PHA shall pay the Contractor the price as provided in this contract.
- (b) The PHA shall make progress payments approximately every 30 days as the work proceeds, on estimates of work accomplished which meets the standards of quality established under the contract, as approved by the Contracting Officer. The PHA may, subject to written determination and approval of the Contracting Officer, make more frequent payments to contractors which are qualified small businesses.
- (c) Before the first progress payment under this contract, the Contractor shall furnish, in such detail as requested by the Contracting Officer, a breakdown of the total contract price showing the amount included therein for each principal category of the work, which shall substantiate the payment amount requested in order to provide a

basis for determining progress payments. The breakdown shall be approved by the Contracting Officer and must be acceptable to HUD. If the contract covers more than one project, the Contractor shall furnish a separate breakdown for each. The values and quantities employed in making up this breakdown are for determining the amount of progress payments and shall not be construed as a basis for additions to or deductions from the contract price. The Contractor shall prorate its overhead and profit over the construction period of the contract.

- (d) The Contractor shall submit, on forms provided by the PHA, periodic estimates showing the value of the work performed during each period based upon the approved submitted not later than _____ days in advance of the date set for payment and are subject to correction and revision as required. The estimates must be approved by the Contracting Officer with the concurrence of the Architect prior to payment. If the contract covers more than one project, the Contractor shall furnish a separate progress payment estimate for each.

- (e) Along with each request for progress payments and the required estimates, the Contractor shall furnish the following certification, or payment shall not be made: I hereby certify, to the best of my knowledge and belief, that:

- (1) The amounts requested are only for performance in accordance with the specifications, terms, and conditions of the contract;
- (2) Payments to subcontractors and suppliers have been made from previous payments received under the contract, and timely payments will be made from the proceeds of the payment covered by this certification, in accordance with subcontract agreements; and,
- (3) This request for progress payments does not include any amounts which the prime contractor intends to withhold or retain from a subcontractor or supplier in accordance with the terms and conditions of the subcontract.

Name:

Title:

Date:

- (f) Except as otherwise provided in State law, the PHA shall retain ten (10) percent of the amount of progress payments until completion and acceptance of all work under the contract; except, that if upon completion of 50 percent of the work, the Contracting Officer, after consulting with the Architect, determines that the Contractor's performance and progress are satisfactory, the PHA may make the remaining payments in full for the work subsequently completed. If the Contracting Officer subsequently determines that the Contractor's performance and progress are unsatisfactory, the PHA shall reinstate the ten (10) percent (or other percentage as provided in State law) retainage until such time as the Contracting Officer determines that performance and progress are satisfactory.
- (g) The Contracting Officer may authorize material delivered on the site and preparatory work done to be taken into consideration when computing progress payments.

Material delivered to the Contractor at locations other than the site may also be taken into consideration if the Contractor furnishes satisfactory evidence that (1) it has acquired title to such material; (2) the material is properly stored in a bonded warehouse, storage yard, or similar suitable place as may be approved by the Contracting Officer; (3) the material is insured to cover its full value; and (4) the material will be used to perform this contract. Before any progress payment which includes delivered material is made, the Contractor shall furnish such documentation as the Contracting Officer may require to assure the protection of the PHA's interest in such materials. The Contractor shall remain responsible for such stored material notwithstanding the transfer of title to the PHA.

- (h) All material and work covered by progress payments made shall, at the time of payment become the sole property of the PHA, but this shall not be construed as (1) relieving the Contractor from the sole responsibility for all material and work upon which payments have been made or the restoration of any damaged work; or, (2) waiving the right of the PHA to require the fulfillment of all of the terms of the contract. In the event the work of the Contractor has been damaged by other contractors or persons other than employees of the PHA in the course of their employment, the Contractor shall restore such damaged work without cost to the PHA and to seek redress for its damage only from those who directly caused it.
- (i) The PHA shall make the final payment due the Contractor under this contract after (1) completion and final acceptance of all work; and (2) presentation of release of all claims against the PHA arising by virtue of this contract, other than claims, in stated amounts, that the Contractor has specifically excepted from the operation of the release. Each such exception shall embrace no more than one claim, the basis and scope of which shall be clearly defined. The amounts for such excepted claims shall not be included in the request for final payment. A release may also be required of the assignee if the Contractor's claim to amounts payable under this contract has been assigned.
- (j) Prior to making any payment, the Contracting Officer may require the Contractor to furnish receipts or other evidence of payment from all persons performing work and supplying material to the Contractor, if the Contracting Officer determines such evidence is necessary to substantiate claimed costs.
- (k) The PHA shall not; (1) determine or adjust any claims for payment or disputes arising there under between the Contractor and its subcontractors or material suppliers; or, (2) withhold any moneys for the protection of the subcontractors or material suppliers. The failure or refusal of the PHA to withhold moneys from the Contractor shall in nowise impair the obligations of any surety or sureties under any bonds furnished under this contract.

28. Contract Modifications

- (a) Only the Contracting Officer has authority to modify any term or condition of this contract. Any contract modification shall be authorized in writing.
- (b) The Contracting Officer may modify the contract unilaterally (1) pursuant to a specific authorization stated in a contract clause (e.g., Changes); or (2) for administrative matters which do not change the rights or

responsibilities of the parties (e.g., change in the PHA address). All other contract modifications shall be in the form of supplemental agreements signed by the Contractor and the Contracting Officer.

- (c) When a proposed modification requires the approval of HUD prior to its issuance (e.g., a change order that exceeds the PHA's approved threshold), such modification shall not be effective until the required approval is received by the PHA.

29. Changes

- (a) The Contracting Officer may, at any time, without notice to the sureties, by written order designated or indicated to be a change order, make changes in the work within the general scope of the contract including changes:
 - (1) In the specifications (including drawings and designs);
 - (2) In the method or manner of performance of the work;
 - (3) PHA-furnished facilities, equipment, materials, services, or site; or,
 - (4) Directing the acceleration in the performance of the work.
- (b) Any other written order or oral order (which, as used in this paragraph (b), includes direction, instruction, interpretation, or determination) from the Contracting Officer that causes a change shall be treated as a change order under this clause; provided, that the Contractor gives the Contracting Officer written notice stating (1) the date, circumstances and source of the order and (2) that the Contractor regards the order as a change order.
- (c) Except as provided in this clause, no order, statement or conduct of the Contracting Officer shall be treated as a change under this clause or entitle the Contractor to an equitable adjustment.
- (d) If any change under this clause causes an increase or decrease in the Contractor's cost of, or the time required for the performance of any part of the work under this contract, whether or not changed by any such order, the Contracting Officer shall make an equitable adjustment and modify the contract in writing. However, except for a adjustment based on defective specifications, no proposal for any change under paragraph (b) above shall be allowed for any costs incurred more than 20 days (5 days for oral orders) before the Contractor gives written notice as required. In the case of defective specifications for which the PHA is responsible, the equitable adjustment shall include any increased cost reasonably incurred by the Contractor in attempting to comply with the defective specifications.
- (e) The Contractor must assert its right to an adjustment under this clause within 30 days after (1) receipt of a written change order under paragraph (a) of this clause, or (2) the furnishing of a written notice under paragraph (b) of this clause, by submitting a written statement describing the general nature and the amount of the proposal. If the facts justify it, the Contracting Officer may extend the period for submission. The proposal may be included in the notice required under paragraph (b) above. No proposal by the Contractor for an equitable adjustment shall be allowed if asserted after final payment under this contract.
- (f) The Contractor's written proposal for equitable adjustment shall be submitted in the form of a lump sum proposal supported with an itemized breakdown of all increases and decreases in the contract in at least the following details:

- (1) Direct Costs. Materials (list individual items, the quantity and unit cost of each, and the aggregate cost); Transportation and delivery costs associated with materials; Labor breakdowns by hours or unit costs (identified with specific work to be performed); Construction equipment exclusively necessary for the change; Costs of preparation and/ or revision to shop drawings resulting from the change; Worker's Compensation and Public Liability Insurance; Employment taxes under FICA and FUTA; and, Bond Costs when size of change warrants revision.
- (2) Indirect Costs. Indirect costs may include overhead, general and administrative expenses, and fringe benefits not normally treated as direct costs.
- (3) Profit. The amount of profit shall be negotiated and may vary according to the nature, extent, and complexity of the work required by the change. The allowability of the direct and indirect costs shall be determined in accordance with the Contract Cost Principles and Procedures for Commercial Firms in Part 31 of the Federal Acquisition Regulation (48 CFR 1-31), as implemented by HUD Handbook 2210.18, in effect on the date of this contract. The Contractor shall not be allowed a profit on the profit received by any subcontractor. Equitable adjustments for deleted work shall include a credit for profit and may include a credit for indirect costs. On proposals covering both increases and decreases in the amount of the contract, the application of indirect costs and profit shall be on the net-change in direct costs for the Contractor or subcontractor performing the work.
- (g) The Contractor shall include in the proposal its request for time extension (if any), and shall include sufficient information and dates to demonstrate whether and to what extent the change will delay the completion of the contract in its entirety.
- (h) The Contracting Officer shall act on proposals within 30 days after their receipt, or notify the Contractor of the date when such action will be taken.
- (i) Failure to reach an agreement on any proposal shall be a dispute under the clause entitled Disputes herein. Nothing in this clause, however, shall excuse the Contractor from proceeding with the contract as changed.
- (j) Except in an emergency endangering life or property, no change shall be made by the Contractor without a prior order from the Contracting Officer.

30. Suspension of Work

- (a) The Contracting Officer may order the Contractor in writing to suspend, delay, or interrupt all or any part of the work of this contract for the period of time that the Contracting Officer determines appropriate for the convenience of the PHA.
- (b) If the performance of all or any part of the work is, for an unreasonable period of time, suspended, delayed, or interrupted (1) by an act of the Contracting Officer in the administration of this contract, or (2) by the Contracting Officer's failure to act within the time specified (or within a reasonable time if not specified) in this contract an adjustment shall be made for any increase in the cost of performance of the contract (excluding profit) necessarily caused by such unreasonable suspension, delay, or interruption and the contract modified in writing accordingly. However, no adjustment shall be made under this clause for any suspension, delay, or interruption to the extent that performance would have

been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor or for which any equitable adjustment is provided for or excluded under any other provision of this contract.

- (c) A claim under this clause shall not be allowed (1) for any costs incurred more than 20 days before the Contractor shall have notified the Contracting Officer in writing of the act or failure to act involved (but this requirement shall not apply as to a claim resulting from a suspension order); and, (2) unless the claim, in an amount stated, is asserted in writing as soon as practicable after the termination of the suspension, delay, or interruption, but not later than the date of final payment under the contract.

31. Disputes

- (a) "Claim," as used in this clause, means a written demand or written assertion by one of the contracting parties seeking, as a matter of right, the payment of money in a sum certain, the adjustment or interpretation of contract terms, or other relief arising under or relating to the contract. A claim arising under the contract, unlike a claim relating to the contract, is a claim that can be resolved under a contract clause that provides for the relief sought by the claimant. A voucher, invoice, or other routine request for payment that is not in dispute when submitted is not a claim. The submission may be converted to a claim by complying with the requirements of this clause, if it is disputed either as to liability or amount or is not acted upon in a reasonable time.
- (b) Except for disputes arising under the clauses entitled Labor Standards - Davis Bacon and Related Acts, herein, all disputes arising under or relating to this contract, including any claims for damages for the alleged breach thereof which are not disposed of by agreement, shall be resolved under this clause.
- (c) All claims by the Contractor shall be made in writing and submitted to the Contracting Officer for a written decision. A claim by the PHA against the Contractor shall be subject to a written decision by the Contracting Officer.
- (d) The Contracting Officer shall, within 60 (unless otherwise indicated) days after receipt of the request, decide the claim or notify the Contractor of the date by which the decision will be made.
- (e) The Contracting Officer's decision shall be final unless the Contractor (1) appeals in writing to a higher level in the PHA in accordance with the PHA's policy and procedures, (2) refers the appeal to an independent mediator or arbitrator, or (3) files suit in a court of competent jurisdiction. Such appeal must be made within (30 unless otherwise indicated) days after receipt of the Contracting Officer's decision.
- (f) The Contractor shall proceed diligently with performance of this contract, pending final resolution of any request for relief, claim, appeal, or action arising under or relating to the contract, and comply with any decision of the Contracting Officer.

32. Default

- (a) If the Contractor refuses or fails to prosecute the work, or any separable part thereof, with the diligence that will insure its completion within the time specified in this contract, or any extension thereof, or fails to complete said work within this time, the Contracting Officer may, by written notice to the Contractor, terminate the right to

proceed with the work (or separable part of the work) that has been delayed. In this event, the PHA may take over the work and complete it, by contract or otherwise, and may take possession of and use any materials, equipment, and plant on the work site necessary for completing the work. The Contractor and its sureties shall be liable for any damage to the PHA resulting from the Contractor's refusal or failure to complete the work within the specified time, whether or not the Contractor's right to proceed with the work is terminated. This liability includes any increased costs incurred by the PHA in completing the work.

- (b) The Contractor's right to proceed shall not be terminated or the Contractor charged with damages under this clause if—
- (1) The delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such causes include (i) acts of God, or of the public enemy, (ii) acts of the PHA or other governmental entity in either its sovereign or contractual capacity, (iii) acts of another contractor in the performance of a contract with the PHA, (iv) fires, (v) floods, (vi) epidemics, (vii) quarantine restrictions, (viii) strikes, (ix) freight embargoes, (x) unusually severe weather, or (xi) delays of subcontractors or suppliers at any tier arising from unforeseeable causes beyond the control and without the fault or negligence of both the Contractor and the subcontractors or suppliers; and
 - (2) The Contractor, within days (10 days unless otherwise indicated) from the beginning of such delay (unless extended by the Contracting Officer) notifies the Contracting Officer in writing of the causes of delay. The Contracting Officer shall ascertain the facts and the extent of the delay. If, in the judgment of the Contracting Officer, the findings of fact warrant such action, time for completing the work shall be extended by written modification to the contract. The findings of the Contracting Officer shall be reduced to a written decision which shall be subject to the provisions of the Disputes clause of this contract.
- (c) If, after termination of the Contractor's right to proceed, it is determined that the Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if the termination had been for convenience of the PHA.

33. Liquidated Damages

- (a) If the Contractor fails to complete the work within the time specified in the contract, or any extension, as specified in the clause entitled Default of this contract, the Contractor shall pay to the PHA as liquidated damages, the sum of \$ 500.00 [Contracting Officer insert amount] for each day of delay. If different completion dates are specified in the contract for separate parts or stages of the work, the amount of liquidated damages shall be assessed on those parts or stages which are delayed. To the extent that the Contractor's delay or nonperformance is excused under another clause in this contract, liquidated damages shall not be due the PHA. The Contractor remains liable for damages caused other than by delay.
- (b) If the PHA terminates the Contractor's right to proceed, the resulting damage will consist of liquidated damages until such reasonable time as may be required for final

completion of the work together with any increased costs occasioned the PHA in completing the work.

- (c) If the PHA does not terminate the Contractor's right to proceed, the resulting damage will consist of liquidated damages until the work is completed or accepted.

34. Termination for Convenience

- (a) The Contracting Officer may terminate this contract in whole, or in part, whenever the Contracting Officer determines that such termination is in the best interest of the PHA. Any such termination shall be effected by delivery to the Contractor of a Notice of Termination specifying the extent to which the performance of the work under the contract is terminated, and the date upon which such termination becomes effective.
- (b) If the performance of the work is terminated, either in whole or in part, the PHA shall be liable to the Contractor for reasonable and proper costs resulting from such termination upon the receipt by the PHA of a properly presented claim setting out in detail: (1) the total cost of the work performed to date of termination less the total amount of contract payments made to the Contractor; (2) the cost (including reasonable profit) of settling and paying claims under subcontracts and material orders for work performed and materials and supplies delivered to the site, payment for which has not been made by the PHA to the Contractor or by the Contractor to the subcontractor or supplier; (3) the cost of preserving and protecting the work already performed until the PHA or assignee takes possession thereof or assumes responsibility therefore; (4) the actual or estimated cost of legal and accounting services reasonably necessary to prepare and present the termination claim to the PHA; and (5) an amount constituting a reasonable profit on the value of the work performed by the Contractor.
- (c) The Contracting Officer will act on the Contractor's claim within days (60 days unless otherwise indicated) of receipt of the Contractor's claim.
- (d) Any disputes with regard to this clause are expressly made subject to the provisions of the Disputes clause of this contract.

35. Assignment of Contract

The Contractor shall not assign or transfer any interest in this contract; except that claims for monies due or to become due from the PHA under the contract may be assigned to a bank, trust company, or other financial institution. Such assignments of claims shall only be made with the written concurrence of the Contracting Officer. If the Contractor is a partnership, this contract shall inure to the benefit of the surviving or remaining member(s) of such partnership as approved by the Contracting Officer.

36. Insurance

- (a) Before commencing work, the Contractor and each subcontractor shall furnish the PHA with certificates of insurance showing the following insurance is in force and will insure all operations under the Contract:
- (1) Workers' Compensation, in accordance with state or Territorial Workers' Compensation laws.
 - (2) Commercial General Liability with a combined single limit for bodily injury and property damage of not less than \$ 1 Million [Contracting Officer insert amount]

per occurrence to protect the Contractor and each subcontractor against claims for bodily injury or death and damage to the property of others. This shall cover the use of all equipment, hoists, and vehicles on the site(s) not covered by Automobile Liability under (3) below. If the Contractor has a "claims made" policy, then the following additional requirements apply: the policy must provide a "retroactive date" which must be on or before the execution date of the Contract; and the extended reporting period may not be less than five years following the completion date of the Contract.

- (3) Automobile Liability on owned and non-owned motor vehicles used on the site(s) or in connection therewith for a combined single limit for bodily injury and property damage of not less than \$ 1 Million [Contracting Officer insert amount] per occurrence.
- (b) Before commencing work, the Contractor shall furnish the PHA with a certificate of insurance evidencing that Builder's Risk (fire and extended coverage) Insurance on all work in place and/or materials stored at the building site(s), including foundations and building equipment, is in force. The Builder's Risk Insurance shall be for the benefit of the Contractor and the PHA as their interests may appear and each shall be named in the policy or policies as an insured. The Contractor in installing equipment supplied by the PHA shall carry insurance on such equipment from the time the Contractor takes possession thereof until the Contract work is accepted by the PHA. The Builder's Risk Insurance need not be carried on excavations, piers, footings, or foundations until such time as work on the superstructure is started. It need not be carried on landscape work. Policies shall furnish coverage at all times for the full cash value of all completed construction, as well as materials in place and/or stored at the site(s), whether or not partial payment has been made by the PHA. The Contractor may terminate this insurance on buildings as of the date taken over for occupancy by the PHA. The Contractor is not required to carry Builder's Risk Insurance for modernization work which does not involve structural alterations or additions and where the PHA's existing fire and extended coverage policy can be endorsed to include such work.
- (c) All insurance shall be carried with companies which are financially responsible and admitted to do business in the State in which the project is located. If any such insurance is due to expire during the construction period, the Contractor (including subcontractors, as applicable) shall not permit the coverage to lapse and shall furnish evidence of coverage to the Contracting Officer. All certificates of insurance, as evidence of coverage, shall provide that no coverage may be canceled or non-renewed by the insurance company until at least 30 days prior written notice has been given to the Contracting Officer.

37. Subcontracts

- (a) Definitions. As used in this contract -
 - (1) "Subcontract" means any contract, purchase order, or other purchase agreement, including modifications and change orders to the foregoing, entered into by a subcontractor to furnish supplies, materials, equipment, and services for the performance of the prime contract or a subcontract.

- (2) "Subcontractor" means any supplier, vendor, or firm that furnishes supplies, materials, equipment, or services to or for the Contractor or another subcontractor.
- (b) The Contractor shall not enter into any subcontract with any subcontractor who has been temporarily denied participation in a HUD program or who has been suspended or debarred from participating in contracting programs by any agency of the United States Government or of the state in which the work under this contract is to be performed.
- (c) The Contractor shall be as fully responsible for the acts or omissions of its subcontractors, and of persons either directly or indirectly employed by them as for the acts or omissions of persons directly employed by the Contractor.
- (d) The Contractor shall insert appropriate clauses in all subcontracts to bind subcontractors to the terms and conditions of this contract insofar as they are applicable to the work of subcontractors.
- (e) Nothing contained in this contract shall create any contractual relationship between any subcontractor and the PHA or between the subcontractor and HUD.

38. Subcontracting with Small and Minority Firms, Women's Business Enterprise, and Labor Surplus Area Firms

The Contractor shall take the following steps to ensure that, whenever possible, subcontracts are awarded to small business firms, minority firms, women's business enterprises, and labor surplus area firms:Á

- (a) Placing qualified small and minority businesses andÁ women's business enterprises on solicitation lists;Á
- (b) Ensuring that small and minority businesses andÁ women's business enterprises are solicited wheneverÁ they are potential sources;Á
- (c) Dividing total requirements, when economically feasible,Á into smaller tasks or quantities to permit maximumÁ participation by small and minority businesses andÁ women's business enterprises;Á
- (d) Establishing delivery schedules, where the requirementsÁ of the contract permit, which encourage participation byÁ small and minority businesses and women's businessÁ enterprises; andÁ
- (e) Using the services and assistance of the U.S. SmallÁ Business Administration, the Minority BusinessÁ Development Agency of the U.S. Department ofÁ Commerce, and State and local governmental smallÁ business agencies.Á

39. Equal Employment Opportunity

During the performance of this contract, the ContractorÁ Ü^||^| agrees as follows:Á

- (a) The ContractorÜ^||^| shall not discriminate against anyÁ employee or applicant for employment because of of race,, color, religion, sex, sexual orientation, gender identity, disability, or national origin.Á
- (b) The ContractorÜ^||^| shall take affirmative action to Á ensure thatÁ applicants are employed, and that employees Á are treatedÁ during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, disability, or national origin. Such actionÁ shall include, but not be limited to, (1) employment, (2)Á upgrading, (3), (3) demotion, (4) transfer, (5) recruitment orÁ recruitment advertising, (6) layoff or termination, (7) ratesÁ of pay or other forms of compensation, and (8) selectionÁ for training including apprenticeship. Á

(c) The Contractor shall agree to post in conspicuous places available to employees and applicants for employment the notices to be provided by the Contracting Officer setting forth the provisions of this nondiscrimination clause.

(d) The Contractor shall, in all solicitations or advertisements for employees placed by or on behalf of the Contractor/Seller, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

(e) The Contractor shall send, to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, the notice to be provided by the Contracting Officer advising the labor union or workers' representative of the Contractor's commitments under this clause, and post copies of the notice in conspicuous places available to employees and applicants for employment.

(f) The Contractor shall comply with Executive Order 11246, as amended, and the rules, regulations, and orders of the Secretary of Labor.

(g) The Contractor shall furnish all information and reports required by Executive Order 11246, as amended, Section 503 of the Rehabilitation Act of 1973, as amended, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto. The Contractor shall permit access to its books, records, and accounts by the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(h) In the event of a that the Contractor is in non-compliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be canceled, terminated or suspended in whole or in part and the contractor/seller may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(i) The contractor/seller will include the provisions of paragraphs (a) through (h) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each sub[contractor/seller] or vendor. The [contractor/seller] will take such action with respect to any subcontract or purchase order as may be directed by the Secretary of Labor as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, that in the event the [contractor/seller] becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the [contractor/seller] may request the United States to enter into such litigation to protect the interests of the United States.

(j) Compliance with the requirements of this clause shall be to the maximum extent consistent with, but not in derogation of, compliance with section 7(b) of the Indian Self-Determination and Education Assistance Act and the Indian Preference clause of this contract.

40. Employment, Training, and Contracting Opportunities for Low-Income Persons, Section 3 of the Housing and Urban Development Act of 1968.

(a) The work to be performed under this contract is subject to the requirements of section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (section 3). The purpose of section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.

(b) The parties to this contract agree to comply with HUD's regulations in 24 CFR Part 135, which implement section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the Part 135 regulations.

(c) The contractor agrees to send to each labor organization or representative of workers with which the contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the contractor's commitments under this section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.

(d) The contractor agrees to include this section 3 clause in every subcontract subject to compliance with regulations in 24 CFR Part 135, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR Part 135. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR Part 135.

(e) The contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR Part 135 require employment opportunities to be directed, were not filled to circumvent the contractor's obligations under 24 CFR Part 135.

(f) Noncompliance with HUD's regulations in 24 CFR Part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.

(g) With respect to work performed in connection with section 3 covered Indian housing assistance, section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450e) also applies to the work to be performed under this contract. Section 7(b) requires that to the greatest extent feasible (i) preference and opportunities for training and employment shall be given to Indians, and (ii) preference in the award of contracts and subcontracts shall be given to Indian organizations and Indian-owned Economic Enterprises. Parties to this contract that are subject to the provisions of section 3 and section 7(b) agree to comply with section 3 to the maximum extent feasible, but not in derogation of compliance with section 7(b).

41. Interest of Members of Congress

No member of or delegate to the Congress of the United States of America shall be admitted to any share or part of this contract or to any benefit that may arise therefrom.

42. Interest of Members, Officers, or Employees and Former Members, Officers, or Employees

No member, officer, or employee of the PHA, no member of the governing body of the locality in which the project is situated, no member of the governing body of the locality in which the PHA was activated, and no other public official of such locality or localities who exercises any functions or responsibilities with respect to the project, shall, during his or her tenure, or for one year thereafter, have any interest, direct or indirect, in this contract or the proceeds thereof.

43. Limitations on Payments made to Influence Certain Federal Financial Transactions

- (a) The Contractor agrees to comply with Section 1352 of Title 31, United States Code which prohibits the use of Federal appropriated funds to pay any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, and officer or employee of Congress, or an employee of a Member of Congress in connection with any of the following covered Federal actions: the awarding of any Federal contract; the making of any Federal grant; the making of any Federal loan; the entering into of any cooperative agreement; or the modification of any Federal contract, grant, loan, or cooperative agreement.
- (b) The Contractor further agrees to comply with the requirement of the Act to furnish a disclosure (OMB Standard Form LLL, Disclosure of Lobbying Activities) if any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a Federal contract, grant, loan, or cooperative agreement.

44. Royalties and Patents

The Contractor shall pay all royalties and license fees. It shall defend all suits or claims for infringement of any patent rights and shall save the PHA harmless from loss on account thereof; except that the PHA shall be responsible for all such loss when a particular design, process or the product of a particular manufacturer or manufacturers is specified and the Contractor has no reason to believe that the specified design, process, or product is an infringement. If, however, the Contractor has reason to believe that any design, process or product specified is an infringement of a patent, the Contractor shall promptly notify the Contracting Officer. Failure to give such notice shall make the Contractor responsible for resultant loss.

45. Examination and Retention of Contractor's Records

- (a) The PHA, HUD, or Comptroller General of the United States, or any of their duly authorized representatives shall, until 3 years after final payment under this contract, have access to and the right to examine any of the Contractor's directly pertinent books, documents, papers, or other records involving transactions related to this contract for the purpose of making audit, examination, excerpts, and transcriptions.
- (b) The Contractor agrees to include in first-tier subcontracts under this contract a clause substantially the same as paragraph (a) above. "Subcontract," as used in this clause, excludes purchase orders not exceeding \$10,000.
- (c) The periods of access and examination in paragraphs (a) and (b) above for records relating to (1) appeals under the Disputes clause of this contract, (2) litigation or settlement of claims arising from the performance of this contract, or (3) costs and expenses of this contract to which the PHA, HUD, or Comptroller General or any of their duly authorized representatives has taken exception shall continue until disposition of such appeals, litigation, claims, or exceptions.

46. Labor Standards - Davis-Bacon and Related Acts

If the total amount of this contract exceeds \$2,000, the Federal labor standards set forth in the clause below shall apply to the development or construction work to be performed under the contract.

- (a) Minimum Wages.
 - (1) All laborers and mechanics employed under this contract in the development or construction of the project(s) involved will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the regular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits in the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein; provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall

be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

- (2) (i) Any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefor only when all the following criteria have been met: (A) The work to be performed by the classification requested is not performed by a classification in the wage determination; and (B) The classification is utilized in the area by the construction industry; and (C) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.
- (ii) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employee Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary.
- (iii) In the event the Contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator of the Wage and Hour Division for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary.
- (iv) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (a)(2)(ii) or (iii) of this clause shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in classification.
- (3) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.
- (4) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the

amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program; provided, that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

- (b) Withholding of funds. HUD or its designee shall, upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same prime Contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working in the construction or development of the project, all or part of the wages required by the contract, HUD or its designee may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the Contractor, disburse such amounts withheld for and on account of the Contractor or subcontractor to the respective employees to whom they are due.
- (c) Payrolls and basic records.
- (1) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working in the construction or development of the project. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made, and actual wages paid. Whenever the Secretary of Labor has found, under 29 CFR 5.5(a)(1)(iv), that the wages of any laborer or mechanic include the amount of costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

- (2) (i) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Contracting Officer for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under subparagraph (c)(1) of this clause. This information may be submitted in any form desired. Optional Form WH-347 (Federal Stock Number 029-005-00014-1) is available for this purpose and may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. The Contractor is responsible for the submission of copies of payrolls by all subcontractors. (Approved by the Office of Management and Budget under OMB Control Number 1214-0149.)
- (ii) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:
- (A) That the payroll for the payroll period contains the information required to be maintained under paragraph (c) (1) of this clause and that such information is correct and complete;
- (B) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3; and
- (C) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.
- (iii) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirements for submission of the "Statement of Compliance" required by subparagraph (c)(2)(ii) of this clause.
- (iv) The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 3729 of Title 31 of the United States Code.
- (3) The Contractor or subcontractor shall make the records required under subparagraph (c)(1) available for inspection, copying, or transcription by authorized representatives of HUD or its designee, the Contracting Officer, or the Department of Labor and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to

make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

- (d) (1) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship and Training, Employer and Labor Services (OATELS), or with a State Apprenticeship Agency recognized by OATELS, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by OATELS or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in this paragraph, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator of the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event OATELS, or a State Apprenticeship Agency recognized by OATELS, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.
- (2) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under

the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed in the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate in the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate in the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate in the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

- (3) Equal employment opportunity. The utilization of apprentices, trainees, and journeymen under this clause shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.
- (e) Compliance with Copeland Act requirements. The Contractor shall comply with the requirements of 29 CFR Part 3, which are hereby incorporated by reference in this contract.
- (f) Contract termination; debarment. A breach of this contract clause may be grounds for termination of the contract and for debarment as a Contractor and a subcontractor as provided in 29 CFR 5.12.
- (g) Compliance with Davis-Bacon and related Act requirements. All rulings and interpretations of the Davis-Bacon and related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.
- (h) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this clause shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors) and the PHA, HUD, the U.S. Department of Labor, or the employees or their representatives.
- (i) Certification of eligibility.
 - (1) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

- (2) No part of this contract shall be subcontracted to any person or firm ineligible for award of a United States Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).
 - (3) The penalty for making false statements is prescribed in the U. S. Criminal Code, 18 U.S.C. 1001.
- (j) Contract Work Hours and Safety Standards Act. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.
- (1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics, including watchmen and guards, shall require or permit any such laborer or mechanic in any workweek in which the individual is employed on such work to work in excess of 40 hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.
 - (2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the provisions set forth in subparagraph (j)(1) of this clause, the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic (including watchmen and guards) employed in violation of the provisions set forth in subparagraph (j)(1) of this clause, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by provisions set forth in subparagraph (j)(1) of this clause.
 - (3) Withholding for unpaid wages and liquidated damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the Contractor or subcontractor under any such contract or any Federal contract with the same prime Contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime Contractor, such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or subcontractor for unpaid wages and liquidated damages as provided in the provisions set forth in subparagraph (j)(2) of this clause.
- (k) Subcontracts. The Contractor or subcontractor shall insert in any subcontracts all the provisions contained in this clause, and such other clauses as HUD or its designee may by appropriate instructions require, and also a clause requiring the subcontractors to include these provisions in any lower tier subcontracts. The prime Contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all these provisions.

47. Non-Federal Prevailing Wage Rates

- (a) Any prevailing wage rate (including basic hourly rate and any fringe benefits), determined under State or tribal law to be prevailing, with respect to any employee in any trade or position employed under the contract, is inapplicable to the contract and shall not be enforced against the Contractor or any subcontractor, with respect to employees engaged under the contract whenever such non-Federal prevailing wage rate exceeds:
 - (1) The applicable wage rate determined by the Secretary of Labor pursuant to the Davis-Bacon Act (40 U.S.C. 3141 et seq.) to be prevailing in the locality with respect to such trade;
- (b) An applicable apprentice wage rate based thereon specified in an apprenticeship program registered with the U.S. Department of Labor (DOL) or a DOL-recognized State Apprenticeship Agency; or
- (c) An applicable trainee wage rate based thereon specified in a DOL-certified trainee program.

48. Procurement of Recovered Materials.

- (a) In accordance with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, the Contractor shall procure items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR Part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition. The Contractor shall procure items designated in the EPA guidelines that contain the highest percentage of recovered materials practicable unless the Contractor determines that such items: (1) are not reasonably available in a reasonable period of time; (2) fail to meet reasonable performance standards, which shall be determined on the basis of the guidelines of the National Institute of Standards and Technology, if applicable to the item; or (3) are only available at an unreasonable price.
- (b) Paragraph (a) of this clause shall apply to items purchased under this contract where: (1) the Contractor purchases in excess of \$10,000 of the item under this contract; or (2) during the preceding Federal fiscal year, the Contractor: (i) purchased any amount of the items for use under a contract that was funded with Federal appropriations and was with a Federal agency or a State agency or agency of a political subdivision of a State; and (ii) purchased a total of in excess of \$10,000 of the item both under and outside that contract.

**SUPPLEMENTARY CONDITIONS
OF THE CONTRACT FOR
CONSTRUCTION**

U.S. Department of Housing
and Urban Development
Office of Housing

OMB Approval No. 2502-0598
(Exp. 06/30/2017)

Public Reporting Burden for this collection of information is estimated to average 0.2 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Response to this request for information is required in order to receive the benefits to be derived. This agency may not collect this information, and you are not required to complete this form unless it displays a currently valid OMB control number. While no assurance of confidentiality is pledged to respondents, HUD generally discloses this data only in response to a Freedom of Information Act request.

Article 1: Labor Standards

A. Applicability. The Project or program to which the construction work covered by this Contract pertains is being assisted or insured by the United States of America, and the following Federal Labor Standards Provisions are included in this Contract or related instrument pursuant to the provisions applicable to such Federal assistance or insurance. Any statute or regulation contained herein shall also include any subsequent amendment or successor statute or regulation.

B. Minimum Wages. Pursuant to Section 212 of the National Housing Act, as amended, 12 U.S.C. 1715c, the minimum wage provisions contained in this paragraph B do not apply to those projects with Security Instruments insured under Section 221(h)(1) designed for less than 9 families and they do not apply to those projects with Security Instruments insured under either Section 220 or 233 designed for less than 12 families.

1. (i) All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the Project) shall be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1 (b)(2) of the Davis-Bacon Act (40 U.S.C. 3141(2)(B)(ii)) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each

classification for the time actually worked therein: *Provided*, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii)) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(ii) (a) Any class of laborers or mechanics that is not listed in the wage determination and that is to be employed under this Contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits only when the following criteria have been met:

- (1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and
- (2) The classification is utilized in the area by the construction industry; and
- (3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, U.S. Department of Labor, Washington, D.C. 20210 (“**Administrator**”). The Administrator, or an authorized representative, shall approve, modify, or disapprove every additional classification action within thirty (30) days of receipt and so advise HUD or its designee or shall notify HUD or its designee within the thirty (30) day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140.)

(c) In the event the Contractor, the laborers or mechanics to be employed in the classification or their representatives and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, shall issue a determination within thirty (30) days of receipt and so advise HUD or its designee or shall notify HUD or its designee within the thirty (30) day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs B.1.(ii)(b) or (c) of this Article, shall be paid to all workers

performing work in the classification under this Contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the Contract for a class of laborers or mechanics includes a fringe benefit that is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided*, That the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

2. Withholding. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the Contractor under this Contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the Contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the Project), all or part of the wages required by the Contract, HUD or its designee may, after written notice to the Contractor, sponsor, applicant, or Owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the Contractor, disburse such amounts withheld for and on account of the Contractor or subcontractor to the respective employees to whom they are due.

3. Payrolls, records, and certifications.

(i) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the Project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1 (b)(2)(B) of the Davis-Bacon Act (40 U.S.C. 3141(2)(B)(ii))), daily and weekly number of hours worked, deductions made and actual wages paid.

Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1 (b)(2)(B) of the Davis-Bacon Act (40 U.S.C. 3141(2)(B)(ii)), the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1215-0140 and 1215-0017.)

(ii)(a) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the Contract, but if the agency is not such a party, the Contractor shall submit the payrolls to the applicant, sponsor, or Owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/whd/forms/wh347.pdf> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to HUD or its designee if the agency is a party to the Contract, but if the agency is not such a party, the Contractor will submit the payrolls to the applicant sponsor, or Owner, as the case may be, for transmission to HUD or its designee, the Contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this subparagraph for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to HUD or its designee. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149.)

(b) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the Contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under 29 CFR 5.5(a)(3)(ii), the appropriate information is being maintained under 29 CFR 5.5(a)(3)(i), and that such information is correct and complete.

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the Contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the Contract.

(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by subparagraph B.3.(ii)(b) of this Article.

(d) The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Sections 3801 et seq of Title 31 of the United States Code.

(iii) The Contractor or subcontractor shall make the records required under subparagraph B.3.(i) of this Article available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the Contractor, sponsor, applicant, or Owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and Trainees.

(i) **Apprentices.** Apprentices shall be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship, or with a State Apprenticeship Agency recognized by such Office, or if a person is employed in his or her first ninety (90) days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship, or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in

any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where the Contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship, or a State Apprenticeship Agency recognized by such Office, withdraws approval of an apprenticeship program, the Contractor shall no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) **Trainees.** Except as provided in 29 CFR 5.16, trainees shall not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman's hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws

approval of a training program, the Contractor shall no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) **Equal employment opportunity.** The utilization of apprentices, trainees and journeymen under 29 CFR Part 5 shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act Requirements. The Contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this Contract.

6. Subcontracts. The Contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraphs 1 through 10 of this paragraph B and such other clauses as HUD or its designee may by appropriate instructions require, and a copy of the applicable prevailing wage determination, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all Contract clauses referenced in this subparagraph.

7. Contract termination and debarment. A breach of the Contract clauses in 29 CFR 5.5 may be grounds for termination of the Contract, and for debarment as a contractor or a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this Contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this Contract shall not be subject to the general disputes clause of this Contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors) and HUD or its designee, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of Eligibility.

(i) By entering into this Contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act (40 U.S.C. 3144(b)(2)) or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(ii) No part of this Contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act (40

U.S.C. 3144(b)(2)) or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001. Additionally, U.S. Criminal Code, Section 1010, Title 18, U.S.C., "Federal Housing Administration transactions", provides in part: "Whoever, for the purpose of . . . influencing in any way the action of such Department . . . makes, passes, utters or publishes any statement, knowing the same to be false . . . shall be fined under this title or imprisoned not more than two years, or both."

C. Contract Work Hours and Safety Standards Act.

1. Applicability and Definitions. This paragraph C of Article 1 is applicable only if a direct form of federal assistance is involved, such as Section 8, Section 202/811 Capital Advance, grants etc., and is applicable only where the prime contract is in an amount greater than \$100,000. As used in this paragraph C, the terms "laborers" and "mechanics" include watchmen and guards.

2. Overtime requirements. No contractor or subcontractor contracting for any part of the Contract work that may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty (40) hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty (40) hours in such workweek.

3. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the immediately preceding subparagraph C.2, the Contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, the Contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory) for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of such subparagraph, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty (40) hours without payment of the overtime wages required by the clause set forth in such subparagraph.

4. Withholding for unpaid wages and liquidated damages. HUD or its designee shall, upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from any moneys payable on account of work performed by the Contractor or subcontractor under any such contract, or under any other Federal contract with the same prime contractor, or under any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act which is held by the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or

subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph 3 of this paragraph C.

5. Subcontracts. The Contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraphs 1 through 5 of this paragraph C and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in such subparagraphs 1 through 5.

D. Certification.

For projects with Security Instruments insured under the National Housing Act, as amended, that are subject to paragraph B of this Article 1, the Contractor is required to execute the Contractor's Prevailing Wage Certificate within HUD-92448 as a condition precedent to insurance by HUD of the Loan, or an advance thereof, made or to be made by the Lender in connection with the construction of the Project.

Article 2: Equal Employment Opportunity

A. Applicability. This Article 2 applies to any contract for construction work, or modification thereof, as defined in the regulations of the Secretary of Labor at 41 CFR Chapter 60, which is paid for in whole or in part with funds obtained from the Federal Government or borrowed on the credit of the Federal Government pursuant to a grant, contract, loan insurance, or guarantee, or undertaken pursuant to any Federal program involving such grant, contract, loan, insurance, or guarantee.

B. The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, disability, or national origin. The Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, disability or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training including apprenticeship. The Contractor agrees to post in conspicuous places available to employees and applicants for employment notices to be provided setting forth the provisions of this nondiscrimination clause.

C. The Contractor shall, in all solicitations or advertisements for employees placed by or on behalf of the Contractor state that all qualified applicants shall receive consideration for employment without regard to race, color, religion, sex, disability, or national origin.

D. The Contractor shall send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding a notice to be provided advising the said labor union or workers representatives of the Contractor's commitments hereunder, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

E. The Contractor shall comply with all provisions of Executive Order 11246 of September 24, 1965 and of the rules, regulations, and relevant orders of the Secretary of Labor.

F. The Contractor shall furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and shall permit access to its books, records, and accounts by the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

G. In the event of the Contractor's noncompliance with the nondiscrimination clauses of this Contract or with any of the said rules, regulations, or orders, this Contract may be canceled, terminated, or suspended in whole or in part and Contractor may be declared ineligible for further government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulations or order of the Secretary of Labor, or as otherwise provided by law.

H. The Contractor shall include the provisions of paragraphs A through H of this Article 2 in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that such provisions shall be binding upon each subcontractor or vendor. The Contractor shall take such action with respect to any subcontract or purchase order as HUD or the Secretary of Labor may direct as a means of enforcing such provisions, including sanctions for noncompliance. *Provided, however,* that in the event the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by HUD or the Secretary of Labor, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

Article 3: Equal Opportunity for Businesses and Lower Income Persons Located Within the Project Area

A. This Article 3 is applicable to projects covered by Section 3, as defined in 24 CFR Part 135.

B. The work to be performed under this Contract is on a project assisted under a program providing direct Federal financial assistance from HUD and is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u. Section 3 requires that to the greatest extent feasible opportunities for training and employment be given to lower income residents of the unit of local government or the metropolitan area (or non-metropolitan county) as determined by HUD in which the Project is located and contracts for work in connection with the Project be awarded to business concerns which are located in, or owned in substantial part by persons residing in the same metropolitan area (or non-metropolitan county) as the Project.

Article 4: Health and Safety

A. This Article 4 is applicable only where the prime contract is in an amount greater than \$100,000.

B. No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his or her health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

C. The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to 29 CFR Part 1926, and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act, 40 USC 3701 et seq.

D. The Contractor shall include the provisions of this Article 4 in every subcontract so that such provisions shall be binding on each subcontractor. The Contractor shall take such action with respect to any subcontract as HUD or the Secretary of Labor shall direct as a means of enforcing such provisions.

Equal Employment Opportunity

CONTRACTOR'S AFFIRMATIVE ACTION REQUIREMENTS HUD-98198 (9-79)

- A. **Attachment A** is the Goals and Timetables for Minority and Female Utilization under this contract. They are expressed as percentages of the aggregate workforce in each trade. The goal for minority participation is 4.0%, trade by trade, of the workforce. The goal for the participation of women is 6.9%, trade by trade, of the workforce. These goals must be included in all non-exempt subcontracts also.

- B. **Attachment B** is called the "Equal Employment Opportunity (EEO) Clause." This must be included in all contracts, subcontracts and/or purchase orders which exceed \$10,000. The EEO Clause consists of paragraphs 1-7.

- C. **Attachment C** covers the Equal Opportunity Standards (EOS). This part details the obligations of prime and non-exempt subcontractors working under the contract.
 - 1. It defines the applicable minority groups;
 - 2. It defines the Affirmative Action (AA) requirements in paragraphs 7a - 7p;
 - 3. It spells out your obligations in dealing with craft unions;
 - 4. It defines the sanctions and penalties for non-compliance on the part of subcontractors,
 - 5. Requires you to identify a responsible company official who will monitor, report and evaluate you AA efforts

ATTACHMENT A

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)

1. The Offeror's or Bidder's attention is called to the "Equal Employment Opportunity (EEO) Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.
2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate work force in each trade on all construction work in the covered area, are as follows:

Goals for minority participation for each trade: 4.0

Goals for female participation for each trade: 6.9

These goals are applicable to all the contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is Lowell, Massachusetts.

3. The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4. shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60.4.3 (a), and its efforts to meet the goals established for the geographical area where the contract resulting from this solicitation is to be performed. The hours of minority and females employment and training must substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees to trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.
4. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction contract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the following information for the General Contractor and each Subcontractor: name, address and telephone number; employer identification number; estimated dollar amount of each contract; estimated starting and completion dates of each contract; and the geographical area in which the contract is to be performed. The address is as follows:

Office of Federal Contract Compliance
U.S. Department of Labor
JFK Federal Building - Room E235
Boston, MA 02203

ATTACHMENT B

EQUAL EMPLOYMENT OPPORTUNITY (EEO) CLAUSE

The applicant agrees that it will incorporate or cause to be incorporated into any contract for construction work, or modification thereof, as defined in the regulations of the Secretary of Labor at 41 CFR Chapter 60, which is paid for in whole or in part with funds obtained from the Federal Government or borrowed on the credit of the Federal Government pursuant to a grant contract, loan, insurance, or guarantee, or undertaken pursuant to any Federal program involving such a grant, contract, loan, insurance, or guarantee, the following equal opportunity clause:

During the performance of this contract, the Contractor agrees as follows:

1. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay, or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
2. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.
3. The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the Contractors' commitments under this section and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
4. The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
5. The Contractor will furnish all information and reports required by Executive order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of ascertain compliance with such rules, regulations, and orders.
6. In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be cancelled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

7. The Contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each Subcontractor or vendor. The will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provided however, that in the event a Contractor becomes involved in, or is threatened with litigation with a Subcontractor or vendor as a result of such direction by the administering agency, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

The applicant further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work: Provided that if the applicant so participating is a State or local government the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the contract.

The applicant agrees that it will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of Contractors and Subcontractors with the equal opportunity clause and the rules, regulations, and relevant order of the Secretary of Labor, that it will furnish the administering agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the administering agency in the discharge of the agency's primary responsibilities for securing compliance.

The applicant further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a Contractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon Contractors and Subcontractors by the administering agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive Order. In addition, the applicant agrees that if it fails or refuses to comply with these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (contract, loan, insurance, guarantee): refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.

ATTACHMENT C

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION SPECIFICATIONS (EXECUTIVE ORDER 11246)

1. As used in these specifications:
 - a) "Covered area" means the geographical area described in the solicitation from which this contract resulted:
 - b) "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority.
 - c) "Employer identification number" means the Federal Social Security Number used on the Employers Quarterly Federal Tax Return, U.S. Treasury Department Form 941.
 - d) "Minority" includes:
 - i. Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
 - ii. Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
 - iii. Asian and Pacific Island (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
 - iv. American Indian or Alaskan Native; (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).
2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which the contract resulted.
3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to make good faith efforts to achieve the Plan goals and timetables.
4. The Contractor shall implement the specific affirmative action standards provided in Paragraph 7a through p of these specifications. The goals set forth in the solicitation from which this contract

resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.
6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.
7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:
 - a) Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
 - b) Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organization's responses.
 - c) Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source of community organization and of what action was taken with respect to each such individuals. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken.
 - d) Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

- e) Develop on-the-job training opportunity and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources complied under 7b. above.
- f) Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc. by specific review of the policy with all management personnel and with all minority and female employees at least once a year, and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
- g) Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these terms with on-site supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
- h) Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractor and Subcontractors with whom the Contractor does or anticipates doing business.
- i) Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
- j) Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractors work force.
- k) Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
- l) Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

- m) Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.
 - n) Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
 - o) Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers including circulation of solicitations to minority and female contractor associations.
 - p) Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.
8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of the contractor association, joint contractor union, contractor-community, or other similar group of which the contractor is a member and a participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female work force participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractors, and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.
9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may also be in violation of the Executive Order if a specific minority group of women is underutilized.)
10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.
11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.
12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination, and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulating, by the Office of Federal Contract Compliance Programs. Any Contractor who

fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications shall implement specific affirmative action steps, at least as extensive as those standards prescribed in Paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.3.
14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records shall as least include for each employee the name, address, telephone numbers, construction trade, union affiliation, if any, employee identification number when assigned, social security number, race, sex, status (e.g. mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.
15. Nothing herein provided shall be construed as a limitation upon the application of other laws which established different standards of compliance or upon the application of requirements for the hiring of local or other residents (e.g. those under the Public Work Employment Act of 1977 and the Community Development Block Grant Program).

END OF SECTION

**Equal Employment
Opportunity Certification**
Excerpt From 41 CFR §60-1.4(b)

**U.S. Department of Housing
and Urban Development**
Office of Housing
Federal Housing Commissioner

Department of Veterans Affairs
OMB Control No. 2502-0029
(exp. 9/30/2016)

The applicant hereby agrees that it will incorporate or cause to be incorporated into any contract for construction work, or modification thereof, as defined in the regulations of the Secretary of Labor at 41 CFR Chapter 60, which is paid for in whole or in part with funds obtained from the Federal Government or borrowed on the credit of the Federal Government pursuant to a grant, contract, loan insurance, or guarantee, or undertaken pursuant to any Federal program involving such grant, contract, loan, insurance, or guarantee, the following equal opportunity clause:

During the performance of this contract, the contractor agrees as follows:

- (1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin, such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
- (2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, or national origin.
- (3) The contractor will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- (4) The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations and relevant orders of the Secretary of Labor.
- (5) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to its books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

- (6) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
- (7) The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: **Provided, however,** That in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the contractor may request the United States to enter into such litigation to protect the interests of the United States.

The applicant further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work:

Provided, That if the applicant so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the contract.

The applicant agrees that it will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of contractors and subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish the administering agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the administering agency in the discharge of the agency's primary responsibility for securing compliance.

The applicant further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or who has not demonstrated eligibility for, Government contracts and Federally-assisted construction contracts pursuant to the Executive order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed

Firm Name and Address	By
	Title

upon contractors and subcontractors by the administering agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive order. In addition, the applicant agrees that if it fails or refuses to comply with these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.

Excerpt from HUD Regulations

200.410 Definition of term "applicant".

- (a) In multifamily housing transactions where controls over the mortgagor are exercised by the Commissioner either through the ownership of corporate stock or under the provisions of a regulatory agreement, the term "applicant" as used in this subpart shall mean the mortgagor.
- (b) In transactions other than those specified in paragraph(a) of this section, the term "applicant" as used in this subpart shall mean the builder, dealer or contractor performing the construction, repair or rehabilitation work for the mortgagor or other borrower.

200.420 Equal Opportunity Clause to be included in contracts and subcontracts.

- (a) The following equal opportunity clause shall be included in each contract and subcontract which is not exempt:

During the performance of this contract, the contractor agrees as follows:

- (1) The contractor will not discriminate against any employee or applicant for employment because of race, creed, color, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, creed, color, or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of the nondiscrimination clause.

- (2) The contractor will in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard race, creed, color, or national origin.

- (3) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided, advising the said labor union or workers' representative of the contractor's commitments under this section, and shall post copies of the notices in conspicuous places available to employees and applicants for employment.

- (4) The contractor will comply with all provisions of Executive Order 10925 of March 6 1961, as amended, and of the regulations, and relevant orders of the President's Committee on Equal Employment Opportunity created thereby.

- (5) The contractor will furnish all information and reports required by Executive Order 10925 of March 6, 1961, as amended, and by the regulations, and orders of the said Committee, or pursuant thereto, and will permit access to his books, records, and accounts by HUD and the Committee for purposes of investigation to ascertain compliance with such regulations, and orders.

- (6) In the event of the contractor's non-compliance with the nondiscrimination clause of this contract or with any of the said regulations, or orders, this contract may be cancelled, terminated or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or Federally-assisted construction contracts in accordance with procedures authorized in Executive Order 10925 of March 6, 1961, as amended, and such other sanctions may be imposed and remedies invoked provided in the said Executive Order or by regulations, or order of the President's Committee on Equal Employment Opportunity, or as otherwise provided by law.

- (7) The contractor will include the provisions of Paragraphs(1) through (7) in every subcontract or purchase order unless exempted by regulations, or orders of the President's Committee on Equal Employment Opportunity issued pursuant to Section 303 of Executive Order 10925 of March 6, 1961, as amended, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase orders as HUD may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however, that in the event the contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by HUD, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

- (b) Except in subcontracts for the performance of construction work at the site of construction, the clause is not required to be inserted in subcontracts below the second tier. Subcontracts may incorporate by reference to the equal opportunity clause.

200.425 Modification in and exemptions from the regulations in this subpart.

- (a) The following transactions and contracts are exempt from the regulations in this subpart:

- (1) Loans, mortgages, contracts and subcontracts not exceeding \$10,000.

- (2) Contract and subcontracts not exceeding \$100,000 for standard commercial supplies or raw material;

- (3) Contracts and subcontracts under which work is to be or has been performed outside the United States and where no recruitment of workers within the United States is involved. To the extent that work pursuant to such contracts is done within the United States, the equal opportunity clause shall be applicable;

- (4) Contracts for the sale of Government property where no appreciable amount of work is involved; and

- (5) Contracts and subcontracts for an indefinite quantity which are not to extend for more than one year if the purchaser determines that the amounts to be ordered under any such contract or subcontract are not reasonably expected to exceed \$100,000 in the case of contracts or subcontracts for standard commercial supplies and raw materials, or \$10,000 in the case of all other contracts and subcontracts.

SECTION 00.73.36

EQUAL EMPLOYMENT OPPORTUNITY REQUIREMENTS

1. DEFINITIONS

For purposes of this Section 00.73.36, the following additional definitions shall apply:

- A.** "Minority" means a person who meets one or more of the following definitions:
 - (1.)** American Indian or Native American means: all persons having origins in any of the original peoples of North America and who are recognized as an Indian by a tribe or tribal organization.
 - (2.)** Asian means: All persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian sub-continent, or the Pacific Islands, including, but Not limited to China, Japan, Korea, Samoa, India, and the Philippine Islands.
 - (3.)** Black means: All persons having origins in any of the Black racial groups of Africa, including, but not limited to, African-Americans, and all persons having origins in any of the original peoples of the Cape Verdean Islands.
 - (4.)** Eskimo or Aleut means: All persons having origins in any of the peoples of Northern Canada, Greenland, Alaska, and Eastern Siberia.
 - (5.)** Hispanic means: All persons having their origins in any of the Spanish-speaking peoples of Mexico, Puerto Rico, Cuba, Central or South America, or the Caribbean Islands.
- B.** "Commission" or "MCAD" means the Massachusetts Commission Against Discrimination.
- C.** "E.E.O. Officer" or Equal Employment Opportunity Officer means those persons designated by the Contractor, the Owner, or any other agency or party having jurisdiction under this contract, that serve in a capacity to implement this Section.

2. CONDITIONS

- A.** The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religious creed, national origin, age, handicap, or sex. The aforesaid provision shall include, but not be limited to, the following: employment upgrading, demotion or transfer; recruitment advertising; recruitment layoff; termination; rates of pay or other forms of compensation; conditions or privileges of employment; and selection for apprenticeship.
- B.** The Contractor shall post notices provided by the Commission, in conspicuous places, setting forth the provisions of the Fair Employment Practices Law of the Commonwealth.
- C.** The Contractor shall undertake in good faith affirmative action measures designed to eliminate any discriminatory barriers in the terms and conditions of employment on the grounds of race, color, religious creed, national origin, age, handicap, or sex, and to eliminate and remedy any effects of such discrimination in the past. Such affirmative action shall entail positive and aggressive measures to ensure equal opportunity in the areas of hiring, upgrading, demotion or transfer, recruitment, layoff or termination, rate of compensation, and in-service or apprenticeship training programs. This affirmative action shall include all action required to guarantee equal employment opportunity for all persons, regardless of race, color, religious creed, national origin, age or sex.
- D.** The Contractor shall not discriminate on grounds of race, color, religious creed, national origin, age, or sex in employment practices, in the selection or retention of Subcontractors, or in the procurement of materials and rentals of equipment.
- E.** The Commission and a designee of the Owner shall have access to the construction site and all applicable records of the Contractor and Subcontractors.
- F.** The Contractor's EEO Certificate must be signed by the low general and all filed sub-bidders as a condition of Contract validation by the Department.

3. MINORITY GOAL **MINIMUM MINORITY PERCENTAGES**

- A. Pursuant to his/her obligations under the preceding section, the Contractor shall strive to achieve on this project the labor participation goals contained herein

The participation goals for this project shall be 15.3% for minorities and 6.9% for women.

- B. The participation goals, as set forth herein, shall not be construed as quotas or set-asides; rather, such participation goals will be used to measure the progress of the Commonwealth's equal opportunity, non-discrimination and affirmative action program. Additionally, the participation goals contained herein should not be seen or treated as a floor or as a ceiling for the employment of particular individuals or group of individuals.
- C. Such job categories shall include but not be limited to those "Classes of Work" enumerated in M.G.L. c.149 §44F and for trades covered by Item 1 of the Contractor's bid.
- D. These percentages shall apply to the Contractor and to all Subcontractors, regardless of tier, for all on-site Work.

4. REFERRALS

- A. In the hiring of minority journeymen, apprentices, trainees and advanced trainees, the Contractor shall rely on referrals from a multi-employer affirmative action program approved by the Department or the Commission; and traditional referral methods utilized by the construction industry, where such referrals are needed to meet minority hiring requirements. The Contractor shall keep accurate records of such requests for referrals.
- B. Records of employment referral orders, prepared by the Contractor, shall be made available to the Owner and to the Department upon request.

5. EEO WORK FORCE REPORTING PROCEDURES

- A. The Contractor shall provide the following information to the Owner on copies of the forms found at the end of this Section.

(1.) Weekly Manpower Reports 00.73.36.04: The Contractor shall prepare a report after each week of activity, reflecting the actual working hours of all personnel identified as minority or non-minority.

- (a) This report shall be received by the Owner no later than the Friday following the week reported.
- (b) Failure to provide information shall result in sanctions as provided in this section.

6. COMPLIANCE - REPORTS AND INFORMATION

- A. The Contractor shall provide all information and reports required by the Owner or the Department and will permit access to its facilities and to any books, records, accounts and other sources of information which may be determined by the Owner or the Department to affect the employment of personnel. Where information required is in the exclusive possession of another who fails or refuses to furnish this information, the Contractor shall so certify to the Owner or the Department as appropriate and shall set forth what efforts have been made to obtain the information.

7. COMPLIANCE - INVESTIGATIONS

- A.** Whenever the Owner's EEO Officer, the MCAD, or the Department believes the Contractor may not be operating in compliance with the terms of these requirements, the Department shall conduct an investigation, and may confer with the parties, to verify such allegations. The Department shall not initiate an investigation without prior notice to the Contractor.
- B.** If the Department finds the Contractor in non-compliance, it shall make a preliminary report, and notify the Contractor in writing of the steps necessary to bring such Contractor into compliance. A copy of this report shall be sent to the Department's Affirmative Action Officer.

8. COMPLIANCE - DEPARTMENT - AFFIRMATIVE ACTION INVESTIGATION

- A.** If the Contractor fails or refuses to fully perform the steps necessary to achieve compliance, the Department shall make a report of non-compliance to the Department's Affirmative Action Officer, who will then conduct an investigation.
- B.** Should the Department's Affirmative Action Officer find the Contractor in non-compliance a final report recommending the imposition of one or more of the sanctions listed below shall be issued.
- C.** Within fifteen (15) days of said report the Department shall, after due notice and giving the Contractor an opportunity to respond, move to impose one or more of the following sanctions to attain compliance.
- D.** If the Department's Affirmative Action Office believes the Contractor has taken or is taking every possible measure to achieve compliance, a report shall show the Contractor is in compliance.

9. SANCTIONS

- A.** For each week that the Contractor fails or refuses to comply, the Department may recover from the Contractor, 1/100 of 1% of the original Contract Sum or \$1000 whichever sum is greater, in the nature of liquidated damages.
- B.** If a Subcontractor is in non-compliance, the Department may recover from the Contractor, 1/10 of 1% of the Subcontract Sum, or \$400 whichever sum is greater, in the nature of liquidated damages, to be assessed by the Contractor as a back charge against the Subcontractor for each week that Subcontractor fails or refuses to comply.
- C.** The Owner may suspend part or all of any payment due under the contract until such time as the Contractor or any Subcontractor is able to demonstrate compliance with the terms of the Contract;
- D.** The Owner may terminate, or cancel part or all of the Contract, in accordance with the provisions of Article 19 of the General Conditions, unless the Contractor or any Subcontractor is able to demonstrate, within a specified time, compliance with the terms of the Contract.
- E.** The Contractor may request the Department and Owner to suspend the sanctions conditionally. Whereupon the Department shall investigate corrective measures taken by the Contractor and shall either lift or re-impose the sanctions.

10. SEVERABILITY

- A.** The provisions of this section are severable, and if any of these provisions shall be held unconstitutional by any court of competent jurisdiction, the decision of such court shall not affect or impair any of the remaining provisions of the Contract.

END OF EQUAL EMPLOYMENT OPPORTUNITY REQUIREMENTS
00.73.36

FORM OF CONTRACTOR'S EQUAL EMPLOYMENT CERTIFICATION

This form must be completed and submitted by the Contractor prior to the signing of the Owner-Contractor Agreement.

This certifies that:

_____ Contractor

_____ Street Address

_____ City/State/Zip Code

1. Intends to use the following listed construction trades in the work under this contract:

2. Will comply with the minority manpower ratio and specific affirmative action steps contained in Section 00.73.36 of this Contract; and
3. Will obtain similar certifications from each of its subcontractors and submit to the Owner prior to the award of any subcontract under this contract the subcontractor's certification.

SIGNATURE OF AUTHORIZED REPRESENTATIVE OF CONTRACTOR

NAME AND TITLE

DATE

Contract and Subcontract Activity

Public Reporting Burden for this collection of information is estimated to average .50 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. This information is voluntary. HUD may not collect this information, and you are not required to complete this form, unless it displays a currently valid OMB Control Number.

Executive Order 12421 dated July 14, 1983, directs the Minority Business Development Plans shall be developed by each Federal Agency and that these annual plans shall establish minority business development objectives. The information is used by HUD to monitor and evaluate MBE activities against the total program activity and the designated minority business enterprise (MBE) goals. The Department requires the information to provide guidance and oversight for programs for the development of minority business enterprise concerning Minority Business Development. If the information is not collected HUD would not be able to establish meaningful MBE goals nor evaluate MBE performance against these goals. While no assurances of confidentiality is pledged to respondents, HUD generally discloses this data only in response to a Freedom of Information request.

Privacy Act Notice - The United States Department of Housing and Urban Development, Federal Housing Administration, is authorized to solicit the information requested in this form by virtue of Title 12, United States Code, Section 1701 et seq., and regulations promulgated thereunder at Title 12, Code of Federal Regulations. It will not be disclosed or released outside the United States Department of Housing and Urban Development without your consent, except as required or permitted by law.

1. Grantee/Project Owner/Developer/Sponsor/Builder/Agency	Check if: PHA <input type="checkbox"/> IHA <input type="checkbox"/>	2. Location (City, State, ZIP Code)		
3a. Name of Contact Person	3b. Phone Number (Including Area Code)	4. Reporting Period <input type="checkbox"/> Oct. 1 - Sept. 30 (Annual-FY)	5. Program Code (Not applicable for CPD programs.) See explanation of codes at bottom of page. Use a separate sheet for each program code.	6. Date Submitted to Field Office

Grant/Project Number or HUD Case Number or other identification of property, subdivision, dwelling unit, etc. 7a.	Amount of Contract or Subcontract 7b.	Type of Trade Code (See below) 7c.	Contractor or Subcontractor Business Racial/Ethnic Code (See below) 7d.	Woman Owned Business (Yes or No) 7e.	Prime Contractor Identification (ID) Number 7f.	Sec. 3 7g.	Subcontractor Identification (ID) Number 7h.	Sec. 3 7i.	Contractor/Subcontractor Name and Address 7j.										
									Name	Street	City	State	Zip Code						

- | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>CPD:
 1 = New Construction
 2 = Education/Training
 3 = Other</p> <p>7c: Type of Trade Codes:
 Housing/Public Housing:
 1 = New Construction
 2 = Substantial Rehab.
 3 = Repair
 4 = Service
 5 = Project Mangt.</p> | <p>7d: Racial/Ethnic Codes:
 1 = White Americans
 2 = Black Americans
 3 = Native Americans
 4 = Hispanic Americans
 5 = Asian/Pacific Americans
 6 = Hasidic Jews</p> | <p>5: Program Codes (Complete for Housing and Public and Indian Housing programs only):
 1 = All insured, including Section 8
 2 = Flexible Subsidy
 3 = Section 8 Noninsured, Non-HFDA
 4 = Insured (Management)</p> <p>5 = Section 202
 6 = HUD-Held (Management)
 7 = Public/Indian Housing</p> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

This report is to be completed by grantees, developers, sponsors, builders, agencies, and/or project owners for reporting contract and subcontract activities of \$10,000 or more under the following programs: Community Development Block Grants (entitlement and small cities); Urban Development Action Grants; Housing Development Grants; Multifamily Insured and Noninsured; Public and Indian Housing Authorities; and contracts entered into by recipients of CDBG rehabilitation assistance.

Contracts/subcontracts of less than \$10,000 need be reported only if such contracts represent a significant portion of your total contracting activity. Include only contracts executed during this reporting period.

This form has been modified to capture Section 3 contract data in columns 7g and 7i. Section 3 requires that the employment and other economic opportunities generated by HUD financial assistance for housing and community development programs shall, to the greatest extent feasible, be directed toward low- and very low-income persons, particularly those who are recipients of government assistance for housing. Recipients using this form to report Section 3 contract data must also use Part I of form HUD-60002 to report employment and training opportunities data. Form HUD-2516 is to be

completed for public and Indian housing and most community development programs. Form HUD-60002 is to be completed by all other HUD programs including State administered community development programs covered under Section 3.

A Section 3 contractor/subcontractor is a business concern that provides economic opportunities to low- and very low-income residents of the metropolitan area (or nonmetropolitan county), including a business concern that is 51 percent or more owned by low- or very low-income residents; employs a substantial number of low- or very low-income residents; or provides subcontracting or business development opportunities to businesses owned by low- or very low-income residents. Low- and very low-income residents include participants in Youthbuild programs established under Subtitle D of Title IV of the Cranston-Gonzalez National Affordable Housing Act.

The terms "low-income persons" and "very low-income persons" have the same meanings given the terms in section 3(b)(2) of the United States Housing Act of 1937. Low-income persons mean families (including single persons) whose incomes do not exceed 80 per centum of the median income for the area, as determined by the Secretary, with adjustments for smaller and larger families, except that the Secretary

may establish income ceilings higher or lower than 80 per centum of the median for the area on the basis of the Secretary's findings that such variations are necessary because of prevailing levels of construction costs or unusually high or low-income families. Very low-income persons means low-income families (including single persons) whose incomes do not exceed 50 per centum of the median family income for the area, as determined by the Secretary with adjustments for smaller and larger families, except that the Secretary may establish income ceilings higher or lower than 50 per centum of the median for the area on the basis of the Secretary's findings that such variations are necessary because of unusually high or low family incomes.

Submit two (2) copies of this report to your local HUD Office within ten (10) days after the end of the reporting period you checked in item 4 on the front.

Complete item 7h. only once for each contractor/subcontractor on each semi-annual report.

Enter the prime contractor's ID in item 7f. for all contracts and subcontracts. Include only contracts executed during this reporting period. PHAs/IHAs are to report all contracts/subcontracts.

Community Development Programs

1. **Grantee:** Enter the name of the unit of government submitting this report.
3. **Contact Person:** Enter name and phone of person responsible for maintaining and submitting contract/subcontract data.
- 7a. **Grant Number:** Enter the HUD Community Development Block Grant Identification Number (with dashes). For example: B-32-MC-25-0034. For Entitlement Programs and Small City multi-year comprehensive programs, enter the latest approved grant number.
- 7b. **Amount of Contract/Subcontract:** Enter the dollar amount rounded to the nearest dollar. If subcontractor ID number is provided in 7f, the dollar figure would be for the subcontract only and not for the prime contract.
- 7c. **Type of Trade:** Enter the numeric codes which best indicates the contractor's/subcontractor's service. If subcontractor ID number is provided in 7f., the type of trade code would be for the subcontractor only and not for the prime contractor. The "other" category includes supply, professional services and all other activities except construction and education/training activities.
- 7d. **Business Racial/Ethnic/Gender Code:** Enter the numeric code which indicates the racial/ethnic /gender character of the owner(s) and controller(s) of 51% of the business. When 51% or more is not owned and controlled by any single racial/ethnic/gender category, enter the code which seems most appropriate. If the subcontractor ID number is provided, the code would apply to the subcontractor and not to the prime contractor.
- 7e. **Woman Owned Business:** Enter Yes or No.
- 7f. **Contractor Identification (ID) Number:** Enter the Employer (IRS) Number of the Prime Contractor as the unique identifier for prime recipient of HUD funds. Note that the Employer (IRS) Number must be provided for each contract/subcontract awarded.
- 7g. **Section 3 Contractor:** Enter Yes or No.
- 7h. **Subcontractor Identification (ID) Number:** Enter the Employer (IRS) Number of the subcontractor as the unique identifier for each subcontract awarded from HUD funds. When the subcontractor ID Number is provided, the respective Prime Contractor ID Number must also be provided.
- 7i. **Section 3 Contractor:** Enter Yes or No.
- 7j. **Contractor/Subcontractor Name and Address:** Enter this information for each

Previous editions are obsolete.

firm receiving contract/subcontract activity only one time on each report for each firm.

Multifamily Housing Programs

1. **Grantee/Project Owner:** Enter the name of the unit of government, agency or mortgagor entity submitting this report.
3. **Contact Person:** Same as item 3 under CPD Programs.
4. **Reporting Period:** Check only one period.
5. **Program Code:** Enter the appropriate program code.
- 7a. **Grant/Project Number:** Enter the HUD Project Number or Housing Development Grant or number assigned.
- 7b. **Amount of Contract/Subcontract:** Same as item 7b. under CPD Programs.
- 7c. **Type of Trade:** Same as item 7c. under CPD Programs.
- 7d. **Business Racial/Ethnic/Gender Code:** Same as item 7d. under CPD Programs.
- 7e. **Woman Owned Business:** Enter Yes or No.
- 7f. **Contractor Identification (ID) Number:** Same as item 7f. under CPD Programs.
- 7g. **Section 3 Contractor:** Enter Yes or No.
- 7h. **Subcontractor Identification (ID) Number:** Same as item 7h. under CPD Programs.
- 7i. **Section 3 Contractor:** Enter Yes or No.
- 7j. **Contractor/Subcontractor Name and Address:** Same as item 7j. under CPD Programs.

Public Housing and Indian Housing Programs

PHAs/IHAs are to report all contracts/subcontracts. Include only contracts executed during this reporting period.

1. **Project Owner:** Enter the name of the unit of government, agency or mortgagor entity submitting this report. Check box as appropriate.
3. **Contact Person:** Same as item 3 under CPD Programs.
4. **Reporting Period:** Check only one period.
5. **Program Code:** Enter the appropriate program code.
- 7a. **Grant/Project Number:** Enter the HUD Project Number or Housing Development Grant or number assigned.
- 7b. **Amount of Contract/Subcontract:** Same as item 7b. under CPD Programs.
- 7c. **Type of Trade:** Same as item 7c. under CPD Programs.
- 7d. **Business Racial/Ethnic/Gender Code:** Same as item 7d. under CPD Programs.
- 7e. **Woman Owned Business:** Enter Yes or No.
- 7f. **Contractor Identification (ID) Number:** Same as item 7f. under CPD Programs.
- 7g. **Section 3 Contractor:** Enter Yes or No.
- 7h. **Subcontractor Identification (ID) Number:** Same as item 7h. under CPD Programs.
- 7i. **Section 3 Contractor:** Enter Yes or No.
- 7j. **Contractor/Subcontractor Name and Address:** Same as item 7j. under CPD Programs.



Massachusetts Department of
Housing and Community Development



EEO CONTRACTOR'S WEEKLY MANPOWER REPORT

_____ Housing Authority Development No. _____ Contract Amount \$ _____

General Contractor: _____ **Minority** Participation Goal **15.3%** **Women** Participation Goal **6.9%**

Name of Contractor Filing Report: _____ Trade(s): _____

Week Ending: _____ Report No.: _____ Check Here if you are a non-filed Subcontractor

Check Here if this is a Final Report Date Work Began: _____ Date Work Completed _____

Job Category	# of Employees	Weekly Total Manhours	Total Manhours to Date	# of Minorities	Weekly Total Minority Manhours	Weekly % Minority Manhours	# of Women	Weekly Total Women Manhours	Weekly % Women Manhours	Total Manhours to Date	Total Minority Manhours to Date	% of Minority Manhours to Date	Total Women Manhours to Date	% of Women Manhours to Date

Mail Reports to: _____ Awarding Authority Prepared by: _____

Title: _____

Date: _____ 20_____

00.73.39
SUPPLIER DIVERSITY PROGRAM - EXECUTIVE ORDER 524
MINORITY AND WOMEN BUSINESS ENTERPRISES

1. PROJECT REQUIREMENTS

General bidders must agree to contract with minority and women-owned businesses as certified by the Supplier Diversity Office (SDO) formerly known as SOMWBA. The amount of participation which shall be reserved for such enterprises shall not be less than the percentages stated in document 00.11.00 Advertisement found elsewhere in these contract documents.

2. DEFINITIONS:

For purposes of this Section 00.73.39.00 the following definitions shall apply:

- A. "Minority business enterprise" or "MBE", means a business enterprise that is owned and controlled by one or more socially or economically disadvantaged persons. Such disadvantage may arise from cultural, racial, chronic economic circumstances or background or other similar cause. Such persons include, but are not limited to, African Americans, Cape Verdeans, Western Hemisphere Hispanics, Asians, American Indians, Eskimos, and Aleuts. For purposes of section 61 and of section 40N of chapter 7, the term "minority owned business" shall have the same meaning as "minority business enterprise".
- B. "SDO" means the Supplier Diversity Office. ,
- C. "Minority Business Enterprise" (MBE) means a business organization which is owned and controlled fifty-one percent (51%) or more by one or more minority group members and certified as such by SDO.
- D. "Women Business Enterprise" (WBE) means a business organization which is owned and controlled fifty-one percent (51%) or more by one or more women and certified as such by SDO.
- E. "MBE/WBE Manufacturer" means a person or firm certified by SDO and engaged in the process of making, fabricating, constructing, forming or assembling a product(s) from raw, unfinished, semi-finished, or finished materials through a direct contract with a contractor, subcontractor, or supplier.
- F. "MBE/WBE Subcontractor" means a person or firm certified as such by SDO and contractually engaged by the contractor to perform a portion (a) of the contracted Work, including labor, materials and supplies, or (b) labor, materials and supplies, or any combination thereof.
- G. "MBE/WBE Supplier" means a person or firm certified as such by SDO and engaged in selling of materials and supplies to contractors, subcontractors, and/or manufacturers for the purpose of constructing, repairing, remodeling, adding to or subtracting from, or improving any building, structure or property through a direct contract with a contractor or subcontractor. Said MBE/WBE must sustain substantial financial risk in the process of performing/supplying the work for this contract.
- H. "Amount of Participation" means the percentage stated on the advertisement of the final contract amount which is to be contracted to MBE/WBEs for work to be performed on this contract in accordance with this Section 00.73.39.

3. JOINT VENTURES

- A. A Joint Venture shall mean a business arrangement between MBE/WBEs and a non-SDO certified General Contractor, in which the MBE or WBE has at least a twenty-five percent (25%) interest in the Contract, and in which the other has at least the required minimum percentage of participation

in the Contract. It is expected that the M/WBE having the minimum 25% interest will participate in the management and decision making aspects of the project proportionate to its percentage of ownership and interest in the Contract.

- B. An M/WBE Joint Venture shall mean a business arrangement wherein a SDO certified MBE or WBE serves as a General Contractor and engages the services of another SDO certified MBE or WBE (whichever is required) in an amount not less than twenty-five percent (25%) of the Contract amount, and in which the management and decision making aspects of the project are shared to the degree of participation and ownership in the Contract.

4. CONDITIONS

- A. Once the Contractor agrees to comply with these provisions, and within 5 working days after receipt of bids, unless an extension of time or waiver for compliance is granted in accordance with Article 3 of the Instructions to Bidders, the apparent low bidder must submit a completed Participation Schedule and Letters of Intent covering each SDO certified MBE and WBE used to satisfy the requirements of this Section 00.73.39. These letters shall include the contract items the MBEs and/or WBEs are proposing to perform and the prices that the MBEs and/or WBEs propose to charge for the work.
- B. MBE and WBEs listed on the Participation Schedule may be any combination of MBE/WBE Subcontractors, MBE/WBE Manufactures, or MBE/WBE Suppliers as defined in Paragraph 2.G.
- C. Letters of Intent are not required from filed sub-bidders who are SDO Certified MBEs or WBEs.
- D. The amount of participation of MBE/WBEs listed in The Participation Schedule must total at least the percentage set forth in the Advertisement. The amounts indicated in the Letter of Intent shall not be less than the amount shown on the Participation Schedule. The SDO Certified MBEs and/or WBEs for whom Letters of Intent are submitted must be identical to the ones listed on the Participation Schedule. No substitutions shall be made without the written approval of the Owner.
- E. The Contractor may include MBEs and/or WBEs utilized by non-certified subcontractors to satisfy the requirements of this article.
- F. MBE/WBE Certification from any other agency/municipality shall not be considered applicable for this Contract.
- G. If a filed sub-bidder listed as a MBE and/or WBE is rejected for failure to obtain a performance and payment bond from a surety qualified to do business in the Commonwealth when requested by the general bidder to do so at the time of bid, said failure shall not entitle the general bidder to avoid the requirements of this Section 00.73.39.
- H. The Contractor shall not change the MBEs and/or WBEs listed in the Participation Schedule or make any other such MBE/WBE substitutions after the Contract has been executed or during construction without the written approval of the Owner.

5. COMPLIANCE

- A. The Contractor must provide information as is necessary, in the judgment of the Owner to ascertain compliance with the terms of this Section 00.73.39.
- B. The Contractor shall provide an executed Contractor's Affidavit of Payment to Minority Business Enterprises Form 00.73.39.05 as found in this Section.
- C. If the Contractor desires to comply with this Section 00.73.39, but for reasons beyond its control cannot do so in accordance with the Participation Schedule, the Contractor must submit to the Owner the reason for its inability to comply and proposed revisions to the Participation Schedule stating how conditions of this Section 0073.39 are to be met.

6. MBE/WBE REPORTING PROCEDURES

- A. The Contractor shall provide, an executed Contractor's Affidavit of Payment to Minority Business Enterprises 00.73.39.05 on a copy of the form found at the end of this Section.
- (1.) The Owner may request copies of canceled checks to confirm compliance.
 - (2.) This affidavit shall be submitted by the Contractor as payments are made to MBE/WBEs for Work completed on this project.
 - (3.) Affidavits shall be sent to:
Department of Housing and Community Development
100 Cambridge Street – 3rd Floor
Boston, MA 02114
ATT: Construction Contract Specialist
 - (4.) Failure to submit by these reports could result in sanctions described in Paragraph 7.

7. SANCTIONS

- A. If at any time during the life of this Contract, the Contractor is found to be out of compliance with this Section 00.73.39, sanctions may be imposed within fifteen (15) working days after notification to the Contractor of said violation. If within those fifteen (15) days the Contractor remedies the non-compliance to the satisfaction of the Owner or provides compelling documentation as outlined in Paragraph 8.B said sanctions may be postponed or waived. If the Contractor requires more than fifteen (15) days to remedy non-compliance, it shall make a written request to the Owner for a time extension. This request shall be made within the original fifteen (15) day period.
- B. If the Contractor fails to comply with the terms of these conditions, the Owner may impose the following sanctions:
- (.1) require the Contractor to provide equivalent substitute participation with SDO Certified MBEs and/or WBEs acceptable to the Owner and at no additional cost to the Owner; or
 - (.2) suspend any payment for the Work that should have been but was not performed by a MBE and/or WBE pursuant to the Participation Schedule.
- C. To the extent that the Contractor has not complied with the terms of these conditions, the Owner may withhold from any Certificate for Payment moneys equivalent to the product of the percentage of completion times the MBE and/or WBE dollar amount, minus the amount already paid to MBEs and/or WBEs for Work performed under the contract, minus any amounts withheld for previous non-compliance.

8. RECOURSE

- A. The Owner has the option not to impose sanctions if the Contractor demonstrates, to the satisfaction of the Department, that the Contractor has taken every possible measure to comply with Section 00.73.39. This may constitute a reason for waiving this Section in whole or in part.
- B. To demonstrate every possible measure, the Contractor shall furnish:
- (.1) the name of each firm solicited for quotations on each Subcontract, the price quoted by each, and whether or not the firm solicited was a minority or woman-owned business;
 - (.2) the reason for not subcontracting with a minority or woman-owned business enterprise when applicable;
 - (.3) evidence showing efforts by the Contractor to supplement its own and SDO lists of minority and woman-owned business sources by contacting the Small Business Administration, trade organizations, the General Services Administration (U.S. Government), minority contractors' organizations, community organizations and other likely sources of names of additional minority or woman-owned business firms capable of performing the Work; and
 - (.4) evidence showing other efforts to comply with this Section 00.73.39.

9. WAIVERS

The Owner has the discretion to determine that compliance with the participation goals is not feasible and may be reduced or waive these goals. To reduce or waive the MBE/WBE participation goals the apparent low general bidder must make this request in writing to the Owner no later than five (5) working days after the general bid opening. ***See Article 3.3 - Instructions to Bidders.***

10. SEVERABILITY

The provisions of this section are severable, and if any of these provisions shall be held unconstitutional by any court of competent jurisdiction, the decision of such court shall not affect or impair any of the remaining provisions of the Contract.

End of 00.73.39

**SUPPLIER DIVERSITY PROGRAM - EXECUTIVE ORDER 524
MINORITY AND WOMEN OWNED BUSINESS ENTERPRISES**

SDO CERTIFIED MBE/WBE PARTICIPATION SCHEDULE

- This form must be submitted by the apparent low general bidder within five working days of receipt of bids.
- Letters of Intent from all MBEs or WBEs listed must be submitted with this Participation Schedule.

Project _____

Name of Project

The undersigned intends to subcontract with the following firms for the listed work and dollar amounts:

Name of Company	Description of Work	MBE or WBE	Supplier or Subcontractor	Value of Participation
1 _____	_____	_____	_____	\$ _____
2 _____	_____	_____	_____	\$ _____
3 _____	_____	_____	_____	\$ _____
4 _____	_____	_____	_____	\$ _____
5 _____	_____	_____	_____	\$ _____
6 _____	_____	_____	_____	\$ _____
7 _____	_____	_____	_____	\$ _____
8 _____	_____	_____	_____	\$ _____
Dollar Value of MBE Commitment:				\$ _____
Dollar Value of WBE Commitment:				\$ _____
Total Dollar Value Commitment:				\$ _____

BIDDER CERTIFICATION

The undersigned certifies under the penalties of perjury that (1) it intends to subcontract with the above listed firms for the identified work and dollar amounts unless a waiver or partial waiver has been granted by the Owner and (2) certifies that he/she has read Section 00.73.39 conditions contained in the contract documents with regards to MBE/WBE participation and is authorized to bind the contractor to the commitment set forth above.

Date _____

Name of General Contractor

Authorized Signature

Address

City, State & Zip Code

SDO CERTIFIED MBE/WBE LETTER OF INTENT

- This form is provided for SDOA Certified MBEs and WBEs being utilized as on this contract.
- This form must be completed by each SDO Certified MBE or WBE and submitted by the general bidder.
- General bidders or filed sub-bidders that are SDO Certified MBEs and WBEs may omit this form.

TO: General Bidder

FROM SDO Certified MBE or WBE

Name: _____
 Street Address: _____
 City/Town _____
 Phone: _____
 Fax: _____
 Email: _____

Name: _____
 Street Address: _____
 City/Town _____
 Phone: _____
 Fax: _____
 Email: _____

RE: Project: _____
Name of Project

1. My company intends to perform work in connection with the above project as:

- an individual a corporation a partnership
- a joint venture with _____
- other
(explain) _____

2. My company is certified by SDO as a MBE WBE in the following categories:

3. My company has not changed its ownership, control, or management in any ways that affect certification since obtaining SDO certification

4. My company understands that if your company is awarded the contract, your company intends to enter into an agreement to perform the work described below for the price indicated. My company also understands that your company will make substitutions only as allowed by Section 00.73.39 of the above project

5. My company intends to **Brief Description of work** _____

This Work includes: Labor & Materials Labor Only Materials only

for a total amount of _____ Dollars \$ _____

Date _____
Authorized Signature of SCE

 Name and Title

Please advise the Owner immediately if either party attempts to renegotiate this agreement



CONTRACTOR'S AFFIDAVIT OF PAYMENTS TO MINORITY BUSINESS ENTERPRISES (GC FORM)

Date: _____

TO: Department of Housing & Community Development
Dean Harris, SDP Coordinator
100 Cambridge Street, Suite 300
Boston, MA 02202
Phone: (617) 573-1177
Fax: (617) 573-1285

FROM:

Name of Contractor
Address
City, State, Zip

RE: Contract: _____ Housing Authority Project No. _____

Original Contract Amount \$ _____

Record Period Ending _____

KNOW ALL MEN BY THESE PRESENTS:

The undersigned certifies that they have met the Minority Business Enterprise (MBE) and Women Owned Business Enterprises (WBE) requirements for the above named contract which states in part that the General Contractor:

- 1. Shall submit this form quarterly or at any time requested by DHCD, completing the information below;
2. Have subcontracted with the following M/WBEs in the dollar amounts enumerated in the Participation Schedule and Letters of Intent in effect at the time of contract execution; and
3. Have made the following payments to each of the W/MBEs for work performed on this project.

Table with 5 columns: MBE/WBE, Work Performed Performed, Subcontractor Amount, Total Payments to Date, Payments this Quarter

In WITNESS WHEREOF, the undersigned has signed and sealed this instrument under the pain and penalty of perjury.

This _____ Day of _____ 20__

Name of General Contractor

Signed and Sealed

On this ____ day of _____ 20__, before me, the undersigned Notary Public, personally appeared _____, duly designated by the board of directors and proved to me, through satisfactory evidence of identification, which was _____, that s/he is the person whose name is signed on the foregoing documents, and acknowledged to me that s/he signed it voluntarily for its stated purpose and that it was her/his free act and deed.

CERTIFICATION FOR BUSINESS CONCERNS SEEKING SECTION 3 PREFERENCE

Your business is eligible to apply for preference as a Section 3 Business if, in addition to meeting all applicable state and local regulations, it self-certifies that it meets one or more of the following criteria (you must check at least one):

- A. Fifty-one percent or more of the business is owned by Section 3 Residents:
- B. Thirty percent or more of the business' fulltime employees are Section 3 Residents;
or
- C. The business can provide evidence of a firm commitment to subcontract a minimum of 25 percent of the total dollar amount of contracts to a business that meets the criteria listed in (a) and/or (b) above.

Section 3 Residents Are:

- A. Residents of Public and Indian Housing; or
- B. Residents of the Metropolitan Area or Non-Metropolitan County that Meet the Definition of Low-and-Very Low-Income.

To search the database for self-certified Section 3 businesses, register your business for inclusion, or for more information on the Business Registry, please visit <http://www.hud.gov/Sec3Biz>.

We encourage all potential contractors to register as a Section 3 business. Additional information on the requirements of Section 3, can be found at <http://www.hud.gov/section3>.

Note: Section 3 businesses are not entitled to receive contracts simply by being listed in HUD's Section 3 Business Registry database. Eligible businesses need to demonstrate that they are responsible and have the ability to perform successfully under the terms and conditions of proposed contracts. Section 3 requirements at 24 CFR 135, then provides preference for contracts and subcontracts to these firms-but not a guarantee.

**CERTIFICATION FOR BUSINESS CONCERNS SEEKING SECTION 3
PREFERENCE IN CONTRACTING AND DEMONSTRATION OF CAPABILITY**

Name of Business _____

Address of Business _____

Type of Business: Corporation Partnership
 Sole Proprietorship Joint Venture

Attached is the following documentation as evidence of status:

For Business claiming status as a Section 3 resident-owned enterprise:

- | | |
|----------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| <input type="checkbox"/> Copy of resident lease | <input type="checkbox"/> Copy of receipt of public assistance |
| <input type="checkbox"/> Copy of evidence of participation
in a public assistance program | <input type="checkbox"/> Other evidence |

For business entity as applicable:

- | | |
|---------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| <input type="checkbox"/> Copy of Articles of Incorporation | <input type="checkbox"/> Certificate of Good Standing |
| <input type="checkbox"/> Assumed Business Name Certificate | <input type="checkbox"/> Partnership Agreement |
| <input type="checkbox"/> List of owners/stockholders and
% ownership of each | <input type="checkbox"/> Corporation Annual Report |
| <input type="checkbox"/> Organization chart with names and titles
and brief function statement | <input type="checkbox"/> Latest Board minutes appointing officers |
| | <input type="checkbox"/> Additional documentation |

For business claiming Section 3 status by subcontracting 25 percent of the dollar awarded to qualified Section 3 business:

- List of subcontracted Section 3 business(es) and subcontract amount

For business claiming Section 3 status, claiming at least 30 percent of their workforce are currently Section 3 residents or were Section 3 eligible residents within 3 years of date of first employment with the business:

- | | |
|------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> List of all current full-time employees | <input type="checkbox"/> List of employees claiming Section 3 status |
| <input type="checkbox"/> PHA/IHA Residential lease less than 3
years from day of employment | <input type="checkbox"/> Other evidence of Section 3 status less than 3
years from date of employment |

Evidence of ability to perform successfully under the terms and conditions of the proposed contract:

- Current financial statement
- Statement of ability to comply with public policy
- List of owned equipment
- List of all contracts for the past two years

Authorizing Name and Signature

(Corporate Seal)

Attested by: _____

PREVAILING WAGES AND LABOR
REGULATIONS

EMPLOYEE RIGHTS UNDER THE DAVIS-BACON ACT

FOR LABORERS AND MECHANICS EMPLOYED ON FEDERAL OR FEDERALLY ASSISTED CONSTRUCTION PROJECTS

THE UNITED STATES DEPARTMENT OF LABOR WAGE AND HOUR DIVISION

PREVAILING WAGES

You must be paid not less than the wage rate listed in the Davis-Bacon Wage Decision posted with this Notice for the work you perform.

OVERTIME

You must be paid not less than one and one-half times your basic rate of pay for all hours worked over 40 in a work week. There are few exceptions.

ENFORCEMENT

Contract payments can be withheld to ensure workers receive wages and overtime pay due, and liquidated damages may apply if overtime pay requirements are not met. Davis-Bacon contract clauses allow contract termination and debarment of contractors from future federal contracts for up to three years. A contractor who falsifies certified payroll records or induces wage kickbacks may be subject to civil or criminal prosecution, fines and/or imprisonment.

APPRENTICES

Apprentice rates apply only to apprentices properly registered under approved Federal or State apprenticeship programs.

PROPER PAY

If you do not receive proper pay, or require further information on the applicable wages, contact the Contracting Officer listed below:

Rita V. Brousseau
Chief Procurement Officer
Lowell Housing Authority
350 Moody Street, Lowell, MA 01854
(978) 364-5341 rbrousseau@lhma.org

or contact the U.S. Department of Labor's Wage and Hour Division.



For additional information:

1-866-4-USWAGE

(1-866-487-9243) TTY: 1-877-889-5627



WWW.WAGEHOUR.DOL.GOV

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
Office of Labor Relations
FEDERAL LABOR STANDARDS COMPLAINT INTAKE FORM

HUD FORM 4731

OMB Approval No. 2501-0018
 (Exp. 08/31/2010)

Name of complainant	Social Security Number
Current address of complainant (Street/City/State/Zip Code)	Permanent address, if different from current address
Telephone (including area code) (Home/Cell/Other)	E-Mail address
Project name, location and contract/project number	Prime contractor company name
Employer (company) name	Employer: name of owner/responsible party
Employer address	Employer: contact information (Telephone/Cell/Other)

- Check one:**
- Current employee
 - Former employee
 - Other (specify)

Period employed on the project

From:

To:

Occupation/job title:

Duties performed (be specific)

Tools used and/or equipment operated

Wage Rate: \$ per Hour Day Week Piece Other (specify):

Hours usually worked on the project

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

Usual start and stop times

Start work time:

End work time:

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
Office of Labor Relations
FEDERAL LABOR STANDARDS COMPLAINT INTAKE FORM

HUD FORM 4731
OMB Approval No. 2501-0018
 (Exp. 08/31/2010)

Name of complainant	Social Security Number
---------------------	------------------------

	Yes	No		Yes	No
Were meal breaks taken? If yes, how long were the breaks? <hr style="width:20%; margin-left:0;"/>	<input type="checkbox"/>	<input type="checkbox"/>	Did the employer keep time records?	<input type="checkbox"/>	<input type="checkbox"/>
Paid Overtime (time and ½) after 40 hours?	<input type="checkbox"/>	<input type="checkbox"/>	Did the complainant keep time records?	<input type="checkbox"/>	<input type="checkbox"/>
Paid for all hours worked?	<input type="checkbox"/>	<input type="checkbox"/>	Does complainant have other personal records (pay stubs, log books, etc.) he/she can provide?	<input type="checkbox"/>	<input type="checkbox"/>
Was/is the complainant an Apprentice?	<input type="checkbox"/>	<input type="checkbox"/>	Were fringe benefits paid?	<input type="checkbox"/>	<input type="checkbox"/>

If fringe benefits were paid, check all that apply:

- | | | |
|----------------------------------------------------------|-------------------------------------------|------------------------------------------------|
| <input type="checkbox"/> Cash in lieu of fringe benefits | <input type="checkbox"/> Life insurance | <input type="checkbox"/> Pension |
| <input type="checkbox"/> Health insurance | <input type="checkbox"/> Dental insurance | <input type="checkbox"/> Holiday/Sick/Vacation |

Identify other fringe benefits paid _____

Names of others affected by the alleged violation(s) _____

Names of others who can verify/attest to the complainant's allegations _____

- Continuation sheets attached**
 Complainant's personal interview attached

Complaint taken by:

Name (print clearly)	Phone number (including area code) and E-mail address
Title	Agency, office
Signature	Date

Public reporting burden for this collection of information is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining data needed, and completing and reviewing the collection of information. The information is considered sensitive and will not be released without your approval. Provision of this information is voluntary. This agency may not collect this information, and you are not required to complete this form, unless it displays a currently valid Office of Management and Budget (OMB) control number. HUD and local agencies administering HUD-assisted programs must enforce Federal wage and reporting requirements on covered HUD-assisted construction and maintenance work. Enforcement activities include collecting information from laborers and mechanics and other interested parties regarding information about their employment on covered projects.

Date _____

I, _____
(Name of Signatory Party) (Title)

do hereby state:

(1) That I pay or supervise the payment of the persons employed by

_____ on the
(Contractor or Subcontractor)

_____ ; that during the payroll period commencing on the
(Building or Work)

_____ day of _____, _____, and ending the _____ day of _____, _____,
all persons employed on said project have been paid the full weekly wages earned, that no rebates have
been or will be made either directly or indirectly to or on behalf of said

_____ from the full
(Contractor or Subcontractor)

weekly wages earned by any person and that no deductions have been made either directly or indirectly
from the full wages earned by any person, other than permissible deductions as defined in Regulations, Part
3 (29 C.F.R. Subtitle A), issued by the Secretary of Labor under the Copeland Act, as amended (48 Stat. 948,
63 Stat. 108, 72 Stat. 967; 76 Stat. 357; 40 U.S.C. § 3145), and described below:

(2) That any payrolls otherwise under this contract required to be submitted for the above period are
correct and complete; that the wage rates for laborers or mechanics contained therein are not less than the
applicable wage rates contained in any wage determination incorporated into the contract; that the classifications
set forth therein for each laborer or mechanic conform with the work he performed.

(3) That any apprentices employed in the above period are duly registered in a bona fide apprenticeship
program registered with a State apprenticeship agency recognized by the Bureau of Apprenticeship and
Training, United States Department of Labor, or if no such recognized agency exists in a State, are registered
with the Bureau of Apprenticeship and Training, United States Department of Labor.

(4) That:

(a) WHERE FRINGE BENEFITS ARE PAID TO APPROVED PLANS, FUNDS, OR PROGRAMS

- in addition to the basic hourly wage rates paid to each laborer or mechanic listed in
the above referenced payroll, payments of fringe benefits as listed in the contract
have been or will be made to appropriate programs for the benefit of such employees,
except as noted in section 4(c) below.

(b) WHERE FRINGE BENEFITS ARE PAID IN CASH

- Each laborer or mechanic listed in the above referenced payroll has been paid,
as indicated on the payroll, an amount not less than the sum of the applicable
basic hourly wage rate plus the amount of the required fringe benefits as listed
in the contract, except as noted in section 4(c) below.

(c) EXCEPTIONS

EXCEPTION (CRAFT)	EXPLANATION

REMARKS:

NAME AND TITLE	SIGNATURE

THE WILLFUL FALSIFICATION OF ANY OF THE ABOVE STATEMENTS MAY SUBJECT THE CONTRACTOR OR
SUBCONTRACTOR TO CIVIL OR CRIMINAL PROSECUTION. SEE SECTION 1001 OF TITLE 18 AND SECTION 231 OF TITLE
31 OF THE UNITED STATES CODE.

Project Wage Rate Sheet

U.S. Department of Housing and Urban Development
Office of Labor Relations

PROJECT NAME:			WAGE DECISION NUMBER/MODIFICATION NUMBER:			
PROJECT NUMBER:			PROJECT COUNTY:			
WORK CLASSIFICATION	BASIC HOURLY RATE (BHR)	FRINGE BENEFITS	TOTAL HOURLY WAGE RATE	LABORERS FRINGE BENEFITS:		\$ TOTAL WAGE
				GROUP #	BHR	
Bricklayers			\$			\$
Carpenters			\$			\$
Cement Masons			\$			\$
Drywall Hangers			\$			\$
Electricians			\$			\$
Iron Workers			\$			\$
Painters			\$	OPERATORS FRINGE BENEFITS:		\$ TOTAL WAGE
				GROUP #	BHR	
Plumbers			\$			\$
Roofers			\$			\$
Sheet Metal Workers			\$			\$
Soft Floor Layers			\$			\$
Tapers			\$			\$
Tile Setters			\$	TRUCK DRIVERS FRINGE BENEFITS:		\$ TOTAL WAGE
				GROUP #	BHR	
OTHER CLASSIFICATIONS						
			\$			\$
			\$			\$
			\$			\$
ADDITIONAL CLASSIFICATIONS (HUD Form 4230-A)						
WORK CLASSIFICATION	BASIC HOURLY RATE	FRINGE BENEFITS	TOTAL HOURLY WAGE RATE	DATE OF HUD SUBMISSION TO DOL	DATE OF DOL APPROVAL	
			\$			
			\$			
			\$			
			\$			

Prevailing Wages and Labor Regulations

1. Prevailing Wage Rates

- a. The rate per hour to be paid to mechanics, apprentices, teamsters, chauffeurs, and laborers employed on the Work shall not be less than the rate of wages in the attached Davis Bacon Wage Rates. This schedule shall continue to be the minimum rate of wages for said employees during the life of this Contract.
- b. Keep a legible copy of said schedule posted on the site at all times. Provide the Owner, on a weekly basis, and keep an on-site file of the wage rates and classifications of labor employed on this Work in order that they may be available for inspection by the Owner, Department, Architect, or any agency having jurisdiction.
- c. Pay reserve police officers employed on the Work the prevailing rate of wages to regular police officers as required by MGL c149 §34B, as amended. Such police officers shall be covered by Worker's Compensation Insurance and Employers Liability Insurance provided by the Contractor.

2. Apprentice Requirements

- a. Apprentices employed pursuant to this determination of wage rates must be registered and approved by the State Apprenticeship Council.

3. Employee OSHA Safety Training

- a. All employees who work on this construction site must have no less than 10 hours of OSHA-approved safety and health training. See Chapter 306 of the Acts of 2004.
- b. The Contractor and all Subcontractors shall furnish to the Owner, with the certified payroll reports, documentation indicating that each employee has successfully completed 10 hours of a course in construction safety and health. This course must be approved by the United States Occupational Health and Safety Administration (OSHA).

Applicability

The Project or Program to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

A. 1. (i) Minimum Wages. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section I(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible, place where it can be easily seen by the workers.

(ii) (a) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefor only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140.)

(c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part

of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

2. Withholding. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work, all or part of the wages required by the contract, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

3. (i) Payrolls and basic records. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5 (a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been

communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1215-0140 and 1215-0017.)

(ii) (a) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i) except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this subparagraph for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to HUD or its designee. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149.)

(b) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under 29 CFR 5.5 (a)(3)(ii), the appropriate information is being maintained under 29 CFR 5.5(a)(3)(i), and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by subparagraph A.3.(ii)(b).

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under subparagraph A.3.(i) available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and Trainees.

(i) **Apprentices.** Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who

is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) **Trainees.** Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by

the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under 29 CFR Part 5 shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR Part 3 which are incorporated by reference in this contract

6. Subcontracts. The contractor or subcontractor will insert in any subcontracts the clauses contained in subparagraphs 1 through 11 in this paragraph A and such other clauses as HUD or its designee may by appropriate instructions require, and a copy of the applicable prevailing wage decision, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this paragraph.

7. Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and HUD or its designee, the U.S. Department of Labor, or the employees or their representatives.

10. (i) Certification of Eligibility. By entering into this contract the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be

awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001. Additionally, U.S. Criminal Code, Section 1 01 0, Title 18, U.S.C., "Federal Housing Administration transactions", provides in part: "Whoever, for the purpose of . . . influencing in any way the action of such Administration..... makes, utters or publishes any statement knowing the same to be false..... shall be fined not more than \$5,000 or imprisoned not more than two years, or both."

11. Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.

B. Contract Work Hours and Safety Standards Act. The provisions of this paragraph B are applicable where the amount of the prime contract exceeds \$100,000. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which the individual is employed on such work to work in excess of 40 hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in subparagraph (1) of this paragraph, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by the clause set forth in subparagraph (1) of this paragraph.

(3) Withholding for unpaid wages and liquidated damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contract, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act which is held by the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

C. Health and Safety. The provisions of this paragraph C are applicable where the amount of the prime contract exceeds \$100,000.

(1) No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

(2) The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act, (Public Law 91-54, 83 Stat 96). 40 USC 3701 et seq.

(3) The contractor shall include the provisions of this paragraph in every subcontract so that such provisions will be binding on each subcontractor. The contractor shall take such action with respect to any subcontractor as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

"General Decision Number: MA20220001 07/08/2022

Superseded General Decision Number: MA20210001

State: Massachusetts

Construction Type: Building

Counties: Barnstable, Bristol, Dukes, Essex, Middlesex, Nantucket, Norfolk and Suffolk Counties in Massachusetts.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes and apartments up to and including 4 stories)

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least \$15.00 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2022.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least \$11.25 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2022.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Modification Number Publication Date

0	01/07/2022
1	02/11/2022
2	02/18/2022
3	02/25/2022
4	03/04/2022
5	04/22/2022
6	05/06/2022
7	06/03/2022
8	07/08/2022

ASBE0006-001 09/01/2021

	Rates	Fringes
Insulator/asbestos worker Includes the application of all insulating materials, protective coverings, coatings, and finishes to all types of mechanical systems		
(ZONE A).....	\$ 50.00	32.89
(ZONE B).....	\$ 50.00	32.89

ZONES:

ZONE A

BARNSTABLE COUNTY (Brewster, Chatham, Dennis, Eastham, Harwich, Orleans, Provincetown, Truro, Wellfleet, Yarmouth)
BRISTOL COUNTY (Easton), MIDDLESEX COUNTY, and NORFOLK COUNTY (Avon, Braintree, Brookline, Canton, Cohasset, Dedham, Dover, Foxborough, Holbrook, Medfield, Medway, Millis, Milton, Needham, Norfolk, Norwood, Quincy, Randolph, Sharon, Stoughton, Walpole, Wellesley, Westwood, Weymouth)

ZONE B

BARNSTABLE COUNTY (Barnstable, Bourne, Falmouth, Mashpee, Sandwich), BRISTOL COUNTY (All cities except Easton), and NORFOLK COUNTY (Bellingham, Franklin, Plainville)

ASBE0006-002 09/01/2021

BARNSTABLE (Brewster, Chatham, Dennis, Eastham, Harwich, Orleans, Provincetown, Truro, Wellfleet and Yarmouth); BRISTOL (Easton); ESSEX; MIDDLESEX; NORFOLK (Avon, Braintree, Brookline, Canton, Cohasset, Dedham, Dover, Foxboro, Holbrook, Hull, Medfield, Medway, Millis, Milton, Needham, Norfolk, Norwood, Quincy, Randolph, Sharon Stoughton, Walpole, Wellesley, Westwood, and Weymouth) AND SUFFOLK COUNTIES

	Rates	Fringes
HAZARDOUS MATERIAL HANDLER (Includes preparation, wetting, stripping, removal, scrapping, vacuuming, bagging and disposing of all insulation materials from mechanical systems whether they contain asbestos or not)....	\$ 40.00	33.04

ASBE0006-010 09/01/2021

BARNSTABLE (Barnstable, Bourne, Falmouth, Mashpee and Sandwich); BRISTOL (Acushnet, Attleboro city, Berkeley, Dartmouth, Dighton, Fairhaven, Fall river City, Freetown, Marion, Mansfield, New Bedford City, North Attleboro, Norton, Raynham, Rehoboth, Seekonk, Somerset, Swansea, Taunton City and Westport); DUKES; NANTUCKET; NORFOLK (Bellingham, Franklin, Plainville, and Wrentham); PLYMOUTH (Lakeville, Mattapoisett, Middleboro, Rochester and Wareham)

Rates Fringes

Insulator/asbestos worker
 (Includes the application of
 all insulating materials,
 protective coverings,
 coatings and finishes to all
 types of mechanical systems.)....\$ 50.00 32.89

 BOIL0029-001 01/01/2021

Rates Fringes

BOILERMAKER.....\$ 45.87 29.02

 BRMA0001-008 02/01/2021

FOXBORO CHAPTER
 BRISTOL (Attleboro, Berkley, Dighton, Mansfield, North Attleboro, Norton, Raynham, Rehoboth, Seekonk, Taunton) AND NORFOLK (Bellingham, Canton, Dedham, Foxboro, Franklin, Norfolk, Norwood, Plainville, Sharon, Walpole, Westwood, Wrentham) COUNTIES

Rates Fringes

Bricklayer, Cement Mason,
 Plasterer.....\$ 53.61 35.94

 BRMA0001-009 02/01/2021

LOWELL CHAPTER
 MIDDLESEX (Acton, Asby, Ayer, Bedford, Billerica, Boxboro, Carlisle, Chemsford, Dracut, Dunstable, Ft. Denvens, Groton, Littleton, Lowell, North Acton, Pepperell, Shirley, South Acton, Tewksbury, Townsend, Tyngsboro, West Acton, Westford, Wilmington)

Rates Fringes

Bricklayer and plasterer.....\$ 53.61 35.94

 BRMA0001-010 08/01/2020

LOWELL CHAPTER
 MIDDLESEX (Ashland, Framingham, Holliston, Hopkinton, Hudson, Maynard, Natick, Sherborn, Stow); and NORFOLK (Medfield, Medway, Millis)

Rates Fringes

BRICKLAYER.....\$ 53.16 34.95

BRMA0003-001 02/01/2021

Rates Fringes

Marble & Tile Finisher.....\$ 42.57 32.00

Marble, Tile & Terrazzo

Workers.....\$ 54.69 33.80

TERRAZZO FINISHER.....\$ 55.77 34..47

BRMA0003-003 02/01/2021

BOSTON CHAPTER

MIDDLESEX (Arlington, Cambridge, Everett, Malden, Medford, Melrose, Somerville); NORFOLK (Brookline, Milton); and SUFFOLK

Rates Fringes

BRICKLAYER.....\$ 55.75 35.85

BRMA0003-006 08/01/2021

LYNN CHAPTER

ESSEX (Amesbury, Andover, Beverly, Boxford, Danvers, Essex, Georgetown, Gloucester, Groveland, Hamilton, Haverhill, Ipswich, Lawrence, Lynn, Lynnfield, Manchester, Marblehead, Merrimac, Methuen, Middleton, Nahant, Newbury, Newburyport, North Andover, Peabody, Rockport, Rowley, Salisbury, Salem, Saugus, Swampscott, Topsfield Wakefield, Wenham, West Newbury); and MIDDLESEX (Reading, North Reading, Wakefield)

Rates Fringes

Bricklayer, cement mason and plasterer.....\$ 57.17 35.98

BRMA0003-007 08/01/2021

WALTHAM CHAPTER

MIDDLESEX (Belmont, Burlington, Concord, Lexington, Lincoln, Stoneham, Sudbury, Waltham, Watertown, Wayland, Weston, Winchester, Woburn)

Rates Fringes

Bricklayer and plasterer.....\$ 57.17 35.98

BRMA0003-008 08/01/2021

NEWTON CHAPTER

MIDDLESEX (Newton) and NORFOLK (Dover, Needham, Wellesley)

Rates Fringes

Bricklayer, cement mason and plasterer.....\$ 57.17 35.98

BRMA0003-009 08/01/2021

NEW BEDFORD

BARNSTABLE; BRISTOL (Acushnet, Darmouth, Farhaven, Fall River, Freetown, New Bedford, Somerset, Swansea, Westport); DUKES; and NANTUCKET COUNTIES

	Rates	Fringes
Bricklayer, cement mason and plasterer.....	\$ 57.17	35.98

BRMA0003-010 08/01/2021		

QUINCY CHAPTER
NORFOLK COUNTY (Avon, Braintree, Cohasset, Holbrook, Quincy, Randolph, Soughton, Weymouth)

	Rates	Fringes
Bricklayer, cement mason and plasterer.....	\$ 57.17	35.98

CARP0056-011 08/01/2021		

SUFFOLK (All of County); and those areas of BARNSTABLE, BRISTOL, ESSEX, MIDDLESEX & NORFOLK COUNTIES situated inside Boston Beltway (I-495) and North of Cape Cod Canal. ALL of DUKES AND NANTUCKET COUNTIES

	Rates	Fringes
PILEDRIVERMAN.....	\$ 50.74	33.66

CARP0056-012 08/01/2020		

The areas of BARNSTABLE, BRISTOL, and NORFOLK COUNTIES situated OUTSIDE Boston Beltway (I-495) and South of Cape Cod Canal

	Rates	Fringes
PILEDRIVERMAN.....	\$ 49.07	35.57

CARP0056-013 08/01/2021		

Those areas of ESSEX and MIDDLESEX COUNTIES situated OUTSIDE Boston Beltway (I-495)

	Rates	Fringes
PILEDRIVERMAN.....	\$ 44.61	33.45

CARP0327-001 03/01/2022		

MIDDLESEX (Belmont, Cambridge, Everett, Malden, Medford, Somerville); NORFOLK (Brookline, Dedham, Milton); and SUFFOLK

	Rates	Fringes
CARPENTER.....	\$ 53.87	29.62

CARP0339-001 03/01/2022		

BRISTOL (Attleborough, North Attleborough); ESSEX; MIDDLESEX (Except Belmont, Cambridge, Everett, Malden, Medford, Somerville); AND NORFOLK (Bellingham, Canton, Foxboro, Franklin, Medfield, Medway, Millis, Needham, Norfolk, Norwood, Plainville, Sharon, Walpole, Wellesley, Westwood, Wrentham)

	Rates	Fringes
CARPENTER.....	\$ 44.53	29.52

CARP0346-003 09/01/2021		

NORFOLK COUNTY (Braintree, Cohasset, Scituate, Weymouth, Quincy)

	Rates	Fringes
CARPENTER.....	\$ 44.18	29.27

CARP0624-005 09/01/2017		

DUKES; NANTUCKET

	Rates	Fringes
CARPENTER.....	\$ 46.43	28.35

CARP0624-007 09/01/2017		

BARNSTABLE; BRISTOL (Except Attleboro & North Attleboro); AND NORFOLK (Avon, Holbrook, Randolph, Stoughton) COUNTIES

	Rates	Fringes
CARPENTER.....	\$ 39.28	27.90

* CARP1121-001 01/03/2022		

SUFFOLK COUNTY

	Rates	Fringes
MILLWRIGHT.....	\$ 45.20	28.05

* CARP1121-003 01/03/2022		

BARNSTABLE, BRISTOL, DUKES, ESSEX, MIDDLESEX, NANTUCKET and NORFOLK COUNTIES

	Rates	Fringes
MILLWRIGHT.....	\$ 40.35	28.05

CARP2168-001 03/01/2022		

MIDDLESEX (Belmont, Cambridge, Everett, Malden, Medford, Somerville); NORFOLK (Brookline, Dedham, Milton); and SUFFOLK

Rates	Fringes
-------	---------

FLOOR LAYER: Carpet.....\$ 49.93 29.70

CARP2168-004 03/01/2022

BRISTOL; ESSEX; MIDDLESEX (Except Belmont, Cambridge, Everett, Malden, Medford, Somerville); Remainder of Norfolk County

Rates Fringes

FLOOR LAYER: Carpet.....\$ 49.93 29.70

CARP2168-005 03/01/2022

BARNSTABALE; DUKES; AND NANTUCKET

Rates Fringes

FLOOR LAYER: Carpet.....\$ 47.62 29.70

ELEC0096-001 09/06/2021

MIDDLESEX (Ashby, Ashland, Ayer, Ft. Devens, Groton, Hopkinton, Hudson, Marlboro, Pepperell, Shirley, Stow, Townsend)

Rates Fringes

ELECTRICIAN.....\$ 45.01 11%+25.01
Teledata System Installer.....\$ 32.85 28.12

ELEC0099-001 06/01/2021

BRISTOL (Attleboro, North Attleboro, Seekonk)

Rates Fringes

ELECTRICIAN.....\$ 43.61 54.71%
Teledata System Installer.....\$ 31.21 13.1%+14.93

ELEC0103-001 09/01/2021

ESSEX; MIDDLESEX (Excluding Ashby, Ashland, Ayer, Ft. Devens, Groton, Hopkinton, Hudson, Marlboro, Pepperell, Shirley, Stow, Townsend); NORFOLK (Excluding Avon, Holbrook, Plainville, Randolph, Stoughton) SUFFOLK

Rates Fringes

Teledata System Installer.....\$ 43.40 32.02

ELEC0103-002 09/01/2021

ESSEX (Amesbury, Andover, Boxford, Georgetown, Groveland, Haverhill, Lawrence, Merrimac, Methuen, Newbury, Newburyport, North Andover, Rowley, Salisbury, West Newbury); MIDDLESEX (Bedford, Billerica, Boxboro, Burlington, Carlisle, Chelmsford, Dracut, Dunstable littleton, Lowell, North Reading, Tewksbury, Tyngsboro, Westford, Wilmington)

Rates Fringes

ELECTRICIAN.....\$ 56.36 34.39

ELEC0103-004 09/01/2021

ESSEX (Beverly, Danvers, Essex, Gloucester, Hamilton, Ipswich, Manchester, Marblehead, Middleton, Peabody, Rockport, Salem, Topsfield, Wenham)

Rates Fringes

ELECTRICIAN.....\$ 56.36 34.39

ELEC0103-005 09/01/2021

ESSEX (Lynn, Lynnfield, Nahant, Saugus, Swampscott); MIDDLESEX (Acton, Arlington, Belmont, Cambridge, Concord, Everett, Framingham, Holliston, Lexington, Lincoln, Malden, Maynard, Medford, Melrose, Natick, Newton, Reading, Sherborn, Somerville, Stoneham, Sudbury, Wakefield, Waltham, Watertown, Wayland, Weston, Winchester, Woburn); NORFOLK (Bellingham, Braintree, Brookline, Canton, Cohasset, Dedham, Dover, Foxboro, Franklton, Medfield, Medway, Millis, Milton, Needham, Norfolk, Norwood, Quincy, Sharon, Walpole, Wellesley, Westwood, Weymouth, Wrentham); PLYMOUTH (Hingham and Hull);SUFFOLK

Rates Fringes

ELECTRICIAN.....\$ 56.36 34.39

ELEC0104-001 09/01/2021

Rates Fringes

Line Construction:

Cableman.....\$ 51.09 27.91+A
Equipment Operator.....\$ 43.43 24.62+A
Groundman.....\$ 28.10 11.80+A
Lineman.....\$ 51.09 27.91+A

A. PAID HOLIDAYS: New Year's Day; Memorial Day; Independence Day; Labor Day; Thanksgiving Day; Christmas Day and Columbus Day, provided the employee has been employed 5 working days prior to any one of the listed holidays.

ELEC0223-005 03/01/2022

BARNSTABLE; BRISTOL (Except Attleboro, North Attleboro, Seekonk); DUKES; NANTUCKET AND NORFOLK (Avon, Halbrook, Plainville, Randolph, Stoughton)

Rates Fringes

ELECTRICIAN.....\$ 44.82 31.18%+14.00

ELEC0223-006 03/01/2022

BARNSTABLE; BRISTOL (Except Attleboro, North Attleboro, Seekonk); DUKES; NANTUCKET AND NORFOLK (Avon, Halbrook, Plainville, Randolph, Stoughton)

	Rates	Fringes
Teledata System Installer.....	\$ 38.1625.34%+2.75%+3%+13.75	

ELEV0004-001 01/01/2022		

	Rates	Fringes
ELEVATOR MECHANIC.....	\$ 65.62	36.885+a+b

FOOTNOTE FOR ELEVATOR MECHANICS:

a. Vacation: 6%/under 5 years based on regular hourly rate for all hours worked. 8%/over 5 years based on regular hourly rate for all hours worked.

b. PAID HOLIDAYS: New Year's Day; Memorial Day; Independence Day; Labor Day; Veterans' Day; Thanksgiving Day; the Friday after Thanksgiving Day; and Christmas Day.

ENGI0004-001 12/01/2021

	Rates	Fringes
Power equipment operators:		
Group 1.....	\$ 51.38	30.10
Group 2.....	\$ 50.83	30.10
Group 3.....	\$ 33.69	30.10
Group 4.....	\$ 41.76	30.10
Group 5.....	\$ 23.48	30.10
Group 6.....	\$ 28.44	30.10

FOOTNOTE FOR POWER EQUIPMENT OPERATORS:

A. PAID HOLIDAYS: New Year's Day, Washington's Birthday, Labor Day, Memorial Day, Independence Day, Patriot's Day, Columbus Day, Veteran's Day, Thanksgiving Day, Christmas Day

HOURLY PREMIUM FOR BOOM LENGTHS (Including Jib):

Over 150 ft. +2.18
Over 185 ft. +3.84
Over 210 ft. +5.39
Over 250 ft. +8.16
Over 295 ft. +11.29
Over 350 ft. +13.14

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

Group 1: Crane; shovel; truck crane; cherry picker; dragline; trench hoe; backhoe; three drum machine; derrick; pile driver; elevator tower; hoist; gradall; shovel dozer; front end loader; fork lift; suger; boring machine; rotaryu drill; post hole hammer; post hole digger; pumpcrete machine; asphalt plant (on site); concrete batching and/or mixing plant (on site); crusher plant (on site); paving concrete mixer; timber jack

Group 2: Sonic or vibratory hammer; grader; scraper; tandem scraper; concrete pump; bulldozer; tractor; york rake; mulching machine; portable steam boiler; portable steam generator; roller; spreader; tamper (self propelled or tractor drawn); asphalt paver; mechanic - maintenance; paving screed machine; stationary steam boiler; paving concrete finishing machine; cal truck; ballast regulator; switch tamper; rail anchor machine; tire truck

Group 3: Pumps (1-3 grouped); compressor; welding machine (1-3 grouped); generator; concrete vibrator; heater (power

driven 1- 5); well point system (operating);
 syphon-pulsometer; concrete mixer; valves controlling
 permanent plant air or steam; conveyor; Jackson type
 tamper; single diaphragm pump; lighting plant
 Group 4: Assistant engineer (fireman)
 Group 5: Oiler (other than truck cranes and gradalls)
 Group 6: Oiler (on truck cranes and gradalls) stant engineer
 (on truck crane and gradall)

 IRON0007-006 03/16/2022

AREA 1: BRISTOL (Easton); ESSEX (Beverly, Gloucester,
 Lynn,Lynnfield, Manchester, Marblehead, Nahant, Rockport,
 Salem, Saugus, Swampscott); MIDDLESEX (Arlington, Bedford,
 Belmont, Burlington, Cambridge, Carlisle, Concord, Dunstable,
 Everett, Framingham, Lexington, Lincoln, Malden, Maynard,
 Medford, Melrose, Natick, Newton, Reading, Sherborn,
 Somerville, Stoneham, Sudbury, Wakefield, Waltham, Watertown,
 Wayland, Weston, Winchester, Woburn); NORFOLK (Except Medway);
 SUFFOLK

AREA 2: ESSEX (Amesbury, Andover, Boxford, Danvers, Essex,
 Georgetown, Hamilton, Haverhill, Ipswich, Lawrence, Merrimac,
 Methuen, Newbury, Newburyport, North Andover, Rowley,
 Salisbury, Topsfield, Wenham, West Newbury); MIDDLESEX (Action,
 Billerica, Chelmsford, Dracut, Groton, Groveland, Littleton,
 Lowell, Middleton, North Reading, Pepperell, Tewksbury,
 Tyngsboro, Westford, Wilmington)

	Rates	Fringes
Ironworkers:		
AREA 1.....	\$ 50.60	39.20
AREA 2.....	\$ 46.19	39.20

 IRON0007-010 09/16/2021

MIDDLESEX (Ashby, Ashland, Ayer, Boxboro, Holliston, Hopkinton,
 Hudson, Marlboro, Shirley, Stow, Townsend); NORFOLK (Medway)

	Rates	Fringes
IRONWORKER.....	\$ 49.83	34.81

 IRON0037-005 03/16/2021

BARNSTABLE; BRISTOL (Acushnet, Attleboro, Berkley, Dartmouth,
 Dighton, Fairhaven, Fall River, Freetown, Mansfield, New
 Bedford, North Attleboro, Norton, Raynham, Rehoboth, Seekonk,
 Somerset, Swansea, Taunton, Westport); DUKES; NANTUCKET;
 NORFOLK (Billingham, Franklin, Plainville, Wrentham)

	Rates	Fringes
IRONWORKER.....	\$ 37.87	30.13

 LABO0022-001 12/01/2021

	Rates	Fringes
Laborers: (HEAVY CONSTRUCTION)		

GROUP 1.....	\$ 35.41	26.59
GROUP 2.....	\$ 35.66	26.59
GROUP 3.....	\$ 36.16	26.59
GROUP 4.....	\$ 36.41	26.59
GROUP 5.....	\$ 24.50	26.59
GROUP 6.....	\$ 37.41	26.59

LABORERS CLASSIFICATIONS

GROUP 1: Laborers; carpenter tenders; cement finisher tenders, plasterer tenders

GROUP 2: Asphalt raker; fence and guard rail erector; laser beam operator; mason tender; pipelayer; pneumatic drill operator; pneumatic tool operator; wagon drill operator, jack hammer operator, pavement breaker, carbide core drilling machine, chain saw operator, barco type jumping tampers, concrete pump, motorized mortar mixer, ride-on-motorized buggy

GROUP 3: Air track operator; block paver; rammer; curb setter, hydraulic and similar self powered drills

GROUP 4: Blaster; powderman

GROUP 5: Flagger

GROUP 6: Asbestos Abatement; Toxic and Hazardous Waste Laborers

LAB0022-003 12/01/2021

Rates Fringes

Plasterer tender
 BARNSTABLE, BRISTOL,
 DUKES, ESSEX, NANTUCKET,
 MIDDLESEX (with the
 exception of Arlington,
 Belmont, Burlington,
 Cambridge, Everett,
 Malden, Medford, Melrose,
 Reading, Somerville,
 Stoneham, Wakefield,
 Winchester, Winthrop and
 Woburn); NORFOLK (with the
 exception of Brookline
 Dedham and Milton) COUNTIES.\$ 35.41 26.59
 SUFFOLK COUNTY (Boston,
 Chelsea, Revere, Winthrop,
 Deer Island, Nut Island);
 MIDDLESEX COUNTY
 (Arlington, Belmont,
 Burlington, Cambridge,
 Everett, Malden, Medford,
 Melrose, Reading,
 Somerville, Stoneham,
 Wakefield, Winchester,
 Winthrop and Woburn only);
 NORFOLK COUNTY (Brookline,
 Dedham, and Milton only)....\$ 41.18 27.52

LAB0022-004 12/01/2021

	Rates	Fringes
Plasterer tender.....	\$ 35.41	26.59

LAB00022-005 12/01/2021

	Rates	Fringes
Plasterer tender BARNSTABLE, BRISTOL, DUKES, ESSEX, NANTUCKET, MIDDLESEX (with the exception of Arlington, Belmont, Burlington, Cambridge, Everett, Malden, Medford, Melrose, Reading, Somerville, Stoneham, Wakefield, Winchester, Winthrop and Woburn); NORFOLK (with the exception of Brookline Dedham and Milton) COUNTIES.	\$ 35.41	26.59
SUFFOLK COUNTY (Boston, Chelsea, Revere, Winthrop, Deer Island, Nut Island); MIDDLESEX COUNTY (Arlington, Belmont, Burlington, Cambridge, Everett, Malden, Medford, Melrose, Reading, Somerville, Stoneham, Wakefield, Winchester, Winthrop and Woburn only); NORFOLK COUNTY (Brookline, Dedham, and Milton only)....	\$ 41.18	27.52

LAB00022-009 12/01/2021

SUFFOLK COUNTY (Boston, Chelsea, Revere, Winthrop, Deer & Nut Islands); MIDDLESEX COUNTY (Arlington, Belmont, Burlington, Cambridge, Everett, Malden, Medford, Melrose, Reading, Somerville, Stoneham, Wakefield, Winchester, Winthrop, and Woburn only); NORFOLK COUNTY (Brookline, Dedham, and Milton only)

	Rates	Fringes
Laborers:		
GROUP 1.....	\$ 41.18	27.52
GROUP 2.....	\$ 41.43	27.56
GROUP 3.....	\$ 41.93	27.56
GROUP 4.....	\$ 42.18	27.56
GROUP 5.....	\$ 41.93	27.56
GROUP 6.....	\$ 43.18	27.52
GROUP 7.....	\$ 24.50	27.52

LABORERS CLASSIFICATIONS

GROUP 1: Laborers; Carpenter Tenders

GROUP 2: Jackhammer operator; pavement breaker; asphalt raker carbide core drilling machine; chain saw operator; pipelayer; barco type jumping tampers; laser beam; concrete pump; mason tender; motorized mortar mixer; ride-on

motorized buggy; fence and beam rail erector

GROUP 3: Air track, block paver; rammer; curb setter, hydraulic and similar self-powered drills

GROUP 4: Blaster; powderman

GROUP 5: Pre-cast floor and roof plank erector

GROUP 6: Asbestos removal laborers/haz-mat laborers

GROUP 7: Flaggers

LAB0022-010 12/01/2021

Counties of BARNSTABLE; BRISTOL; DUKES; ESSEX; NANTUCKET; MIDDLESEX (with the exception of Arlington, Belmont, Burlington, Cambridge, Everett, Malden, Medford, Melrose, Reading, Somerville, Stoneham, Wakfield, Winchester, Winthrop and Woburn); NORFOLK (with the exception of Brookline, Dedham and Milton)

	Rates	Fringes
Laborers:		
GROUP 1.....	\$ 35.41	26.59
GROUP 2.....	\$ 35.66	26.59
GROUP 3.....	\$ 36.16	26.59
GROUP 4.....	\$ 36.41	26.59
GROUP 5.....	\$ 36.16	26.59
GROUP 6.....	\$ 37.41	26.59

LABORERS CLASSIFICATIONS

GROUP 1: Laborers; Carpenter Tenders

GROUP 2: Jackhammer operator; pavement breaker; asphalt raker carbide core drilling machine; chain saw operator; pipelayer; barco type jumping tampers; laser beam; concrete pump; mason tender; motorized mortar mixer; ride-on motorized buggy; fence and beam rail erector

GROUP 3: Air track, block paver; hammer; curb setter, hydraulic and similar self-powered drills

GROUP 4: Blaster; powderman

GROUP 5: Pre-cast floor and roof plank erector

GROUP 6: Asbestos removal laborers/haz-mat laborers

LAB01421-004 12/01/2021

BARNSTABLE, BRISTOL, DUKES, ESSEX, MIDDLESEX, NANTUCKET NORFOLK AND SUFFOLK COUNTIES

	Rates	Fringes
Laborers: (Wrecking)		
Group 1.....	\$ 41.33	27.37
Group 2.....	\$ 42.08	27.37

Group 3.....	\$ 42.33	27.37
Group 4.....	\$ 37.33	27.37
Group 5.....	\$ 40.43	27.37
Group 6.....	\$ 41.33	27.37

Group 1: Adzeman, Wrecking Laborer.

Group 2: Burners, Jackhammers.

Group 3: Small Backhoes, Loaders on tracks, Bobcat Type Loaders, Hydraulic ""Brock"" Type Hammer Operators, Concrete Cutting Saws.

Group 4: Yardman (Salvage Yard Only).

Group 5: Yardman, Burners, Sawyers.

Group 6: Asbestos, Lead Paint, Toxic and Hazardous Waste.

* PAIN0011-007 06/01/2022

BARNSTABLE, BRISTOL, DUKES, AND NANTUCKET COUNTIES

	Rates	Fringes
GLAZIER.....	\$ 40.78	23.40

FOOTNOTE:

A. PAID HOLIDAY: LABOR DAY (provided employee has worked any part of the week prior to Labor Day and any part of the week after Labor Day)

PAIN0035-004 01/01/2019

BARNSTABLE; BRISTOL; ESSEX; NANTUCKET; DUKES; COUNTIES;
REMAINDER OF NORFOLK; MIDDLESEX AND SUFFOLK COUNTIES

	Rates	Fringes
PAINTER		
NEW CONSTRUCTION:		
Brush, Taper.....	\$ 39.86	30.25
Spray, Sandblast.....	\$ 41.26	30.25
REPAINT:		
Brush, Taper.....	\$ 37.92	30.25
Spray, Sandblast.....	\$ 39.32	30.25

PAIN0035-013 01/01/2019

MIDDLESEX (Cambridge, Everett, Malden, Medford, Somerville)
SUFFOLK COUNTY (Boston, Chelsea) NORFOLK COUNTY (Brookline)

	Rates	Fringes
PAINTER		
NEW CONSTRUCTION:		
Brush, Taper.....	\$ 45.65	30.25
Spray, Sandblast.....	\$ 47.05	30.25
REPAINT:		
Brush, Taper.....	\$ 43.71	30.25
Spray, Sandblast.....	\$ 45.11	30.25

PAIN0035-020 01/01/2019

ESSEX; MIDDLESEX; NORFOLK; SUFFOLK

	Rates	Fringes
GLAZIER.....	\$ 39.86	30.25

PLAS0534-001 01/01/2020		

ESSEX; MIDDLESEX; NORFOLK AND SUFFOLK COUNTY

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 43.00	37.66

PLAS0534-004 01/01/2020		

MIDDLESEX; NORFOLK AND SUFFOLK COUNTIES

	Rates	Fringes
PLASTERER.....	\$ 43.00	37.66

PLUM0004-001 03/01/2022		

MIDDLESEX (Ashby, Ayer-West of Greenville branch of Boston and
Maine Railroad, Ft. Devens, Groton, Shirley, Townsend)

	Rates	Fringes
Plumbers and Pipefitters.....	\$ 49.50	27.27

PLUM0012-005 02/27/2022		

ESSEX (Ames, Andover, Beverly, Boxford, Byfield, Danvers,
Essex, Georgetown, Gloucester, Groveland, Hamilton, Haverhill,
Ipswich, Lawrence, Manchester, Marblehead, Merrimac, Methuen,
Middleton, Newbury, Newburyport, North Andover, Peabody,
Rockport, Rowley, Salem, Salisbury, Topsfield, Wenham, West
Newbury)

	Rates	Fringes
PLUMBER.....	\$ 63.39	30.83

PLUM0012-007 02/28/2022		

ESSEX (Lynn, Lynnfield, Nahant, Saugus, and Swampscott);
MIDDLESEX (Acton, Arlington, Ashford, Ayer-except west of
Greenville Branch of Boston & Maine Rail Road, Bedford,
Belmont, Billerica, Boxboro, Burlington, Cambridge, Carlise,
Chelmsford, Concord, Dracut, Dunstable, Everett, Framingham,
Hudson, Holliston, Hopkinton, Lexington, Lincoln, Littleton,
Lowell, Malden, Marlboro, Maynard, Medford, Melrose, Natick,
Newton, North Reading, Pepperell, Reading, Sherborn,
Somerville, Stoneham, Stow, Sudbury, Tewksbury, Tyngsboro,
Wakefield, Watham, Watertown, Wayland, Westford, Wilmington,
Winchester and Woburn), NORFOLK (Bellingham, Braintree,
Brookline, Canton, Cohasset, Dedham, Dover, Foxboro, Franklin,
Medford, Medway, Millis, Milton, Needham, Norfolk, Norwood,
Plainville, Quincy, Sharon, Walpole, Wellesley, Westwood,
Weymouth and Wrentham); PLYMOUTH (Hingham, Hull, Scituate);
SUFFOLK; WORCESTER (Hopedale and Southboro)

Rates	Fringes
-------	---------

PLUMBER.....\$ 61.79 34.66

PLUM0051-004 09/01/2018

BARNSTABLE; BRISTOL; DUKES; NANTUCKET; AND NORFOLK (Avon, Holbrook, Randolph, Stoughton) COUNTIES

Rates Fringes

Plumbers and Pipefitters.....\$ 42.04 29.91

PLUM0537-005 09/01/2021

ESSEX (Ames, Andover, Beverly, Boxford, Byfield, Danvers, Essex, Georgetown, Gloucester, Groveland, Hamilton, Haverhill, Ipswich, Lawrence, Lynn, Lynnfield, Manchester, Marblehead, Merrimac, Methuen, Middleton, Nahant, Newbury, Newburyport, North Andover, Peabody, Rockport, Rowley, Salem, Salisbury, Saugus, Swampscott, Topsfield, Wenham, West Newbury); MIDDLESEX (Acton, Arlington, Ashford, Ayer-except west of Greenville Branch of Boston & Maine Rail Road, Bedford, Belmont, Billerica, Boxboro, Burlington, Cambridge, Carlisle, Chelmsford, Concord, Dracut, Dunstable, Everett, Framingham, Hudson, Holliston, Hopkinton, Lexington, Lincoln, Littleton, Lowell, Malden, Marlboro, Maynard, Medford, Melrose, Natick, Newton, North Reading, Pepperell, Reading, Sherborn, Somerville, Stoneham, Stow, Sudbury, Tewksbury, Tyngsboro, Wakefield, Watham, Watertown, Wayland, Westford, Wilmington, Winchester and Woburn), NORFOLK (Bellingham, Braintree, Brookline, Canton, Cohasset, Dedham, Dover, Foxboro, Franklin, Medford, Medway, Millis, Milton, Needham, Norfolk, Norwood, Plainville, Quincy, Sharon, Walpole, Wellesley, Westwood, Weymouth and Wrentham); PLYMOUTH (Hingham, Hull, Scituate); SUFFOLK; WORCHESTER (Hopedale and Southboro)

Rates Fringes

PIPEFITTER.....\$ 58.68 35.22

ROOF0033-001 02/01/2022

Rates Fringes

Roofers:

All Tear-off and/or removal of any types of roofing and all spudding, sweeping, vacuuming and/or cleanup of any and all areas of any type where a roof is to be relaid.....\$ 47.03 32.38

SFMA0550-001 03/01/2022

BRISTOL (Portion within 35 mile radius from Boston City Hall; ESSEX; MIDDLESEX (Except Ashby, Townsend, and portions of Pepperell and Shirley beyond 35 mile radius from Boston City Hall); NORFOLK; PLYMOUTH (Portion within 35 mile radius of Boston City Hall); SUFFOLK

Rates Fringes

SPRINKLER FITTER.....\$ 64.36 33.75

a. PAID HOLIDAYS: Memorial Day, July 4th, Labor Day, Thanksgiving Day and Christmas Day, provided the employee has been in the employment of a contractor 20 working days prior to any such paid holiday.

SFMA0550-002 03/01/2022

BRISTOL (Seekonk, Swansea, and Somerset)

Rates Fringes

SPRINKLER FITTER.....\$ 57.92 33.75

a. PAID HOLIDAYS: Memorial Day, July 4th, Labor Day, Thanksgiving Day and Christmas Day, provided the employee has been in the employment of a contractor 20 working days prior to any such paid holiday.

SFMA0669-001 01/01/2022

BARNSTABLE; BRISTOL (Beyond 35 mile radius of Boston City Hall); DUKES; MIDDLESEX (Ashby, Townsend, portions of Pepperell and Shirley beyond 35 mile radius of Boston City Hall); NANTUCKET; PLYMOUTH (Beyond 35 mile radius of Boston City Hall)

Rates Fringes

SPRINKLER FITTER.....\$ 43.14 28.02

SHEE0017-003 02/01/2022

BRISTOL (Attleboro, Berkley, Easton, Mansfield, North Attleboro, Norton, Raynham, Taunton); ESSEX; MIDDLESEX; NORFOLK; PLYMOUTH (except except Marion, Mattapoisett, Rochester, Wareham); SUFFOLK

Rates Fringes

Sheet metal worker.....\$ 52.50 30.71

SHEE0017-007 08/01/2021

BARNSTABLE; BRISTOL (Acushnet, Assonet, Dartmouth, Dighton, Fairhaven, Fall River, Freetown, New Bedford, Rehoboth, Seekonk, Somerset, Swansea, Westport); DUKES; AND NANTUCKET

Rates Fringes

Sheet metal worker.....\$ 51.95 43.04

TEAM0379-001 08/01/2020

Rates Fringes

Truck drivers:

Group 1.....\$ 34.98 26.6325+A+B
Group 2.....\$ 35.15 26.6325+A+B

Group 3.....	\$ 35.22	26.6325+A+B
Group 4.....	\$ 34.44	26.6325+A+B
Group 5.....	\$ 35.44	26.6325+A+B
Group 6.....	\$ 35.73	26.6325+A+B
Group 7.....	\$ 36.02	26.6325+A+B

POWER TRUCKS \$.25 DIFFERENTIAL BY AXLE
TUNNEL WORK (UNDERGROUND ONLY) \$.40 DIFFERENTIAL BY AXLE
HAZARDOUS MATERIALS (IN HOT ZONE ONLY) \$2.00 PREMIUM

TRUCK DRIVERS CLASSIFICATIONS

- Group 1: Station wagons; panel trucks; and pickup trucks
- Group 2: Two axle equipment; & forklift operator
- Group 3: Three axle equipment and tireman
- Group 4: Four and Five Axle equipment
- Group 5: Specialized earth moving equipment under 35 tons other than conventional type trucks; low bed; vachual; mechanics, paving restoration equipment
- Group 6: Specialized earth moving equipment over 35 tons
- Group 7: Trailers for earth moving equipment (double hookup)

FOOTNOTES:

- A. PAID HOLIDAYS: New Year's Day, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Patriot's Day, Columbus Day, Veteran's Day, Thanksgiving Day and Christmas Day
- B. PAID VACATION: Employees with 4 months to 1 year of service receive 1/2 day's pay per month; 1 week vacation for 1 - 5 years of service; 2 weeks vacation for 5 - 10 years of service; and 3 weeks vacation for more than 10 years of service

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.
=====

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information

on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate

that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

=====

END OF GENERAL DECISIO"

TECHNICAL SPECIFICATIONS

LOWELL HOUSING AUTHORITY
INSTRUCTIONS TO BIDDERS

ARTICLE 1 - BIDDER'S REPRESENTATION

1.1 Each General Bidder or Sub-bidder (hereinafter called the "Bidder") by making a bid or sub-bid (hereinafter called "bid") represents that:

1. The Bidder has read and understands the Contract Documents and the bid is made in accordance therewith.
2. The Bidder has visited the site and is familiar with the local conditions under which the Work has to be performed.

1.2 Failure to so examine the Contract Documents and site will not relieve any Bidder from any obligation under the bid as submitted.

ARTICLE 2 - GENERAL BIDDER'S AND FILED SUB-BIDDER'S CERTIFICATION

2.1 General bids shall be submitted with the following:

1. A Certificate of Eligibility on the appropriate form prescribed and issued by the Division of Capital Asset Management and Maintenance (DCAMM), showing that the Bidder is eligible to bid on projects of this size in the specified category of work – General Building Construction; and
2. A Contractor Update Statement, DCAMM Form.
3. The Contractor Update Statement is not a public record as defined in DCAMM regulation 810 CMR 8.06 and will not be open to public inspection.

2.2 Advertised filed sub-bids shall be submitted with the following:

1. A Sub-Bidder Certificate of Eligibility on the appropriate form prescribed and issued by DCAMM showing that the sub-bidder is eligible to bid on public projects in the specified category of work – Electrical and Elevators; and
2. A Sub-Bidder Update Statement on a form prescribed by DCAMM.

2.3 It is the Sub-Bidder's responsibility to obtain the necessary forms from DCAMM and make application in sufficient time for evaluation of the application and issuance of a Sub-Bidder Certificate of Eligibility prior to bid.

2.4 The Sub-Bidder Update Statement is not a public record as defined in DCAMM regulation 810 CMR 8.06 and will not be open to public inspection.

2.5 All employees who work on this construction site must have no less than 10 hours of OSHA-approved safety and health training.

2.6 The Contractor and all subcontractors on this project will be required to provide certification of

compliance with the requirement of 2.5 above in accordance with the provisions of these Contract Documents.

2.7 The Contractor and all subcontractors shall be completely responsible for compliance with EPA Lead Renovator Requirements including EPA regulation 40 CFR 745.

ARTICLE 3 - MBE/WBE PARTICIPATION GOALS

3.1 Refer to the Advertisement for the applicability of this Article 3.

3.2 The participation goals that must be contracted with minority-owned and/or women-owned enterprises is stated in the Advertisement. If the Advertisement does not include participation goals, paragraphs 3.3 -3.6 below shall not apply.

3.3 The apparent low Bidder must submit the SDO Certified MBE/WBE Participation Schedule (Form HUD-2516) and Letters of Intent from all of the firms listed on the Schedule within five (5) working days after receipt of general bids. Letters of Intent are not required for filed Subcontractors. However, filed Sub-bidders who are SDO Certified shall be listed on the Participation Schedule.

3.4 If the general contractor requires any of the following it must do so in writing to the Housing Authority within five (5) working after receipt of general bids.

1. a time extension for the submission of Its Participation Schedule & Letter(s) of Intent;
2. a reduction in the participation goals stated in the Advertisement; or
3. a waiver from the participation goal requirements. If the Housing Authority determines that compliance with participation goals are not feasible it has the discretion to reduce or waive these goals at any time prior to contract award. Such waiver shall be granted only upon, the General Contractors showing that good faith efforts have been made to comply with the participation goals.
4. The completed Participation Schedule, Letters of Intent and, if necessary, requests for a reduction in participation goals or a waiver from participation goals may be sent electronically to: bulding@lhma.org with a hard copy mailed to:

Lowell Housing Authority
350 Moody Street
PO Box 60
Lowell, MA 01853
Attn: Capital Asset Management

3.5 The Bidder must submit with its contract submission executed subcontracts with all subcontractors or a purchase order or invoice from material suppliers or manufacturers listed on the Participation Schedule.

3.6 Filed Sub-bidders are not required to submit a Participation Schedule. They may, at their option, submit a Letter of Intent with their bid if they are an SDO certified enterprise.

ARTICLE 4- REQUESTS FOR INTERPRETATION

- 4.1 Bidders shall promptly notify the Architect of any ambiguity, inconsistency, or error which they may discover upon examination of the Contract Documents, the site, and local conditions.
- 4.2 Bidders requiring clarification or interpretation of the Contract Documents shall make a written request to the Chief Procurement Officer. The CPO will answer such requests if received seven (7) calendar days before the date for receipt of the bids.
- 4.3 Interpretation, correction, or change in the Contract Documents will be made by written Addendum which will become part of the Contract Documents. Neither the Housing Authority nor the Architect will be held accountable for any oral interpretations, corrections, or changes.
- 4.4 Addenda will be made available on the Authority's website at www.lhma.org/bids.
- 4.5 Copies of addenda will be made available for inspection at the locations listed in the Advertisement where Contract Documents are on file.

ARTICLE 5 - PREPARATION AND SUBMISSION OF BIDS

5.1 Forms and Bid Preparation

1. Bids shall be submitted on the "Form for General Bid" or the "Form for Sub-Bid", as appropriate, furnished at no cost by the Housing Authority. The forms enclosed in the Project Manual shall not be extracted or used. Additional forms are available at the location listed in the Advertisement.
2. All entries on the bid form shall be made by typewriter or in ink.
3. Sums shall be expressed in both words and figures in the space indicated on the bid form. Where there is a discrepancy between the bid sum expressed in words and the bid sum expressed in figures, the words shall control.
4. If the requirement of Performance and Payment Bonds for filed sub-contractors is left blank by the General Bidder on the Form for General Bid, the Housing Authority shall interpret this as a "yes". No increase in contract price will be allowed for providing these bonds.
5. Costs for subcontractor's bond premiums shall be paid for by the General Contractor in accordance with M.G.L. c.149 §44F.

5.2 Bid Deposits shall be:

1. at least five percent (5%) of the greatest possible bid amount, considering all alternates;
2. made payable to the **Lowell Housing Authority**;
3. conditioned upon faithful performance by the principal of the agreements contained in the bid, and in the form of:
 - a. cash,
 - b. certified check, treasurer's or cashier's check issued by a responsible bank or trust company, or
 - c. a bid bond issued by a surety company licensed to do business in the Commonwealth of

Massachusetts.

4. retained until the execution and delivery of the Owner/Contractor Agreement if they represent the bid deposit of one of the three (3) lowest responsible and eligible General Bidders or one of the three (3) lowest Sub-bidders in a filed sub-bid trade, or a sub-bidder listed by one of the three (3) lowest General Bidders.

5.3 Delivery of Filed Sub-Bids

1. Sub-bids, including the bid deposit, DCAMM Sub-Bidder Certificate of Eligibility, a signed DCAMM Sub-Bidder Update Statement and other required documents shall be enclosed in a sealed envelope with the following plainly marked on the outside:

Filed Sub-Bid for: _____

- Name of Housing Authority and Project/Bid Number
- Sub-bid Section Number
- Trade
- Sub-bidder's Name, Business Address, and Phone Number

5.4 Delivery of General Bids

1. General Bids, including the bid deposit, DCAMM Certificate of Eligibility and Update Statement and other required documents shall be enclosed in a sealed envelope with the following plainly marked on the outside:

General Bid for. _____

- Name of Housing Authority and Project/Bid Number
- Bidder's Name, Business Address, and Phone Number
- Date and time for receipt of bids as set forth in the Advertisement.

- 5.4.1 Timely delivery of a bid to the location designated shall be the full responsibility of the Bidder.

5.5 Sub-Trade Solicitations

1. If the General Bidders are instructed to carry an amount for a given sub-trade listed under Item 2, General Bidder's shall list the sub-trade, and amount provided by the Housing Authority. The line under bonds required on the General Bid Form should be left blank or marked N/A in order for subparagraph 5.5.2 to be applicable.
2. Upon solicitation of a subcontractor to perform the work required by the sub-trade as mentioned in subparagraph 5.5.1, the selected General Contractor's contract amount will be adjusted as follows:
 - a. The difference between the subcontract amount and the amount carried in the bid.
 - b. The total cost of the subcontractor's bonds, if the selected General Contractor requires such bonds after the solicitation is completed and if the selected General Contractor complied with 5.4. above, and
 - c. The resultant cost difference for General Contractor's Bonds premiums.
3. Overhead and Profit for supervision of the sub-trade in question shall be included by all General Bidders in its Item 1.

4. Additional overhead and profit are not allowed on the incremental difference as stated in M.G.L. c.149 §44F(4)(a)(2) nor on the costs for the additional bond premiums.

ARTICLE 6 - ALTERNATES

A. General Bidders

- 6.1 Each General Bidder shall acknowledge Alternates by listing the individual Alternate number in Section C on the Form for General Bid and enter the dollar amount of addition or subtraction necessitated by each Alternate listed in the corresponding space.
- 6.2 General Bidders shall enter on the Form for General Bid a single amount for each Alternate which shall consist of the Sub-bidders' amounts and the amount for work performed by the General Contractor.
- 6.3 In the event an Alternate does not involve a change in dollar value, the General Bidder shall so indicate by listing the individual Alternate number and acknowledge the Alternate by inserting "No Change", "No Charge", "N/C" or "0" in the corresponding space provided for the dollar value of that Alternate.
- 6.4 The Low Bidder will be determined on the basis of the sum of the base bid and the accepted alternates.

B. Filed Sub Bidders

- 6.5 Each Sub-bidder shall acknowledge Alternates by listing the individual alternate number in Section A on the Form for Sub Bid and enter the dollar amount of addition or subtraction necessitated by each Alternate listed in the corresponding space.
- 6.6 If an Alternate does not involve a change to a sub-trades in dollar value the sub bidder shall so indicate by listing the individual alternate number in the space provided and acknowledge the alternate by inserting "No Change", "No Charge", "N/C" or "0" in the corresponding space provided for the dollar value of the alternate.
- 6.7 If the alternate does not affect the sub-trade category of work so indicate by writing "N/A". Sub-bidders are encouraged to list and acknowledge all alternates.

ARTICLE 7 - WITHDRAWAL OF BIDS

7.1 Before Opening of Bids

1. Any bid may be withdrawn prior to the time designated for receipt of bids upon written request. Withdrawal of bids must be confirmed over the Bidder's signature by written notice post-marked or sent by facsimile on or before the date and time set for receipt of bids.
2. Withdrawn bids may be resubmitted up to the time designated for the receipt of bids.

7.2 After Opening of Bids

1. Bidders may withdraw a bid, without penalty, any time up to the time of Award as defined in paragraph 8.1, and upon demonstrating, to the satisfaction of the Housing Authority, that a bona fide clerical error was made during the preparation of the bid. Failure to conclusively demonstrate a bona fide clerical error may result in forfeiture of the bid deposit.

7.3 In the event of a general bid withdrawal after opening of bids, the Housing Authority shall consider the bid from next lowest eligible and responsible bidder.

7.4 Sub-bid Withdrawal/ Substitution

1. Selection - Should a filed sub-bidder listed on the Form for General Bid of the selected General Contractor (per Article 8 of these instructions) withdraw its bid, be unable to provide performance and payment bonds as required by the selected General Contractor, or otherwise refuse to sign a subcontract with the selected General Contractor, the housing authority and the selected General Contractor shall consider the other sub-bids to which the housing authority and the selected General Contractor make no objection and substitute a new sub-bidder for such trade.
2. Process: If the selected General Contractor:
 - a. required bonds (on the Form for General Bid) for the sub-bidder who withdrew then the selected General Contractor's contract amount shall be adjusted to account for (1) the difference between the amount of the sub-bid listed on the Form for General Bid and the amount of the replacement sub-bid, and (2) the incremental difference in the cost of the General Contractor bonds premiums, but (3) there will be no compensation for additional subcontractor bond premiums, or
 - b. did not require bonds (on the Form for General Bid) for the sub-bidder who withdrew and now the selected General Contractor wants bonds from the replacement sub-bidder, then the selected General Contractor's contract amount shall be adjusted (1) to account for the difference between the amount of the sub-bid listed on the Form for General Bid and the amount of the replacement sub-bid, (2) the amount for the new sub-bidder's performance and payment bonds, and (3) the incremental difference in the cost of the General Contractor bond premiums.
3. There shall be no adjustment to the selected General Contractor's contract amount except as set forth in 7.4.2 (1) and 7.4.2 (2). Additional overhead and profit are not allowed on the incremental difference in the sub-bids or on the costs for the additional bond premiums.

ARTICLE 8 - CONTRACT AWARD

- 8.1 Award means both the determination and selection of the lowest, responsible and eligible bidder, by Housing Authority board vote.
- 8.2 The Housing Authority will award the contract to the lowest responsible and eligible bidder within thirty days, Saturdays, Sundays, and legal holidays excluded after the opening of bids in accordance with M.G.L c.149 §44A.
- 8.3 The Contract will be awarded to the lowest responsible and eligible Bidder, except in the event of substitution as provided under M.G.L. c. 149, §§44E and 44F, in which cases the procedure as required by said sections shall govern the award of the Contract.
- 8.4 N/A
- 8.5 The Housing Authority reserves the right to waive any informality in or to reject any or all Bids if it be

in the public interest to do so.

- 8.6 The Housing Authority also reserves the right to reject any sub-bid if it determines that such sub-bid does not represent the bid of a person competent to perform the work as specified, or if less than three sub-bids are received for a sub-trade, or if bid prices are not reasonable for acceptance without further competition.
- 8.7 As used herein, the term "lowest responsible and eligible bidder" shall mean the General Bidder whose bid is the lowest of those Bidders demonstrably possessing the skill, ability, and integrity necessary for the faithful performance of the work, and who meets the requirements for Bidders set forth in M.G.L. c.149, §44A-J and is not debarred from bidding under M.G.L. c.149, §44C, *or from any department or agency of the federal government*; and
- 8.8 Who shall certify that they are able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work; that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the *first* certified payroll report for each employee and that he will comply fully with all laws and regulations applicable to awards made subject to MGL ch. 149, §44A-J.

ARTICLE 9 - FORMS REQUIRED FOR CONTRACT APPROVAL

- 9.1 Upon Award, the General Bidder shall complete the following forms to ensure prompt contract validation. These forms will be provided to the selected General Bidder by the Housing Authority. Submit (3) originals of each.
1. Owner/Contractor Agreement and Form of Corporate Vote.
 2. Form of Performance Bond and Form of Payment Bond must be submitted by the General Contractor, in accordance with Article 18 of the General Conditions. The dates on the bonds must coincide with the contract date, and a current Power-of-Attorney must be attached to each bond. Performance and Payment Bonds must also be submitted for all filed subcontractors, if required by the General Bidder on its Form for General Bid, in the total amount of the subcontract payable to the General Contractor.
 3. Insurance Certificates for the General Contractor and all filed subcontractors are required and must be submitted in accordance with Article 16 of the General Conditions.
 4. General Contractors must indicate on Builders Risk insurance Certificate or installation floater if stored materials are covered.
 5. Form of Contractor's Equal Employment Certification in accordance with the Specification.
 6. Form of Sub-Contractor's Equal Employment Certification in accordance with the Specification.
 7. Form of Subcontract for all filed subcontractors - executed and submitted on the statutory subcontract form.

8. Subcontracts with MBE/WBE subcontractors - executed on a form agreeable between both parties.
9. Purchase Orders to, or Invoices from, MBE/WBE suppliers.
10. Statement of Management or Internal Accounting Controls and a Statement prepared by a CPA expressing an opinion to the state of Management Controls, as required by M.G.L. c.30, §39R. This applies to the General Contractor only.
11. Evidence of Certification with 40 CFR part 745 Lead Renovation, Repair and Painting Program.

ARTICLE 10 - CONTRACT VALIDATION

- 10.1 The Owner-Contractor Agreement shall not be valid until signed by the Housing Authority Board or signature as delegated by the Housing Authority Board to the Executive Director.
- 10.2 The Notice to Proceed for construction shall not be issued until the Owner/Contractor Agreement has been approved by the Housing Authority Board or Its Designee.
- 10.3 Incomplete or unacceptable submissions of forms required by paragraphs 9.2 - 9.7 will delay the validation of the Owner/Contractor Agreement.

END OF SECTION
INSTRUCTIONS TO BIDDERS

SECTION 010100

SUMMARY OF WORK

PART 1 GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

- A. The work of this Contract shall consist of the replacement of existing elevator equipment within an existing occupied residence building. The work shall the replacement of some existing non-fire rated doors and the provision of new architectural finishes, partitions, MEP systems and fire protection modifications. A new emergency generator and automatic transfer system (ATS) will be provided as part of this contract.
- B. The construction will take place in an occupied building. The Contractor will conduct his operations so as not to interfere with the ongoing operations of the building tenants. The Contractor will coordinate his work with the requirements of the building manager. Operations requiring excessive noise will be done during hours when the Town Hall is closed. Shutdowns of building services, when required must be scheduled with and approved by the building manager.
- C. The work shall be in an area of the building necessary for the emergency egress of the building. Work shall be done so as to maintain the necessary Code required egress routes. Part of the work is to construct temporary accessibility to the building for handicapped individuals.

1.02 WORK SEQUENCE

- A. The work shall commence on a timely basis and thereafter be carried out in a diligent and forthright manner, with a proper supply of labor, materials, plant, and equipment to assure the satisfactory completion of the work.
- B. For the work to be completed under this Contract the Contractor is notified that time is of the essence. The Contractor is expected to meet the completion dates set by the Owner for the various parts of the Project.

1.03 CONTRACTOR'S USE OF SITE AND SURROUNDING AREAS

- A. Prior to beginning work of the Contract, the Contractor shall meet with the Owner and the Architect to determine procedures regarding access to and use of existing buildings and site, exterior staging and storage areas, tree protection, special site conditions, and any other restrictions regarding the use of the site.
- B. Where work on public roads or walks, or other work on municipal property or easement is done, all such work shall conform to the rules, regulations, and specifications of the public agencies having jurisdiction. All permits and fees for such off-site work shall be obtained and paid for by the Contractor.
- C. The Contractor shall keep all public and private access roads and walks clear of debris caused by this work during the entire term of the Contract. He shall repair all public and private streets, drives, curbs, walks, and other improvements where disturbed by work of, or related to, building operations, leaving them in as good condition after completion of the

work as before operations started, in accordance with rules, regulations, and specifications of the public agencies having jurisdiction.

- D. Parking of workmen's personal vehicles on the site shall be only as specifically permitted by the Owner and Architect.
- E. Access roads and fire-lanes on and about the site shall be kept open and free at all times, except moving traffic, for passage of emergency vehicles.
- F. A reasonable sum (cost of equivalent replacement) will be deducted from the Contract Sum for any permanent damage to existing trees or plantings which are outside the limit-of-work lines but on the Owner's property or which are within the limit-of-work lines and are designated to be protected. Contractor shall be fully responsible for damage to trees and plants off the Owner's property.
- G. The Contractor shall maintain as low a level of construction noise as practicable in order not to create a disturbance in the neighborhood and meeting the requirements of the local jurisdiction.
- H. No smoking will be allowed inside the building at the worksite.

1.04 OWNER'S OCCUPANCY

- A. Prior to the date of Substantial Completion, the Contractor agrees to the use and occupancy of any of the buildings or any portions thereof by the Owner provided the Owner secures written consent of the Contractor, such consent not to unreasonably withheld.
- B. If the Project has not been substantially completed by the specified date, the Owner may from time to time occupy the buildings or any portion of any building as the Work thereon is completed to such extent that they are usable for the purpose for which they are intended.
- C. The Owner will give notice to the Contractor prior to any such occupancy, subject to the following:
 - 1. In case of partial occupancy prior to the substantial completion date, the Owner shall secure endorsement from the insurance carrier and consent of the Surety permitting occupancy during the remaining period of construction.
 - 2. In case of partial occupancy after the substantial completion date, the Contractor shall extend all necessary insurance coverage until final acceptance of the Project. Owner's use and occupancy prior to final acceptance shall not relieve the Contractor of his responsibility to maintain the insurance coverage required by the Contract Documents.
- D. Occupancy of any building or any portion thereof by the Owner shall not constitute an acceptance of the Work or portion thereof nor relieve Contractor of responsibility to perform any of the required work not completed at the time of occupancy.
- E. Contractor shall not be required to furnish heat, light, or water used by the Owner in such occupancy, nor pay maintenance costs, nor shall be responsible for wear and tear or damage in the occupied buildings, or portion thereof resulting directly from such occupancy.

1.05 CONTRACT DOCUMENTS

- A. Intent: Drawings and specifications are intended to provide the basis for proper completion of the work suitable for the intended use of the Owner; anything not expressly set forth but which is reasonably implied or necessary for the proper performance of the project shall be included.
- B. Writing style: Specifications are written in the imperative mode. Except where specifically intended otherwise, the subject of all imperative statements is the Contractor. For example, "Provide tile" means "Contractor shall provide tile."
- C. Existing Conditions: Notify Owner of existing conditions differing significantly from those indicated on the drawings. Do not remove or alter structural components without prior written approval.
- D. If there are discrepancies in the Contract Documents the following shall control in the priority order as indicated below:
 - 1. Contract for Construction
 - 2. Addenda in order of most recent having precedence
 - 3. The Supplementary Conditions
 - 4. The General Conditions of the Contract for Construction
 - 5. Division 1 of the Specifications
 - 6. Drawings
 - 7. Specifications Divisions 2 -49
 - 8. Other Documents enumerated in the Contract Documents
- F. Definitions for terms used in the specifications:
 - 1. Provide: Furnish and install, complete with all necessary accessories, ready for intended use. Pay for all related costs.
 - 2. Approved: Acceptance of item submitted for approval. Not a limitation or release for compliance with the Contract Documents or regulatory requirements. Refer to limitations of "Approved" in General and Supplementary Conditions.
 - 3. Match Existing: Match existing as acceptable to the Owner and Architect.

1.06 EXAMINATION OF SITE

- A. Prior to bidding the Contractor shall thoroughly examine the building site and the Contract Documents to ensure his knowledge of conditions and requirements affecting the work. No claim for extra compensation or extension of time will be allowed for Contractor's failure to comply with this requirement nor will any condition at the site, whether or not in agreement with conditions shown or called for on the Bid and Contract Documents, be allowed as a basis for such claims, except as may be otherwise specifically provided for.

1.07 DISCOVERY

- A. If during the work, articles of unusual value, or of historical or archaeological significance are encountered the ownership of such articles is retained by the Owner, and information

regarding their discovery shall be immediately furnished to the Architect. Resolution shall be handled as a change-in-the-work.

1.08 CONSTRUCTION WASTE MANAGEMENT

- A. The Project requires that construction waste be recycled so far as is practical. A construction waste management plan is required. The Architect will review and monitor the record the Contractor's efforts in this regard and will require that management reports are submitted before approval of payment requisitions.

1.09 OWNER PURCHASED - OWNER INSTALLED ITEMS

- A. The following items will be purchased and installed by the Owner.

- NA

1.10 OWNER PURCHASED - CONTRACTOR INSTALLED ITEMS

- A. The following items will be purchased by the Owner and installed by the Contractor.

- NA

1.10 CONTRACTOR PURCHASED - OWNER INSTALLED ITEMS

- A. The Contractor will purchase and deliver to the site the following items to be installed by the Owner or the Owner's representatives:

- NA

PART 2 PRODUCTS

Not applicable to this section.

PART 3 EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 010700

CUTTING AND PATCHING

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Contractor shall be responsible for all cutting, fitting, and patching, including attendant excavation and backfill, required to complete the Work or to:
 - 1. Make its several parts fit together properly.
 - 2. Uncover portions of the Work to provide for installations of ill-timed work.
 - 3. Remove and replace defective work.
 - 4. Remove and replace work not conforming to requirements of Contract Documents.
 - 5. Remove samples of installed work as specified for testing.
 - 6. Provide routine penetrations of non-structural surfaces for installation of piping and electrical conduit.
 - 7. Provide patching in surfaces for items that have been removed as a result of demolition under this contract.

1.02 RELATED REQUIREMENTS

- A. Substitutions and product options: Section 016000, MATERIAL AND EQUIPMENT.

1.03 QUALITY ASSURANCE

- A. Permission to patch any items of work does not imply a waiver of the Architect's right to require complete removal and replacement in said areas and of said items if, in Architect's opinion, said patching does not satisfactorily restore the quality and appearance of the work.
- B. Requirements for Structural Work: Do not reduce load-carrying capacity or load/deflection ratio.
- C. Operational and Safety Limitations: Do not cut and patch operational elements and safety-related components in a manner resulting in a reduction of capacities to perform in the manner intended or resulting in decreased operational life, increased maintenance, or decreased safety.
- D. Visual Requirements: Do not cut and patch exposed work in exterior and occupied spaces so that visual qualities are reduced or cut and patch work is visible, as judged by the Architect. Remove and replace unsatisfactory work as directed by Architect.

1.04 SUBMITTALS

- A. Submit a written request to Architect well in advance of executing any cutting or alteration which affects:
1. Work of the Owner or any separate contractor.
 2. Structural value or integrity of any element of the Project.
 3. Integrity or effectiveness of weather-exposed or moisture-resistant elements or systems.
 4. Efficiency, operational life, maintenance, or safety of operational elements.
 5. Visual qualities of sight-exposed elements.
- B. Request shall include:
1. Identification of the Project.
 2. Description of affected work.
 3. The necessity for cutting, alteration, or excavation.
 4. Effect on work of Owner or any separate contractor, or on structural or weatherproof integrity of project.
 5. Description of proposed work:
 - a. Description of why cutting and patching cannot (reasonably) be avoided.
 - b. Scope of cutting, patching, alteration, or excavation.
 - c. Methods.
 - d. How structural elements (if any) will be reinforced.
 - e. Trades who will execute the work.
 - f. Products proposed to be used.
 - g. Extent of refinishing to be done.
 - h. Approximate dates of the work, and anticipated results in terms of variations from the work as originally completed (structural, operational, visual, and other qualities of significance).
 6. Alternatives to cutting and patching.
 7. Cost proposal, when applicable.
 8. Written permission of any separate contractor whose work will be affected.

- C. Should conditions of work or the schedule indicate a change of products from original installation, submit request for substitution as specified in Section 01600, MATERIALS AND EQUIPMENT.
- D. Submit written notice to Architect designating date and time the work will be uncovered.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Except as otherwise indicated or authorized by the Architect, provide materials for cutting and patching shall be selected to produce equal-or-better work than the work being cut and patched in terms of performance characteristics and visual effect. Use materials identical to original materials where feasible and satisfactory.
- B. Comply with specifications and standards for each specific product involved.

PART 3 EXECUTION

3.01 INSPECTION

- A. Inspect existing conditions of Project, including elements subject to damage or to movement during cutting and patching.
- B. After uncovering work, inspect conditions affecting installation of Products, or performance of work.
- C. Report unsatisfactory or questionable conditions to Architect in writing; do not proceed with work until Architect has provided further instructions.

3.02 PREPARATION

- A. Provide adequate temporary support as necessary to assure structural value or integrity of affected portion of work.
- B. Provide devices and methods to protect other portions of Project from damage.
- C. Provide protection from elements for that portion of the Project which may be exposed by cutting and patching work, and maintain excavations free from water.

3.03 PERFORMANCE

- A. Execute cutting and demolition by methods which prevent damage to other work, and provide proper surfaces to receive installation of repairs.
 - 1. In general, where mechanical cutting is required, cut work with sawing and grinding tools, not with hammering and chopping tools. Core drill openings through concrete work.

2. Comply with the requirements of applicable Sections of Division 2 - SITE WORK where cutting-and-patching requires excavating and backfilling.
- B. Employ excavating and backfilling methods that prevent settlement or damage to other work.
 - C. Employ original installer or fabricator to cut and patch for:
 1. Weather-exposed or moisture-resistant elements.
 2. Sight-exposed finished surfaces.
 - D. Execute fitting and adjustment of products to provide specified products, functions, tolerances, and finishes.
 - E. Restore work which has been but or removed; install new products to provide complete work in accordance with requirements of Contract Documents.
 - F. Fit work airtight to pipes, sleeves, ducts, conduits, and other penetrations through surfaces.
 - G. Patch with seams which are durable and as invisible as possible. Comply with specified tolerances for the work.
 - H. Restore exposed finishes of patched areas; extend finish restoration to retained work to eliminate evidence of patching.
 1. Where patch occurs in a smooth painted surface, extend final paint coat over entire unbroken surface containing patch.
 - I. Refinish entire surfaces as necessary to provide even finish to match adjacent finishes:
 1. For continuous surfaces, refinish to nearest intersection.
 2. For an assembly, refinish entire unit.

3.04 CLEANING

- A. In addition to cleaning specified in Section 01710, clean all areas affected by the work of this Section.
- B. Completely remove paint, mortar, oils, putty and similar items.
- C. Thoroughly clean piping, conduit, ductwork and similar elements before applying paint or other finishes. Restore all damaged pipe and ductwork coverings to its original condition.

END OF SECTION

SECTION 010900

REFERENCE STANDARDS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Abbreviations and acronyms used in Contract Documents to identify reference standards.

1.02 QUALITY ASSURANCE

- A. Application: When a standard is specified by reference, comply with requirements and recommendations stated in that standard, except when requirements are modified by the Contract Documents, or applicable codes established stricter standards.
- B. Publication Date: The publication in effect on the date of issue of Contract Documents, except when a specific publication date is specified.

1.03 ABBREVIATIONS AND NAMES OF ORGANIZATIONS

- A. Obtain copies of referenced standards direct from publication source, when needed for proper performance of Work, or when required for submittal by Contract Documents.

AA	Aluminum Association
AABC	Associated Air Balance Council
AAMA	Architectural Aluminum Manufacturers Association
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
ADC	Air Diffusion Council
AGC	Associated General Contractors of America
AI	Asphalt Institute
AISC	American Institute of Steel Construction
AITC	American Institute of Timber Construction
AISI	American Iron and Steel Institute
AMCA	Air Movement and Control Association
ANSI	American National Standards Institute
ARI	Air Conditioning and Refrigeration Institute
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASPA	American Sod Producers Associates
ASTM	American Society for Testing and Materials
AWI	Architectural Woodwork Institute
AWPA	American Wood-Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association
CRSI	Concrete Reinforcing Steel Institute
EJMA	Expansion Joint Manufacturer's Association
FGMA	Flat Glass Marketing Association
FM	Factory Mutual System
FS	Federal Specifications

GA	Gypsum Association
IEEE	Institute of Electrical and Electronics Engineers
IMIAC	International Masonry Industry-All Weather Council
ISA	International Society of Arboriculture
MFMA	Maple Flooring Manufacturers Association
MIL	Military Specifications
ML/SFA	Metal Lath/Steel Framing Association
NAAMM	National Association of Architectural Metal Manufacturers
NCMA	National Concrete Masonry Association
NEBB	National Environmental Balancing Bureau
NEMA	National Electrical Manufacturers' Association
NFPA	National Fire Protection Association
NSF	National Sanitation Foundation
NRCA	National Roofing Contractors Association
NSWMA	National Solid Waste Management Association
NTMA	National Terrazzo and Mosaic Association
NWMA	National Woodwork Manufacturers Association
PCA	Portland Cement Association
PCI	Prestressed Concrete Institute
PS	Product Standard
SCPI	Structural Clay Products Institute
SDI	Steel Deck Institute
SDI	Steel Door Institute
SIGMA	Sealed Insulating Glass Manufacturers Association
SJI	Steel Joint Institute
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association
SPRI	Single Ply Roofing Institute
SSPC	Steel Structures Painting Council
TAS	Technical Aid Series
TCA	Tile Council of America, Inc.
UL	Underwriters' Laboratories, Inc.
MCLIB	West Coast Lumber Inspection Bureau

PART 2 PRODUCTS

Not applicable to this section.

PART 3 EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 012000

PROJECT MEETINGS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. The Contractor shall schedule and administer pre-construction meeting, periodic progress meetings, and specially called meetings throughout progress of the Work.
- B. The Contractor shall:
 - 1. Prepare agenda for meetings.
 - 2. Distribute written notice of each meeting four days in advance of meeting date.
 - 3. Make physical arrangements for meetings.
 - 4. Preside at the meetings.
 - 5. Record the minutes; include significant proceedings and decisions.
 - 6. Reproduce and distribute copies of minutes within three days after each meeting.
 - a. To participants in the meeting.
 - b. To parties affected by decisions made at the meeting.
 - c. Furnish one copy of minutes to Architect.
- C. Representatives of contractors, subcontractors, and suppliers attending meetings shall be qualified and authorized to act on behalf of the entity each represents.
- D. Architect may attend meetings to ascertain that Work is expedited consistent with Contract Documents and construction schedules.

1.02 RELATED REQUIREMENTS

- A. Shop Drawings: Section 013400, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Record documents: Section 017200, PROJECT RECORD DOCUMENTS.
- C. Operation and maintenance data: Section 017300, OPERATING AND MAINTENANCE DATA.

1.03 PRE-CONSTRUCTION MEETING

- A. Schedule within 15 days after date of Notice to Proceed.

- B. Location: A central site, convenient for all parties, designated by Contractor.
- C. Attendance:
 - 1. Owner's Representative.
 - 2. Architect and his Professional Consultants.
 - 3. Resident Project Representative.
 - 4. Contractor's Superintendent.
 - 5. Major Subcontractors.
 - 6. Major suppliers.
 - 7. Others as appropriate.
- D. Suggested Agenda:
 - 1. Distribution and discussion of:
 - a. List of major subcontractors and suppliers.
 - b. Projected Construction Progress Schedules.
 - 2. Critical work sequencing.
 - 3. Major equipment deliveries and priorities.
 - 4. Project Coordination.
 - a. Designation of responsible personnel.
 - 5. Procedures and processing of:
 - a. Field Decisions.
 - b. Proposal Requests.
 - c. Submittals.
 - d. Change Orders.
 - e. Application for Payment.
 - 6. Adequacy of distribution of Contract Documents.
 - 7. Procedures for maintaining Record Documents.
 - 8. Use of premises:

- a. Office, work, and storage areas.
- b. Owner's requirements.
9. Construction facilities, controls, and construction aids.
10. Temporary utilities.
11. Safety and first-aid procedures.
12. Security procedures.
13. Housekeeping procedures.

1.04 PROGRESS MEETINGS

- A. Schedule regular periodic meetings, as required.
- B. Hold called meetings as required by progress of the Work.
- C. Location of the meetings: Project site at location designated by the Contractor.
- D. Attendance:
 1. Owner
 2. Architect, and his professional consultants as needed.
 3. Subcontractors as appropriate to the agenda.
 4. Suppliers as appropriate to the agenda.
 5. Mechanical and electrical subcontractors.
 6. Others.
- E. Suggested Agenda:
 1. Review and approval of minutes of previous meeting.
 2. Review of Work progress since previous meeting.
 3. Field observations, problems, conflicts.
 4. Problems which impede Construction Progress Schedule.
 5. Review of off-site fabrication, and delivery schedules.
 6. Corrective measures and procedures to regain project schedule.

7. Revisions to Construction Progress Schedule.
8. Progress schedule during succeeding work period.
9. Coordination of schedules.
10. Review submittal schedules; expedite as required.
11. Maintenance of quality standards.
12. Pending changes and substitutions.
13. Review proposed changes for:
 - a. Effect on Construction Progress Schedule and on completion date.
 - b. Effect on other contracts of the Project.
14. Other business.

PART 2 PRODUCTS

Not applicable to this section.

PART 3 EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 013000

SUBMITTALS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Progress Schedules.
- B. Schedule of Values.
- C. Manufacturer's Certificates.

1.02 RELATED DOCUMENTS

- A. Testing Laboratory Reports: Section 014100, TESTING LABORATORY SERVICES.
- B. Manufacturer's instructions: Section 016000, MATERIAL AND EQUIPMENT.
- C. Contractor's list of Products: Section 016000, MATERIAL AND EQUIPMENT.
- D. Shop drawings submittals: Section 013400, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- E. Closeout submittals: Section 017200, PROJECT RECORD DOCUMENTS; Section 017300, OPERATING AND MAINTENANCE DATA and Section 017400, WARRANTIES AND BONDS.

1.03 PROCEDURES

- A. General
 - 1. Deliver submittals to Architect at address listed on cover of Project Manual. Send 1 copy of a complete submittal to Owner concurrently.
 - 2. Provide each submittal in form and content acceptable to Architect.
 - 3. After Architect review of submittal, if not approved, revise and resubmit as required, identifying changes made since previous submittal.
 - 4. Distribute copies of approved submittals to concerned persons. Instruct recipients to promptly report any inability to comply with provisions.
 - 5. Resubmit periodically when conditions are changed so as to warrant resubmission or as directed by the Architect.
 - 6. The Contractor shall keep a submittal log of all submittals in a format approved by the Architect and Owner that tracks each submittal including date of submittal,

distribution, return date and action. This submittal log will be prepared and reviewed in advance of each project meeting.

- 6 Within 5 days of notice to proceed all submittals will be made on the following long lead time items.

NA

B. Progress Schedules

1. Prepare schedule in bar chart form or alternate form as approved by Architect.
2. Show progress of job on weekly basis for each major element of construction.
3. Identify fixed milestones and critical path elements.
4. Revise schedule on a weekly basis and submit with application for payment. Submit initial schedule within 10 days after award of contract.
5. For subsequent submittals, provide written narrative explaining deviations from originally submitted schedule.
6. Submit schedule of delivery of major items that have long lead times or that are not readily available from local suppliers. Coordinate with submittal schedule to show adequate lead time from approvals for all items.

C. Schedule of values

1. Submit schedule of values for the component parts of the work in sufficient detail to serve as a basis for computing values for progress payments during construction.
2. The sum of all values listed in the schedule shall equal the total contract sum.
3. The application for payment shall use the same values and categories as the approved schedule of values.
4. Resubmit schedule of values until approval by Architect is obtained.
5. Submit schedule of values within 10 days of award of project. Final approval must be obtained before approval of first application for payment.

D. Manufacturer's Certificates

1. Submit certificates in duplicate, in accordance with the requirements of each specification section.
2. Provide proper identification of each submittal; project, contractor, subcontractor, supplier and specification section or drawing number.

PART 2 PRODUCTS

Not applicable to this section.

PART 3 EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 013400

SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Submit Shop Drawings, Product Data, and Samples required by Contract Documents.

1.02 RELATED REQUIREMENTS

- A. Definitions and Additional Responsibilities of Parties: GENERAL CONDITIONS and MODIFICATIONS TO THE GENERAL CONDITIONS.
- B. Submittal of manufacturer's certificates: Section 013000, SUBMITTALS.
- C. Record documents: Section 017200, PROJECT RECORD DOCUMENTS.

1.03 SUBMITTAL SCHEDULE

- A. A Schedule of shop drawings, product data, and samples shall be submitted indicating by trade the date by which each such item is to be submitted and the date by which final approval of each item must be obtained. This schedule shall be revised as required by conditions of the Work, subject to Architect's approval. In each case, reasonable time must be permitted for Architect's review, Consultant's review, and for resubmittals if required.

1.04 SHOP DRAWINGS

- A. Drawings shall be presented in a clear and thorough manner.
 - 1. Details shall be identified by reference to Project name and number, Architect's name, sheet and detail number, schedule or room numbers shown on Contract Drawings.
- B. Minimum sheet size: 8-1/2 x 11 in.
- C. Each submittal shall be accompanied by appropriate transmittal form.

1.05 PRODUCT DATA

- A. Preparation
 - 1. Clearly mark each copy to identify pertinent products or models.
 - 2. Show performance characteristics and capacities.
 - 3. Show dimensions and clearances required.
 - 4. Show wiring and piping diagrams and controls.

- B. Manufacturer's standard schematic drawings and diagrams:
 - 1. Modify drawings and diagrams to delete information not applicable to the Work, and to identify clearly applicable products and work.
 - 2. Supplement standard information to provide information specifically applicable to the Work.

1.06 SAMPLES

- A. Office samples shall be of sufficient size and quantity to clearly illustrate:
 - 1. Functional characteristics of the product, with integrally related parts and attachment devices.
 - 2. Full range of color, texture, and pattern.
- B. Field samples and mock-ups:
 - 1. Contractor shall erect, at the Project site, at a location acceptable to the Architect.
 - 2. Size or area: that specified in the respective specification section.
 - 3. Fabricate each sample and mock-up complete and finished.
 - 4. Remove mock-ups at conclusion of Work or when acceptable to the Architect, unless incorporated in the Work.

1.07 CONTRACTOR RESPONSIBILITIES

- A. Review Shop Drawings, Product Data, and Samples prior to submission.
- B. Determine and verify:
 - 1. Field measurements.
 - 2. Field construction criteria.
 - 3. Catalog numbers and similar data.
 - 4. Conformance with specifications.
- C. Submit Shop Drawings, Product Data and Samples for individual items of work as single package.
- D. Submit interior finish samples as single package.
- E. Coordinate each submittal with requirements of the Work and of the Contract Documents.

- F. Notify the Architect in writing, at time of submission, of any deviations in the submittals from requirements of the Contract Documents.
- G. Do not begin work that requires Submittals until return of Submittals with Architect's approval.

1.08 SUBMISSION REQUIREMENTS

- A. Make submittals promptly in accordance with approved schedule, and in such sequence as to cause no delay in the Work or in the work of any other contractor.
- B. Number of submittals required:
 - 1. Shop Drawings:
 - a. Architectural Work: Submit one reproducible transparency and one opaque reproduction.
 - b. Engineering Consultant's Work: Submit one reproducible transparency and one opaque reproduction directly to the consultant; submit one opaque reproduction to the Architect with a copy of the transmittal sent to the consultant. The Consultant's review and comments will be made on the reproducible which will be forwarded to the Architect who will then return the reproducible to the Contractor.
 - 2. Product Data:
 - a. Architectural Work: Submit the number of copies which the Contractor requires, plus two which will be retained by the Architect.
 - b. Engineering Consultant's Work: Submit the number of copies which the Contractor requires, plus three to the consultant and one to the Architect with a copy of the transmittal sent to the consultant. The Consultant's review and comments will be made on the Product Data which will be forwarded to the Architect who will then return the Product Data to the Contractor.
 - 3. Samples: Submit the number stated in each specification section.
- C. Submittals shall contain:
 - 1. The date of submission and the dates of any previous submissions.
 - 2. The Project title and number.
 - 3. Contract identification.
 - 4. The names of:
 - a. Contractor.

- b. Supplier.
- c. Manufacturer.
- 5. Identification of the product, with the specification section number.
- 6. Field dimensions, clearly identified as such.
- 7. Relation to adjacent and critical features of the Work and materials.
- 8. Reference to shop drawings to the work of other trade(s) shall designate such trade(s); the term "By Others" shall not be used.
- 9. Applicable standards, such as ASTM, ANSI, or Federal Specification Numbers.
- 10. Identification of deviations from Contract Documents.
- 11. Identification of revisions on resubmittals.
- 12. An 8 in. X 3 in. blank space for Contractor and Architect stamps.
- 13. Contractor's stamp, initialed or signed, certifying to review of submittal, verification of products, field measurements and field construction criteria, and coordination of the information within the submittal with requirements of the Work and of Contract Documents.

1.09 ARCHITECT'S REVIEW

- A. Architect's stamp shall contain the following data:

"Review/approval neither extends nor alters any contractual obligations of the Architect or Contractor.

APPROVED

APPROVED AS CORRECTED

REVISE AND RESUBMIT

REJECTED"

- B. The Architect will insert the date of action taken and an identification of the person taking the action.
- C. Explanation of the designated actions is as follows:

APPROVED: No corrections, no marks: Resubmission not required.

APPROVED AS CORRECTED: Minor amount of corrections; all items can be fabricated without further corrections to original submittal; checking is complete and all corrections are deemed obvious without ambiguity. Resubmission not required.

REVISE AND RESUBMIT: Amount of corrections requires that noted items must not be fabricated without further corrections of original submittal; checking is complete; details of items noted by checker are to be clarified further before full approval can be given for fabrication. Resubmission required.

REJECTED: Submittal is rejected as not in accord with the Contract Documents, too many corrections, or other justifiable reasons. When returning submittal, Architect will state reasons for rejection. Correct and resubmit. Do not fabricate.

1.09 RESUBMISSION REQUIREMENTS

- A. Make any corrections or changes in the submittals required by the Architect and resubmit until approved.
- B. Shop Drawings and Product Data:
 - 1. Revise initial drawings or data, and resubmit as specified for the initial submittal.
 - 2. Indicate any changes which have been made other than those requested by the Architect.
- C. Samples: Submit new samples as required for initial submittal.

1.10 DISTRIBUTION

- A. Distribute reproductions of Shop Drawings and copies of Product Data which carry the Architect's stamp of approval to:
 - 1. Job site file.
 - 2. Record Documents file.
 - 3. Other affected contractors.
 - 4. Subcontractors.
 - 5. Supplier or fabricator.
 - 6. Owner
- B. Distribute samples which carry the Architect stamp of approval as directed by the Architect.

1.11 ARCHITECT DUTIES

- A. Review submittals with reasonable promptness and in accord with the schedule and the requirements of the GENERAL CONDITIONS.
- B. Affix stamp and initials or signature, and indicate requirements for resubmittal, or approval of submittal.
- C. Return submittals to Contractor for distribution, or for resubmission.

PART 2 PRODUCTS

Not applicable to this section.

PART 3 EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 015100

TEMPORARY UTILITIES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Furnish, install and maintain temporary utilities required for construction; remove temporary utilities when work is complete.

1.02 RELATED REQUIREMENTS

- A. Conditions of the Contract: GENERAL CONDITIONS and SUPPLEMENTARY CONDITIONS.

1.03 REFERENCED STANDARDS

- A. National Fire Protection Association (NFPA):
70 National Electrical Code

1.04 REQUIREMENTS OF REGULATORY AGENCIES

- A. Comply with NFPA 70.
- B. Comply with Federal, State, and local codes and regulations and with utility company requirements.

PART 2 - PRODUCTS

2.01 MATERIALS, GENERAL

- A. Materials may be new or used but shall be adequate in capacity for the required usage, shall not create unsafe conditions, and shall not violate requirements of applicable codes and standards.

2.02 TEMPORARY ELECTRICITY AND LIGHTING

- A. Provide metered connections to existing facilities, sized to provide service required for power and lighting. Owner will pay the costs of power used; metering is for Owner's accounting purposes only.
- B. Install circuit and branch wiring, with area distribution boxes located so that power and lighting is available throughout the construction from construction-type power cords.
- C. Provide adequate artificial lighting where natural light is not adequate for work, and for areas accessible to the public. Temporary lighting shall be based on one 200 watt lamp for each 1,000 sq. ft. of floor area. Work of this Section excludes power for hoisting, welding and operation of compressors.

- E. Ensure that no electricity is used outside of normal working hours beyond that reasonably necessary for security.
- F. Work shall meet applicable requirements of NFPA 70 and Section 164000, ELECTRICAL.

2.03 TEMPORARY HEAT AND VENTILATION

- A. Provide temporary heat and ventilation as required to maintain adequate environmental conditions to facilitate progress of the Work, to meet specified minimum conditions for the installation of materials, and to protect materials and finishes from damage due to temperature and humidity.
- B. Provide adequate forced ventilation of enclosed areas for curing of installed materials, to disperse humidity, and to prevent hazardous accumulations of dust, fumes, vapors, and gases.
- C. Portable heaters shall be standard approved units with integral controls.
- D. Provide metered connections to existing fuel and power sources. Extend and supplement existing systems with temporary units as required to comply with requirements. Pay costs of installation, maintenance, operation, and removal. Owner will pay costs of fuel used from the existing system. Metering is for Owner's accounting purposes only.

2.04 TEMPORARY WATER

- A. Provide metered connections to existing facilities. Provide water for drinking and construction purposes; Owner will pay costs of water used. Metering is for Owner's accounting purposes only.
- B. Install branch piping with taps located so that water is available throughout the construction by the use of hoses. Protect piping and fittings against freezing.

2.05 TEMPORARY SANITARY FACILITIES

- A. Provide sanitary facilities in compliance with laws and regulations.
- B. Service, clean, and maintain facilities and enclosures.

2.07 TEMPORARY FIRE PROTECTION

- A. Provide and maintain suitable fire protection equipment and services and establish procedures for fire protection for welding and other potentially hazardous construction operations.
- B. Ascertain and comply with requirements of Project insurance carrier, local city/town Fire Department.
- C. Permanent fire protection system may be activated to meet these requirements. Replace fusible link heads and other expended or discharged components at time of Substantial Completion.

PART 3 - EXECUTION

3.01 GENERAL

- A. Comply with applicable requirements specified in Division 15-MECHANICAL, and in Division 16-ELECTRICAL.
- B. Maintain and operate systems to assure continuous service.
- C. Modify and extend systems as work progress requires.

3.02 REMOVAL

- A. Remove completely temporary materials and equipment when their use is no longer required.
- B. Clean and repair damage caused by temporary installations or use of temporary facilities.
- C. Restore permanent facilities used for temporary services to specified condition.
 - 1. Prior to final inspection, remove temporary lamps and install new lamps.

END OF SECTION

SECTION 015300

BARRIERS AND ENCLOSURES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Furnish, install and maintain suitable barriers and enclosures as required to prevent public entry, and to protect the Work, and existing facilities from construction operations; remove when no longer needed, or at completion of Work.

1.02 RELATED REQUIREMENTS

- A. Temporary heat: Section 015100, TEMPORARY UTILITIES
- B. Barriers provided by Elevator sub-contractor to protect entrances at elevator shaft: Section 14200, ELEVATORS

PART 2 - PRODUCTS

2.01 MATERIALS, GENERAL

- A. Materials may be new or used, suitable for intended purpose, and shall meet requirements of applicable codes and standards.

2.02 FENCING

- A. Minimum fence height shall be 6 ft., or as indicated on Drawings.
- B. Chain Link Fence:
 - 1. No. 11 gauge, 2 in. mesh, 72 in. high galvanized chain link fabric, with extension arms and three strands of galvanized barbed wire.
 - 2. Galvanized steel posts; 1-1/2 in. line posts and 2 in. corner posts.

2.03 BARRIERS

- A. Materials to Contractor's option, as appropriate to serve required purpose.

2.04 ENCLOSURES

- A. Materials to Contractor's option, as appropriate for sufficient protection of work and materials.

PART 3 - EXECUTION

3.01 GENERAL

- A. Install facilities of a neat and reasonable uniform appearance, structurally adequate for required purposes.
- B. Maintain barriers and enclosures during entire construction period.
- C. Relocate barriers and enclosures as required by progress of construction.

3.02 FENCES

- A. Prior to start of work at the Project site, install enclosure fence with suitably locked entrance gates.
 - 1. Locate fence to enclose substantially entire Project site, or that portion the Contractor establishes as required to encompass entire Project construction operation, subject to the approval of the Owner.
 - 2. Locate vehicular entrance gates in suitable relation to construction facilities; and to avoid interference with traffic on public thoroughfares.
 - 3. Locate pedestrian entrance as required to provide controlled personnel entry, in suitable relation to construction parking facilities.
- B. Construct chain link fence in accordance with industry standards.

3.03 REMOVAL

- A. Completely remove barricades and enclosures, including foundations, when construction has progressed to the point that they are no longer needed, and when approved by Architect.
- B. Clean and repair damage caused by installation, fill and grade areas of the site to required elevations and slopes, and clean the area.

END OF SECTION

SECTION 015600

TEMPORARY CONTROLS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Provide and maintain methods, equipment, and temporary construction, as necessary to provide controls over environmental conditions at the construction site and related areas under Contractor's control; remove physical evidence of temporary facilities at completion of Work.

1.02 RELATED REQUIREMENTS

- A. Temporary utilities: Section 015100, TEMPORARY UTILITIES.
- B. Cleaning: Section 017100, CLEANING.

1.03 NOISE CONTROL

- A. Noise levels shall not exceed those stipulated by Occupational Safety and Health Administration.
- B. Schedule operations that make excessive noise at hours where building is unoccupied.

1.04 DUST CONTROL

- A. Provide positive methods and apply dust control materials to minimize raising dust from construction operations and provide positive means to prevent air-borne dust from dispersing into the atmosphere.

1.05 WATER CONTROL

- A. Provide methods to control surface water to prevent damage to Project, site, and adjoining properties.
 - 1. Control fill, grading, and ditching to direct surface drainage away from excavations, pits, tunnels, and other construction areas; and to direct drainage to proper runoff.
- B. Provide, operate, and maintain hydraulic equipment of adequate capacity to control surface and water.
- C. Dispose of drainage water in a manner to prevent flooding, erosion, or other damage to any portion of the site or to adjoining areas and properties.

1.06 PEST AND RODENT CONTROL

- A. The Owner will provide pest and rodent control as necessary to prevent infestation of construction and storage areas.

- B. The Contractor will cooperate with the owner to coordinate and schedule rodent and pest control activities during construction. The Contractor shall notify the owner of specific areas requiring attention as soon as it is evident.

1.07 DEBRIS CONTROL

- A. Maintain all areas under Contractor's control free of extraneous debris.
- B. Initiate and maintain a specific program to prevent accumulation of debris at construction site, storage and parking areas, or along access roads and haul routes.
 - 1. Provide containers for deposit of debris as specified in Section 017100, CLEANING.
 - 2. Prohibit overloading of trucks to prevent spillages on access and haul routes.
 - a. Provide periodic inspection of traffic areas to enforce requirements.
- C. Schedule periodic collection and disposal of debris as specified in Section 017100, CLEANING.
 - 1. Provide additional collections and disposals of debris whenever the periodic schedule is inadequate to prevent accumulation.

1.08 POLLUTION CONTROL

- A. Provide methods, means, and facilities required to prevent contamination of soil, water, or atmosphere by the discharge of noxious substances from construction operations.
- B. Provide equipment and personnel, perform emergency measures required to contain any spillages and to remove contaminated soils or liquids.
 - 1. Excavate and dispose of any contaminated earth off-site and replace with suitable compacted fill and topsoil.
- C. Take special measures to prevent harmful substances from entering public waters.
 - 1. Prevent disposal of wastes, effluents, chemicals, or other such substances adjacent to streams, or in sanitary or storm sewers.
- D. Provide systems for control of atmospheric pollutants.
 - 1. Prevent toxic concentrations of chemicals.
 - 2. Prevent harmful dispersal of pollutants to atmosphere.

PART 2 PRODUCTS

Not applicable to this section.

PART 3 EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 016000

MATERIAL AND EQUIPMENT

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Products.
- B. Workmanship.
- C. Manufacturer's Instructions.
- D. Transportation and Handling.
- E. Storage and Protection.
- F. Substitutions and Product Options.

1.02 RELATED REQUIREMENTS

- A. Conditions of the Contract: GENERAL CONDITIONS and SUPPLEMENTARY CONDITIONS.
- B. Submittal of manufacturer's certificates: Section 013000, SUBMITTALS.
- C. Shop Drawings, Product Data submittals: Section 013400, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- D. Maintenance of approved Submittals on site: Section 017200, PROJECT RECORD DOCUMENTS.
- E. Operation and maintenance data: Section 017300, OPERATING AND MAINTENANCE DATA.
- F. Warranties and Bonds: Section 017400, WARRANTIES AND BONDS.

1.03 PRODUCTS

- A. Products include material, equipment, and systems.
- B. Comply with Specifications and referenced standards as minimum requirements.
- C. Components required to be supplied in quantity within a Specification Section shall be the same and shall be interchangeable.
- D. Do not use materials and equipment removed from existing structure, except as specifically required, or allowed, by Contract Documents.

1.04 WORKMANSHIP

- A. Comply with industry standards except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.
- B. Perform work by persons qualified to produce workmanship of specified quality.
- C. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.

1.05 MANUFACTURERS' INSTRUCTIONS

- A. When work is specified to comply with manufacturers' instructions, submit copies of published instructions as part of product data required in Section 013000, SUBMITTALS. Distribute copies as specified and maintain one set in field office as required in Section 017200, PROJECT RECORD DOCUMENTS.
- B. Perform work in accordance with details of instructions and specified requirements. Should a conflict exist between Specifications and manufacturer's instructions, consult with Architect.

1.06 TRANSPORTATION AND HANDLING

- A. Arrange deliveries of products in accordance with construction schedules. Coordinate to avoid conflict with work and conditions at site.
- B. Prevent damage to and soiling of materials and equipment in transit and in handling, deliver in dry, undamaged condition in manufacturer's unopened containers or packaging.
- C. Promptly inspect shipments to assure that Products comply with requirements, quantities are correct, and products are undamaged.

1.07 STORAGE AND PROTECTION

- A. Store Products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive Products in weathertight enclosures; maintain within temperature and humidity ranges required by manufacturer's instructions.
- B. For exterior storage of fabricated Products, place on sloped supports above ground. Cover Products subject to deterioration with impervious sheet covering; provide ventilation to avoid condensation.
- C. Store loose granular materials on solid surfaces in a well-drained area; prevent mixing with foreign matter.
- D. Arrange storage to provide access for inspection. Periodically inspect to ensure that Products are undamaged and are maintained under required conditions.
- E. After installation, provide coverings to protect Products from damage from traffic and construction operations, remove when no longer needed.

1.08 PRODUCT OPTIONS

- A. Within 30 days after date of Contract, submit complete list of materials and equipment proposed, with names of manufacturers, trade names, and model designations.
- B. Options:
 - 1. Products specified only by reference standard: Any Product meeting that standard.
 - 2. Products specified by naming several manufacturers: Products of any named manufacturer meeting Specifications.
 - 3. Products specified by naming one or more manufacturers and "or approved equal": Submit a request for substitution for any manufacturer not specifically named.
 - 4. Products specified by naming only one manufacturer: No option.

1.09 MATERIAL SUBSTITUTIONS

- A. Where products or materials are specified by manufacturer's name, trade name or catalog reference, the words "or approved equal" shall be understood to follow unless there is a statement specifically indicating that no substitution will be allowed. An item shall be considered equal to the item so named or described if in the opinion of the Architect:
 - 1. It is at least equal in quality, durability, appearance, strength and design; including compliance with applicable specifications and compatibility with physical space allocations provided for the item;
 - 2. It performs at least equally the function imposed by the general design for the work;
 - 3. It conforms substantially, even with deviations, to the detailed requirements for the item as indicated by the Specifications.
- B. Where two or more products or materials are specified, the choice of these shall be optional with the Contractor.
- C. Should the Contractor, after the award of the Contract, wish to use any products or materials other than those specified, he shall request written permission of the Architect. His request shall name and adequately describe (including shop drawings) the proposed substitutions, furnish any information requested by the Architect, and state what difference, if any, will be made in the Contract price, including the cost of changes in the Work, for such substitutions should they be accepted. Upon receipt of complete information from the Contractor, the Architect will consider all aspects of the proposed substitution and advise the Contractor in writing approving or disapproving the substitution. The principal reasons for approval or disapproval of the substitution will be enumerated by the Architect. Disapproval of the substitution shall not cause for an increase in contract price or a delay in schedule.
- D. Request constitutes a representation that Contractor:
 - 1. Has investigated proposed Product and determined that it meets or exceeds, in all respects, specified Product.
 - 2. Will provide the same warranty for substitution as for specified Product.

- 3. Will coordinate installation and make other changes which may be required for Work to be complete in all respects.
- 4. Waives claims for additional costs which may subsequently become apparent.
- E. Substitutions will not be considered when they are indicated or implied on Shop Drawing or Product Data submittals without separate written request, or when acceptance will require substantial revision of Contract Documents.
- F. Architect will determine acceptability of proposed substitution, and will accept or reject substitutions in writing within a reasonable time.

PART 2 PRODUCTS

Not applicable to this section.

PART 3 EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 017000

CONTRACT CLOSEOUT

PART 1 GENERAL

1.01 SUMMARY

- A. The following are prerequisites to substantial completion. Provide the following:
 - 1. Punch list.
 - 2. Supporting documentation.
 - 3. Warranties.
 - 4. Certifications.
 - 5. Occupancy permit.
 - 6. Start-up and testing of building systems.
 - 7. Change over of locks.

- B. Provide the following requisites to final acceptance:
 - 1. Final payment request with supporting affidavits.
 - 2. Completed punch list.

- C. Provide a hard copy set of drawings (full & half size) and one electronic version which include changes which occurred during construction. (Record Documents)

- D. Provide the following closeout procedures:
 - 1. Submission of record documents.
 - 2. Submission of maintenance manuals.
 - 3. Training and turnover to Owner's personnel.
 - 4. Final cleaning and touch-up.
 - 5. Removal of temporary facilities, including all restoration and repair work required.

PART 2 PRODUCTS

Not applicable to this section.

PART 3 EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 017100

CLEANING

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Execute cleaning during progress of the Work and at completion of the Work, as required by GENERAL CONDITIONS.

1.02 RELATED REQUIREMENTS

- A. Conditions of the Contract and Special Conditions Relative to Cleaning Requested by the Owner: GENERAL CONDITIONS and MODIFICATIONS TO THE GENERAL CONDITIONS.
- B. Cleaning for specific Products or Work: Division 2 through 16.

1.03 DISPOSAL REQUIREMENTS

- A. Conduct cleaning and disposal operations to comply with codes, ordinances, regulations, and antipollution laws.

1.04 QUALITY ASSURANCE

- A. Do not allow accumulation of waste materials or rubbish. At the completion of Work remove all waste materials and rubbish from the Project as well as all tools, equipment, machinery, and surplus materials. Restore all areas used for storage of debris or rubbish to rough grade condition. Where storage of trash is designated, such storage shall be in an orderly manner as directed by the Owner.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Use cleaning materials that pose no hazards to health or property, and will not damage surfaces.
- B. Use those cleaning materials and methods recommended by manufacturer of surface material to be cleaned.
- C. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

PART 3 EXECUTION

3.01 DURING CONSTRUCTION

- A. Execute daily cleaning to keep the Work, the site, and adjacent properties free from accumulations of waste materials, rubbish, and windblown debris resulting from construction operations.

- B. Provide on-site containers for collection of waste materials, debris, and rubbish.
- C. Remove waste materials, debris, and rubbish from the site periodically and dispose of at legal disposal areas away from the site.

3.02 DUST CONTROL

- A. Clean interior spaces prior to the start of finish painting and continue cleaning on an as-needed basis until painting is finished.
- B. Schedule operations so that dust and other contaminants resulting from cleaning process will not fall on wet or newly-coated surfaces.

3.03 FINAL CLEANING

- A. Employ skilled workers for final cleaning.
- B. Clean and restore adjoining surfaces and other work which was soiled or damaged superficially during the installation; replace other work damaged beyond successful restoration. Where the performance of subsequent work could possibly result in damage to the complete unit or element, provide protective covering or other provisions to minimize possible damage.
- C. Remove, grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels, and other foreign materials from sight-exposed interior and exterior surfaces.
- D. Wash and shine glazing and mirrors.
- E. Polish glossy surfaces to clear shine.
- F. Heating, Ventilating and Air Conditioning Equipment:
 - 1. Clean permanent filters and replace disposable filters units in units that are operated during construction.
 - 2. Do not operate equipment without filters during construction and testing.
- G. Broom clean exterior paved surfaces; rake clean other surfaces of the grounds.
- H. Before final completion and Owner-occupancy, inspect sight-exposed interior and exterior surfaces and work areas to verify that Work is clean.

END OF SECTION

SECTION 017200

PROJECT RECORD DOCUMENTS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Maintain at the site for the Owner one record copy of:
1. Project Manual and Specifications, including discrete sets of Contract Documents for:
 - a. Site work and architectural and structural work,
 - b. Plumbing work,
 - c. Fire protection work,
 - d. HVAC work, and
 - e. Electrical work.
 - f. Elevator work.
 2. Drawings.
 3. Addenda and Bulletins.
 4. Change Orders and other modifications to the Contract.
 5. Architect's Supplemental Instructions or other written instructions.
 6. Approved Shop Drawings, Product Data, and Samples.
 7. Field test records.
 8. Construction photographs.
 9. Copies of building, electric, plumbing, and public safety codes.

1.02 RELATED REQUIREMENTS

- A. Manufacturer's certificates: Section 013000, SUBMITTALS.
- B. Shop Drawings, etc.: Section 013400, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.

1.03 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Store documents and samples in Contractor's field office apart from documents used for construction.
 - 1. Provide files and racks for storage of record documents.
 - 2. Provide locked cabinet or secure storage space for storage of samples.
- B. File documents and samples in accordance with Construction Specifications Institute Master format.
- C. Maintain documents in a clean, dry, legible condition and in good order. Do not use record documents for construction purposes.
- D. Make documents and samples available at all times for inspection by Architect.

1.04 MARKING DEVICES

- A. Provide felt tip marking pens for recording information in color code designated by Architect.

1.05 RECORDING

- A. Maintain current, discrete sets of Record Documents for general construction (site work and architectural and structural work) and for Plumbing, Fire Protection, HVAC, and Electrical Work.
- B. Label each document "PROJECT RECORD" in neat large printed letters.
- C. Record information concurrently with construction progress. Do not conceal any work until required information is recorded.
- D. Drawings: Legibly mark to record actual construction:
 - 1. Depths of various elements of foundations in relation to finish first floor datum.
 - 2. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 3. Location of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure.
 - 4. Field changes of dimensions and detail.
 - 5. Changes made by Architect's Supplemental Instructions or Change Order.
 - 6. Details not on original Contract Drawings.
- E. Specifications and Addenda; Legibly mark each Section to record:
 - 1. Manufacturer, trade name, catalog number, and supplier of each Product and item of equipment actually installed.

2. Changes made by Architect's Supplemental Instructions or by Change Order.

1.06 SUBMITTAL

- A. At Contract closeout, deliver complete electronic CAD drawing files for each trade compatible with Owner's requirements and reproducible mylar copies of each set of Record Documents to Architect for Owner. Revisions shall be neat, legible, accurate and consistent with original Drawings in quality of drafting.
- B. Accompanying submittal with transmittal letter in duplicate, containing:
 1. Date.
 2. Project title and number.
 3. Contractor's name and address.
 4. Title and number of each Record Document.
 5. Signature of Contractor or his authorized representative.

PART 2 PRODUCTS

Not applicable to this section.

PART 3 EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 017300

OPERATING AND MAINTENANCE DATA

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Compile product data and related information appropriate for Owner's maintenance and operation of products furnished under the Contract.
 - 1. Prepare operating and maintenance data as specified in this Section and as referenced in other pertinent Sections of the Specifications.
- B. Instruct Owner's personnel in maintenance of products and in operation of equipment and systems.

1.02 RELATED REQUIREMENTS

- A. Submittals: Section 013400, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Record Specifications and Drawings: SECTION 017200, PROJECT RECORD DOCUMENTS.
- C. Warranties and bonds: Section 017400, WARRANTIES AND BONDS.

1.03 QUALITY ASSURANCE

- A. Preparation of data shall be done by personnel:
 - 1. Trained and experienced in maintenance and operation of described products.
 - 2. Familiar with requirements of this Section.
 - 3. Skilled as technical writer to the extent required to communicate essential data.
 - 4. Skilled as draftsman competent to prepare required drawings.

1.04 FORM OF SUBMITTALS

- A. Prepare data in form of an instructional operating and maintenance manual for use by Owner's personnel.
- B. Format:
 - 1. Size: 8-1/2 in. X 11 in.
 - 2. Paper: 20 pound minimum, white, for typed pages.
 - 3. Text: Manufacturer's printed data, or neatly typewritten.

4. Drawings:
 - a. Provide reinforced punched binder tab, bind in with text.
 - b. Fold larger drawings to size of text pages.
5. Provide fly-leaf for each separate product or each piece of operating equipment.
 - a. Provide typed description of product and major component parts of equipment.
 - b. Provide indexed tabs.
6. Cover: Identify each volume with typed or printed title "OPERATING AND MAINTENANCE INSTRUCTIONS". List:
 - a. Title of Project.
 - b. Identity of general subject matter covered in the manual.

C. Binders:

1. Commercial quality three-ring binders with durable and cleanable plastic covers.
2. Maximum ring size: 1 inch.
3. When multiple binders are used, correlate the data into related consistent groupings.

1.05 CONTENT OF MANUAL

- A. Neatly typewritten table of contents for each volume, arranged in systematic order.
1. Contractor, name of responsible principal including address, and telephone number.
 2. A list of each product required to be included, indexed to content of the volume.
 3. List, with each product, name, address, and telephone number of:
 - a. Subcontractor or installer.
 - b. Maintenance contractor, as appropriate.
 - c. Identify area of responsibility of each.
 - d. Local source of supply for parts and replacement.
 4. Identify each product by product name and other identifying symbols as set forth in Contract Documents.
- B. Product Data:

1. Include only those sheets which are pertinent to the specific product.
 2. Annotate each sheet to:
 - a. Clearly identify specific product or part installed.
 - b. Clearly identify data applicable to installation.
 - c. Delete references to inapplicable information.
- C. Drawings:
1. Supplement Product Data with drawings as necessary to clearly illustrate:
 - a. Relations of component parts of equipment and systems.
 - b. Control and flow diagrams.
 2. Include reduced photocopies or microfiche aperture cards of Project Record Drawings for Plumbing, Fire Protection, HVAC and Electrical work. Provide additional maintenance and operations drawings keyed to Record Drawings.
- D. Written text, as required to supplement product data for the particular installation:
1. Organize in consistent format under separate headings for different procedures.
 2. Provide logical sequence of instructions for each procedure.
- E. Copy of each warranty, bond, and service contract issued.
1. Provide information sheet for owner's personnel, give:
 - a. Proper procedures in event of failure.
 - b. Instances which might affect validity of warranties or bonds.
- 1.06 MANUAL FOR MATERIALS AND FINISHES
- A. Submit four copies of complete manual in final form.
- B. Content; for architectural products, applied materials and finishes:
1. Manufacturer's data, giving full information on products.
 - a. Catalog number, size, composition.
 - b. Color and texture designations.
 - c. Information required for re-ordering special manufactured products.

2. Instructions for care and maintenance.
 - a. Manufacturer's recommendation for types of cleaning agents and methods.
 - b. Cautions against cleaning agents and methods which are detrimental to product.
 - c. Recommended schedule for cleaning and maintenance.
- C. Content, for moisture-protection and weather-exposed products:
 1. Manufacturer's data, giving full information on products.
 - a. Applicable standards.
 - b. Chemical composition.
 - c. Details of installation.
 2. Instructions for inspection, maintenance, and repair.
- D. Additional requirements for maintenance data: Respective sections of Specifications.

1.07 MANUAL FOR EQUIPMENT AND SYSTEMS

- A. Submit three copies of complete manual in final form.
- B. Content, for each unit of equipment and system, as appropriate:
 1. Description of unit and component parts.
 - a. Function, normal operating characteristics, and limiting conditions.
 - b. Performance curves, engineering data, and tests.
 - c. Complete nomenclature and commercial number of replaceable parts.
 2. Operating procedures:
 - a. Start-up, break-in, routine and normal operating instructions.
 - b. Regulation, control, stopping, shut-down and emergency instructions.
 - c. Summer and winter operating instructions.
 - d. Special operating instructions.
 3. Maintenance Procedures:
 - a. Routine operations.

- b. Guide to "trouble-shooting".
 - c. Disassembly, repair, and reassembly.
 - d. Alignment, adjusting, and checking.
 4. Servicing and lubrication schedule.
 - a. List of lubricants required.
 5. Manufacturer's printed operating and maintenance instructions.
 6. Description of sequence of operation by control manufacturer.
 7. Original manufacturer's parts list, illustrations, assembly drawings and diagrams required for maintenance, including:
 - a. Predicted life of parts subject to wear.
 - b. Items recommended to be stocked as spare parts.
 8. As-installed control diagrams by controls manufacturer.
 9. Each contractor's coordination drawings.
 - a. As-installed color code piping diagrams.
 10. Charts of valve tag numbers, with location and function of each valve.
 11. List of original manufacturer's spare parts recommendations, manufacturer's current prices, and recommended quantities to be maintained in storage.
 12. Other data as required under pertinent sections of specifications.
- C. Contents, for each electric and electronic system, as appropriate:
 1. Description of system and component parts.
 - a. Function, normal operating characteristics, and limiting conditions.
 - b. Performance curves, engineering data, and tests.
 - c. Complete nomenclature and commercial number of replaceable parts.
 2. Circuit directories of panelboards.
 - a. Electrical service.
 - b. Controls.

- c. Communications.
 3. As-installed color coded wiring diagrams.
 4. Operating procedures:
 - a. Routine and normal operating instructions.
 - b. Sequences required.
 - c. Special operating instructions.
 5. Maintenance procedures:
 - a. Routine operations.
 - b. Guide to "trouble-shooting".
 - c. Disassembly, repair and reassembly.
 - d. Adjustment and checking.
 6. Manufacturer's printed operating and maintenance instructions.
 7. List of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.
 8. Other data as required under pertinent sections of specifications.
- D. Prepare and include additional data when the need for such data becomes apparent during instruction of Owner's personnel.
- E. Additional requirements for operating and maintenance data: Respective sections of Specifications.

1.08 SUBMITTAL SCHEDULE

- A. Submit two copies of preliminary draft of proposed formats and outlines of contents prior to start of Work.
 1. Architect will review draft and return one copy with comments.
- B. Submit one copy of complete data in final form 15 days prior to final inspection or acceptance.
 1. Copy will be returned after final inspection or acceptance, with comments.
- C. Submit four copies of approved data in final form within ten days after final inspection or acceptance.

1.09 INSTRUCTION OF OWNER'S PERSONNEL

- A. Before final inspection or acceptance, instruct Owner's designated operating and maintenance personnel in the operation, adjustment and maintenance of products, equipment, and systems.
- B. Operating and maintenance manual shall constitute the basis of instruction. Review contents of manual with personnel in full detail to explain all aspects of operating and maintenance.

PART 2 PRODUCTS

Not applicable to this section.

PART 3 EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 017400

WARRANTIES AND BONDS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Compile specified warranties and bonds.
- B. Compile specified service and maintenance contracts.
- C. Co-execute submittals to verify compliance with Contract Documents.
- D. Review submittals to verify compliance with Contract Documents.
- E. Submit to Architect for review and transmittal to Owner.

1.02 RELATED REQUIREMENTS

- A. General warranty of construction: GENERAL CONDITIONS.
- B. Operating and maintenance data: Section 017300, OPERATING AND MAINTENANCE DATA.
- C. Warranties and Bonds required by Specific Products: Divisions 2 through 16.

1.03 SUBMITTAL REQUIREMENTS

- A. Assemble warranties, bonds, and service and maintenance contracts, executed by each of the respective manufacturers, suppliers, and subcontractors.
- B. Number of original signed copies required: Two each.
- C. Table of Contents: Neatly typed, in orderly sequence. Provide complete information for each item including:
 - 1. Product or work item.
 - 2. Firm, with name of principal, address, and telephone number.
 - 3. Scope.
 - 4. Date of beginning of warranty, bond, or service and maintenance contract.
 - 5. Duration of warranty, bond, or service and maintenance contract.
 - 6. Provide information for Owner's personnel:
 - a. Proper procedures in case of failure.
 - b. Instances which might affect the validity of warranty or bond.

7. Contractor, name of responsible principal, address, and telephone number.

1.04 FORM OF SUBMITTALS

- A. Prepare in duplicate packets.
- B. Format:
 1. Size 8-1/2 in. X 11 in., punched sheets for standard three-ring binder.
 - a. Fold larger sheets to fit into binders.
 2. Cover: Identify each packet with typed or printed title "WARRANTIES AND BONDS". List:
 - a. Title of Project.
 - b. Name of Contractor.
- C. Binders: Commercial quality, three-ring, with durable and cleanable plastic covers.

1.05 TIME OF SUBMITTALS

- A. For equipment or components parts of equipment put into service during progress of construction:
 1. Submit documents within ten days after inspection and acceptance.
- B. Otherwise make submittals within ten days after Date of Substantial Completion, prior to final request for payment.
- C. For items of work where acceptance is delayed materially beyond Date of Substantial Completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.

1.06 SUBMITTALS REQUIRED

- A. Submit warranties, bonds, service, and maintenance contracts as specified in respective section of Specifications.

PART 2 PRODUCTS

Not applicable to this section.

PART 3 EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 021120

SELECTIVE DEMOLITION AND CLEANING

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Scope: Include all selective demolition and cleaning work as required to complete the work of the Contract as indicated. Include, but do not limit to:
1. All selective demolition work within, on, or relative to, the existing building as specifically called for on the Drawings and as required to accommodate the additions and renovation work, except specific demolition and removal work specified to be done as work of other Sections.
 2. Cutting of all grooves, chases, openings, holes, etc., required for all trades through or into existing construction, except cutting and drilling specified to be done as work of other Sections.
 3. Removal from site and legal disposal of all removed materials, trash, debris, etc., removed by selective demolition operations, except any items indicated to be reused on the project or to be stored by Owner's future use.
 4. Careful removal of items indicated to be reused on the project, and safe storage until time for reinstallation.
 5. Careful removal of items indicated to be salvaged for Owner's future use, including safe storage within the existing building.
 6. General cleaning of all interior and exterior work areas of the building followed by thorough cleaning and surface preparation of all interior surfaces to be exposed in the finished work, and all interior and exterior surfaces to receive subsequent new finishes, in the finished work.
 7. Full cleaning of affected streets and roadways with sweepers and by any means necessary to remove debris, dust, earth, rocks, etc. caused by the construction of this contract on a regular basis in order to maintain a clean roadway at all times. Work shall be accomplished to the satisfaction of the Owner's designated representative.
- B. NOTE: It is the intent of this specification that demolition work be done by the demolition contractor. It will be the responsibility of each trade to mark and coordinate with the demolition contractor for all items in his trade that are to remain in place, be salvaged or to be removed. The individual trades shall disconnect, cap, or deactivate all items that are to be removed by the demolition contractor. The completion of any work not covered under the separate contracts of the subcontractors will be the responsibility of the General Contractor.

- C. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
 - 1. Hazardous materials will be removed by Owner before start of the Work.
 - 2. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
- D. Storage or sale of removed items or materials on-site is not permitted.

1.02 RELATED REQUIREMENTS

- 1. Weather protection enclosures, dust barriers and curtaining and miscellaneous protective barriers.
- 2. Disconnecting, plugging, capping, etc., of existing mechanical and electrical work to be removed and demolition and removal of portions of existing mechanical and electrical work to be removed which are indicated and/or specified to be removed by Mechanical and Electrical trades.
- 3. Pest and rodent control.
- 4. Management of construction waste.

1.03 REFERENCES

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS AND CONDITIONS OF THE CONTRACT and applicable parts of DIVISION 1 - GENERAL REQUIREMENTS, as listed in the Table of Contents, shall be included in and made a part of this section.
- B. Examine all drawings and all other sections of the specifications for requirements therein affecting the work of this section.

PART 2 - PRODUCTS

Not applicable to this section.

PART 3 - EXECUTION

3.01 EXECUTION

- A. Phasing and Commencement of Work: It is intended that by the date of execution of the Contract agreement the work areas for work of this contract will be fully evacuated by Owner and ready for demolition work to begin. However, no work shall be started in or on the existing building for any of the phases until prior written approval has been issued to the Contractor by the Owner, such approval not to be unreasonably withheld.
- B. Selective Demolition:

1. Do all work to conform to the governing laws and building codes. All permits required for the selective demolition work shall be procured by the Contractor.
 - a. Provide unobstructed legal exits at all times.
 - b. Meet Requirements of Clean Air Act.
 - c. Provide demolition so as not to release hazardous materials into the environment.
2. Carry out selective demolition work with utmost care, using appropriate and safe tools and methods to assure that the building structures or finishes are not damaged or are not subjected to damaging shock or vibration. Do not endanger building structure by cutting, removal, overloading, or other cause. Contractor will coordinate with owner to ensure noise control methods and the timing of the work meets with his satisfaction.
3. Cut or remove work causing openings in exterior walls, roofs, or other elements providing weather protection, only after temporary weatherproof enclosures have been provided.
4. Repair damage done to elements of building to remain, except repairs specified to be provided under other Sections. Provide neat cutting and trimming of elements to remain wherever cutting is required, to provide straight, true, and sharp, cut-lines and edges. Do not overcut or overdrill, nor break, puncture, tear down, or otherwise damage existing construction beyond the limits needed for proper preparation of openings or for proper passage of penetrating elements. Where existing finishes, except paint or varnish, are indicated to be removed, remove down to bare subsurfaces without causing damage to the subsurfaces.
5. Do not allow debris to accumulate. Sprinkle during handling and loading to reduce dust. Either store debris outside of building temporarily in dumpster type container(s) or remove from premises daily. Carry debris out in containers or drop in fully enclosed chutes, in no case passing through, throwing from, or dropping free from windows, wall openings, etc.
6. Block or effectively filter return air systems in a safe manner to prevent intrusion of dust into remaining air handling systems.
7. Items to be Reused: Carefully remove all existing items specified or designated on Drawings to be reused on the work in manner to assure least possible damage. After removal, store in protected storage areas for later refurbishing and/or reinstallation, as specified. Replace with equivalent new items all items designated to be reused which, in the opinion of the Architect, have become too damaged to be satisfactorily reused, without additional cost to the Owner.
8. The Owner will remove all items that he requires for salvage before the building or portion of the building to be demolished is turned over to the Contractor for Construction with the exception of items specifically tagged or indicated on the drawings to be turned over to the owner at the location designated by the owner.

9. Disposal: Remove and legally dispose of off-the-site all materials removed which are not designated on Drawings to be reused on the project or salvaged for Owner's use. Contractor shall, upon removal from the site, have rights of salvage of the materials.

C. Cleaning:

1. Upon completion of selective demolition work in any exterior or interior work are; remove all loose and crumbling finish materials, paint, etc., and all loose dust and debris, brush down all exposed surfaces, and leave the area broom clean, ready for subsequent work on the Contract.
2. Following broom cleaning, thoroughly clean all exposed interior surfaces throughout which are to be left exposed in the finished work and all exterior and interior surfaces to receive new finishes, including painting, in the finished work. Clean in a manner suitable for each of the materials, such as to cause no damage to same or to surrounding materials to remain. Except for items subject to water damage, provide wet cleaning with bristle brush, clean water, and caustic detergent followed by careful, controlled, thorough, rinsing with fresh, clean water. Clean items subject to water damage by effective dry method(s). Exercise extreme care to control wash water and rinse water run-off, splashing, etc., to prevent damage to the building surfaces or finishes to remain.

END OF SECTION

SECTION 042000

UNIT MASONRY

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
 - 1. Face Brick
 - 2. Concrete Masonry Units
 - 3. Mortar and grout.
 - 4. Reinforcing steel, masonry joint reinforcement, ties and anchors
 - 5. Hoisting equipment for the Work of this Section.
 - 6. Coordination with General Contractor for use of staging, planking and scaffolding, interior and exterior, which is the responsibility of the General Contractor as specified in Section 015000 - TEMPORARY FACILITIES AND CONTROLS.
- B. Alternates: Not Applicable.
- C. Items To Be Installed Only: Install the following items as furnished by the designated Sections:
 - 1. Section 055000 - METAL FABRICATIONS:
 - a. Lintels, miscellaneous metal and iron sleeves, anchors, inserts, and plates to be built into masonry walls.
 - 2. Section 061000 - ROUGH CARPENTRY:
 - a. Wood nailers and blocking built into masonry.
 - 3. Section 081000 - HOLLOW METAL DOORS AND FRAMES:
 - a. Hollow metal frames in masonry openings.
- D. Related Work: The following items are not included in this Section and will be performed under the designated Sections:
 - 1. Section 071900 – CLEAR PENETRATING SEALERS for sealing the masonry units.
 - 2. Section 079200 - JOINT SEALANTS for sealing control and expansion joints in unit masonry.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.

- B. Shop Drawings: For the following:
1. Masonry Units: Show sizes, profiles, coursing, and locations of special shapes.
 2. Reinforcing Steel: Detail bending and placement of unit masonry reinforcing bars. Comply with ACI 315, "Details and Detailing of Concrete Reinforcement."
- C. Samples for Verification: For each type and color of the following:
1. Exposed concrete masonry units.
 2. Pigmented mortar. Make Samples using same sand and mortar ingredients to be used on Project. Label Samples to indicate types and amounts of pigments used.
 3. Weep holes/vents.
 4. Accessories embedded in masonry.
- D. Qualification Data: For testing agency.
- E. Material Certificates: Include statements of material properties indicating compliance with requirements including compliance with standards and type designations within standards. Provide for each type and size of the following:
1. Masonry units:
 - a. Include material test reports substantiating compliance with requirements.
 - b. For masonry units used in structural masonry, include data and calculations establishing average net-area compressive strength of units.
 2. Cementitious materials. Include brand, type, and name of manufacturer.
 3. Mortar mixes. Include description of type and proportions of ingredients.
 4. Grout mixes. Include description of type and proportions of ingredients.
 5. Reinforcing bars.
 6. Joint reinforcement.
 7. Anchors, ties, and metal accessories.
- F. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.
1. Include test reports, per ASTM C 780 for mortar mixes required to comply with property specification.
 2. Include test reports, per ASTM C 1019 for grout mixes required to comply with compressive strength requirement.
- G. Cold-Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with cold-weather requirements.

1.4 QUALITY ASSURANCE

- A. Testing Agency Qualifications: An independent agency qualified according to ASTM C 1093 for testing indicated.

- B. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, through one source from a single manufacturer for each product required.
- C. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from a single manufacturer for each cementitious component and from one source or producer for each aggregate.
- D. Fire-Resistance Ratings: Where indicated, provide materials and construction identical to those of assemblies with fire-resistance ratings determined per ASTM E 119 by a testing and inspecting agency, by equivalent concrete masonry thickness, or by other means, as acceptable to authorities having jurisdiction.
- E. Marking and Identification for Fire- and Smoke-Partitions: Fire walls, fire barriers, fire partitions, smoke barriers, smoke partitions and other walls required to have protected openings or penetrations shall be effectively and permanently identified with signs or stenciling. Such identification shall:
 - 1. Be located in accessible concealed floor, floor-ceiling or attic spaces; and
 - 2. Be repeated at intervals not exceeding 30 feet measured horizontally along the wall or partition; and
 - 3. Include lettering not less than 0.5 inch in height, incorporating the suggested wording: "FIRE AND/OR SMOKE BARRIER – PROTECT ALL OPENINGS," or other wording.
- F. Sample Panels: Build sample panels to verify selections made under sample submittals and to demonstrate aesthetic effects. Comply with requirements in Division 01 for mockups.
 - 1. Build sample panels for typical exterior and interior walls in sizes approximately 48 inches long by 48 inches high by full thickness.
 - 2. Where masonry is to match existing, erect panels adjacent and parallel to existing surface.
 - 3. Clean one-half of exposed faces of panels with masonry cleaner indicated.
 - 4. Protect approved sample panels from the elements with weather-resistant membrane.
 - 5. Approval of sample panels is for color, texture, and blending of masonry units; relationship of mortar and sealant colors to masonry unit colors; tooling of joints; aesthetic qualities of workmanship; and other material and construction qualities specifically approved by Designer in writing.
 - a. Approval of sample panels does not constitute approval of deviations from the Contract Documents contained in sample panels unless such deviations are specifically approved by Designer in writing.
- G. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01. Agenda shall include protection of air barrier membrane during construction.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.

- B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- D. Deliver preblended, dry mortar mix in moisture-resistant containers designed for lifting and emptying into dispensing silo. Store preblended, dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in a metal dispensing silo with weatherproof cover.
- E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.6 PROJECT CONDITIONS

- A. Protection of Air Barrier Membrane: During construction, protect air barrier membrane from penetrations which allow air to pass through air barrier assemblies. Engage original installer to repair damage promptly using identical materials and methods of installation.
- B. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
 - 1. Extend cover a minimum of 24 inches down both sides and hold cover securely in place.
 - 2. Where 1 wythe of multiwythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches down face next to unconstructed wythe and hold cover in place.
- C. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least 3 days after building masonry walls or columns.
- D. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.
 - 1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
 - 2. Protect sills, ledges, and projections from mortar droppings.
 - 3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
 - 4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.
- E. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F and above and will remain so until masonry has dried, but not less than 7 days after completing cleaning.
- F. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

PART 2 - PRODUCTS

2.1 MASONRY UNITS, GENERAL

- A. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to exceed tolerances and to contain chips, cracks, or other defects exceeding limits stated in the standard. Do not use units where such defects, including dimensions that vary from specified dimensions by more than stated tolerances, will be exposed in the completed Work or will impair the quality of completed masonry.

2.2 BRICK

- A. Face brick is to match existing building brick in size, color and shape. Submit samples of brick and mortar to be used to Architect for approval. Cleaned existing brick called for removal may be used in lieu of new matching brick if approved by the Architect.

2.3 CONCRETE MASONRY UNITS (CMUs)

- A. Concrete Masonry Units: ASTM C 90, normal weight unless indicated otherwise manufactured to dimensions 3/8 inch less than nominal dimensions.
- B. Shapes: Provide standard shapes indicated and as required for building configuration. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
- C. Integral Water Repellent: Provide units made with integral water repellent for exterior exposed units.
1. Integral Water Repellent: Liquid polymeric, integral water-repellent admixture that does not reduce flexural bond strength. Units made with integral water repellent, when tested as a wall assembly made with mortar containing integral water-repellent manufacturer's mortar additive according to ASTM E 514, with test period extended to 24 hours, show no visible water or leaks on the back of test specimen. Available products include:
 - a. Addiment Incorporated Div. Grace Construction Products; Block Plus W-10.
 - b. Grace Construction Products; Dry-Block.
 - c. BASF Construction Chemicals, Admixture Systems; Rheopel Plus.

2.4 MORTAR AND GROUT MATERIALS

- A. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
- B. Hydrated Lime: ASTM C 207, Type S.
- C. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes. Use only pigments with a record of satisfactory performance in masonry mortar.
 - 1. Available Products:
 - a. LanXess; Bayferrox Iron Oxide Pigments.
 - b. Davis Colors; True Tone Mortar Colors.
 - c. Solomon Grind-Chem Services, Inc.; SGS Mortar Colors.
- D. Aggregate for Mortar: ASTM C 144. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.
- E. Aggregate for Grout: ASTM C 404.
- F. Water-Repellent Admixture: Liquid water-repellent mortar admixture intended for use with concrete masonry units, containing integral water repellent by same manufacturer.
 - 1. Available Products:
 - a. Addiment Incorporated; Mortar Tite.
 - b. Grace Construction Products, a unit of W. R. Grace & Co. - Conn.; Dry-Block Mortar Admixture.
 - c. BASF Construction Chemicals, Admixture Systems; Rheopel Plus Mortar Admixture.
- G. Water: Potable.

2.5 REINFORCEMENT

- A. Uncoated Steel Reinforcing Bars: ASTM A 615/A 615M or ASTM A 996/A 996M, Grade 60.
- B. Masonry Joint Reinforcement, General: ASTM A 951.
 - 1. Interior Walls: Mill-galvanized, carbon steel.
 - 2. Exterior Walls: Hot-dip galvanized, carbon steel.
 - 3. Wire Size and Spacing: As required by Code.
 - 4. Provide in lengths of not less than 10 feet, with prefabricated corner and tee units.
- C. Masonry Joint Reinforcement for Multiwythe Masonry:
 - 1. Ladder type with 1 side rod at each face shell of hollow masonry units more than 4 inches in width, plus 1 side rod at each wythe of masonry 4 inches or less in width.

2.6 TIES AND ANCHORS

- A. Materials: Provide ties and anchors specified in subsequent paragraphs that are made from materials that comply with subparagraphs below, unless otherwise indicated.
1. Mill-Galvanized, Carbon-Steel Wire: ASTM A 82; with ASTM A 641/A 641M, Class 1 coating.
 2. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A 82; with ASTM A 153/A 153M, Class B-2 coating.
 3. Stainless-Steel Wire: ASTM A 580/A 580M, Type 316.
 4. Galvanized Steel Sheet: ASTM A 653/A 653M, Commercial Steel, G60 zinc coating.
 5. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
 6. Stainless Steel bars: ASTM A 276 or ASTM A 666, Type 304.
- B. Adjustable Anchors for Connecting to Structure: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.
1. Anchor Section for Welding to Steel Frame: Crimped 1/4-inch-diameter, hot-dip galvanized steel. Mill-galvanized wire may be used at interior walls, unless otherwise indicated.
- C. Partition Top Anchors: 0.097-inch-thick metal plate with 3/8-inch-diameter metal rod 6 inches long welded to plate and with closed-end plastic tube fitted over rod that allows rod to move in and out of tube. Fabricate from steel, hot-dip galvanized after fabrication.
- D. Stone Anchors: Fabricate dowels, cramps, and other stone anchors from stainless steel.
- E. Adjustable Masonry-Veneer Anchors:
1. General: Provide anchors that allow vertical adjustment but resist tension and compression forces perpendicular to plane of wall, for attachment over sheathing to wood or metal studs, with structural performance capable of withstanding a 100-lbf load in both tension and compression without deforming or developing play in excess of 0.05 inch.
 2. Screw-Attached, Masonry-Veneer Anchors: Units consisting of a wire tie and a metal anchor section.
 - a. Anchor Section: Zinc-alloy barrel section with flanged head with wing-nut eye and corrosion-resistant, self-drilling screw. Eye designed to receive wire tie and to serve as head for drilling fastener into framing. Barrel length to suit sheathing thickness, allowing screw to seat directly against framing with flanged head covering hole in sheathing.
 - b. Wire Ties: Triangular-, rectangular-, or T-shaped wire ties fabricated from 0.188-inch-diameter, hot-dip galvanized steel wire.
- F. Corrosion-Resistant Screws for Anchorage to Metal Studs in Exterior Wall Assemblies: Self-drilling, self-tapping Type 304 stainless steel screws with EPDM sealing washer, not less than #12 size. Coated and galvanized screws will not be considered equivalent to stainless steel screws for this application.
- G. Anchor Bolts: L-shaped steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers; hot-dip galvanized to comply with ASTM A 153/A 153M, Class C; of dimensions indicated.

2.7 MISCELLANEOUS MASONRY ACCESSORIES

- A. Compressible Filler: Premolded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene.
- B. Preformed Control-Joint Gaskets: Made from styrene-butadiene-rubber compound, complying with ASTM D 2000, Designation M2AA-805 designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.
- C. Bond-Breaker Strips: Asphalt-saturated, organic roofing felt complying with ASTM D 226, Type I (No. 15 asphalt felt).
- D. Weep/Vent Products: Free-draining mesh; made from polyethylene strands, full height and width of head joint and depth 1/8 inch less than depth of outer wythe; in color selected from manufacturer's standard.
- E. Cavity Drainage Material: Free-draining mesh, made from polymer strands that will not degrade within the wall cavity. Provide strips, full-depth of cavity and 10 inches wide, with dovetail shaped notches 7 inches deep that prevent mesh from being clogged with mortar droppings or equivalent. Available products:
 - 1. Advanced Building Products Inc.; Mortar Break II.
 - 2. Archovations, Inc.; CavClear Masonry Mat.
 - 3. Hohmann & Barnard, Inc.; Mortar Net.
 - 4. Keene Building Products; Dri-Wall Mortar Deflection.

2.8 MASONRY CLEANERS

- A. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.
 - 1. Available Manufacturers:
 - a. Diedrich Technologies, Inc.
 - b. EaCo Chem, Inc.
 - c. ProSoCo, Inc.
- B. Proprietary Non-Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.
 - 1. Available Product:
 - a. EaCo Chem, Inc.; SOS 50.

2.9 MORTAR AND GROUT MIXES

- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.
 - 1. Do not use calcium chloride in mortar or grout.
 - 2. Limit cementitious materials in mortar to portland cement [, mortar cement,] and lime.
- B. Mortar for Unit Masonry: Comply with ASTM C 270, Proportion Specification. Provide the following types of mortar for applications stated unless another type is indicated [or needed to provide required compressive strength of masonry].
 - 1. For masonry below grade or in contact with earth, use Type M.
 - 2. For reinforced masonry, use Type S.
 - 3. For exterior, above-grade, load-bearing and non-load-bearing walls and parapet walls; for interior load-bearing walls; for interior non-load-bearing partitions; and for other applications where another type is not indicated, use Type N.
- C. Pigmented Mortar: Use colored cement product. Pigments shall not exceed 10 percent of portland cement by weight.
- D. Grout for Unit Masonry: Comply with ASTM C 476.
 - 1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with Table 1.15.1 in ACI 530.1/ASCE 6/TMS 602 for dimensions of grout spaces and pour height.
 - 2. Provide grout with a slump of 8 to 11 inches as measured according to ASTM C 143/C 143M.

2.10 IDENTIFICATION LABELS FOR FIRE- AND SMOKE-PARTITIONS

- A. Identification Labels: Vinyl adhesive signs, to comply with applicable local Code.
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Fire Wall Signs, Inc.
 - b. Safety Supply Warehouse.
 - 2. Text: "FIRE AND SMOKE BARRIER – PROTECT ALL OPENINGS"

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.

1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of work.
 2. Verify that foundations are within tolerances specified.
- B. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. Thickness: Build cavity and composite walls and other masonry construction to full thickness shown. Build single-wythe walls to actual widths of masonry units, using units of widths indicated.
- B. Build chases and recesses to accommodate items specified in this and other Sections.
- C. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match the construction immediately adjacent to opening.
- D. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed. Do not use units cut to less than one-half size.
- E. Do not install concrete masonry units with more than 5 percent damage to the face. Do not install brick units which will show defects after installation.
- F. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures. Mix units from several pallets or cubes as they are placed.
- G. Matching Existing Masonry: Match coursing, bonding, color, and texture of existing masonry.
- H. Comply with construction tolerances in ACI 530.1/ASCE 6/TMS 602 and with the following:
1. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2 inch maximum.
 2. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet, or 1/2 inch maximum.
 3. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2 inch maximum.
 4. For exposed bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch. Do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch.
 5. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch. Do not vary from adjacent bed-joint and head-joint thicknesses by more than 1/8 inch.

6. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16 inch except due to warpage of masonry units within tolerances specified for warpage of units.

3.3 LAYING MASONRY WALLS

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.
- B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.
- C. Stopping and Resuming Work: When practical, stop work by racking back units in each course from those in course below; toothing is acceptable if necessary for the progress of the work. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.
- D. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.
- E. Fill space between steel frames and masonry solidly with mortar, unless otherwise indicated.
- F. Fill cores in hollow concrete masonry units with grout 24 inches under bearing plates, beams, lintels, posts, and similar items, unless otherwise indicated.
- G. Build non-load-bearing interior partitions full height of story to underside of solid floor or roof structure above, unless otherwise indicated.
 1. Install compressible filler in joint between top of partition and underside of structure above.
 2. Fasten partition top anchors to structure above and build into top of partition. Grout cells of CMUs solidly around plastic tubes of anchors and push tubes down into grout to provide 1/2-inch clearance between end of anchor rod and end of tube. Space anchors 48 inches o.c., unless otherwise indicated.
 3. Wedge non-load-bearing partitions against structure above with small pieces of tile, slate, or metal. Fill joint with mortar after dead-load deflection of structure above approaches final position.
 4. At fire-rated partitions, treat joint between top of partition and underside of structure above to comply with Section 078446 – FIRE-RESISTIVE JOINT SYSTEMS.

3.4 MORTAR BEDDING AND JOINTING

- A. Lay hollow brick and concrete masonry units as follows:
 1. With face shells fully bedded in mortar and with head joints of depth equal to bed joints.
 2. With webs fully bedded in mortar in all courses of piers, columns, and pilasters.

3. With webs fully bedded in mortar in grouted masonry, including starting course on footings.
 4. With entire units, including areas under cells, fully bedded in mortar at starting course on footings where cells are not grouted.
- B. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.
- C. Set stone trim units in full bed of mortar with full vertical joints. Fill dowel, anchor, and similar holes.
1. Clean soiled surfaces with fiber brush and soap powder and rinse thoroughly with clear water.
 2. Allow cleaned surfaces to dry before setting.
- D. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness, unless otherwise indicated, except as follows:
1. Cut joints flush for masonry walls to receive air barrier membrane, plaster or other direct-applied finishes (other than paint), unless otherwise indicated.
- E. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches. Space reinforcement not more than 16 inches o.c.
- F. Interrupt joint reinforcement at control and expansion joints, unless otherwise indicated.
- G. Provide continuity at wall intersections by using prefabricated T-shaped units.
- H. Provide continuity at corners by using prefabricated L-shaped units.

3.5 ANCHORING MASONRY TO STRUCTURAL MEMBERS

- A. Anchor masonry to structural members where masonry abuts or faces structural members to comply with the following:
1. Provide an open space not less than 1 inch in width between masonry and structural member, unless otherwise indicated. Keep open space free of mortar and other rigid materials.
 2. Anchor masonry to structural members with anchors embedded in masonry joints and attached to structure.
 3. Space anchors as indicated, but not more than 24 inches o.c. vertically and 36 inches o.c. horizontally.

3.6 CONTROL AND EXPANSION JOINTS

- A. General: Install control and expansion joint materials in unit masonry as masonry progresses. Do not allow materials to span control and expansion joints without provision to allow for in-plane wall or partition movement.
- B. Form control joints in concrete masonry using one of the following methods:
 - 1. Fit bond-breaker strips into hollow contour in ends of concrete masonry units on one side of control joint. Fill resultant core with grout and rake out joints in exposed faces for application of sealant.
 - 2. Install preformed control-joint gaskets designed to fit standard sash block.
 - 3. Install interlocking units designed for control joints. Install bond-breaker strips at joint. Keep head joints free and clear of mortar or rake out joint for application of sealant.
 - 4. Install temporary foam-plastic filler in head joints and remove filler when unit masonry is complete for application of sealant.
- C. Form expansion joints in brick made from clay or shale as follows:
 - 1. Build flanges of metal expansion strips into masonry. Lap each joint 4 inches in direction of water flow. Seal joints below grade and at junctures with horizontal expansion joints if any.
 - 2. Build flanges of factory-fabricated, expansion-joint units into masonry.
 - 3. Build in compressible joint fillers where indicated.
 - 4. Form open joint full depth of brick wythe and of width indicated, but not less than 3/8 inch for installation of sealant and backer rod specified in Section 079200 - JOINT SEALANTS.
- D. Provide horizontal, pressure-relieving joints by either leaving an air space or inserting a compressible filler of width required for installing sealant and backer rod specified in Section 079200 - JOINT SEALANTS but not less than 3/8 inch.
 - 1. Locate horizontal, pressure-relieving joints beneath shelf angles supporting masonry.

3.7 LINTELS

- A. Install steel lintels where indicated.
- B. Provide minimum bearing of 8 inches at each jamb, unless otherwise indicated.

3.8 REINFORCED UNIT MASONRY INSTALLATION

- A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.
 - 1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.

2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other temporary loads that may be placed on them during construction.

B. Placing Reinforcement: Comply with requirements in ACI 530.1/ASCE 6/TMS 602.

C. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure. Comply with requirements in ACI 530.1/ASCE 6/TMS 602 for cleanouts and for grout placement, including minimum grout space and maximum pour height.

3.9 FIELD QUALITY CONTROL

A. Independent Testing Agency: Cooperate with the Independent Testing Agency engaged by DCAMM for field quality control activities for the Work of this Section. Refer also to Section 014325 - TESTING AGENCY SERVICES.

B. Cooperate with field quality control personnel. Allow inspectors access to scaffolding and work areas, as needed to perform inspections.

C. Additional inspections and retesting of materials which fail to comply with specified material and installation requirements shall be performed at Contractor's expense.

D. Inspections: Level 1 special inspections according to the Massachusetts State Building Code.

1. Begin masonry construction only after inspectors have verified proportions of site-prepared mortar.
2. Place grout only after inspectors have verified compliance of grout spaces and of grades, sizes, and locations of reinforcement.
3. Place grout only after inspectors have verified proportions of site-prepared grout.

E. Testing Prior to Construction: One set of tests.

F. Testing Frequency: One set of tests for each 5000 sq. ft. (464 sq. m) of wall area or portion thereof. Test types as determined by the independent testing and inspection agency.

G. Clay Masonry Unit Test: For each type of unit provided, according to ASTM C 67 for compressive strength.

H. Concrete Masonry Unit Test: For each type of unit provided, according to ASTM C 140 for compressive strength.

I. Mortar Aggregate Ratio Test (Proportion Specification): As indicated in the Statement of Special Inspections prepared by the Design Engineer of Record. .

J. Mortar Test (Property Specification): As indicated in the Statement of Special Inspections prepared by the Design Engineer of Record. .

K. Grout Test (Compressive Strength): As indicated in the Statement of Special Inspections prepared by the Design Engineer of Record. .

L. Prism Test: For each type of construction provided, according to ASTM C 1314 at 7.

3.10 REPAIRING, POINTING, AND CLEANING

- A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.
- B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, around penetrations and where indicated.
- C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
- D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
 - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
 - 2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Designer's approval of sample cleaning before proceeding with cleaning of masonry.
 - 3. Protect adjacent stone and nonmasonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
 - 4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
 - 5. Clean brick by bucket-and-brush hand-cleaning method described in BIA Technical Notes 20.
 - 6. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to type of stain on exposed surfaces.
 - 7. Clean stone trim to comply with stone supplier's written instructions.

3.11 MASONRY WASTE DISPOSAL

- A. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.
- B. Waste Disposal as Fill Material: Dispose of clean masonry waste, including excess or soil-contaminated sand, waste mortar, and broken masonry units, by crushing and mixing with fill material as fill is placed.
 - 1. Crush masonry waste to less than 4 inches in each dimension.
 - 2. Mix masonry waste with at least two parts of specified fill material for each part of masonry waste. Fill material is specified in Section 312000 - EARTH MOVING.
 - 3. Do not dispose of masonry waste as fill within 18 inches of finished grade.

- C. Excess Masonry Waste: Remove excess clean masonry waste that cannot be used as fill, as described above, and other masonry waste, and legally dispose of off the Site.

END OF SECTION

SECTION 055000

METAL FABRICATIONS

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following. Requirements for materials, hot-dip galvanizing, and shop-applied primers are included with each item as applicable.
 - 1. Galvanized steel framing and supports for mechanical and electrical equipment.
 - 2. Steel framing and supports for applications where framing and supports are not specified in other Sections; galvanized at exterior locations and in exterior walls.
 - 3. Aluminum Diamond Tread Plate in elevator penthouse as indicated on drawings.
- B. Alternates: Not Applicable.
- C. Items To Be Installed Only: Not Applicable.
- D. Items To Be Furnished Only: Furnish the following items for installation by the designated Sections
 - 1. Section 042000 - UNIT MASONRY:
 - a. Lintels, miscellaneous metal and iron sleeves, anchors, inserts and plates to be built into masonry walls.
- E. Related Work: The following items are not included in this Section and will be performed under the designated Sections:
 - 1. Elevator Pit Inspection Platform – Section 142123, ELECTRIC TRACTION ELEVATORS.

1.3 PERFORMANCE REQUIREMENTS

- A. Structural Performance of Ladders: Provide ladders capable of withstanding the effects of loads and stresses within limits and under conditions specified in ANSI A14.3.

- B. Thermal Movements: Provide exterior metal fabrications that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F ambient; 180 deg F material surfaces.

1.4 SUBMITTALS

- A. Product Data: For the following:

1. Nonslip aggregates and nonslip-aggregate surface finishes.
2. Metal nosings and treads.
3. Paint products.
4. Grout.

- B. Shop Drawings: Show fabrication and installation details for metal fabrications.

1. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.
2. Provide templates for anchors and bolts specified for installation under other Sections.
3. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer licensed in the Commonwealth of Massachusetts responsible for their preparation. All costs for professional engineering shall be included in the bid price for the Work of this Section.
4. Where fabrications are to receive sprayed-on fireproofing, include statement that primer is compatible with fireproofing proposed for use.

- C. Welding certificates.

- D. Qualification Data: For professional engineer.

1.5 QUALITY ASSURANCE

- A. Engineering Responsibility: Preparation of Shop Drawings, design calculations, and other structural data by a qualified professional engineer.

- B. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in the Commonwealth of Massachusetts and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of metal fabrications that are similar to those indicated for this Project in material, design, and extent.

- C. Welding: Qualify procedures and personnel according to the following:

1. AWS D1.1, "Structural Welding Code--Steel."
2. AWS D1.2, "Structural Welding Code--Aluminum."
3. AWS D1.3, "Structural Welding Code--Sheet Steel."

4. AWS D1.6, "Structural Welding Code--Stainless Steel."

- D. Metal Surfaces, General: Provide materials with smooth, flat surfaces, unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

1.6 PROJECT CONDITIONS

- A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication and indicate measurements on Shop Drawings.
1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating metal fabrications without field measurements. Coordinate wall and other contiguous construction to ensure that actual dimensions correspond to established dimensions.
 2. Provide allowance for trimming and fitting at site.

1.7 COORDINATION

- A. Coordinate installation of anchorages for metal fabrications. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- B. Coordinate installation of steel weld plates and angles for casting into concrete that are specified in this Section but required for work of another Section. Deliver such items to Project site in time for installation.

PART 2 - PRODUCTS

2.1 FERROUS METALS

- A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
- B. Stainless-Steel Sheet, Strip, Plate, and Flat Bars: ASTM A 666, Type 316L
- C. Stainless-Steel Bars and Shapes: ASTM A 276, Type 316L
- D. Rolled-Steel Floor Plate: ASTM A 786/A 786M, rolled from plate complying with ASTM A 36/A 36M or ASTM A 283/A 283M, Grade C or D.
- E. Steel Tubing: ASTM A 500, cold-formed steel tubing.
- F. Steel Pipe: ASTM A 53/A 53M, standard weight (Schedule 40), unless another weight is indicated or required by structural loads.

- G. Slotted Channel Framing: Cold-formed metal channels with continuous slot complying with MFMA-3.

2.2 FASTENERS

- A. General: Unless otherwise indicated, provide Type 316 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633, Class Fe/Zn 5, at exterior walls. Provide stainless-steel fasteners for fastening aluminum. Select fasteners for type, grade, and class required.
- B. Anchor Bolts: ASTM F 1554, Grade 36. Provide hot-dip or mechanically deposited, zinc-coated anchor bolts where item being fastened is indicated to be galvanized.
- C. Expansion Anchors: Anchor bolt and sleeve assembly with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.
 - 1. Acceptable Manufacturers: Kwik-Bolt 3 by Hilti, Inc., TruBolt Wedge Anchor by ITW Red Head or Power-Stud by Powers Fasteners.

2.3 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
- B. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer. Use primer containing pigments that make it easily distinguishable from zinc-rich primer.
 - 1. Available Products: Dupont Universal Primer, Keeler and Long Universal Primer, or Tnemec Series 394 PerimePrime.
- C. Zinc-Rich Primer: Complying with SSPC-Paint 20 or SSPC-Paint 29 and compatible with topcoat.
 - 1. Available Products: Dupont Ganicin, Keeler and Long Urethane Zinc Rich Primer, or Tnemec Series 394 PerimePrime.
- D. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in steel, complying with SSPC-Paint 20.
 - 1. Provide interior, field-applied paint with a VOC content of 250 g/L or less, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- E. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.
- F. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.

- G. Aluminum Diamond Tread Plate: 48x96 sheets, .25” thick, Alloy 6061, temper T6. Provide all required bolted connections to steel grate substrate.

2.4 FABRICATION, GENERAL

- A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch, unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- D. Form exposed work true to line and level with accurate angles and surfaces and straight edges.
- E. Weld corners and seams continuously to comply with the following:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) screws or bolts, unless otherwise indicated. Locate joints where least conspicuous.
- G. Fabricate seams and other connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- I. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.

2.5 MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.
- B. Fabricate units from steel shapes, plates, and bars of welded construction, unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent

construction retained by framing and supports. Cut, drill, and tap units to receive hardware, hangers, and similar items.

1. Fabricate units from slotted channel framing where indicated.
2. Furnish inserts if units are installed after concrete is placed.

- C. Fabricate supports for folding-panel partitions from continuous steel beams of sizes indicated with attached bearing plates, anchors, and braces as indicated. Drill bottom flanges of beams to receive partition track hanger rods; coordinate location of holes.

2.6 SHELF ANGLES

- A. Fabricate shelf angles from steel angles of sizes indicated and for attachment to concrete framing. Provide horizontally slotted holes to receive 3/4-inch bolts, spaced not more than 6 inches from ends and 24 inches o.c., unless otherwise indicated.

1. Provide mitered and welded units at corners.
2. Provide open joints in shelf angles at expansion and control joints. Make open joint approximately 2 inches larger than expansion or control joint.

- B. For cavity walls, provide vertical channel brackets to support angles from backup masonry and concrete.

- C. Furnish wedge-type concrete inserts, complete with fasteners, to attach shelf angles to cast-in-place concrete.

2.7 LOOSE BEARING AND LEVELING PLATES

- A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction. Drill plates to receive anchor bolts and for grouting.

2.8 STEEL WELD PLATES AND ANGLES

- A. Provide steel weld plates and angles not specified in other Sections, for items supported from concrete construction as needed to complete the Work. Provide each unit with not less than two integrally welded steel strap anchors for embedding in concrete.

2.9 MISCELLANEOUS STEEL TRIM

- A. Unless otherwise indicated, fabricate units from steel shapes, plates, and bars of profiles shown with continuously welded joints and smooth exposed edges. Miter corners and use concealed field splices where possible.

- B. Provide cutouts, fittings, and anchorages as needed to coordinate assembly and installation with other work.

1. Provide with integrally welded steel strap anchors for embedding in concrete or masonry construction.

2.10 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish metal fabrications after assembly.

2.11 STEEL PRIMERS AND FINISHES

- A. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with minimum requirements indicated below for SSPC surface preparation specifications and environmental exposure conditions of installed metal fabrications:
 - 1. Exteriors (SSPC Zone 1B) and Items Indicated to Receive Zinc-Rich Urethane Primer: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 - 2. Interiors (SSPC Zone 1A): SSPC-SP 7, "Brush Off Blast Cleaning."
 - 3. Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finishes and those to be field welded, embedded in concrete or masonry, unless otherwise indicated. Extend priming of partially embedded members to a depth of 2 inches.
 - 4. Comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.
 - 5. Comply with SSPC-PA 2, "Measurement of Dry Coating Thickness with magnetic Gages."
- B. Zinc-Rich Primer: Urethane zinc rich primer compatible with topcoat Specified in Section 099000 - PAINTS AND COATINGS. Provide primer with a VOC content of 250 g/L (2.8 lb/gal.) or less per OTC and HAPS COMPLIANT STANDARDS PER 2010 standards when calculated according to 40 CFR 59, Subpart D (EPA Method 24). Provide Tnemec Series 394 Perimerprime at 3.0 mils DFT or approved equal by DuPont, Keeler and Long, or PPG PMC Amercoat 68 MCZ Zinc Rich Primer.
- C. Hot-Dip Galvanizing: For steel exposed to the elements, weather or corrosive environments and other steel indicated to be galvanized, provide coating for iron and steel fabrications applied by the hot-dip process. Comply with ASTM A 123 for fabricated products and ASTM A 153 for hardware. Provide thickness of galvanizing specified in referenced standards. The galvanizing bath shall contain high grade zinc and other earthly materials. Fill vent holes and grind smooth after galvanizing.
- D. Hot-Dip Galvanizing And Factory-Applied Primer for Steel: Provide hot-dip galvanizing and factory-applied prime coat, certified OTC/VOC compliant less than 2.8 lbs/gal. and conforming to EPA and local requirements. Apply primer within 12 hours after galvanizing at the galvanizer's plant in a controlled environment meeting applicable environmental regulations and as recommended by the primer coating manufacturer. Blast cleaning of the surface is unacceptable for surface preparation. Primer shall have a minimum two year re-coat window for application of finish coat. Coatings must meet or exceed the following performance criteria:
 - 1. Abrasion Resistance per ASTM D 4060 (CS17 Wheel, 1,000 grams load); 1kg Load: 200 mg loss.
 - 2. Adhesion per ASTM D4541: 1050 psi.

3. Corrosion Weathering per ASTM D5894, 13 cycles, 4,368 hours: Rating 10 per ASTM D714 for blistering; Rating: 7 per ASTM D610 for rusting.
 4. Direct Impact Resistance per ASTM D2794: 160 in. lbs.
 5. Flexibility per ASTM D522, 180° Bend, 1 inch Mandrel: Passes.
 6. Pencil Hardness per ASTM D3363: 3H.
 7. Moisture Condensation Resistance per ASTM D4585, 100° F, 2000 hours: Passes, no cracking or delamination
 8. Dry Heat Resistance per ASTM D2485: 250° F.
- E. Hot-Dip Galvanizing and Factory-Applied Urethane Primer and Finish for Steel: Provide factory-applied architectural coating over primed hot-dip galvanized steel matching approved samples.
1. Primer coat shall be factory-applied polyamide epoxy primer. Apply primer within 12 hours after galvanizing at the galvanizer's plant in a controlled environment meeting applicable environmental regulations and as recommended by the primer coating manufacturer.
 2. Finish coat shall be factory-applied color-pigmented architectural finish. Apply finish coating at the galvanizer's plant, in a controlled environment meeting applicable environmental regulations and as recommended by the finish coating manufacturer.
 3. Coatings shall be certified OTC/VOC compliant and conform to applicable regulations and EPA standards.
 4. Apply the galvanizing, primer, and coating within the same facility and provide single-source responsibility for galvanizing, priming and finish coating.
 5. Blast cleaning of the galvanized surface is required, unless galvanizer certifies performance will be met without blast cleaning and coating will be applied within 12 hours of galvanizing.
 6. Primer shall meet or exceed the following performance criteria:
 - a. Abrasion Resistance per ASTM D 4060 (CS17 Wheel, 1,000 grams load), 1kg Load: 200 mg loss.
 - b. Adhesion per ASTM D4541: 1050 psi.
 - c. Corrosion Weathering per ASTM D5894, 13 Cycles, 4,368 Hours: Rating 10 per ASTM D714 for blistering; Rating 7 per ASTM D610 for rusting.
 - d. Direct Impact Resistance per ASTM D2794: 160 in. lbs.
 - e. Flexibility per ASTM D522, 180° Bend, 1 in. Mandrel: Passes.
 - f. Pencil Hardness per ASTM D3363: 3B.
 - g. Moisture Condensation Resistance per ASTM D4585, 100° F, 2000 Hours: Passes, no cracking or delamination.
 - h. Dry Heat Resistance per ASTM D2485: 250° F.
 7. Topcoat shall meet or exceed the following performance criteria:
 - a. Abrasion Resistance per ASTM D 4060, CS17 Wheel, 1,000 Cycles 1kg Load: 87.1 mg loss.
 - b. Adhesion per ASTM D 4541: 1050 psi.
 - c. Direct Impact Resistance per ASTM D2794: >28 in. pounds.
 - d. Indirect Impact Resistance per ASTM D2794: 12-14 in. pounds.
 - e. Dry Heat Resistance per ASTM D2485: 200° F.
 - f. Salt Fog Resistance per ASTM B 117 9,000 Hours: Rating 10 per ASTM D714 for blistering.
 - g. Flexibility per ASTM D522, 180° Bend, 1/8 in. Mandrel: Passes.
 - h. Pencil Hardness per ASTM D3363: 2H.

- i. Moisture Condensation Resistance per ASTM D4585, 100° F, 1000 Hours: No blistering or delamination
- j. Xenon Arc Test per ASTM D 4798: Pass 300 hours

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- C. Field Welding: Comply with the following requirements:
 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 2. Obtain fusion without undercut or overlap.
 3. Remove welding flux immediately.
 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag bolts, wood screws, and other connectors.
- E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.
- F. Corrosion Protection: Coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood, or dissimilar metals with a heavy coat of bituminous paint.

3.2 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.
- B. Anchor supports for folding panel partitions securely to and rigidly brace from building structure.

- C. Support steel girders on solid grouted masonry, concrete, or steel pipe columns. Secure girders with anchor bolts embedded in grouted masonry or concrete or with bolts through top plates of pipe columns.
 - 1. Where grout space under bearing plates is indicated for girders supported on concrete or masonry, install as specified in this Section.
- D. Install pipe columns on concrete footings with grouted baseplates. Position and grout column baseplates as specified in this Section.
 - 1. Grout baseplates of columns supporting steel girders after girders are installed and leveled.

3.3 INSTALLING BEARING AND LEVELING PLATES

- A. Clean concrete and masonry bearing surfaces of bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of plates.
- B. Set bearing and leveling plates on wedges, shims, or leveling nuts. After bearing members have been positioned and plumbed, tighten anchor bolts. Do not remove wedges or shims but, if protruding, cut off flush with edge of bearing plate before packing with grout.
 - 1. Use nonshrink grout, either metallic or nonmetallic, in concealed locations where not exposed to moisture; use nonshrink, nonmetallic grout in exposed locations, unless otherwise indicated.
 - 2. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.
- C. .

3.4 ADJUSTING AND CLEANING

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
 - 1. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.
- B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

END OF SECTION

SECTION 062000

FINISH CARPENTRY

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Provide all equipment and materials and do all work necessary to complete finish carpentry and millwork as indicated on the Drawings and as specified herein. Include, but do not limit to:
 - 1. Finish carpentry work, including all wood trim.
 - 2. Back boards for mounting telephone and electrical panels.

1.02 RELATED REQUIREMENTS

- A. Painting: Section 09900, PAINTING.
- B. Installation of doors: Section 081000, STEEL DOORS AND FRAMES
- C. Installation of finish hardware: Section 087100, FINISH HARDWARE.

1.03 REFERENCES

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS AND CONDITIONS OF THE CONTRACT and applicable parts of DIVISION 1 - GENERAL REQUIREMENTS, as listed in the Table of Contents, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.04 REFERENCED STANDARDS

- A. American National Standards Institute (ANSI):
 - A161.2 Performance Standards for Fabricated High Pressure Decorative Laminate Countertops
 - A208.1 Particleboard, Mat-Formed Wood
- B. The Architectural Woodwork Institute (AWI):
 - Architectural Woodwork Quality Standards, Guide Specifications and Quality Certification Program - Latest Edition
- C. LD-3 High Pressure Decorative Laminates - National Electrical Manufacturers Association (NEMA)

1.05 SUBMITTALS

- A. Shop Drawings: Submit shop drawings in complete detail to Architect for approval, covering all architectural woodwork items.
- B. Samples: Submit duplicate samples of all requested materials of fabricated items to Architect for approval. Size, color and form of samples shall be as specified or as requested by the Architect.
- C. Do not order materials or begin production runs of architectural woodwork items until Architect's approval has been obtained.
- D. Do not order materials or begin production until field measurements have been done.
- E. Verification of all field dimensions are the responsibility of the Contractor.

1.06 GUARANTEE

- A. In addition to the specific guarantee requirements of GENERAL CONDITIONS and MODIFICATIONS TO GENERAL CONDITIONS, the Contractor shall obtain in the Owner's name the standard written manufacturer's guarantee of all materials furnished under this Section where such guarantees are offered in the manufacturer's published product data. All these guarantees shall be in addition to, and not in lieu of, other liabilities which the Contractor may have by law or other provisions of the Contract Documents.

PART 2 PRODUCTS

2.01 FINISH CARPENTRY AND ARCHITECTURAL WOODWORK MATERIALS

- A. General:
 - 1. Do not deliver materials to site until building has been closed in, materials have been installed and are sufficiently dry, and building is continuously maintained at a temperature above 65° F. Obtain approval of Owner's representative before delivering architectural woodwork materials or fabricated items. Store all materials off the floor, fully protected from damage of all kinds.
 - 2. Plywood for exposed transparent finish shall be from No.1 Premium Grade quarter-sawn maple veneered plywood, veneer or solid lumber core, as recommended by and conforming to the AWI Quality Standards. No exposed defects or patches will be allowed.
 - 3. Materials used for laminated plastic or transparent finished architectural woodwork shall meet or exceed the requirements of "Premium Grade" as established by AWI Quality Standards. Materials for other architectural woodwork and finish carpentry work shall conform to AWI Quality Standards "Custom Grade".
 - 4. Wood requiring preservative treatment shall be pressure-treated with waterborne preservatives, to comply with AWPB LP-2 for above-ground items and LP-22 for ground contact items. Kiln dry after treatment to 19% maximum moisture content for

lumber and 15% for plywood. Treat above-ground wood exposed to deterioration by moisture and all wood in contact with the ground or fresh water.

5. Fire-retardant treatment of wood shall be pressure impregnated to comply with AWPA C20 for lumber and AWPA C27 for plywood. Provide where indicated and where required by code. Do not use fire-retardant treatment containing ammonium phosphates. Vehicle for preservative shall be compatible with final finish.
 6. Wood panel for exterior exposed paint finish shall be waterproof, sign grade MDO board as recommended by and conforming to AWI Quality Standards.
 7. Wood trim for exterior exposed paint finish shall be clear pine conforming to AWI Quality Standards "Custom Grade".
 8. Wood shall be furnished in longest practical lengths with respect to each intended use, and single-length pieces shall be used wherever possible.
 9. Take all necessary field measurements before starting fabrication of built-in work.
- B. Utility Mounting Panel Materials:
1. Plywood for construction of mounting panels at telephone, electrical and mechanical rooms shall be A-D veneer plywood (A veneer exposed), APA Interior Grade.

PART 3 EXECUTION

3.01 WORKMANSHIP AND INSTALLATION REQUIREMENTS

- A. Finished woodwork shall be dressed and sanded free from machine and tool marks, abrasions, raised grain, or other defects on surfaces exposed to view. Construction and workmanship of transparent and laminated plastic finished architectural woodwork shall conform to, or exceed, the requirements of "Premium Grade" as established by AWI Quality Standards. Other architectural woodwork and finish carpentry work shall conform to "premium" grade.
- B. Joints shall be tight and so formed as to conceal shrinkage. Butt joints shall be fitted with concealed spline. Shop miters four inches or greater shall be glued and doweled or locked with metal spline. Miters less than four inches shall be glued and splined with the spline concealed.
- C. Frames shall be free of splices along lengths of members. Running trim shall have a minimum of splices or joints and where such splices or joints occur, they shall be fastened securely so that all exposed surfaces result in smooth, continuous planes.
- D. Exposed edges of plywood and particleboard shall be edged with triangular-section edge strip of (matching) hardwood, at least 1/2 in. thick, the full width of the plywood or particleboard edge. Miter edge strips at corners. Edge strips shall not be exposed on faces of the sheets.
- E. Fasteners in finished work shall be blind nailed or concealed, wherever possible, meeting requirements of AWI Quality Standards for grade specified. Glue or adhesive shall be used as required for grade specified. Surface nails or finish screws, when exposed to view shall be set

and concealed as required for grade specified. Putty filler will not be accepted in exposed surfaces specified to be "Premium Grade". Nailing through laminated plastic will not be permitted.

- F. Wherever attaching onto floors, walls or ceilings, care shall be taken to protect pipes or conduits embedded therein. Damage to embedded or enclosed work shall be corrected without further cost to Owner.
- G. Work shall be secured as to prevent checks or warps. Woodwork shall be properly framed, closely fitted, and accurately set to the required lines and levels and shall be rigidly secured in place.
- H. Free foam cellular pvc edges to be fully glued at all fascia runs, window surrounds and trim applications to prevent joint separation.

3.02 PAINTING AND FINISHING

- A. Field painting and finishing will be provided under Section 09900, PAINTING, but it shall be the responsibility of this Contractor to see to it that all finish carpentry items and architectural woodwork items be primed and back primed or sealed before installation. Paint or seal coats must be dry before items are installed.
- B. Finish work shall be sandpapered at field joints and where required by installation and shall be left in perfect condition for finishing under Section 09900, PAINTING.
- C. For items finished under other sections but installed under this section touch-up work shall meet requirements of manufacturer or fabricator and shall be done by mechanics experienced in the type of work required.

3.03 SPECIFIC INSTRUCTIONS FOR FINISH CARPENTRY WORK

- A. Important Note: No attempt is made in the following specific instructions to list all elements of finish carpentry and architectural woodwork required on this Project, and it shall be the responsibility of the Contractor to determine for himself from the Drawings the scope and nature of the work required. These specific instructions are intended only to provide additional instructions regarding those portions of the finished carpentry and architectural woodwork for which information beyond that given on the Drawings or covered in the AWI Quality Standards seems needed to properly describe the work. Where the scope of a category is listed it is done in a general manner to assist the Contractor in determining the general nature of work he shall look for as being required in said category, and not to limit the work.

3.04 FINISH CARPENTRY WORK

- A. Generally, the scope of finish carpentry work shall be taken to include plywood mounting panels at electrical and telephone rooms for installation of telephone and electrical equipment.
- B. Install plywood mounting panels on back walls of electrical and/or telephone room(s) where required. Securely anchor to supporting structures by anchorage devices of appropriate type and adequate capacity. Maintain the work plumb, level, straight, and true.

- C. Exterior finish carpentry work shall be installed with galvanized fasteners, and waterproof glues and filler. Materials and installation shall be in conformance to general practice consistent with that required for exterior applications.

3.06 COMPLETION

- A. Just prior to completion of work of this Section, inspect work in the company of the Architect and make adjustments and corrections to the work leaving all operating parts in perfect operating condition, all jointing to adjacent material tight, all surfaces without blemishes or stains, all work properly executed and complete, and all defects and damaged work replaced or corrected.

END OF SECTION

SECTION 072710

FIRE PENETRATION SEALANTS

PART 1 GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Provide all equipment and materials and do all work necessary to complete the firestop sealant work for the entire project. The general contractor shall be responsible for the actual field locations of penetrations through fire rated partitions and or floors as required.

1.2 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.3 RELATED REQUIREMENTS

- A. Section 079000, SEALANTS
- B. Section 230000, MECHANICAL INSULATION
- C. Section 210000, FIRE PROTECTION
- D. Section 260000, BASIC ELECTRICAL MATERIALS AND METHODS

1.4 REFERENCES

- A. ASTM E 814: Test Method of Fire Tests of Through-Penetration Firestops.
- B. UL 1479: Fire Tests of Through-Penetration Firestops.
- C. UL Fire Resistance Directory: Through-Penetration Firestops Systems (XHEZ).
- D. NFPA 70: National Electrical Code.
- E. NFPA 101: Life Safety Code.

1.5 DEFINITION

- A. Firestopping: A material, or combination of materials, used to retain the integrity of fire-rated construction by maintaining an effective barrier against the spread of flame (and to impede passage of smoke, gases and water) through penetrations in fire-rated wall and floor assemblies.

1.6 SUBMITTALS

- A. Submit under provision of section 01300.
- B. Product Data: Provide data on product characteristics, product performance, limitation criteria and documentation of proposed through-penetration firestop systems which reflect actual job conditions.
- C. Manufacturer's installation instructions: Indicate preparation and installation instructions.

1.7 QUALITY ASSURANCE

- A. Qualifications: Applicator shall receive training on installation of through-penetration firestop materials from manufacturer's representative.

1.8 REGULATORY REQUIREMENTS

- A. Conform to applicable code requirements.

1.9 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in original unopened containers identified with manufacturer's brand designation and UL label where applicable.
- B. Store materials under cover and protect from damage in accordance with manufacturer's instructions.
- C. Do not use damaged or expired materials.
- D. Before handling, read product and material safety data sheets.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with through penetration firestop systems (XHEZ) listed in Volume II of the UL Fire Resistance Directory. This specification is written based on Hilti Construction Chemicals, Inc. but "or equal" is acceptable. Provide products of the following manufacturers as identified below:

Hilti Construction Chemicals, Inc.
Tremco Construction Products
United States Gypsum

2.2 MATERIALS

- A. Use only firestop products that have been UL 1479 or ASTM E 814 tested for the specific fire-rated construction conditions being firestopped, conforming to construction assembly type, penetrating item size and type, annular space requirements, and fire-rating involved for each distinct application.

1. For penetrations by non-combustible items including steel pipe, copper pipe, rigid steel conduit and electrical metallic tubing (EMT), the following materials are acceptable: Hilti FS 601 Elastomeric Firestop Sealant; Hilti FS 605 High Performance Firestop Sealant or equal.
 2. For fire-rated construction joints or other gaps, the following material is acceptable: Hilti FS 610 Elastomeric Firestop Sealant or equal.
 3. For penetrations by plastic pipe, the following materials are acceptable: Hilti CP 642 Firestop Collars; Hilti FS 611A Intumescent Firestop Sealant or equal.
 4. For penetrations by combustible items (penetrants consumed by high heat and flame) including insulated metal pipe, PVC jacketed, flexible cable or cable bundles the following material is acceptable: Hilti FS 611A Intumescent Firestop Sealant or equal.
 5. For large size/complex penetrations made to accommodate cable trays, multiple steel and copper pipes, electrical busways and raceways, the following material is acceptable: Hilti FS 635 Trowelable Firestop Compound or equal.
- B. Provide a firestop system with an "F" rating as determined by UL 1479 or ASTM E 814 which is equal or higher than the time rating of construction being penetrated.

PART 3 EXECUTION

3.1 PREPARATION

- A. Clean surfaces to receive firestopping materials of dirt, dust, grease, oil, loose material, and other matter which may affect bond of firestopping material or the fire resistance.
- B. Insure that surface to be firestopped is prepared in accordance with manufacturer's instructions.

3.2 INSTALLATION

- A. Refer to Underwriter's Laboratories, Inc. (UL) Fire Resistance Directory; "Through-Penetration Firestop Systems (XHEZ)" for system details.
- B. Install firestopping materials in accordance with manufacturer's instructions.

END OF SECTION

SECTION 079200

JOINT SEALANTS

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
 - 1. Joint sealants and fillers.
- B. This Section includes joint sealants for the applications specified with the products in this Section and as indicated on the Drawings.
- C. Alternates: Not Applicable.
- D. Items To Be Installed Only: Not Applicable.
- E. Items To Be Furnished Only: Not Applicable.
- F. Related Work: The following items are not included in this Section and will be performed under the designated Sections:
 - 1. Section 042000 - UNIT MASONRY for masonry control and expansion joint fillers and gaskets.
 - 2. Section 092116 - GYPSUM BOARD ASSEMBLIES for sealing perimeter joints of gypsum board partitions to reduce sound transmission.

1.3 PERFORMANCE REQUIREMENTS

- A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.
- B. Provide joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.

1.4 SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
- B. Samples for Verification: For each type and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- wide joints formed between two 6-inch- long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
- C. Qualification Data: For Installer.
- D. Preconstruction Field Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on preconstruction testing specified in "Quality Assurance" Article.
- E. Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating the following:
 - 1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
 - 2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.
- F. Field Test Report Log: For each elastomeric sealant application.
- G. Product Test Reports: Based on comprehensive testing of product formulations performed by a qualified testing agency, indicating that sealants comply with requirements.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized Installer who is approved or licensed for installation of elastomeric sealants required for this Project.
- B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.
- C. Preconstruction Compatibility and Adhesion Testing: Submit to joint-sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.
 - 1. Use manufacturer's standard test method to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
 - 2. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
 - 3. For materials failing tests, obtain joint-sealant manufacturer's written instructions for corrective measures including use of specially formulated primers.
 - 4. Testing will not be required if joint-sealant manufacturers submit joint preparation data that are based on previous testing of current sealant products for adhesion to, and compatibility with, joint substrates and other materials matching those submitted.

1.6 PROJECT CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F
2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.7 WARRANTY

- A. Special Installer's Warranty: Installer's standard form in which Installer agrees to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
 1. Warranty Period: Two years from date of Substantial Completion.
- B. Special Manufacturer's Warranty: Manufacturer's standard form in which elastomeric sealant manufacturer agrees to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.
 1. Warranty Period: Five years from date of Substantial Completion.
- C. Special warranties specified in this Article exclude deterioration or failure of elastomeric joint sealants from the following:
 1. Movement of the structure resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression caused by structural settlement or errors attributable to design or construction.
 2. Disintegration of joint substrates from natural causes exceeding design specifications.
 3. Mechanical damage caused by individuals, tools, or other outside agents.
 4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.
- B. VOC Content of Interior Sealants: Provide interior sealants and sealant primers that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
 1. Architectural Sealants: 250 g/L.
 2. Sealant Primers for Nonporous Substrates: 250 g/L.

3. Sealant Primers for Porous Substrates: 775 g/L.

C. Colors of Exposed Joint Sealants: As indicated by manufacturer's designations.

2.2 JOINT SEALANTS

A. Elastomeric Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

B. Stain-Test-Response Characteristics: Elastomeric sealants shall be nonstaining to porous substrates. Provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

C. Suitability for Contact with Food: Where elastomeric sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.

D. Single-Component Neutral-Curing Silicone Sealant:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

- a. Dow Corning Corporation; 790.
- b. GE Silicones; SilPruf LM SCS2700.
- c. May National Bondaflex Sil 290
- d. Pecora Corporation; 864.
- e. Tremco Inc.; Spectrem 1.

2. Extent of Use: Joints in exterior vertical and soffit surfaces.

E. Single- or Multi-component Pourable Urethane Sealant:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

- a. Bostik Findley; Chem-Calk 550.
- b. May National Bondaflex PUR 2 SL
- c. Meadows, W. R., Inc.; POURTHANE.
- d. Pecora Corporation; Urexpam NR-200.
- e. Tremco Inc.; THC-901, multi-component.
- f. Tremco Inc.; Vulkem 45SSL, single component.

2. Extent of Use: Joints in exterior horizontal surfaces.

F. Single-Component Mildew-Resistant Acid-Curing Silicone Sealant:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

- a. Dow Corning Corporation; 786 Mildew Resistant.
- b. GE Silicones; Sanitary SCS1700.

- c. May National Bondaflex Sil 100 WF
 - d. Tremco Inc.; Tremsil 200.
 - 2. Extent of Use: Sanitary joints at interior toilet rooms and other wet areas.
- G. Latex Sealant: Comply with ASTM C 834, Type P, Grade NF.
- 1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 - a. BASF Building Systems; Sonolac.
 - b. Bostik Findley; Chem-Calk 600
 - c. May National Bondaflex Sil-A 700
 - d. Pecora Corporation; AC-20+.
 - e. Tremco Inc.; Tremflex 834.
 - 2. Extent of Use: Joints at non-moving interior surfaces, except where indicated to be sanitary joints.

2.3 JOINT-SEALANT BACKING

- A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26 deg F. Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and to otherwise contribute to optimum sealant performance.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.4 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
 - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
 - 2. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include concrete, masonry and unglazed surfaces of ceramic tile.
 - 3. Remove laitance and form-release agents from concrete.
 - 4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following metal, glass, porcelain enamel and glazed surfaces of ceramic tile.
- B. Joint Priming: Prime joint substrates, where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

- C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
 - 1. Do not leave gaps between ends of sealant backings.
 - 2. Do not stretch, twist, puncture, or tear sealant backings.
 - 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
 - 1. Place sealants so they directly contact and fully wet joint substrates.
 - 2. Completely fill recesses in each joint configuration.
 - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
 - 1. Remove excess sealant from surfaces adjacent to joints.
 - 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 - 3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.

3.4 FIELD QUALITY CONTROL

- A. Cooperate with field quality control personnel. Allow inspectors access to scaffolding and work areas, as needed to perform inspections.
- B. Additional inspections and retesting of materials which fail to comply with specified material and installation requirements shall be performed at Contractor's expense.

3.5 CLEANING

- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.6 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

END OF SECTION

SECTION 081000

STEEL DOORS AND FRAMES

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Furnish and install steel doors, glass side lights, and frames and related items as indicated on Drawings and as specified herein.

1.02 RELATED REQUIREMENTS

- A. Finish hardware and templates, including weatherstripping: Section 087100, FINISH HARDWARE.
- B. Finish field painting: Section 099000, PAINTING.

1.03 REFERENCES

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS AND CONDITIONS OF THE CONTRACT and applicable parts of DIVISION 1 - GENERAL REQUIREMENTS, as listed in the Table of Contents, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.04 REFERENCED STANDARDS

- A. American National Standards Institute (ANSI):
 - A115.1 Series on Door and Frame Preparation (A115.1 thru A115.17)
 - A123.1 Nomenclature for Steel Doors and Steel Door Frames
 - A151.1 Performance Test for Standard Steel Doors, Frames, Anchors, Hinge Reinforcings and Exit Device Reinforcings
- B. American Society for Testing and Materials (ASTM):
 - A 366 Steel Sheet, Carbon, Cold-Rolled, Commercial Quality
 - A 525 General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process
 - A 526 Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Commercial Quality

- A 568 General Requirements for Steel, Carbon and High Strength Low-Alloy Hot-Rolled Sheet, Hot-Rolled Strip, and Cold-Rolled Sheet
- A 569 Steel Carbon (0.15 Maximum, Percent), Hot-Rolled Sheet and Strip, Commercial Quality
- C 236 Steady-State Thermal Performance of Building Assemblies by Means of a Guarded Hot Box
- E 152 Fire Tests of Door Assemblies
- C. Steel Door Institute (SDI):
 - 100 Standard Steel Doors and Frames
 - 105 Recommended Erection Instructions for Steel Frames
 - 118 Base Fire Door Requirements
- D. National Fire Protection Association (NFPA):
 - 80 Standard for Fire Doors and Windows

1.05 QUALITY ASSURANCE

- A. Reference Standards: Conform to governing laws and building code, and the following trade standards:
 - 1. ANSI A115.1 through A115.14, as applicable.
 - 2. SDI 100, SDI 105, and SDI 118.
 - 3. NFPA 80.

1.06 SUBMITTALS

- A. Shop Drawings: Submit complete shop drawings of work of this Section to Architect for approval, showing profiles and gauges of metal, construction details of each frame type, elevations of door design types, conditions of openings, details of construction, UL label requirements, provisions for finish hardware, glazing conditions, shop finish, and other pertinent information. Show anchorage and accessory items.
 - 1. Provide schedule of doors and frames using same reference numbers for details and openings as those on the Contract Drawings.
 - 2. Indicate location of glazing frames and stops with glass and glazing requirements.
- B. Product Data: Submit complete manufacturer's product data to Architect for approval, consisting of complete specifications, test report data, installation instructions, and

other pertinent technical data required for complete product and product use information.

- C. Do not order materials or begin fabrication of work of this Section until Architect's approval of submittals has been obtained.

1.07 FIRE RATING REQUIREMENTS

- A. Doors indicated to receive Underwriters' Laboratories (UL) label shall bear the UL label of Class and hour-rating scheduled. Each frame to receive a UL labeled door and frames for fire-rated fixed-glass partitions shall bear UL frame label.
- B. Fire-rated doors and frames shall conform to the requirements of NFPA 80 and shall have been tested, listed, or labeled in accordance with ASTM A 152 by a nationally recognized independent testing and inspection agency acceptable to authorities having jurisdiction.

1.08 PRODUCT STORAGE AND HANDLING

- A. Doors, frames, and related items shall be properly packaged and protected during shipment, handling, and storage to prevent damage.
- B. Materials shall be stored indoors or under cover, on raised platforms, fully protected from dirt and moisture.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Flush steel doors and frames shall be manufactured by Williamsburg Steel Products, Pioneer Door Co., or approved equal. Doors shall be products of single manufacturer.

2.02 FLUSH STEEL DOORS

- A. Material:
 - 1. Sheet metal for fabrication of all exterior doors and doors indicated to be installed in loading dock, kitchen and dish washing areas shall be hot-dipped galvanized, coating weight 0.06 oz. per sq. ft. per side, conforming to ASTM A 525 and A 526 and hot-phosphate, mill-treated to ensure positive paint adhesion, cold-rolled carbon sheet steel.
 - 2. Sheet metal shall be prime quality, free of rust, scale, pitting, and surface defects.
- B. Flush doors shall be 1-3/4 in. thick, sizes as indicated, custom fabricated to two outer 18 ga. steel sheets with edges welded and finished flush. Vertical edges shall be formed of face sheets. Top and bottom edges shall be reinforced with internal 14 ga. steel channels, closed flush at heads for exterior doors only. Seams or joints will not be permitted on door faces or edges. Edge joints will be allowed on interior doors.

- C. Door shall have internal reinforcing consisting of continuous 18 ga. vertical steel channels or "zees", 6 in. on center, or continuous 26 ga. corrugated steel, spot-welded to face sheets or manufacturer's standard honeycomb cores.
- D. Hollow portions of doors shall be filled with mineral rock wool or other thermal and sound-deadening insulation, UL approved "U" factor of exterior doors shall be 0.24 or better, tested in accordance with ASTM C 236.
- E. Lock edges of stiles shall be beveled 1/8 in. in 2 in. Bottom shall be formed as required to properly fit thresholds, magnetic type weatherstripping, finish floor materials, etc.
- F. Workmanship: The finished doors shall be strong and rigid, with neatly formed members, free from dents, buckling, warping, weld-spots, and other defects, and with all welded joints dressed smooth and flush.

2.03 STEEL FRAMES

- A. Materials:
 - 1. Sheet metal for fabrication of all exterior frames and frames indicated to be installed in loading dock, kitchen, and dish washing areas shall be hot-dip galvanized, coating weight 0.06 oz. per sq. ft. per side, conforming to ASTM A 525 and A 526 and hot-phosphate, mill-treated (to assure positive paint adhesion) cold-rolled carbon sheet steel.
 - 2. Sheet metal shall be of prime quality, free of rust, scale, pitting, and surface defects.
- B. Steel frames shall be sizes and profile indicated on the Drawings. Steel for frame shall be 14 ga.
- C. Frames for steel doors shall be shop assembled, except where size requires field assembly. Joints shall be closed tight, continuously welded and then ground smooth on exposed surfaces.
- D. Provide all internal formed steel head reinforcement to ensure absolute rigidity of frame assemblies.
- E. Provide proper-sized, removable, rectangular-profile 18 ga. steel glazing beads at glazed openings and secured in place with oval head, Phillips head screws at corners and not farther than 9 in. on center between. Dimple holes for flush fitting of screw heads.
- F. Door frames to be equipped at factory with removable spreader for shipping.
- G. Frames to be installed in steel stud partitions shall be treated on concealed surfaces with sound-deadening, reinforcing mastic as recommended by manufacturer and conforming to UL requirements.

- H. Wall anchors: Provide concealed metal wall anchors appropriate for adjoining wall (drywall or masonry as required) construction. Wall anchors shall be non removable, welded-on, and of same material and gauge as frame. Frames 7 ft. 6 in. in height and less shall be provided with three anchors per jamb. One additional anchor shall be added per jamb for each additional 30 in. in height, or part thereof. At UL labeled frames, wall anchors shall conform to requirements of Underwriters' Laboratories, Inc.
- I. Floor Anchors:
 - 1. Provide concealed 12 ga. clip-angle floor anchor at each frame jamb and equivalent concealed floor anchor at each mullion. Floor anchors at jambs in areas to receive subsequent floor fill or setting beds shall be adjustable type; others shall be solidly welded to the jambs.
 - 2. At UL labeled frames, floor anchors shall conform to requirements of Underwriters' Laboratories, Inc.
- J. Workmanship: The finished frames shall be strong and rigid, with neatly formed members, free from dents, buckling, warping, and other defects and with all welded joints on exposed surfaces dressed smooth and flush.

2.04 PROVISIONS FOR HARDWARE

- A. Door and frames shall be mortised, reinforced, punched, drilled, and tapped at factory to receive all finish hardware in accordance with templates provided by Finish Hardware Supplier under Section 08710, FINISH HARDWARE. All such preparation shall conform to requirements set forth in the above-listed reference standards.
- B. Each door frame shall be punched to receive rubber silencers; three on latch side of each single door frame and two at head of each door pair frame.
- C. Provide for acoustical gasketing as indicated on drawings.

2.05 SHOP FINISH

- A. After fabrication, all metal shall be dressed smooth, degreased and thoroughly cleaned of rust, scale, oil, and other impurities. All exposed surfaces of ungalvanized steel shall be hot-phosphate coated to condition the surface of the metal to resist and inhibit corrosion and provide positive paint adhesion. Galvanized sheet metal surfaces shall have been given hot-phosphate treatment at the mill, as previously specified and shall be additionally treated as required to assure positive paint adhesion. All exposed surfaces shall be given a dip or spray coat of baked-on, rust-inhibitive metallic oxide, zinc chromate, or synthetic resin primer applied to all exposed surfaces, including backs of frames, ready to receive finish painting under Section 09900, PAINTING.

PART 3 EXECUTION

3.01 DELIVERY AND STORAGE

- A. Deliver steel doors, frames, and related items to project site and store in interior areas fully protected from moisture and damage.

3.02 FABRICATION

- A. Buckling and warping of face sheets shall not exceed 1/16 in. in any direction.
- B. Formed members shall be straight and true with mitered joints, and properly aligned.
- C. Welded joints shall be dressed smooth to hide joint.

3.03 INSTALLATION

- A. Set frames in proper position properly plumbed, and aligned.
 - 1. Hang doors plumb and true, and apply door hardware so that opening and closing movement of doors is smooth and free.
- B. Frame and door installations shall conform to SDI 105. Fire rated door and frame assemblies shall conform to NFPA 80 and SDI 118.
- C. Place frames before construction of enclosing walls and ceilings.
- D. Provide a minimum of three wall anchors per jamb at hinge and strike levels.

3.04 PAINTING AND FINISHING

- A. Finish painting shall be provided under Section 09900, PAINTING. Prime doors and frames as specified in Part 2 of this Section.
- B. Provide field touch-up as necessary.

3.05 INSPECTION AND ADJUSTMENT

- A. Before completion of work of this Section, inspect work in company of Architect and make adjustments and corrections to work as necessary to leave operating parts in perfect operating condition, jointing to adjacent material tight, surfaces without blemishes or stains, work properly executed and complete, and defects and damaged work replaced or corrected.

END OF SECTION

SECTION 087100

FINISH HARDWARE

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Furnish and install finish hardware for interior and exterior doors except as specified otherwise, including related items and services, as indicated on Drawings and as specified herein. Furnish hardware schedules and templates as required for fabrication of doors and frames under other Sections.

1.02 RELATED REQUIREMENTS

- A. Rough and finish hardware, under other appropriate Sections. Specific items of finish hardware and accessories specified to be provided under other Sections including, but not limited to, the following:
 - 1. Hardware for architectural woodwork.
 - 2. Hardware for miscellaneous building specialties.
 - 3. Hardware for various equipment items.
 - 4. Hardware for mechanical and electrical equipment.
- C. Steel doors and frames: Section 081000, STEEL DOORS AND FRAMES.
- E. Magnetic holder, card readers, door openers and sensors: Section 260000, ELECTRICAL.
- F. Finish painting for shop primed items: Section 099000, PAINTING.
- G. Interlock door systems for elevator pits: Section 142123, ELECTRIC TRACTION ELEVATORS.

1.03 REFERENCES

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS AND CONDITIONS OF THE CONTRACT and applicable parts of DIVISION 1 - GENERAL REQUIREMENTS, as listed in the Table of Contents, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.04 QUALITY ASSURANCE

- A. Hardware supplier shall have in his employ a member of the American Society of Hardware Consultants, who shall be responsible for the complete requirements of this Project.
- B. Hardware installation shall conform to Door and Hardware Institute (DHI) published recommendations.

1.05 SUBMITTALS

- A. Hardware Schedule: Submit six copies of a complete hardware schedule, as proposed, within ten days after award of contract for approval by the Architect. Hardware schedule shall be in vertical format and shall list each door opening throughout the Project, its size and materials, fire labeling (if any) and other relevant information. Submit therewith complete catalog cuts and descriptive data of items that differ from products specifically scheduled herein. Formal details of the hardware shall be subject to Architect's approval.
- B. Product Data: Submit complete manufacturer's product data to Architect for approval, consisting of complete catalog cuts including as descriptive data, UL listings, and other pertinent technical data required for complete product and product use information.
- C. Samples: Submit to the Architect for approval, a complete line of samples as directed by the Architect. Samples shall be plainly marked giving hardware number used in this Specification, the manufacturer's numbers, types and sizes. The Architect will deliver approved samples to the Project site to be stored. Samples will remain with the Architect until delivery of all hardware to the Project is complete, after which time they will be turned over to the Contractor for incorporation into the work.

1.06 REVIEW AND TEMPLATES

- A. Hardware Supplier shall review hardware functions with the Architect at time of submission of the hardware schedules to ensure the appropriateness of each of the hardware functions.
- B. Keying arrangement: Prior to ordering keys for hardware to be furnished hereunder, submit a complete keying arrangement to the Architect, for transmittal to, and approval by, the Owner.
- C. Hardware Supplier shall furnish all templates required by all Subcontractors on the project at such times and in such quantities as requested.

1.07 PACKING AND MARKING

- A. Hardware shall be packaged for delivery to the site in packages legibly marked with labels indicating the manufacturers' numbers, types, sizes, and Hardware Schedule reference number.
- B. Each hardware item shall have the required screws, bolts, and fastenings necessary for proper installation and shall be wrapped in the same package as the hardware item for which it is intended, and shall match finish of hardware with which to be used.

1.08 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Delivery of hardware shall be made to the Project by the Hardware Supplier in accordance with the instructions of the Contractor.
- B. Provide adequate locked storage space with shelving for the hardware, and shall be responsible for all items of hardware after receipt from the Supplier, and shall replace all hardware lost or damaged after delivery and receipt.
- C. Furnish receipts for hardware and accessory items to Owner.

1.09 MATERIALS AND QUALITY

- A. Work of this Section shall conform to governing laws and building codes.
- B. Hardware shall be of the best grade of solid metal entirely free from imperfections in manufacture and finish.
- C. Qualities, weights, and sizes given herein are the minimum that will be accepted. It is the responsibility of the Hardware Supplier to supply the specified size and weight of hardware and the proper function of hardware in each case and to provide the proper UL approved hardware at UL labeled fire-rated doors.
- D. To the fullest extent possible, each of the following items shall be the product of one manufacturer for the entire project:
 - 1. Locksets and lockset trim.
 - 2. Butts.
 - 3. Door closers.

1.10 HANDICAPPED REQUIREMENTS

- A. Ensure that the various items of hardware are of a design and function to permit exterior doors to be opened with a maximum pressure of fifteen (15) pounds; and interior doors to be opened with a maximum pressure of ten (10) pounds.
- B. Equip doors, opening into hazardous areas from path of travel, with knurled knobs or handles, to provide tactile warning for the visually handicapped.
- C. Ensure that all hardware conforms to the handicapped requirements of the Architectural Barriers Board having jurisdiction and the ADA, for use in public buildings.

1.11 GUARANTEE

- A. In addition to the specific guarantee requirements of the GENERAL CONDITIONS and modifications to the GENERAL CONDITIONS, the Contractor shall obtain in the Owner's name the standard written manufacturer's guarantee of all materials furnished under this Section where such guarantees are offered in the manufacturer's published product data. All these guarantees shall be in addition to, and not in lieu of, other liabilities which the Contractor may have by law or other provisions of the Contract Documents.

PART 2 - PRODUCTS

2.01 FINISH HARDWARE - GENERAL

- A. Finish and Base Material Designations: Unless otherwise indicated, all hardware shall have US26D finish. Door closers shall be sprayed finish to match hardware.
- B. Hardware Mounting Heights: DHI "Recommended Locations for Builders Hardware", except as otherwise indicated.
- C. Acceptable Manufacturers: Numbers used in preparation of this Section have been taken from the following manufacturer's catalogues, or equal as approved by Architect.
 - 1. Butts and hinges: Stanley
 - 2. Locksets, latchsets and cylinders Best
 - 3. Exit devices Von Duprin
 - 4. Closers: LCN, Rickson (Floor Pivots)
 - 5. Push-pull bar assemblies: Burns
 - 6. Pulls: Burns
 - 7. Protection plates: Burns
 - 8. Floor stops: Ives
 - 9. Overhead stops: Ives
 - 10. Flush bolts: Ives
 - 11. Coordinators: Ives
 - 12. Roller latches: Glynn Johnson
 - 13. Gasketing: Zero
 - 14. Thresholds: Pemko
 - 15. Astragals: Pemko, Therm-L-Brush
 - 16. Silencers Ives
 - 17. Handicapped assist devices: Beasam
- D. Provide thru bolts with finish washers wherever possible to connect to door hardware (closers, pulls, hinges, exit devices).

2.02 HINGES AND PIVOTS

- A. Furnish 2 hinges or pivots per door, for heights up to and including 60 inches; and an additional hinge or pivot for each additional 30 inches, or fraction thereof, in height of the door.
- B. Furnish Stanley Lifespan 500 continuous hinges cut full length for all exterior doors and as indicated.
- C. Spring loaded double acting hinges shall be Bommer model 3029 full mortised in number and spacing suitable to meet size of door and application conditions.
- D. Furnish McKinney TA Series three knuckle hinges, except as otherwise noted, for all interior doors, and sized as follows:

<u>Door Thickness</u>	<u>Door Width</u>	<u>Hinge Weight</u>	<u>Hinge Height</u>
1-3/8 inches	All widths	Plain bearing	4-1/2 inches
1-2/4 inches	39 inches and less	Regular weight	4-1/2 inches
1-2/4 inches	More than 39 inches	Extra heavy	4-1/2 inches

- D. Determine hinge widths by the specific trim condition.

2.03 LOCKSETS AND LATCHSETS

- A. Refer to the Door Schedule and the drawings for intended lock functions. Submit lock functions to Owner for final approval.
- B. Furnish Best Model 40 H Series – 47H Heavy Duty cylindrical type locksets for all doors, except as otherwise noted, with No. 14H lever and rose trim.
- C. Furnish 2-3/4 inch backset locks and latches, with wrought box strikes.
- D. Furnish abrasive type textured strip behind levers at all mechanical rooms, elevator machine room, electrical rooms, and other hazardous areas for identification of hazard by handicapped.
- E. Furnish cylinder locks, only, for overhead doors, entrance doors and screens.

2.04 KEYING AND KEY CONTROL

- A. Grand Master Key all locks to the existing Best lock system, as directed by the Architect and/or the Owner.
- B. Furnish four (4) Grand Master Keys and four (4) Master Keys each set. Deliver all master keys as directed.
- C. Furnish three (3) change keys for each locking device.

- D. Construction Masterkey all cylinders. Furnish ten (10) Construction Master Keys.

2.05 CLOSERS

- A. Furnish closers for all doors where so indicated, with drop plates and accessories as required, for mounting locations on door face which will be least frequently exposed to view. Refer to the Door Schedule on the drawings for degrees of opening for each door requiring closers.
- B. Closers for exterior out swinging doors: LCN Series 4040 w/90 deg. stop..
- C. Closers for interior doors, except as otherwise indicated: LCN Series 4040 w/ Cush-N-Stop holder on non-fire-rated doors only.
- D. Floor closers for double acting doors: Rickson Series 5023 AHO 90 w/fully sealed casing.

2.06 SILENCERS

- A. Furnish Ives No. 20 silencers for all interior pressed steel door frames, at a rate of 3 silencers per single door, and 2 per pair of doors.

2.07 THRESHOLDS

- A. Furnish and install thresholds as indicated on documents suitable for purpose and conditions indicated.
- B. Finish of thresholds to be mill finish aluminum unless otherwise indicated.
- C. Thresholds shall meet requirements of ADA and local Accessibility codes.

2.08 SOUND GASKETING AT DOORS

- A. Where indicated on drawings or schedules, provide sound gasketing at all edges of doors.
- B. For door jambs and heads, provide Zero Model #770 adjustable sound sealing system.
- C. At door sills provide Zero Model #362 automatic door bottom in wood doors and Model #360 in metal doors.

2.09 FINISH HARDWARE SCHEDULE

- A. Refer to the Door Schedule on the Contract Drawings for general functions and locations of finish hardware to be furnished hereunder for doors and frames.
- B. Hardware Sets Schedule:

1. SET #1 – Elevator Pit Door

- a. Butts and Hinges: 1 1/2 Pair 4 1/2" Steel Butts
- b. Lockset (Utility Function)
- c. Interchangeable lock cylinders
- d. Silencers
- e. Saddle Threshold
- f. Coordinate with interlock system by Elevator Contractor.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Hardware shall be attached and placed by skilled mechanics and shall be fitted and adjusted accurately. Install hardware on doors and frames at locations conforming to ANSI and NAHM standards, and DHI "Recommended Locations for Builder's Hardware."
- B. Install metal thresholds, weatherstripping, sound seals, etc., furnished as part of finish hardware, in strict accordance with manufacturer's published recommendations and with approved Submittals. Set exterior thresholds in beds of sealant provided under Section 07900, SEALANTS.

3.02 COMPLETION AND CONTINUED MAINTENANCE

- A. Before completion of work of this Section, inspect work with Architect and adjust and correct work to leave operating parts in perfect operating condition, jointing to adjacent materials tight, surfaces without blemishes or stains, work properly executed and complete, and defects and damaged work replaced is corrected.
- B. Provide services of hardware manufacturer's representative to inspect hardware six months after Substantial Completion of Project. Readjust and restore hardware.

END OF SECTION

SECTION 092500

GYPSUM DRYWALL

PART 1 GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Furnish and install gypsum drywall work, as indicated on the Drawings and as specified herein. Include, but do not limit to:
 - 1. Repairs to gypsum drywall as disturbed by this contract.
 - 2. Blockings and attachments for fixture supports on exterior and interior walls.
 - 3. Other gypsum drywall work called for on the Drawings or reasonably required to complete the Project intent.
 - 4. The drywall contractor must provide all required cranes and lifts.

1.2 RELATED REQUIREMENTS

- A. Painting: Section 099000, PAINTING.
- B. Wood trim: Section 062000, FINISH CARPENTRY.

1.3 REFERENCES

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS AND CONDITIONS OF THE CONTRACT and applicable parts of DIVISION 1 - GENERAL REQUIREMENTS, as listed in the Table of Contents, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.4 REFERENCED STANDARDS

- A. American Society for Testing and Materials (ASTM):
 - C 36 Specification for Gypsum Wallboard
 - C 79 Test Method for Gypsum Sheathing Board
 - C 442 Specification for Gypsum Backing Board and Coreboard
 - C 475 Joint Treatment Materials for Gypsum Wallboard Construction
 - C 514 Specification for Nails for the Application of Gypsum Wallboard

- C 630 Specification for Water-Resistant Gypsum Backing Board
- C 645 Specification for Non-Load (Axial) Bearing Steel Studs, Runners (Track), and Rigid Furring Channels for Screw Application of Gypsum Board
- C 646 Specification for Steel Drill Screws for the Application of Gypsum Board to Light-Gauge Steel Studs
- C 754 Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Board
- C 840 Specifications for Application and Finishing of Gypsum Board
- C 893 Type G Steel Screws for the Application of Gypsum Board to Gypsum Board
- C 894 Type W Screws for the Application of Gypsum Board to Wood Framing
- C 919 Sealants in Acoustical Applications
- C 931 Specification for Exterior Gypsum Soffit Board
- C 954 Specification for Steel Drill Screws for the Application of Gypsum Board to Steel Studs from 0.033 in. (0.84-mm) to 0.112 in. (2.84-mm) in Thickness
- C 1002 Specification for Steel Drill Screws for the Application of Gypsum Board or Metal Plaster Bases
- C 1047 Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base

B. Level of finish of gypsum wallboard products:

- GA-214 Level of Finish Consensus Document - Gypsum Association

All products used in the Project shall be manufactured by the same manufacturer.

1.5 SUBMITTALS

- A. Shop Drawings: Furnish complete shop drawings and product cuts of all work of this Section to Architect for approval, showing all pertinent details of construction and installation, and sizes, gauges, configurations, and connections of all components. Confirm on shop drawings that deflection will not exceed $L/360$ of length.
- B. Samples: Furnish samples of materials to be furnished under this Section to Architect for approval.

1.6 QUALITY ASSURANCE

- A. Reference Standards: Conform to governing laws, building code and manufacturer's printed standards.

1.7 COORDINATION

- A. Work of this Section shall be coordinated with the work of other Sections to assure the steady progress of all the work of the Contract. Obtain complete information regarding wall and ceiling mounted fixtures, grilles, registers, access panels, equipment, accessories, etc. to be used on the work from other trades. In no case shall work of other Sections be concealed until it has been inspected.

1.8 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver all manufactured materials to site in original packages, containers, or bundles bearing the manufacturer's name and brand names, type of material, and contents.
- B. Store materials in interior spaces, above floors, under cover, away from sweating walls and other damp surfaces, and with good ventilation.
- C. Handle gypsum boards to prevent damage to edges, ends, or surfaces. Protect metal corner beads, casing beads, and trim from being bent or damaged.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Materials shall be manufactured by Gold Bond Building Products, United States Gypsum Co., Georgia-Pacific Co.

2.2 MATERIALS

- A. Ceiling Suspension System: Shall be a complete, mechanical suspension system, conforming to ASTM C 645, consisting of cold-rolled steel channel main runners, screwable steel furring channels, hangers, and anchors, and all required clips and other components, required for complete installation.
 - 1. Hanger anchors shall be of type suitable for each of project conditions, and of sufficient capacity (not less than 150 lb. live load each) for purpose intended.
 - 2. Hangers shall be 12 gauge, minimum, galvanized and annealed steel wire.
 - 3. Steel runner channels shall be 1-1/2 in. cold-rolled 16 gauge steel channels, weighing 475 lb. per 1,000 lin. ft., shop painted black.
 - 4. Screwable steel ceiling furring channels shall be 25 gauge hot-dip galvanized, screwable, pressed steel furring channels, 7/8 in. thick, hat section.
 - 5. Clips for attachment of steel furring channels to steel carrying channels shall be proprietary clips as recommended by manufacturer.
 - 6. Tie Wire: Not less than 16 gauge annealed and galvanized.

- B. Screwable Steel Stud Framing System: Unless otherwise indicated, shall be a complete proprietary framing system consisting of prefabricated, non-load bearing, screwable 20 gauge (heavy gauge) and 25 gauge (light gauge) hot-dip galvanized steel studs, and all required steel track, anchors, and related items, conforming to ASTM C 645, all hot-dip galvanized.
1. Steel studs at jambs of door and fixed glass frames, at open partition ends, where the partition is to receive wall-mounted shelves, heavy fixtures, etc., and where use of light gauge studs is limited by manufacturer's structural design tables shall be 20 gauge. At other locations studs shall be 25 gauge.
 2. Wood blockings for support of fixtures, accessories, etc., shall be Construction and/or Standard Grade Hem-fir.
- C. Screwable Steel Wall Furring Channels: 25 gauge hot-dip galvanized, screwable, pressed steel furring channels, 7/8 in. thick, hat section, Z furring channels, lin., 1-1/2 in. and 2 in. Z shaped channels.
- D. Gypsum Wallboard: Indicated thickness(es) by 48 in. width by lengths as required, tapered edge, paper finish, conforming to ASTM C36. Where used in fire-rated assemblies, Type X fire resistant type shall be used. Moisture resistant gypsum wall board shall be used at toilet rooms and kitchen areas and as indicated on the drawings. Acoustical board shall be used where indicated on the drawings.
- E. Joint Treatment Materials: Joint treatment materials shall conform to ASTM C 475.
1. Laminating Adhesive and Joint Finishing compound: As recommended by gypsum wallboard manufacturer, interior type for interior general use, exterior type for use at water-resistant gypsum backer board.
 2. Joint Tape: 2 in. to 2-1/2 in. wide paper tape, as recommended by gypsum wallboard manufacturer.
- F. Screws:
1. Screws for Attachment of Gypsum Wallboard to Steel Framing and Furring Members: Self-drilling, Type S, bugle head screws, conforming to ASTM C 646, with bugle-type Phillips-head, appropriate size and length in each case as recommended by manufacturer.
 2. Screws for Attachment of Gypsum Wallboard to Wood Blocking: Self-drilling Type W screws conforming to ASTM C 894, with bugle-type Phillips-head. Screw length and size in each case shall be as recommended by gypsum wallboard manufacturer.
 3. Screws for Attachment of Steel Framing and Furring Members to Other Steel Members: Self-drilling, Type S, pan head screws, conforming to ASTM C 646, appropriate size and length in each case as recommended by manufacturer.
- G. Accessories shall conform to ASTM C 840 and the following:

1. Corner Bead: 1 in. by 1 in. perforated flange, standard type, 26 gauge, galvanized steel, with paper facing bead for compound finishing equal to B1XW EL B1 (Super Wide) as manufactured by USG.
 2. Metal Trim: 24 gauge, galvanized steel, with paper facing bead for compound finishing.
 3. Control Joint: 26 gauge, galvanized steel, "Vee" type, with perforated flanges, for compound finishing.
- H. Acoustical Sealant:
1. Sealant for concealed applications shall be "BA-98 Acoustical Sealant", manufactured by Pecora Chemical Corp., equivalent product manufactured by U.S. Gypsum Co., National Gypsum Co., or approved equal.
 2. Sealant for exposed applications shall be paintable "AC-20 Acrylic Latex Caulk", manufactured by Pecora Chemical Corp., equivalent product manufactured by DAP or Gibson Homans Co., or approved equal.

PART 3 EXECUTION

3.1 INSPECTION AND COORDINATION

- A. Inspect job conditions and related work and report to Architect in writing, all conditions interfering with the proper installation of work of this Section. Commencement of work in any given area shall constitute acceptance of conditions in that area as acceptable to receive work of this Section.
- B. Make all changes and adjustments in work of this Section as needed to accommodate the work of other trades, providing all cutting and patching until it has been inspected.

3.2 GENERAL REQUIREMENTS

- A. Work shall conform to published specifications and installation instructions of each manufacturer, the approved shop drawings, above-referenced quality assurance standards, the governing laws and code. Refer to Drawings to determine location of fire-resistive, fire-protective, and acoustically-rated work, and construct this work to conform to the specifications and installation instructions of UL or other testing agency(ies). Also refer to the Drawings to determine the number of layers of gypsum board, thickness of board, etc., for each of the installations.
- B. Erect gypsum drywall work, rigidly support, and securely fasten in place, in such manner that plumb, level, and true finished lines and surfaces will result in the finished work in accordance with the requirements of ASTM C 754 and ASTM C 840.
- C. Do gypsum drywall work only after all windows and door openings are enclosed and a temperature of not less than 55°F. is maintained during and up to completion of the drywall work.

- D. Gypsum drywall work only after permanent heat is installed.

3.3 STEEL FRAMING AND FURRING

- A. Suspended Ceilings: Install complete suspended steel ceiling framing system in accordance with ASTM C 754, and the following:
1. Install hangers at ends of, and 48 in. on center along lengths of main runners, securing to ceiling structure above with the appropriate anchors. Provide all additional secondary framing as required to provide support by primary framing members or deck above. Do not anchor hangers to pipes, ducts, or other overhead non-structural elements.
 2. Install steel runner channels 48 in. on center maximum and within 6 ft. of walls.
 3. Install screwable steel furring channels perpendicular to main runners and spaced 24 in. on center along length of, and within 6 in. of walls without wall angles, and within 8 in. of ends of panels and clipped to, the main runners.
 4. Entire installation shall be level and true, with maximum variation from level 1/8 in. when measured with a 10 ft. straight-edge, and with accumulation of variation of level not to exceed 1/2 in. per room or area.
- B. Screwable Steel Stud Partition construction shall conform to ASTM C754, and the following:
1. Installation of Partition Track: Align standard steel track at floors and ceiling construction according to partition layouts and secure with suitable fasteners to the floor and ceiling construction at a spacing not to exceed 24 in. o.c. Carry all walls and partitions full height as noted on the Drawings above ceiling to underside of floor and roof decks. Fill all voids above track, such as steel deck flutes, solidly with packing wool or fiberglass insulation at non-fire rated partitions, and with mineral wool fire-safing insulation at fire rated partitions for smoke and fire-stopping purposed in flutes of steel deck directly above top track where partitions run perpendicular to flutes, to achieve effective closure and to assure the rated performance at fire-rated assemblies. Where partitions run parallel to trusses provide 2 X 6 bridging 2'0" o.c. Where acoustical partitions (those to receive acoustical insulation) and fire-rated partitions run parallel to trusses, install all the track in continuous bed of acoustical or thermal sealant formed by applying a 1/4 in. minimum bead of sealant to the rear of the track and pressing into place. At fire-rated partitions also install tightly backed fire-safing insulation in the voids for smoke and fire-stopping purposes to achieve effective closure and to assure the rated performance of the fire-rated assemblies.
 2. Installation of Steel Studs: Steel studs shall be one piece, without splices installed at spacing not to exceed 16 in. o.c. (or other spacing indicated) and located at abutting construction and at the internal apex of corners. Provide additional studs at corner conditions, frame jambs, etc., as called for on the Drawings and specified herein.
 3. Position steel studs vertically engaging both floor and runners. Anchor studs located adjacent to door and floor glass frames, partition intersections, corners, and over

partition ends, to the floor and ceiling runner flanges with positive screw engagement with 3/8 in. Type S partition screws or by locking the studs with metal lock fasteners and to the ceiling runner flanges by screw engagement. Allow for relief of 1/2 in. roof or ceiling deflection at tops of all partitions by screwing through slotted holes.

4. Install double stud at door and fixed glass frame jambs and securely attach to the frame anchors by at least two screws per anchor. Over steel door and fixed glass frames, install steel track header and install studs above, with back-to-back pair, centered over the door to secure control joints. Run continuous length of cold-rolled steel channel through the stud cores, overlapping at least one stud beyond jamb studs at each end. Frame out for recessed cabinets, accessories, grilles, etc., as recommended by the manufacturer for each of the project conditions.
- C. Steel Stud Chase Walls: Construct partitions on both sides of non-fire rated chase walls in same manner as other partitions, with studs in direct alignment across the chase. Brace with three gypsum wallboard gussets, per pair of studs, across the chase, located at quarter points, and screwed to the studs. Comply with manufacturer's published details.
- D. Steel Furring: Install screwable steel furring channels over faces of concrete or masonry walls to receive gypsum wallboard finishes, continuously along tops and bottoms of walls and in continuous vertical rows space 16 in. o.c. along full length of each furring member, through alternate flanges.
- E. Metal Access Panels: Install all metal access panels at partitions, furrings, and suspended ceilings. Access panels will be furnished to this trade loose under other Section(s).
- F. Fixture Attachments: Before any wallboard is installed, a complete survey of all fixtures, accessories, cabinet work, shelves, rail brackets, door stops, or other items to be attached to the finished work of this Section shall be made and wood blocking or other attachments shall be installed within the steel framing and furring work to receive the loads. Blockings or other attachments for the various loads shall be as recommended by the manufacturer and shall be described on the shop drawings. All such fixture attachments shall be observed by the Contractor before commencing installation of wallboard. All such blockings and attachments shall be provided as work of this Section.
- G. Miscellaneous Framing and Furring: Construct all special miscellaneous screwable steel stud framing and furring, such as at ceiling edgings, soffits, column and beam enclosures, skylight wells, etc., as detailed and as required to achieve the shapes and profiles indicated and other miscellaneous framing indicated and/or reasonably required for the thorough completion of the Project.
1. Thoroughly fasten together, anchor, and brace to provide absolutely rigid structural conditions fully capable of supporting the loads to be applied with factor of safety not less than 2-1/2 to 1. Carry out the work generally as detailed, strictly following instructions of the manufacturer for steel and stud structural framing use. Screw all connections with self-tapping metal screws or other appropriate fasteners and provide all additional reinforcement required to assure the required performance.

3.4 GYPSUM WALLBOARD APPLICATION

- A. Unless otherwise indicated, application of gypsum wallboard shall conform to ASTM C840.
- B. Apply thickness and layers of gypsum wallboard at ceilings, walls, partitions, column and beam enclosures as indicated. Stagger joints in each layer. Locate joints in first layer on opposite sides of partitions to occur on different studs. Apply wallboard at ceilings with long dimension perpendicular to furring channels, with each end occurring over a framing member. Install wallboard at walls and partitions with long dimension vertical, and with each end and edge lying over a framing member.
 - 1. At double layer installations apply second layer by combination of laminating adhesive and mechanical fastenings (through first layer into the steel framing and/or furring member behind), in strict accordance with manufacturer's printed recommendations for each project condition.
- C. Carry gypsum wallboard, each side, continuously from floor to underside of deck construction above, including above suspended ceilings, for acoustical and fire-resistive performances.
- D. To minimize end joints, use maximum practical lengths. Bring gypsum wallboard panels into contact, but do not force into place. Fit abutting ends and edges neatly. Provide slots for sealant at top, bottom, ends, and corners of wallboard at all walls and partitions indicated to receive acoustical insulation, as indicated. Also provide slots for sealant where wallboard abuts other finish materials, as specified hereinbelow.
- E. Spacing and installation of drywall screws for the various applications and fire-rating requirements shall conform to the printed standards of the manufacturer.
- F. Set heads of fasteners flush with surface of the paper, but not breaking the paper. Where attached loosely to a framing or furring member, a second fastener shall be installed within 1-1/2 in.
- G. Cut gypsum wallboard neatly at corners, edges, etc., and for pipes, electrical outlets, electrical conduit and raceway, recessed cabinets, and other projections.

3.5 ACOUSTICAL INSULATION

- A. Walls and partitions indicated on the Drawings with a STC Rating or indicated to receive acoustical insulation shall have a single, continuous layer of insulation installed as indicated and specified, filling the entire open space between the framing members. Carry insulation behind backs of all electric boxes and similar appurtenances. Provide mechanical attachment to prevent future settlement.

3.6 INSTALLATION OF WALLBOARD ACCESSORIES

- A. Install accessories at gypsum wallboard installations, as follows, in strict accordance with manufacturer's instructions.
 - 1. Install joint reinforcement tape at all joints, and at all internal corners where abutting surfaces are both gypsum wallboard construction.

2. Install corner beads at all external wallboard corners.
3. Install casing bead wherever finish wallboard abuts dissimilar materials and other places where specifically called for on the Drawings.
4. Install control joints generally over (and under) centers of all major wall openings (those greater than 40% of wall height, measured floor to ceiling), over all door frames, over control joints in back-up materials, and at maximum distance of 30 ft. in walls, 60 ft. or to limit areas to not more than 2400 sq. ft., at ceilings (except where lesser distance is indicated), and other places specifically called for on the Drawings. Interrupt furring and/or framing behind the control joints. In all cases, specific locations of control joints shall be as indicated or as directed by the Architect, and this information must be in hand before control joint installation is begun.
5. Install access panels supplied by others as required. Before installation, verify correct rating of panel to be installed.

3.7 JOINT FINISHING

- A. The level of finish shall be equal to “Level 4” as indicated by the Gypsum Association document GA-214 unless otherwise indicated on the documents. Level 0 may be suitable for temporary construction. Level 1 is often called “fire-taping” and may be suitable for locations above ceilings that are not exposed to view or required for finishing. Level 2 finish can be used for areas where finish appearance is not a concern or where used as a substrate for another solid finish material such as tile. Level 3 finish is suitable for areas that will be covered with a heavy textured spray or heavy wall covering finish is specified. Level 5 is used for areas requiring a high degree of smoothness and durability in the final finish that may have a gloss or semi-gloss finish applied. This finish is often called “veneer plaster.
- B. Finish all corners, joints, and edges of gypsum wallboard and gypsum soffit board work, and all corner beads, casing beads, control joints and other trim to provide complete finishing of all exposed wallboard surfaces, in strict accordance with manufacturer's printed instructions and ASTM C 840. Finish to absolutely flush, true surface showing no irregularity when tested by light source parallel to the plane of the nominal wallboard face.
- C. Finish all concealed joints in wallboard above ceiling finishes flush with tape and a minimum of two coats of compound to provide a continuous, uninterrupted plane for acoustical and fire-resistive performance. Concealed joints may be left in rough condition without finish sanding.

3.8 ACOUSTICAL SEALING

- A. Walls and partitions designated on the Drawings with an STC Rating and/or indicated to receive acoustical or thermal insulation, including interior faces of exterior steel framed curtain walls, do all sealing work required, as indicated on the Drawings and generally as listed below.
 1. Seal all joints between the gypsum wallboard and surrounding construction.

2. Seal full perimeters of all frames, sleeves, ducts, and other items set into, or passing through, gypsum wallboard construction.
 3. Seal full perimeters of all projections through the gypsum wallboard construction, such as pipes, conduits, etc.
 4. Seal all control joints in the gypsum wallboard work.
 5. Seal all joints between gypsum wallboard and adjoining gypsum wallboard panels at corners and intersections.
 6. Seal all joints between gypsum wallboard and adjoining door and window frames in exterior walls.
 7. Do all other sealing called for on the Drawings or reasonably required to produce maximum thermal and sound transmission reduction through the walls and partitions.
- B. Seal joints in partitions continuing above suspended ceilings, in similar manner, for acoustical purposes.
- C. Sealing shall be done using sealant of type specified hereinbefore, in strict accordance with manufacturer's printed instructions and applicable requirements of ASTM C 919. Sealant shall thoroughly fill void for a complete sound and thermal seal, and shall be tooled to dense, smooth, concave finish.
1. Except as may be otherwise specifically called for on the Drawings, in two layer wallboard work seal only the outer layer.

3.9 PROTECTION AND CLEANING

- A. Protect the work of other trades and work of this Section already installed against soiling and damage by the exercise of reasonable care and precautions. Repair or replace any work so damaged or soiled.
- A. Protect the work of other trades and work of this Section already installed against soiling and damage by the exercise of reasonable care and precautions. Repair or replace any work so damaged or soiled.

END OF SECTION

SECTION 09660

RESILIENT FLOORING

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Provide preparation for all floor surfaces as required to receive new flooring.
- B. Furnish and install resilient tile flooring and related items, as indicated on the Drawings and as specified herein.

1.02 RELATED REQUIREMENTS

- A. Elevator cab sub-floor: Section 142123, TRACTION PASSENGER ELEVATOR: Section 142423, HYDRAULIC PASSENGER ELEVATORS.

1.03 REFERENCES

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS AND CONDITIONS OF THE CONTRACT and applicable parts of DIVISION 1 - GENERAL REQUIREMENTS, as listed in the Table of Contents, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.04 REFERENCED STANDARDS

- A. Federal Specifications (Fed. Spec.):
SS-T-312B Tile, Floor, Asphalt, Rubber Vinyl, and Vinyl Composition

1.05 SUBMITTALS

- A. Submit samples and manufacturer's product data to Architect for selection and approval. Do not order materials until Architect's approval has been obtained.
- B. Samples: Submit samples as follows. Delivered materials shall closely match the approved materials.
 - 1. Resilient Tile: Duplicate tiles of each type, size, pattern, and thickness specified, and in color(s) requested.
 - 2. Adhesives, Mastics, Crack Fillers, Primers, Cleaners, and Polishes: Duplicate samples, at least 1/2 pint, in metal cans. (Submit only if requested by Architect).
- C. Product Data: Submit complete manufacturer's product data to Architect for approval, consisting of complete product description and specifications, complete test data and technical characteristics, complete installation instructions, and other pertinent technical data required for complete product and product use information.

- D. Obtain Architect's approval of submittals before proceeding with fabrication or installation of the work.

1.06 COORDINATION

- A. Coordinate work of this Section with work of other Sections affecting, or affected by, this work, as necessary to ensure completion of work of the Contract on schedule.

1.07 GUARANTEE

- A. In addition to the specific guarantee requirements of the GENERAL CONDITIONS and MODIFICATIONS TO GENERAL CONDITIONS, the Contractor shall obtain in the Owner's name the standard written manufacturer's guarantee of all materials furnished under this Section where such guarantees are offered in the manufacturer's published product data. All these guarantees shall be in addition to, and not in lieu of, other liabilities which the Contractor may have by law or other provisions of the Contract Documents.

1.08 INSTALLATION REQUIREMENTS

- A. All flooring work shall be installed by experienced mechanics with 5 years experience in the installation of the flooring specified. When required by manufacturer installer shall be trained and licensed. Only manufacturer approved methods and materials shall be used for the work.

PART 2 PRODUCTS

2.01 GENERAL MATERIALS REQUIREMENTS

- A. Resilient materials shall be uniform in thickness and size.
- B. Resilient material shall be cut accurately with square-true edges.
- C. Plain colors shall be uniform throughout.
- D. Variegated colors and patterns shall be reasonably uniform so as not to mar appearance of floor.
- E. Except as otherwise indicated or specified, all colors shall be as selected by the Architect from the full range of manufacturer's standard colors.
- F. Resilient materials shall be free of objectionable odors, blisters, cracks, objectionable foreign material, or other physical defects affecting appearance or serviceability.

2.02 VINYL QUARTZ TILE FLOORING

- A. Vinyl Quartz Tile (VQT): 1/8 in. thick, 24 in. by 24 in. "Quartz Tile" by Altro. Tile shall meet or exceed Fed. Spec. SS-T-312B, Type IV or approved equal by Roppe or Nora.
 - 1. VQT-1 color intent to be (Sand"

2.02 ADHESIVES, MASTIC UNDERLAYMENTS, CRACK FILLERS, AND PRIMERS

- A. Adhesives shall be type and brand recommended by manufacturer for each of the various conditions and flooring materials. Adhesive shall be waterproof as recommended by the manufacturer for wet locations. Where manufacturer lists more than one recommended adhesive, manufacturer's "preferred choice" shall be used.
- B. Mastic Underlayments for use at concrete floors shall be latex type as recommended by flooring manufacturer, and equal to Armstrong "S-180 Latex Underlayment", Selby, Battersby & Co., "Levelite-Latex" or other product, approved by the Architect. Underlayment used to correct floor slabs with defective surfaces or surfaces not constructed to specified tolerances will be provided as part of the work of this Section.
- C. Crack Filler shall be as recommended by flooring manufacturer, and equal to Armstrong "S-175 Floor Patch", Kentime "Fast Ken-patch No. 13" or as approved by the Architect.
- D. Primers for use for all the various conditions and materials shall be as recommended by manufacturer of each specific material for each specific application.

2.03 CLEANER

- A. Cleaners and Polish: As approved by manufacturer.

PART 3 EXECUTION

3.01 PREPARATION OF SURFACES

- A. Initial Preparation Under Other Sections:
 - 1. Surfaces to receive resilient materials shall be level, plumb, true and clean, free of projections, ridges, and waves, and free of loose dirt and dust, grease, oil, and other deleterious materials such as resin type curing compounds, paint, glue, and similar materials, ready to receive work of this Section. Filling of cracks with crack filler, as required, however, will be included as part of the work of this Section.
 - 2. When variation in finished surface exceeds allowable amount specified therein, it shall be brought within the allowable tolerance with latex type underlayment applied in strict accordance with manufacturer's instructions.
- B. Inspection of Surfaces and Final Preparation Under This Section
 - 1. Thoroughly examine all surfaces to receive work of this Section, and notify the Architect in writing of all conditions which would adversely affect this work. Do not commence work in any area where such notice of adverse conditions has been sent until corrective work has been completed or waived. Start of work in any area without issuance of such notice shall constitute acceptance of conditions in the area as suitable to properly receive the work of this Section.
 - 2. Fill all cracks, control joints, etc., in sub-surfaces, using approved Crack Filler in accordance with manufacturer's published instructions. Do final cleaning of surfaces just prior to installation, removing all dust, dirt, and other loose particles that may have accumulated since initial cleaning.

3. Allow concrete work to dry adequately before commencing application of flooring materials. Check the moisture content, if necessary, by means of primer tests, relative humidity tests, or mat moisture and bonding tests. All such tests shall be at the option of the Contractor, although the Architect may require any such tests to be done by the Contractor at the Contractor's expense, if he wishes to verify or record the moisture conditions.

3.02 INSTALLATION

A. General

1. Do not begin installation until work of other sections including painting, has been substantially completed. Use only experienced workmen. Strictly adhere to printed instructions of the manufacturer's of the various materials; if found to be in conflict refer to Architect for decision. Where pattern is designed the layout of floor pattern prior to installation shall be approved by the Architect.
2. Room temperature in any area in which resilient materials are being installed shall be maintained at not less than 65 F. for a period of at least 48 hours prior to commencement of tile work to at least 48 hours after completion of this work and not less than 60 F. from that time on.
3. Lay resilient materials in manner to insure good, uniform contact with subsurface materials, and to produce finished surfaces which are smooth, even, and in true planes, free of buckles, waves, and other imperfections. Store and use adhesive in accordance with manufacturer's published instructions.
4. Where different colors of resilient tile flooring occur in adjoining rooms or areas, and no threshold is called for, install feature strip under door or across center of door-less opening, of color selected by Architect.
5. Fit flooring neatly into breaks and recesses, against bases and thresholds, and around pipes, columns, and other projections. Cut, fit, and scribe borders after application of field tile.
6. Install edge strips where resilient flooring materials terminate at points higher than contiguous finished flooring.
7. Clean off surplus adhesive from resilient materials and adjacent surfaces.

B. Vinyl Composition Tile

1. Lay tile square with room axis, with joints aligned in one direction and staggered in the other, and with borders not less than 1/2 the width of the field tile, all as directed or approved by the Architect. Direction of tile grain, when laid, shall lie in single direction or in pattern as indicated on drawings. Use only full tiles in the field.
2. Adjust tiles that have not been seated level with surrounding tiles in manner recommended by manufacturer.

3. Replace tile showing broken corners or fracture lines by warming tile, carefully removing, and replacing with new tile of same type, color, pattern, and thickness.

C. Sheet Vinyl

1. Provide sheet goods in pattern as shown on drawings and install according to manufacturer's printed instructions. Obtain approval for actual flooring layout with Architect before commencing work. Use templates to cut in medallions. Under cut patterns according to manufacturer's instructions.
2. Adjust sheets that have not been seated level with surrounding surfaces in manner recommended by manufacturer.
3. Replace pieces showing broken corners, miscuts or fracture lines by carefully removing, and replacing with new pieces of same type, color, pattern, and thickness. Location of joints shall be as approved by Architect and shall be undercut so as to minimize joint appearance. Miscut pieces of flooring will not be accepted and must be replaced.
4. Fully weld all joints and install at drains and penetrations as recommended by manufacturer. Provide fully welded base.

3.03 CLEANING, POLISHING, AND PROTECTING OF VINYL COMPOSITION TILE AND SHEET VINYL FLOORING

- A. Allow flooring to set for at least five days without traffic.
- B. At end of setting period, wash with diluted commercial floor cleaner, rinse thoroughly, and apply one coat of commercial buffable floor polish, all in strict accordance with manufacturer's printed instructions.
- C. After application of floor polish, cover vinyl composition flooring with Kraft paper or prohibit traffic completely.
- D. Immediately prior to inspection for Substantial Completion, but not less than 48 hours after the first application of polish, dry or damp mop floors. Buff polished floors to high luster with mechanical buffer. In areas where the original coat of polish has become worn or damaged, thoroughly clean and, if necessary, strip original polish and apply new coat of same type and brand of polish. Buff new applications of polish as specified.
- E. Provide Owner with full copies of maintenance instructions for flooring.

END OF SECTION

SECTION 096600

RESILIENT FLOORING

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Provide preparation for all floor surfaces as required to receive new flooring.
- B. Furnish and install resilient tile flooring and related items, as indicated on the Drawings and as specified herein.

1.02 RELATED REQUIREMENTS

- A. Elevator cab sub-floor: Section 142123, TRACTION PASSENGER ELEVATOR: Section 142423, HYDRAULIC PASSENGER ELEVATORS.

1.03 REFERENCES

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS AND CONDITIONS OF THE CONTRACT and applicable parts of DIVISION 1 - GENERAL REQUIREMENTS, as listed in the Table of Contents, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.04 REFERENCED STANDARDS

- A. Federal Specifications (Fed. Spec.):
SS-T-312B Tile, Floor, Asphalt, Rubber Vinyl, and Vinyl Composition

1.05 SUBMITTALS

- A. Submit samples and manufacturer's product data to Architect for selection and approval. Do not order materials until Architect's approval has been obtained.
- B. Samples: Submit samples as follows. Delivered materials shall closely match the approved materials.
 - 1. Resilient Tile: Duplicate tiles of each type, size, pattern, and thickness specified, and in color(s) requested.
 - 2. Adhesives, Mastics, Crack Fillers, Primers, Cleaners, and Polishes: Duplicate samples, at least 1/2 pint, in metal cans. (Submit only if requested by Architect).
- C. Product Data: Submit complete manufacturer's product data to Architect for approval, consisting of complete product description and specifications, complete test data and technical characteristics, complete installation instructions, and other pertinent technical data required for complete product and product use information.

- D. Obtain Architect's approval of submittals before proceeding with fabrication or installation of the work.

1.06 COORDINATION

- A. Coordinate work of this Section with work of other Sections affecting, or affected by, this work, as necessary to ensure completion of work of the Contract on schedule.

1.07 GUARANTEE

- A. In addition to the specific guarantee requirements of the GENERAL CONDITIONS and MODIFICATIONS TO GENERAL CONDITIONS, the Contractor shall obtain in the Owner's name the standard written manufacturer's guarantee of all materials furnished under this Section where such guarantees are offered in the manufacturer's published product data. All these guarantees shall be in addition to, and not in lieu of, other liabilities which the Contractor may have by law or other provisions of the Contract Documents.

1.08 INSTALLATION REQUIREMENTS

- A. All flooring work shall be installed by experienced mechanics with 5 years experience in the installation of the flooring specified. When required by manufacturer installer shall be trained and licensed. Only manufacturer approved methods and materials shall be used for the work.

PART 2 PRODUCTS

2.01 GENERAL MATERIALS REQUIREMENTS

- A. Resilient materials shall be uniform in thickness and size.
- B. Resilient material shall be cut accurately with square-true edges.
- C. Plain colors shall be uniform throughout.
- D. Variegated colors and patterns shall be reasonably uniform so as not to mar appearance of floor.
- E. Except as otherwise indicated or specified, all colors shall be as selected by the Architect from the full range of manufacturer's standard colors.
- F. Resilient materials shall be free of objectionable odors, blisters, cracks, objectionable foreign material, or other physical defects affecting appearance or serviceability.

2.02 VINYL QUARTZ TILE FLOORING

- A. Vinyl Quartz Tile (VQT): 1/8 in. thick, 24 in. by 24 in. "Quartz Tile" by Altro. Tile shall meet or exceed Fed. Spec. SS-T-312B, Type IV or approved equal by Roppe or Nora.
 - 1. VQT-1 color intent to be (Sand"
 - 2. A. Fire Resistance: Flammability exceed minimum for Class 1 rating per ASTM

E648.

3. B. Smoke Density: Less than 450 when tested in accordance with ASTM E662.
4. C. Chemical Resistance: Unaffected by surface water and most chemicals which do not have a
5. solvent action on vinyl. List chemicals that can cause staining.
6. D. Slip Resistance: Meet slip resistance requirements of OSHA. Tests performed in accordance
7. with ASTM D2047 for dry conditions.
8. E. Static Load Limit: Tested to 3000 psi (12410 Kpa) in accordance with ASTM F970.
9. A. Basis of Design: Altro Floors, Altro Quartz Tile (Eastern USA: 800 Industrial Way, Wilmington,
10. MA 01887, 800-377-5597)
11. 1. Substitutions allowed under Section 01 60 00 "Product Requirements"
12. B. Tile Standard: ASTM F 1700.
13. 1. Class: Class I, Monolithic Vinyl Tile .
14. 2. Type: A, Smooth Surface .
15. C. Thickness: 0.080 inch .
16. D. Size: 24 by 24 inches
17. E. Colors and Patterns: As chosen by Architect from manufacturer's full range .

2.02 ADHESIVES, MASTIC UNDERLAYMENTS, CRACK FILLERS, AND PRIMERS

- A. Adhesives shall be type and brand recommended by manufacturer for each of the various conditions and flooring materials. Adhesive shall be waterproof as recommended by the manufacturer for wet locations. Where manufacturer lists more than one recommended adhesive, manufacturer's "preferred choice" shall be used.
- B. Mastic Underlayments for use at concrete floors shall be latex type as recommended by flooring manufacturer, and equal to Armstrong "S-180 Latex Underlayment", Selby, Battersby & Co., "Levelite-Latex" or other product, approved by the Architect. Underlayment used to correct floor slabs with defective surfaces or surfaces not constructed to specified tolerances will be provided as part of the work of this Section.
- C. Crack Filler shall be as recommended by flooring manufacturer, and equal to Armstrong "S-175 Floor Patch", Kentime "Fast Ken-patch No. 13" or as approved by the Architect.
- D. Primers for use for all the various conditions and materials shall be as recommended by manufacturer of each specific material for each specific application.

2.03 CLEANER

- A. Cleaners and Polish: As approved by manufacturer.

PART 3 EXECUTION

3.01 PREPARATION OF SURFACES

- A. Initial Preparation Under Other Sections:

1. Surfaces to receive resilient materials shall be level, plumb, true and clean, free of projections, ridges, and waves, and free of loose dirt and dust, grease, oil, and other deleterious materials such as resin type curing compounds, paint, glue, and similar materials, ready to receive work of this Section. Filling of cracks with crack filler, as required, however, will be included as part of the work of this Section.
2. When variation in finished surface exceeds allowable amount specified therein, it shall be brought within the allowable tolerance with latex type underlayment applied in strict accordance with manufacturer's instructions.

B. Inspection of Surfaces and Final Preparation Under This Section

1. Thoroughly examine all surfaces to receive work of this Section, and notify the Architect in writing of all conditions which would adversely affect this work. Do not commence work in any area where such notice of adverse conditions has been sent until corrective work has been completed or waived. Start of work in any area without issuance of such notice shall constitute acceptance of conditions in the area as suitable to properly receive the work of this Section.
2. Fill all cracks, control joints, etc., in sub-surfaces, using approved Crack Filler in accordance with manufacturer's published instructions. Do final cleaning of surfaces just prior to installation, removing all dust, dirt, and other loose particles that may have accumulated since initial cleaning.
3. Allow concrete work to dry adequately before commencing application of flooring materials. Check the moisture content, if necessary, by means of primer tests, relative humidity tests, or mat moisture and bonding tests. All such tests shall be at the option of the Contractor, although the Architect may require any such tests to be done by the Contractor at the Contractor's expense, if he wishes to verify or record the moisture conditions.

3.02 INSTALLATION

A. General

1. Do not begin installation until work of other sections including painting, has been substantially completed. Use only experienced workmen. Strictly adhere to printed instructions of the manufacturer's of the various materials; if found to be in conflict refer to Architect for decision. Where pattern is designed the layout of floor pattern prior to installation shall be approved by the Architect.
2. Room temperature in any area in which resilient materials are being installed shall be maintained at not less than 65 F. for a period of at least 48 hours prior to commencement of tile work to at least 48 hours after completion of this work and not less than 60 F. from that time on.
3. Lay resilient materials in manner to insure good, uniform contact with subsurface materials, and to produce finished surfaces which are smooth, even, and in true planes, free of buckles, waves, and other imperfections. Store and use adhesive in accordance with manufacturer's published instructions.

4. Where different colors of resilient tile flooring occur in adjoining rooms or areas, and no threshold is called for, install feature strip under door or across center of door-less opening, of color selected by Architect.
5. Fit flooring neatly into breaks and recesses, against bases and thresholds, and around pipes, columns, and other projections. Cut, fit, and scribe borders after application of field tile.
6. Install edge strips where resilient flooring materials terminate at points higher than contiguous finished flooring.
7. Clean off surplus adhesive from resilient materials and adjacent surfaces.

B. Vinyl Composition Tile

1. Lay tile square with room axis, with joints aligned in one direction and staggered in the other, and with borders not less than 1/2 the width of the field tile, all as directed or approved by the Architect. Direction of tile grain, when laid, shall lie in single direction or in pattern as indicated on drawings. Use only full tiles in the field.
2. Adjust tiles that have not been seated level with surrounding tiles in manner recommended by manufacturer.
3. Replace tile showing broken corners or fracture lines by warming tile, carefully removing, and replacing with new tile of same type, color, pattern, and thickness.

C. Sheet Vinyl

1. Provide sheet goods in pattern as shown on drawings and install according to manufacturer's printed instructions. Obtain approval for actual flooring layout with Architect before commencing work. Use templates to cut in medallions. Under cut patterns according to manufacturer's instructions.
2. Adjust sheets that have not been seated level with surrounding surfaces in manner recommended by manufacturer.
3. Replace pieces showing broken corners, miscuts or fracture lines by carefully removing, and replacing with new pieces of same type, color, pattern, and thickness. Location of joints shall be as approved by Architect and shall be undercut so as to minimize joint appearance. Miscut pieces of flooring will not be accepted and must be replaced.
4. Fully weld all joints and install at drains and penetrations as recommended by manufacturer. Provide fully welded base.

3.03 CLEANING, POLISHING, AND PROTECTING OF VINYL COMPOSITION TILE AND SHEET VINYL FLOORING

- A. Allow flooring to set for at least five days without traffic.

- B. At end of setting period, wash with diluted commercial floor cleaner, rinse thoroughly, and apply one coat of commercial buffable floor polish, all in strict accordance with manufacturer's printed instructions.
- C. After application of floor polish, cover vinyl composition flooring with Kraft paper or prohibit traffic completely.
- D. Immediately prior to inspection for Substantial Completion, but not less than 48 hours after the first application of polish, dry or damp mop floors. Buff polished floors to high luster with mechanical buffer. In areas where the original coat of polish has become worn or damaged, thoroughly clean and, if necessary, strip original polish and apply new coat of same type and brand of polish. Buff new applications of polish as specified.
- E. Provide Owner with full copies of maintenance instructions for flooring.

END OF SECTION

SECTION 099000

PAINTING AND COATING

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 1 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
 - 1. Field painting of exposed interior items and surfaces where disturbed by the work of this contract.
 - 2. Where painting is indicated for new and existing items on contact documents.
 - 3. Surface preparation for painting.
- B. Alternates: Not Applicable.
- C. Items To Be Installed Only: Not Applicable.
- D. Items To Be Furnished Only: Not Applicable.
- E. Related Work: The following items are not included in this Section and will be performed under the designated Sections:
 - 1. Section 055000 - METAL FABRICATIONS for shop priming ferrous metal.
 - 2. Section 081113 - HOLLOW METAL DOORS AND FRAMES for factory priming steel doors and frames.
 - 3. Section 092116 - GYPSUM BOARD ASSEMBLIES for surface preparation of gypsum board.
 - 4. Section 142123 – ELECTRIC TRACTION ELEVATORS and Section 142423, HYDRAULIC PASSENGER ELEVATORS for painting and patching work specified in elevator installation work.

1.3 DEFINITIONS AND EXTENT

- A. General: Standard coating terms defined in ASTM D 16 apply to this Section.
 - 1. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85-degree meter.

2. Eggshell refers to low-sheen finish with a gloss range between 20 and 35 when measured at a 60-degree meter.
 3. Semigloss refers to medium-sheen finish with a gloss range between 35 and 70 when measured at a 60-degree meter.
 4. Full gloss refers to high-sheen finish with a gloss range more than 70 when measured at a 60-degree meter.
- B. This Section includes surface preparation and field painting of exposed exterior and interior items and surfaces.
1. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.
- C. Paint exposed surfaces, except where these Specifications indicate that the surface or material is not to be painted or is to remain natural. If an item or a surface is not specifically mentioned, paint the item or surface the same as similar adjacent materials or surfaces. If a color of finish is not indicated, Designer will select from standard colors and finishes available.
1. Painting includes field painting of exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron supports, and surfaces of mechanical and electrical equipment that do not have a factory-applied final finish.
- D. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.
1. Prefinished items include the following factory-finished components:
 - a. Architectural woodwork.
 - b. Acoustical wall panels.
 - c. Metal toilet enclosures.
 - d. Metal lockers.
 - e. Kitchen appliances.
 - f. Elevator entrance doors and frames.
 - g. Elevator equipment.
 - h. Finished mechanical and electrical equipment.
 - i. Light fixtures.
 2. Concealed surfaces include walls or ceilings in the following generally inaccessible spaces:
 - a. Foundation spaces.
 - b. Furred areas.
 - c. Ceiling plenums.
 - d. Utility tunnels.
 - e. Pipe spaces.
 - f. Duct shafts.
 - g. Elevator shafts.
 3. Finished metal surfaces include the following:
 - a. Anodized aluminum.

- b. Stainless steel.
 - c. Chromium plate.
 - d. Copper and copper alloys.
 - e. Bronze and brass.
4. Operating parts include moving parts of operating equipment and the following:
 - a. Valve and damper operators.
 - b. Linkages.
 - c. Sensing devices.
 - d. Motor and fan shafts.
 5. Labels: Do not paint over UL, FMG, or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.

1.4 SUBMITTALS

- A. Product Data: For each paint system indicated. Include block fillers and primers.
 1. Material List: An inclusive list of required coating materials. Indicate each material and cross-reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
 2. Manufacturer's Information: Manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material.
- B. Samples for Verification: For each color and material to be applied, with texture to simulate actual conditions, on representative Samples of the actual substrate.
 1. Provide stepped Samples, defining each separate coat, including block fillers and primers. Use representative colors when preparing Samples for review. Resubmit until required sheen, color, and texture are achieved.
 2. Provide a list of materials and applications for each coat of each Sample. Label each Sample for location and application.
 3. Submit two eight inch by 12 inch Samples for each type of finish coating for Designer's review of color and texture only.
- C. Qualification Data: For Applicator.

1.5 QUALITY ASSURANCE

- A. Applicator Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.
- B. Source Limitations: Obtain block fillers and primers for each coating system from the same manufacturer as the finish coats.

- C. Mockups: Provide a full-coat benchmark finish sample for each type of coating and substrate required. Comply with procedures specified in PDCA P5. Duplicate finish of approved sample Submittals.
1. Designer will select one room or surface to represent surfaces and conditions for application of each type of coating and substrate.
 - a. Wall Surfaces: Provide samples on at least 100 sq. ft.
 - b. Small Areas and Items: Designer will designate items or areas required.
 2. Apply benchmark samples, according to requirements for the completed Work, after permanent lighting and other environmental services have been activated. Provide required sheen, color, and texture on each surface.
 - a. After finishes are accepted, Designer will use the room or surface to evaluate coating systems of a similar nature.
 3. Final approval of colors will be from benchmark samples.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label and the following information:
1. Product name or title of material.
 2. Product description (generic classification or binder type).
 3. Manufacturer's stock number and date of manufacture.
 4. Contents by volume, for pigment and vehicle constituents.
 5. Thinning instructions.
 6. Application instructions.
 7. Color name and number.
 8. VOC content.
- B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F. Maintain storage containers in a clean condition, free of foreign materials and residue.
1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily.

1.7 PROJECT CONDITIONS

- A. Apply waterborne paints only when temperatures of surfaces to be painted and surrounding air are between 50 and 90 deg F.
- B. Apply solvent-thinned paints only when temperatures of surfaces to be painted and surrounding air are between 45 and 95 deg F.

- C. Do not apply paint in snow, rain, fog, or mist; or when relative humidity exceeds 85 percent; or at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.
 - 1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by manufacturer during application and drying periods.

1.8 EXTRA MATERIALS

- A. Furnish extra materials that match and are from same production runs as products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Paint: Furnish four unopened gallons of each type of paint and coating work, in color and gloss as used for the Project.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work are listed in the Finish Schedule at the end of this Section.

2.2 PAINT MATERIALS, GENERAL

- A. Material Compatibility: Provide block fillers, primers, and finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
- B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified that are factory formulated and recommended by manufacturer for application indicated. Paint-material containers not displaying manufacturer's product identification will not be acceptable.
 - 1. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish manufacturer's material data and certificates of performance for proposed substitutions.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for paint application.

1. Proceed with paint application only after unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
 2. Start of painting will be construed as Applicator's acceptance of surfaces and conditions within a particular area.
- B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
1. Notify Designer about anticipated problems when using the materials specified over substrates primed by others.

3.2 PREPARATION

- A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of size or weight of the item, provide surface-applied protection before surface preparation and painting.
1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.
- B. Cleaning: Before applying paint or other surface treatments, clean substrates of substances that could impair bond of the various coatings. Remove oil and grease before cleaning.
1. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
- C. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions and technical bulletins for each particular substrate condition and as specified.
1. Provide barrier coats over incompatible primers or remove and reprime.
 2. Cementitious Materials: Prepare concrete, concrete unit masonry, cement plaster, and mineral-fiber-reinforced cement panel surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.
 - a. Use abrasive blast-cleaning methods if recommended by paint manufacturer.
 - b. Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause the finish paint to blister and burn, correct this condition before application. Do not paint surfaces if moisture content exceeds that permitted in manufacturer's written instructions.
 - c. Clean concrete floors to be painted with a 5 percent solution of muriatic acid or other etching cleaner. Flush the floor with clean water to remove acid, neutralize with ammonia, rinse, allow to dry, and vacuum before painting.
 3. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.

- a. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer before applying primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.
 - b. Prime, stain, or seal wood to be painted immediately on delivery. Prime edges, ends, faces, undersides, and back sides of wood, including cabinets, counters, cases, and paneling.
 - c. If transparent finish is required, backprime with spar varnish.
 - d. Backprime paneling on interior partitions where masonry, plaster, or other wet wall construction occurs on back side.
 - e. Seal tops, bottoms, and cutouts of unprimed wood doors with a heavy coat of varnish or sealer immediately on delivery.
4. Ferrous Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with SSPC's recommendations.
- a. Blast steel surfaces clean as recommended by paint system manufacturer and according to SSPC-SP 6/NACE No. 3.
 - b. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.
5. Galvanized Surfaces: Clean galvanized surfaces with nonpetroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.
- D. Material Preparation: Mix and prepare paint materials according to manufacturer's written instructions.
1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
 2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
 3. Use only thinners approved by paint manufacturer and only within recommended limits.
- E. Tinting: Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

3.3 APPLICATION

- A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.
1. Paint colors, surface treatments, and finishes are indicated in the paint schedules.
 2. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
 3. Provide finish coats that are compatible with primers used.

4. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, grilles, convector covers, covers for finned-tube radiation, and similar components are in place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.
 5. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 6. Paint interior surfaces of ducts with a flat, nonspecular black paint where visible through registers or grilles.
 7. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
 8. Finish exterior doors on tops, bottoms, and side edges the same as exterior faces.
 9. Sand lightly between each succeeding enamel or varnish coat.
- B. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
1. The number of coats and film thickness required are the same regardless of application method. Do not apply succeeding coats until previous coat has cured as recommended by manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
 2. Omit primer over metal surfaces that have been shop primed and touchup painted.
 3. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure that edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
 4. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, and does not deform or feel sticky under moderate thumb pressure, and until application of another coat of paint does not cause undercoat to lift or lose adhesion.
- C. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
1. Brushes: Use brushes best suited for type of material applied. Use brush of appropriate size for surface or item being painted.
 2. Rollers: Use rollers of carpet, velvet-back, or high-pile sheep's wool as recommended by manufacturer for material and texture required.
 3. Spray Equipment: Use airless spray equipment with orifice size as recommended by manufacturer for material and texture required.
- D. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate to achieve dry film thickness indicated. Provide total dry film thickness of the entire system as recommended by manufacturer.
- E. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to items exposed in equipment rooms and occupied spaces.
- F. Mechanical items to be painted include, but are not limited to, the following:

1. Uninsulated metal piping.
 2. Uninsulated plastic piping.
 3. Pipe hangers and supports.
 4. Tanks that do not have factory-applied final finishes.
 5. Visible portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets.
 6. Duct, equipment, and pipe insulation having "all-service jacket" or other paintable jacket material.
 7. Mechanical equipment that is indicated to have a factory-primed finish for field painting.
- G. Electrical items to be painted include, but are not limited to, the following:
1. Switchgear.
 2. Panelboards.
 3. Electrical equipment that is indicated to have a factory-primed finish for field painting.
- H. Block Fillers: Apply block fillers to concrete masonry block at a rate to ensure complete coverage with pores filled.
- I. Prime Coats: Before applying finish coats, apply a prime coat, as recommended by manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn-through or other defects due to insufficient sealing.
- J. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.
- K. Transparent (Clear) Finishes: Use multiple coats to produce a glass-smooth surface film of even luster. Provide a finish free of laps, runs, cloudiness, color irregularity, brush marks, orange peel, nail holes, or other surface imperfections.
1. Provide satin finish for final coats.
- L. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.
- ### 3.4 FIELD QUALITY CONTROL
- A. The DCAMM Project Manager reserves the right to invoke the following test procedure at any time and as often as the DCAMM Project Manager deems necessary during the period when paint is being applied:
1. The DCAMM Project Manager will engage a qualified independent testing agency to sample paint material being used. Samples of material delivered to Project will be taken, identified, sealed, and certified in the presence of Contractor. Refer to Section 014325 - TESTING AGENCY SERVICES for additional requirements.

2. Testing agency will perform appropriate tests for the following characteristics as required by the DCAMM Project Manager.
3. The DCAMM Project Manager may direct Contractor to stop painting if test results show material being used does not comply with specified requirements. Contractor shall remove noncomplying paint from Project site, pay for testing, and repaint surfaces previously coated with the noncomplying paint. If necessary, Contractor may be required to remove noncomplying paint from previously painted surfaces if, on repainting with specified paint, the two coatings are incompatible.

3.5 CLEANING

- A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from Project site.
 1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping without scratching or damaging adjacent finished surfaces.

3.6 PROTECTION

- A. Protect work of other trades, whether being painted or not, against damage from painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Designer.
- B. Provide "Wet Paint" signs to protect newly painted finishes. After completing painting operations, remove temporary protective wrappings provided by others to protect their work.
 1. After work of other trades is complete, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

3.7 PAINT SCHEDULE

- A. Schedule: Provide products and number of coats specified. Use of manufacturer's proprietary product names to designate colors, materials, generic class, standard of quality and performance criteria and is not intended to imply that products named are required to be used to the exclusion of equivalent performing products of other manufacturers.
- B. Interior Paint Schedule:
 1. Interior Gypsum Wallboard and Plaster Walls for Latex Eggshell Finish:

One Coat	<ol style="list-style-type: none"> 1. Moore Eco Spec WB Interior Latex Primer (372) 2. Duron Genesis Latex Primer 3. S-W Harmony Latex Wall Primer 4. PPG Pure Performance Latex Primer 5. Glidden Professional Lifemaster No VOC Latex Primer (9116)
And Two Coats	<ol style="list-style-type: none"> 1. Moore Eco Spec WB Interior Latex Eggshell (374) 2. Duron Genesis Latex Eggshell 3. S-W ProMar 200 Zero VOC Latex Eggshell

4. PPG Pure Performance Latex Eggshell
 5. Glidden Professional Lifemaster No VOC Latex Eggshell (9300)
2. Interior Gypsum Wallboard and Plaster Ceilings for Latex Flat Finish:
- One Coat
1. Moore Eco Spec WB Interior Latex Primer (372)
 2. Duron Genesis Latex Primer
 3. S-W Harmony Latex Wall Primer
 4. PPG Pure Performance Latex Primer
 5. Glidden Professional Lifemaster No VOC Latex Primer (9116)
- And Two Coats
1. Moore Eco Spec WB Interior Latex Flat (373)
 2. Duron Genesis Latex Flat
 3. S-W ProMar 200 Zero VOC Latex Flat
 4. PPG Pure Performance Latex Flat
 5. Glidden Professional Lifemaster No VOC Latex Flat (9100)
3. Interior Gypsum Wallboard and Plaster for Latex Semi-Gloss Finish:
- One Coat
1. Moore Eco Spec WB Interior Latex Primer (372)
 2. Duron Genesis Latex Primer
 3. S-W Harmony Latex Wall Primer
 4. PPG Pure Performance Latex Primer
 5. Glidden Professional Lifemaster No VOC Latex Primer (9116)
- And Two Coats
1. Moore Eco Spec WB Interior Latex Semi-Gloss (376)
 2. Duron Genesis Latex Semi-Gloss
 3. S-W ProMar 200 Zero VOC Latex Semi-Gloss
 4. PPG Pure Performance Latex Semi-Gloss
 5. Glidden Professional Lifemaster No VOC Latex Semi-Gloss (9200)
4. Interior Concrete Masonry Units for Latex Semi-Gloss Finish in Dry Areas:
- One Coat
1. Moore Super Spec Latex Block Filler (160)
 2. Glidden Professional Latex Block Filler (3010)
 3. PPG Speedhide Int/Ext Latex Block Filler (28g/l VOC formulation.)
 4. S-W Loxon Block Surfacer
- And Two Coats
1. Moore Super Spec Latex Block Filler (160)
 2. Glidden Professional Lifemaster No VOC Latex Semi-Gloss (9200)
 3. PPG Pure Performance Latex Semi-Gloss
 2. S-W ProMar 200 Zero VOC Latex Semi-Gloss
5. Concrete Ceiling Coating –New or Previously Painted or Acoustical Plaster (Surface Preparation- Cured Clean and Dry)
- One Coat
1. Tnemec 151 Elasto-grip at 2.0 mils DFT
 2. International Intercryl 320 at 3.0 to 4.0 mils DFT

3. S-W Loxon Conditioner at 1.5 to 2.5 mils DFT
- And Two Coats
1. Tnemec Series 1029 at 3.0 mils DFT
 2. International Intercryl 320 at 3.0 to 4.0 mils DFT
 3. S-W Ultra Crete Acrylic A44 at 50 to 80 sq ft /per gal
6. Interior Metals (Doors, Frames and Similar Items), Epoxy (Not specified to receive other coating systems/not shop finished):
 - One Coat
 1. Approved primer, in shop under other Sections (where specified). If not shop primed, provide primer recommended by finish coating manufacturer
 - And One Coat
 1. Tnemec N69 Epoxoline at 2.0 mils DFT
 2. PPG PMC Amerlock 400 at 2.0 to 4.0 mils DFT
 3. Dupont 25P at 3.0 to 4.0 mils DFT
 4. International Interseal 670 HS at 3.0 mils DFT
 5. S-W Macropoxy 646 at 5.0 to 10.0 mils DFT
 - And One Coat
 1. Tnemec 1029 Tuferyl at 2.0 to 3.0 mils DFT
 2. PPG PMC Amerlock 400 at 2.0 to 4.0 mils DFT
 3. Dupont High Solids Acrylic Coating 3.0 mils DFT
 4. International Intercryl 530 at 3.0 to 4.0 mils DFT
 5. S-W DTM Acrylic at 2.5 to 4.0 mils DFT
 7. Interior Exposed Steel, Joists, Ductwork, Conduit and Similar Items (where indicated):
 - One Coat
 1. Tnemec 115 WB Unibond or 15 Unibond at 2.5 to 3.0 mils DFT
 2. PPG PMC Amercoat 220 Acrylic at 3.0 mils DFT
 3. RD Muracryl at 2.5 to 3.0 mils DFT
 4. International Intercryl 530 at 2.5 to 3.0 mils DFT
 5. S-W Waterborne Dry Fall at 3.0 to 4.5 mils DFT
 8. Mechanical and Electrical Work (Paint all exposed items throughout the project except factory finished items with factory-applied baked enamel finishes which occur in mechanical rooms or areas, and excepting chrome or nickel plating, stainless steel, and aluminum other than mill finished. Paint all exposed ductwork and inner portion of all ductwork: Same as specified for other interior metals, hereinabove.

END OF SECTION

SECTION 10522

FIRE EXTINGUISHERS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Furnish and install fire extinguishers as indicated on the Drawings and as specified herein.

1.02 RELATED REQUIREMENTS

- A. Gypsum drywall construction: Section 09250, GYPSUM DRYWALL.
- B. Painting, Section 09900, PAINTING.
- C. Elevator machine room: Section 142123, ELECTRIC TRACTION ELEVATORS; Section 142423, HYDRAULIC PASSENGER ELEVATORS.

1.03 REFERENCES

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS, AND CONDITIONS OF THE CONTRACT and applicable parts of DIVISION 1 - GENERAL REQUIREMENTS, as listed in the Table of Contents, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.04 REFERENCED STANDARDS

- A. National Fire Protection Association (NFPA): NFPA 10 Portable Fire Extinguishers

1.05 QUALITY ASSURANCE

- A. Equipment furnished under this Section shall comply with all pertinent codes and regulations, shall be approved by Underwriters' Laboratories, Inc., shall bear the UL label, and shall be approved by the local fire chief.
- B. Fire extinguishers shall conform to NFPA 10.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Fire extinguishers shall be manufactured by American-LaFrance, Co., J.L. Industries, Fyrfyter Co., or approved equal.

2.02 FIRE EXTINGUISHERS

- A. Semi-recessed, fully recessed or wall mounted fire extinguishers shall be as follows:

1. Type ABC: Dry Chemical Stored Pressure Series with 10 lb. nominal capacity and minimum UL 80B:C rating. Fire extinguisher shall be Amerex Model B441 or approved equal.
 2. Semi-recessed cabinet to be Model 5614 with #180 clear anodized finish as manufactured by J. L. Industries.
 3. Fully recessed cabinet to be Model 5614 with with #180 clear anodized finish as manufactured by J. L. Industries.
 4. Provide all cabinets with “SAF-T-LOK” (W). Door glazing shall be double strength glass (DS).
 5. Wall mount for fire extinguishers shall be Amerex “Model 1007 Wall” type bracket.
- B. When mounted on wall use standard wall bracket.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install the fire extinguishers where indicated on the Drawings and in full accordance with all pertinent regulations and the manufacturer's recommendations.
- B. The top of the fire extinguisher shall be set no more than five feet above the finished floor. Components shall be firmly anchored in place for long life under hard use.

3.02 SERVICE

- A. Determine the approximate completion date of the work and then inspect, charge, and tag the fire extinguishers at a date not more than ten days before nor less than one day before actual Completion Date of the Work.

END OF SECTION

SECTION 142123
ELECTRIC TRACTION ELEVATORS
(FILED SUB-BID REQUIRED)

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.
- B. Time, Manner and Requirements for Submitting Sub-Bids:
 - 1. Sub-bids for work under this Section shall be for the complete work and shall be submitted through DCAMM’s E-Bid Room as stipulated in the DCAMM Instructions to Bidders.
 - 2. Sub-bids filed with the Division of Capital Asset Management and Maintenance shall be accompanied by BID BOND or CASH or CERTIFIED CHECK or TREASURER'S CHECK or CASHIER'S CHECK issued by a responsible bank or trust company payable to the Commonwealth of Massachusetts in the amount of five percent of the sub-bid. A sub-bid accompanied by any other form of bid deposit than those specified will be rejected.
- C. Sub-Bid Requirements:
 - 1. Sub bidder's attention is directed to Massachusetts G.L. Chapter 149 Section 44F, as amended, which provides in part as follows.
 - 2. Each sub-bidder shall list in Paragraph E of the "Form for Sub-bids" the name and bid price of each person, firm or corporation performing each class of work or part thereof for which the Section of the Specifications for that sub trade requires such listing, provided that, in the absence of a contrary provision in the Specifications, any sub-bidder may, without listing any bid price, list his own name or part thereof and perform that work with persons on his own payroll, if such sub-bidders, after sub-bid openings, shows to the satisfaction of the Awarding Authority that he does customarily perform such class of work with persons on his own payroll and is qualified to do so. This Section of the Specifications requires that the following classes of work shall be listed in Paragraph E under the conditions indicated herein.

<u>CLASSES OF WORK</u>	<u>REFERENCE SECTION</u>
NONE	NONE

- D. Reference Drawings: The Work of this Trade Bid is shown on the following Contract Drawings:

<u>NUMBER</u>	<u>SHEET NAME</u>
A-1.0	ELEVATOR ACCESS & CAB INTERIORS

1.2 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
1. All Work of Section 142123– ELECTRIC TRACTION ELEVATORS
 2. Drawings and general provisions of the Contract, Massachusetts General Laws (Ter Ed) Chapter 149, Sections 44A to 44I, inclusive, as amended. apply to this Section

1.3 SUMMARY AND DEFINITIONS

A. Intent

1. This section includes:
 - a. Modernization of one (1) overhead traction elevator.
2. The following outlines the scope of work covered in this Section:
 - a. Upgrade of one (1) Passenger Overhead Traction Elevator to include but not limited to new controller, machine assembly, governor and tension sheave, car and hall door equipment, doors, door operator, cab enclosures, interiors, fixtures, wiring and related equipment in compliance with currently adopted A17.1 and MA 524 CMR modifications.
3. Related equipment shall be designed, constructed, installed and adjusted to produce the highest results with respect to smooth, quiet, convenient and efficient operation, durability, economy of maintenance, and the highest standard of safety.
4. It is not the intent of these specifications to detail the construction and design of all parts of the equipment, but it is expected that the type, materials, design, quality of work and construction of each part shall be adequate for the service required, durable, properly coordinated with all other parts, and in accordance with the best commercial standards applicable and of the highest commercial efficiency possible.
5. Electric and magnetic circuits and related parts shall be of proper size, design and material to avoid heating and arcing, and all other objectionable effects which may reduce the efficiency of operation, economy of maintenance and/or net-useful life of the apparatus.
6. Minimum requirements for design, materials, etc., are for certain parts of the equipment. Equivalent requirements approved by the Consultant shall apply to such parts as are of special design, construction or material and to which the specified requirements are not directly applicable. These minimum requirements as a whole shall be considered as establishing proportionate general minimum standards for all parts of the equipment.
7. The Consultant may permit variations from the requirement of these specifications to permit use of the Contractor's standard equipment, provided such standard equipment is in every way adequate for the intended use and meets the full intent of these specifications. All such variations proposed by the manufacturer shall be called to the attention of the Consultant and shall only be made if approved in writing prior to the award of the contract.
8. General requirements for design, materials and construction are intended primarily to apply to the heavy-duty and important parts of the equipment specifically mentioned and to other parts of similar duty and importance. Less important and light-duty parts may be of the standard design, materials and construction provided that, in the opinion of the Consultant,

such standards are in accordance with the best commercial practice and are fully adequate for the purpose of use. All such variations shall be made only on the Consultant's written approval.

9. All equipment and component parts installed, supplied or provided under this contract shall be manufactured and distributed by a third-party, non-installer company servicing the vertical transportation industry.
 - a. Apparatus shall conform to the design and construction standards referenced herein, and shall be rated the best commercial grade suitable for this application.
 - b. Equipment and component systems shall not employ any experimental devices or proprietary designs that could hamper and/or otherwise prohibit subsequent maintenance repairs or adjustments by all qualified contractors.
 - c. Manufacturers of the apparatus shall provide technical support and parts replacements for their equipment and component systems for a minimum of twenty (20) years, and issue such guarantee of support to the purchaser with written certification naming the final Owner of their product(s) to ensure the apparatus or systems remain maintainable regardless of who may be selected for future service.
10. All equipment provided shall be factory and field tested with a history of design reliability and net-useful life established.
 - a. Contractor must be able to demonstrate the apparatus to be installed has been used successfully in a substantially similar manner under comparable conditions.
 - b. If the apparatus proposed differs substantially in construction, material composition, design, size, capacity, duty or other such rating from the equipment previously used for the same purpose by the manufacturer, the Consultant may reject the apparatus or require the vendor test and demonstrate the adequacy and suitability for this particular situation. Any necessary tests shall be performed at the sole expense of the Contractor with no prior guarantee of acceptance after the testing procedure.
11. The Contractor shall not use as part of the permanent equipment any experimental devices, proprietary design, components, construction of materials which have not been fully tried out in at least substantially similar or under comparable service, except as may be especially approved by the Consultant. If any important equipment or devices to be used on this installation differ substantially in construction, materials, design, size, capacity or duty from corresponding items previously used for the same purpose by the manufacturer, they shall pass such tests as the Consultant may require to fully show their adequacy and suitability. These tests shall be in addition to tests herein specified and shall be made at the expense of the Contractor.
12. Certain design limitations, tests, etc., are herein specified as a partial check of the adequacy of design, construction and materials used. These requirements do not cover all features necessary to ensure satisfactory and approved operation, etc., of the equipment.
13. It is understood, the entire system shall be designed, fabricated, modified and/or upgraded in full compliance with applicable local laws and code standards. The absence of a particular item or requirement shall not relieve the Contractor of the full and sole responsibility for such equipment, features and/or procedures.
14. With the exception of only those items specifically identified as being performed by others, the Specifications are intended to include all engineering, material, labor, testing, and inspections needed to achieve work specified by the Contract Documents. Inasmuch as it is understood that any incidental work necessary to complete the project is also covered by the Specifications, bidders are cautioned to familiarize themselves with the existing job site

conditions. Additional charges for material or labor shall not be permitted subsequent to execution of the Contract.

15. Bidders must report discrepancies or ambiguities occurring in the Specifications to the Consultant for resolution prior to the bidding deadline, otherwise the Specifications shall be deemed acceptable in their existing form.
16. Fixtures, Operating Devices and Signage Survey
 - a. Upon award of the Contract, Contractor shall perform a survey of the existing elevator operating fixtures and devices, including signage, and present a report to the Building Management. The report shall include photographs of the following existing items:
 - 1) Hall call push buttons
 - 2) “You are Here” signage if integral with the hall call fixture cover plate
 - 3) Floor identification / Braille signage in entrance jambs
 - 4) Lobby directional lanterns at all floors
 - 5) Applicable wall surfaces
 - b. The Contractor shall submit, as part of the report, pictures or catalog cuts of the new devices intended to be installed under the modernization project at the various locations including any additional signage either new or replacing existing.

B. Termination of Existing Agreement(s)

1. By submitting a bid, the existing maintenance provider agrees that any service contract(s) in effect shall be terminated by the Owner should the project be awarded to another vendor upon 30-day written notice to the Contractor by the Owner.
 - a. The contract(s) shall be terminated with no penalty to the Owner or Contractor.
 - b. Owner will be responsible for money owed the Contractor for services provided and work performed up until the date of cancellation.

C. Abbreviations and Symbols

1. The following abbreviations, Associations, Institutions, and Societies may appear in the Project Manual or Contract Documents:

AHJ	Authority Having Jurisdiction
AIA	American Institute of Architects
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWS	American Welding Society
CMR	Code of Massachusetts Regulations
IBC	International Building Code
IEEE	Institute of Electrical and Electronics Engineers
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Agency
OPSI	Office of Public Safety and Inspections
OSHA	Occupational Safety and Health Act

D. Codes and Ordinances / Regulatory Agencies

1. Work specified by the Contract Documents shall be performed in compliance with applicable Federal, State, and municipal codes and ordinances in effect at the time of Contract execution. Regulations of the Authority Having Jurisdiction shall be fulfilled by the Contractor and Subcontractors. The entire installation, when completed, shall conform with all applicable regulations set forth in the latest editions of:
 - a. Local and/or State laws applicable for logistical area of project work.
 - b. Building Code applicable to the AHJ.
 - c. Elevator Code applicable to the AHJ.
 - d. Safety Code for Elevators and Escalators, ASME A17.1 and all supplements as modified and adopted by the AHJ.
 - e. Safety Code for Elevators and Escalators, A17.1S supplement to A17.1 as modified and adopted by the AHJ for Machine Room Less installations (MRL).
 - f. Guide for Inspection of Elevators, Escalators, and Moving Walks, ASME A17.2.
 - g. Safety Code for Existing Elevators and Escalators, ASME A17.3 as modified and adopted by the AHJ.
 - h. Guide for emergency evacuation of passengers from elevators, ASME A17.4.
 - i. National Electrical Code (ANSI/NFPA 70).
 - j. American with Disabilities Act - Accessibility Guidelines for Building and Facilities and/or A117.1 Accessibility as may be applicable to the AHJ.
 - k. ASME A17.5/CSA-B44.1 - Elevator and escalator electrical equipment.
 - l. ECC (Energy Conservation Code) as may be applicable to the AHJ.
2. The Contractor shall advise the Owner's Representative of pending code changes that could be applicable to this project and provide quotations for compliance with related costs.

E. Definitions

1. Defective Work: Operation or control system failure, including excessive malfunctions; performances below specified ratings; excessive wear; unusual deterioration or aging of materials or finishes; unsafe conditions; need for excessive maintenance; abnormal noise or vibration; and similar unusual, unexpected, and unsatisfactory conditions.
2. Provide: Where used in this document, provide shall mean to install new device, apparatus, system, equipment or feature as specified in this document.
3. Definitions in ASME A17.1 as amended or modified by the AHJ apply to work of this Section.

1.4 PERMITS AND SUBMITTALS

A. Permits

1. Comply with the requirements of Division 01.
2. Prior to commencing work specified by the Contract Documents, the Contractor shall, at its own expense, obtain all permits or variances as may be required by the AHJ and provide satisfactory evidence of having obtained said permits and variances to both the Owner's Representative and Consultant.
3. File necessary drawings for approval of all Authorities Having Jurisdiction.

4. The Elevator Contractor shall undertake the necessary review and search procedure to identify open applications and/or outstanding violations for this property; and, close-out such applications and/or expunge such violations relative to the project scope as required for final acceptance by the AHJ.
 - a. Outstanding applications and violations must be indicated on the request for permit filing for this procedure to ensure such applications and/or violations are dismissed accordingly.
 - b. All relative costs shall be included in the base bid proposal with the understanding that corrective actions are covered under the specified scope of work.

B. Submittals

1. Submit the following:
 - a. Shop Drawings – Submit computer generated project specific drawings for approval. Include the following:
 - 1) Project specific drawings:
 - a) Layout of machine room
 - b) Fixture Drawings
 - c) Cab Drawing
 - d) Machine Design and Loads
 - 2) Cut Sheets/Model Info:
 - a) Controller Manufacturer, Model and Features
 - b) Machine and Motor Manufacture/ Model and Features
 - c) Door Operator Manufacturer and Model
 - d) Door Equipment Manufacture and Model
 - e) Detector Edge Manufacturer and Model
 - f) Overspeed Governor Assembly - Manufacturer and Model
 - g) Deflector Sheave Manufacturer and Model
 - h) Travel Cab – Manufacture and Model
 - i) Roller Guides – Manufacture and Model
2. The Consultant and the Owner's Representative shall pass on the submittals with reasonable promptness and the Contractor shall be responsible to ensure that there will be no delay in their work or that of any other trade involved.
3. Approved filing and submittal requirements must be completed before equipment and related materials are ordered.
4. Copies of Department of Buildings' permits and/or governing authority's documents will be posted at the job site with copies issued to the Owner's Agent, Owner's Representative and Consultant.
5. Samples of wood, metal, plastic, paint or other architectural finish material applicable to this project shall be submitted for approval by the Owner's designee.
6. It shall be understood that approval of the drawings and cuts by Owner's designee, Architect and/or Consultant shall be for general arrangement only and does not include measurements which are the Contractor's responsibility or approval of variations from the contract documents required by the AHJ.

7. The Contractor shall prepare a record log and maintain all submittals, shop drawings, catalog cuts and samples.

C. Measurements and Drawings

1. Drawings or measurements included with the bidding material shall be for the convenience of the bidders only and full responsibility for detailed dimensions lies with the Contractor.
2. In the execution of the work on the job, the Contractor shall verify all dimensions with the actual conditions.
3. Where the work of the Elevator Contractor is to join other trades, the shop drawings shall show the actual dimensions and the method of joining the work of the various trades.

D. Substitutions

1. Requests for substitutions will be considered under the following time limitations and situations:
 - a. Not less than ten (10) calendar days before bids are due.
 - b. Work or equipment specified becomes unavailable through unforeseen events such as strikes, loss of manufacturer's plant through fire, flood or bankruptcy.
2. Requested substitutions will be reviewed and adjudged. Failure of the Consultant to raise objection shall not constitute a waiver of any of the requirements of the Contract Documents.
3. Request for substitutions shall include complete data with drawings and samples as required, including the following:
 - a. Quality Comparison - Proposed substitution versus the specified product.
 - b. Changes required in other work because of the substitution.
 - c. Effect on the construction schedule.
 - d. Cost Data - Resulting from the proposed substitution versus the specified product. The Contractor shall certify that the cost data presented is complete and includes all related costs under this Contract.
4. When proposing a substitution, the Contractor represents that:
 - a. They have investigated the proposed substitution and have determined that it is equal to or better than the product specified.
 - b. They will guarantee the substitution in the same manner as the product specified.
 - c. They will coordinate and make other changes as required in the work as a result of the substitution.
 - d. They waive all claims for additional costs as a result of the substitution, with the exception of those identified above under "cost data".
5. The Consultant will be sole judge of the acceptability of the proposed substitution.
6. The Consultant will have authority to approve or reject substitutions or to change the specified standards of quality. However, neither this authority to act under this provision nor any decision made in good faith, either to exercise or not to exercise this authority, shall give rise to any duty or responsibility of the Consultant to the Contractor, any Subcontractor, any Sub-Subcontractor, any of their agents or employees or any other persons performing the work or offering to perform the work.

E. Changes in Scope and Extra Work

1. The Owner may at any time make changes in the specifications, plans and drawings, omit work, and require additional work to be performed by the Contractor.
 - a. Each such addition or deletion to the Contract shall require the Owner and the Contractor to negotiate a mutually acceptable adjustment in the contract price, and, for the Contractor to issue a change order describing the nature of the change and the amount of price adjustment.
 - b. The Contractor shall make no additions, changes, alterations or omissions or perform extra work except on written authorization of the Owner.
 - c. Each change order shall be executed by the Contractor, Owner, and the Consultant.

F. Keys

1. Upon the initial acceptance of work specified by the Contract Documents on each unit, the Contractor shall deliver to the Owner, six (6) keys for each general key-operated device that is provided under these specifications in accordance with ASME A17.1, Part 8 standards as may be adopted and modified by the AHJ.
2. All other keying of access or operation of equipment shall be provided in accordance with ASME A17.1 Part 8 as may be adopted and modified by the AHJ.

G. Diagnostic Tools

1. Prior to seeking final acceptance of the project, the Contractor shall deliver to the Owner any specialized tools required to perform diagnostic evaluations, adjustments, and/or programming changes on any microprocessor-based control equipment installed by the Contractor. All such tools shall become the property of the Owner.
 - a. Owner's diagnostic tools shall be configured to perform all levels of diagnostics, systems adjustment and software program changes which are available to the Contractor.
 - b. Owner's diagnostic tools that require periodic re-calibration and/or re-initiation shall be performed by the Contractor at no additional cost to the Owner for a period equal to the term of the maintenance agreement from the date of final acceptance of the project.
 - c. The Contractor shall provide a temporary replacement, at no additional cost to the Owner, during those intervals in which the Owner might find it necessary to surrender a diagnostic tool for re-calibration, re-initiation or repair.
2. Contractor shall deliver to the Owner, printed instructions, access codes, passwords or other proprietary information necessary to interface with the microprocessor-control equipment.

H. Service Support Requirements / Spare Parts

1. Software / Firmware Updates
 - a. During the life of the equipment and subject to the term of the maintenance agreement, where revisions to firmware and/or software are issued by the control manufacturer or manufacturer of solid state and microprocessor based subsystems

subsequent to the beneficial use of the equipment, updates shall be provided so that the installation and spare circuit boards are current with respect to software and firmware versions.

2. Spare Parts
 - a. Provide spare parts required for maintenance of the elevator equipment installed under this contract.
 - 1) The spare parts shall be placed in new storage cabinets, located in the machine room, and become the property of the Owner.

I. Wiring Diagrams, Operating Manuals and Maintenance Data

1. Comply with the requirements of Division 01.
2. Deliver to the Owner, four (4) identical volumes of printed information organized into neatly bound manuals prior to seeking final acceptance of the project.
3. The manuals shall also be submitted in electronic format on non-volatile media, incorporating raw 'CAD' and/or Acrobat 'PDF' file formats.
4. Manuals, as well as electronic copies, shall contain the following:
 - a. Step-by-step adjusting, programming and troubleshooting procedures that pertain to the solid-state microprocessor-control and motor drive equipment.
 - b. Passwords or identification codes required to gain access to each software program in order to perform diagnostics or program changes.
 - c. A composite listing of the individual settings chosen for variable software parameters stored in the software programs of both the motion and dispatch controllers.
 - d. Method of control and operation.
5. Provide four (4) sets of "AS INSTALLED" straight-line wiring diagrams in both hard and electronic format in accordance with the following requirements:
 - a. Displaying name and symbol of each relay, switch or other electrical component utilized including identification of each wiring terminal.
 - b. Electrical circuits depicted shall include all those which are hard wired in both the machine room and hoistway.
 - c. Supplemental wiring changes performed in the field shall be incorporated into the diagrams in order to accurately replicate the completed installation.
6. Furnish four (4) bound instructions and recommendations for maintenance, with special reference to lubrication and lubricants.
7. Manuals or photographs showing controller repair parts with part numbers listed.

J. Training

1. Prior to seeking final acceptance of the project, the Contractor shall conduct a one (1) hour training program on-site with building personnel selected by the Owner.
2. The focus of the session shall include:

- a. Instructions on proper safety procedures and who to contact for the purpose of assisting passengers that may become entrapped inside an elevator car.
 - b. Explain each control feature and its correct sequence of operation.
3. Control features covered shall include but, not be limited to:
- a. Independent Service Operation.
 - b. Emergency Fire Recall Operation - Phase I
 - c. Emergency In-car Operation - Phase II.
 - d. Emergency Power Operation.
 - e. Emergency Communications Equipment.
 - f. Security Operating Features.
 - g. Interactive Systems Management.

K. Patents

1. Patent licenses which may be required to perform work specified by the Contract Documents shall be obtained by the Contractor at its own expense.
2. The Contractor agrees to defend and save harmless the Owner, Consultant and agents, servants, and employees thereof from any liability resulting from the manufacture or use of any patented invention, process or article of appliance in performing work specified in the Contract Documents.

L. Advertising

1. Advertising privileges shall be retained by the Owner.
2. It shall be the responsibility of the Contractor to keep the job site free of posters, signs, and/or decorations.
3. Contractor's logo shall not appear on faceplates or entrance sills without the approval of the Owner.

1.5 QUALITY ASSURANCE

A. Materials and Quality of Work

1. All materials are to be new and of the best quality of the kind specified.
2. Installation of such materials shall be accomplished in a neat manner and be of the highest quality.
 - a. Should the Contractor receive written notification from the Owner stating the presence of inferior, improper, or unsound materials or quality of installation, the Contractor shall, within twenty-four (24) hours, remove such work or materials and make good all other work or materials damaged.
 - b. Should the Owner permit said work or materials to remain, the Owner shall be allowed the difference in value or shall, at its election, have the right to have said work or materials repaired or replaced as well as the damage caused thereby, at the expense of the Contractor, at any time within one (1) year after the completion of the work; and neither payment made to the Contractor, nor any other acts of the Owner shall be construed as evidence of acceptance and waiver.

B. Mechanical Design Requirements (General)

1. The following typical requirements shall apply to all parts of the work where applicable and are supplementary to other requirements noted under the respective headings.
 - a. All bearings, pivots, guides, guide shoes, gearing, door hanger sheaves, door hanger tracks and similar elements subject to friction or rolling wear in the entire elevator installation shall be accurately and smoothly finished and shall be arranged and equipped for adequate and convenient lubrication. Means shall be provided for flushing and draining the larger bearings and gear case. All oiling holes shall have dustproof, self-cleaning caps.
 - b. Bearings of governor and governor sheaves and important supporting bearings of other parts in motion when the elevator is traveling shall, unless otherwise specified or approved, be of ball or roller bearing type.
 - c. Bearings for brake levers and similar uses where the amount of movement under load is light and the wear negligible may be unlined.
 - d. All plain bearings shall be liberally sized in accordance with the best commercial elevator usages which have proved entirely satisfactory on heavy-duty installations.
 - e. Bearings of motors shall be arranged and equipped for adequate automatic lubrication. Ring or chain oilers, spring-fed grease cups and equivalent devices properly used in accordance with the best commercial elevator practice will be acceptable. Approved means shall be provided for visibly checking the amount of lubricant contained and for flushing and draining. Means shall also be provided for preventing leakage of lubricant when the reservoirs or grease cups are filled to proper levels.
 - f. Ball and roller bearings shall be of liberal size and of a type and make which have been extensively and successfully used on other similar, heavy-duty elevator installations. They shall be fully enclosed. Loading, lubrication, support and all other conditions of use shall be in accordance with the recommendations of the bearing manufacturer based on previous extensive and satisfactory elevator usage.
 - g. All armature spiders and similar items intended to rotate with their shafts shall be keyed and/or firm press or shrunk fit on the shafts. Set screw fastening will be permitted only for minor items not subject to hoisting loads and where means for field adjustment is required.
 - h. All bolts used to connect moving parts, bolts carrying hoisting stresses and all other bolts, except guide rail bolts, subject to vibration or shock shall be fitted with adequate means to prevent loosening of the nuts and bolts. Bolts transmitting important shearing stresses between machine parts shall have tight body fit in drilling holes.
 - i. All machine work, assembling and installing shall be done by skilled and experienced mechanics using first-class, modern equipment and tools. All work shall be thoroughly high grade in every respect. All parts will be manufactured to high precision standards so that wearing parts will be readily interchangeable with stock repair parts with a minimum of field fitting.
 - j. All bearing and sliding surfaces of shafts, pins, bearings, bushings, guides, etc., shall be smoothly and accurately finished. They shall be assembled and installed in accurate alignment and with working clearance most suitable for the load, speed, lubrication and other conditions of use.
 - k. Structural steel used for supporting and securing equipment and for the construction of car slings, etc., shall conform to the A.S.T.M. specification for Structural Steel

for Buildings. Design stresses shall not exceed those specified in the local Building Code.

1. Castings of motor frames, sheaves, gear casings, etc., shall be of the best quality metallurgically controlled, hard, close grained gray machinery cast iron, free from blow holes, sand holes, or shrinkage cracks, ground to remove overruns, sanded and machined so as to leave a finish suitable for its particular application. Surfaces of sheaves and brake drums shall be entirely free from defects and shall show a hardness of not less than 220 Brinell.

C. Electrical Design Requirements (General)

1. The following typical requirements shall apply to all parts of the work and are supplementary to other requirements noted under the respective headings.
 - a. The design and construction of the motors shall conform to the requirements of these specifications and to the ASME Standards for Rotating Electrical Machinery with revisions issued to the first day when the work of this Contract was advertised.
 - 1) Motors shall operate successfully under all loads and speeds and during acceleration and deceleration.
 - 2) Motors shall be designed for quiet operation without excessive heat.
 - 3) Insulation on motor coils and windings and on all insulated switch, relay, brake and other coils shall conform to the requirements of minimum Class “F” insulation, as defined in ANSI Standards for Rotating Electrical Machinery. All motors shall be impregnated twice.
 - 4) Switches, relays, etc., on controller, starter and signal panels and similar items on other parts of the equipment shall be the latest improved type for the condition of use. They shall function properly in full accordance with the requirements of the machines controlled and with the specified operating requirements of the elevator. Any of these parts showing wear or other injurious effects during the guarantee period to the extent that abnormal maintenance is required or indicated shall be replaced with proper and adequate parts by the Contractor.
 - 5) Contacts in elevator motor circuits which are intended to be opened by governors or other safety devices shall be copper to carbon or other approved non-fusing type.
 - 6) Where required, controllers and other component parts of the installation shall be labeled in accordance with the latest codes and standards as adopted and/or otherwise modified by the AHJ.
 - 7) Electrical equipment, motors, controllers, etc., installed under this contract shall have necessary CSA/US or UL/US listing as may be required by the AHJ. Equipment shall be labeled or tagged accordingly.

D. Materials, Painting and Finishes

1. Two (2) coats of rust inhibiting machinery enamel shall be applied to exposed ferrous metal surfaces in the pit that do not have a galvanized, anodized, baked enamel, or special architectural finishes.
2. Two (2) coats of rust inhibiting enamel paint to the machinery located within the machine room and secondary level (where applicable) as well as to the machine room floors.

3. Architectural metal surfaces of bronze or similar non-ferrous materials which are specified to be refinished, re clad and/or provided new, shall be sufficiently clear coated so as to resist tarnishing during normal usage for a period of not less than twelve (12) months after final acceptance by the Owner.
4. Identify all equipment including buffers, crosshead, safety plank, machine, controller, drive, governor, disconnect switch, etc., by 4" high numerals which shall contrast with the background to which it is applied. The identification shall be either decalcomania or stencil type.
5. Paint or provide decal-type floor designation not less than six (6) inches high on hoistway doors (hoistway side), fascias and/or walls as required by Code at intervals not exceeding 7'-0". The color of paint used shall contrast with the color of the surface to which it is applied.

E. Accessibility Requirements

1. Locate the alarm button and emergency stop switch at 35", and floor and control buttons not more than 48" above the finished floor. The alarm button shall illuminate when pressed for visual acknowledgement to user.
2. Provide raised markings in the panel to the left of the car call and other control buttons. Letters and numbers shall be a minimum of 5/8" and raised .03" and shall be in contrasting color to the call buttons and cover plate.
3. The centerline of new hall push button shall be 42" above the finished floor or as instructed by AHJ.
4. The hall arrival lanterns, or cab direction lantern provided shall sound once for the "up" direction and twice for the "down" direction. Design and locate fixtures per Federal standards.
5. Provide floor designations at each entrance on both sides of jamb at a height of 60" above the floor.
 - a. Use cast metal plates and polished numbers secured with tamper-proof hardware.
 - b. Designations shall be 2" high, raised .03" on a contrasting color background as selected by the Owner.
6. Provide an audible signal within the elevator to tell passenger that the car is stopping or passing a floor served by the elevator.
7. Where elevators operate at a speed greater than 200 fpm, provide a verbal annunciator to announce the floor at which the elevator is stopping where required by the AHJ.
8. Provide signal control timing for passenger entry/exit transitions per Federal and/or Local standards.
9. Ensure sill-to-sill running clearances do not exceed 1-1/4" at all landings served.
10. Provide visual call acknowledgment signal for car emergency intercommunication device.

1.6 DELIVERY / STORAGE / HANDLING / COORDINATION

A. Delivery and Storage of Material and Tools

1. Comply with the requirements of Division 01.
2. Delivery, Storage and Handling:

- a. Deliver materials to the site ready for use in the accepted manufacturer's original and unopened containers and packaging, bearing labels as to type of material, brand name and manufacturer's name. Delivered materials shall be identical to accepted samples.
 - b. Store materials under cover in a dry and clean location, off the ground.
 - c. Remove delivered materials which are damaged or otherwise not suitable for installation from the job site and replace with acceptable materials.
3. The Owner shall bear no responsibility for the materials, equipment or tools of the Contractor and shall not be liable for any loss thereof or damage thereto.
 4. The Contractor shall confine storage of materials on the job site to the limits and locations designated by the Owner and shall not unnecessarily encumber the premises or overload any portion with materials to a greater extent than the structural design load of the Facility.
- B. Work with Other Trades / Coordination
1. Coordinate installation of sleeves, block outs, equipment with integral anchors, and other items that are embedded in concrete or masonry for the applicable equipment. Furnish templates, sleeves, equipment with integral anchors, and installation instructions and deliver to Project site in time for installation.
 2. Coordinate sequence of installation with other work to avoid delaying the Work.
 3. Coordinate locations and dimensions of other work relating to the equipment scheduled for installation including pit ladders, sumps, and floor drains in pits; entrance subsills; machine beams; and electrical service, electrical outlets, lights, and switches in pits and machine rooms, secondary levels, overhead sheave rooms and hoistways as it relates to the specific equipment.
- C. Removal of Rubbish and Existing Equipment
1. On a scheduled basis, the Contractor shall remove all rubbish generated in performing work specified in the Contract Documents from the job site.
 2. Any component of the existing elevator plant that is not reused under the scope of work specified in the Contract Documents shall become property of the Contractor and, as such, shall be removed from the premises at the Contractor's sole expense.
 3. The Contractor agrees to dispose of the aforementioned equipment and rubbish in accordance with any and all applicable Federal, State, and municipal environmental regulations, and further accepts all liability that may result from handling and/or disposing of said material.
- D. Protection of Work and Property
1. The Contractor shall continuously maintain adequate protection of all their work from damage and shall protect the Owner's property from injury or loss arising out of this contract.
 2. The Contractor shall make good any such damages, injury or loss, except such as may be directly caused by agents or employees of the Owner.
 3. The Contractor shall provide all barricades required to protect open hoistways or shafts per OSHA regulations. Such protection shall include any necessary guards or other barricades for employee protections during and after the modernization procedure.

1.7 RELATED WORK

A. Work by Elevator Contractor Included in the Base Bid

1. The following requirements shall be applicable based on prevailing conditions at the site of work and/or mandated modifications for code compliance.
 - a. Provide hoist rope guards at the car and counterweight drop side of the hoisting machine sheave to prevent accidental contact with the hoisting ropes. The guard shall extend from the point where the hoisting ropes penetrate the machine room floor slab to a point beyond where the ropes contact the traction and deflector sheaves. The guards shall be constructed so as to conceal pinch-points between ropes and sheave grooves.
 - b. Provide the following signage, plates and tags:
 - 1) Provide all required manufacturer data plates and installation-specific tags and signs of the types and styles containing information as required by applicable Codes and Standards as adopted and/or modified by the AHJ.
 - 2) Provide any walk-in pit entrance door(s) with sign reading “DANGER - ACCESS ONLY ALLOWED WHEN ACCOMPANIED BY A MASSACHUSETTS-LICENSED ELEVATOR MECHANIC” shall be placed on the public side of the locked pit door. The signage letter size shall be a minimum of ¾ inch high and shall be of a contrasting color with that of the background.” as required by AHJ.
 - 3) In addition to (1) above, walk-in pit(s) with pit door stop switches shall be provided with a sign that reads “WARNING – Opening the Pit Door Will Stop the Elevator” as required by AHJ.
 - 4) Provide access doors to each electrical control room, secondary or machinery space with signs that reads “ELEVATOR MACHINE ROOM - NO STORAGE ALLOWED” and on separate lines: “DANGER - ACCESS ONLY ALLOWED WHEN ACCOMPANIED BY A MASSACHUSETTS-LICENSED ELEVATOR MECHANIC.” The letter size shall be a minimum of ¾ inch high and shall be of a contrasting color with that of the background as required by AHJ.
 - c. Provide a standard railing conforming to Code on the outside perimeter of the car top on all sides where the perpendicular distance between the edges of the car top and the adjacent hoistway enclosure exceeds 300 mm (12 in.) horizontal clearance or as otherwise required by the Authority Having Jurisdiction.
 - d. Provide necessary patching, repairing of masonry and/or dry wall for smooth and legal elevator hoistways where new fixture back boxes are installed.
 - e. Subsequent to the contract execution, the Contractor shall perform the following procedures and engineering tasks relative to balance loading of system and cab work included under base specification requirements and alternative/optional upgrades:
 - 1) Perform balance load testing to determine existing conditions and requirements applicable to new/modified equipment.
 - 2) Provide data for Purchaser and/or their agents to evaluate any limitations that may be placed on design/finish options due to prevailing conditions or total suspended loading.

- f. The Elevator Contractor shall be responsible for all material handling, including but not limited to crane pick(s) and hoisting required. All subcontracting costs, permits, and associated fees for this work shall be covered by the Contractor.
- g. The Elevator Contractor shall be responsible for the costs of any permits and fees which may be associated with coordination between local or state authorities, including providing police, fire or other personnel required during crane operations which shut down accessibility to various streets, sidewalks, etc., which are on or around the property.
- h. Where the pit extends more than 3 feet below the sill of the pit access door, provide a permanent fixed metal ladder.
 - 1) Ladder shall extend no less than 48” above the sill of the access door. Handgrips shall extend from the ladder to a point no less than 48” above the sill of the access door where the ladder does not comply.
 - 2) The rungs shall be a minimum of 12” wide. Where prevailing conditions prevent a 12” wide rung, the rung may be reduced to no less than 9”.
 - 3) The rungs shall be spaced 12” on center.
 - 4) A clear distance of no less than 4 ½” from the centerline of the rungs and handgrips to the nearest permanent object in back of the ladder shall be provided.
- i. Provide platform, grating, handrails and ladders as required in the walk-in pit for bottom of car access/buffer inspection as required by code. The design, fabrication and installation shall be by the Elevator Contractor and shall be in compliance with all applicable Codes.
- j. Provide all metal guards for counterweight within the hoistway as required by code.
- k. The top surface of any setback or projection in the hoistway that measures 2” or more in width shall be beveled at an angle of not less than 75 degrees from horizontal, constructed from prime painted 14 gauge cold-rolled steel and installed so as to conform with ASME A17.1 elevator safety code as modified by, and/or in addition to codes and standards accepted by the AHJ.

B. Work by Others (Specified in other Sections)

- 1. The following requirements shall be applicable based on prevailing conditions at the site of work and/or mandated modifications for code compliance.
 - a. Installation of new main line power feed with related disconnect switch designed and located per local law requirements.
 - b. Provide remote/auxiliary disconnects where new or existing disconnect switches are not in line-of-sight of the controller.
 - c. Installation of auxiliary power feed with related distribution panel(s) and disconnect(s) designed and located per local law requirements.
 - 1) Voltage shall be 110 VAC with one 15 Amp circuit breaker or fuse for lighting of each individual elevator car enclosure.
 - 2) Circuit breakers and/or fused disconnects shall be lockable in the “OFF” position in accordance with applicable code.
 - d. Installation of new permanent lighting fixtures with protective guards and 110-volt duplex GFI receptacles inside the machine room. Illumination shall be no less than

- 30 foot-candles at floor level. A light control switch shall be provided immediately adjacent to the machine room on the lock-jamb side of the access door as per AHJ.
- e. Provide necessary receptacles as required by Elevator Contractor to supply power to auxiliary elevator equipment and/or remotely located monitors.
 - f. Provide necessary patching, fire caulking, repairing and installation of masonry and/or dry wall for smooth and legal elevator hoistways.
 - g. Provide any required repair of smoke holes with subway grating covers in the machine rooms and/or secondary levels where applicable. All smoke ventilation provisions, including duct work, dampers, fans, fire control interfaces, in accordance with local codes.
 - h. Provide machinery spaces in the secondary levels with permanent lighting fixtures having protective guards and a duplex GFI receptacle. Illumination shall be no less than 19 foot-candles at floor level. A light control switch shall be provided immediately adjacent to the secondary level entrance door/ladder in accordance with code.
 - i. Provide each elevator pit with a 110 volt GFI duplex receptacle and a permanent lighting fixture equipped with protective guard. Illumination shall be no less than 10 foot-candles at pit floor level. A light control switch shall be provided and so positioned as to be readily accessible from the pit entrance door or ladder.
 - j. Installation of hoistway and machine room smoke relief provisions in accordance with local laws.
 - k. Provide each machine room, secondary space and pit with a self-closing, self-locking access door. Locking means shall be spring-type arranged to permit the doors to be opened from the inside without a key.
 - l. Provide a smoke detector system meeting the requirements of A17.1 and/or the Local Governing Authority.
 - m. Installation of fire emergency control interface provisions for automatic recall of the elevator(s) through operation of the fire detection system. Provisions shall be made for alternate designated fire recall landing with connection contingent on Codes recognized by the local governing authority. The interfacing contacts shall be wired to an electrical junction box located inside each elevator machine room for connection to the elevator control systems by the Elevator Contractor. Each wire shall be clearly labeled with its control function. Coordinate the type of interface required for the specific elevator control apparatus with the Elevator Contractor.
 - n. Installation of emergency power control interface provisions to signal the elevator control apparatus of a transfer from normal (utility) power to the building emergency (generator) power supply. Also, provide additional control interface to give advanced notification to the elevator control apparatus that the power source will transfer from emergency (generator) power to normal (utility) power. Interfacing contacts shall be wired to an electrical junction box located inside each machine room for connection to the elevator control equipment by the Elevator Contractor. Coordinate the type of interface required for the specific elevator control apparatus with the Elevator Contractor.
- 1) On the line side of each main line disconnect switch, provide some means to absorb power that may be regenerated by the elevator hoist motor during emergency power operation.
 - 2) Normal Power/Emergency Power Control Signals consisting of two (2) dry contacts provided by others to function as follows:

- a) One (1) dry contact normally open to make when Normal Power is available. (Logic state of dry contact is to be confirmed by the Manufacturer of the Elevator Control Equipment).
- b) One (1) dry contact normally open to make when emergency power is available. (Logic state of dry contact is to be confirmed by the Manufacturer of the Elevator Control Equipment).
- o. Installation of HVAC inside the Machinery spaces, machine rooms, secondary levels, control spaces, and control rooms to maintain ambient temperature and humidity levels in the range of 50°F to 90°F within the range specified by the microprocessor-control equipment manufacturers to ensure safe and normal operation of the elevator(s).
- p. Provide a class “ABC” fire extinguisher in electrical machinery and control spaces. Locate the extinguisher in close proximity to the access door.
- q. Repair, secure, replace, seal or remove any existing windows, skylights located at the top of elevator hoistway(s) and/or in machine room(s) to avoid damage to elevator systems due to rain, debris, etc., which may enter through or fall from the skylight or to apply to local AHJ.
- r. Provide necessary telephone wiring with connection to local telephone service for two-way voice emergency communications systems.
 - 1) Terminate the telephone wiring in junction boxes or standard phone jack terminals in the machine room.
 - 2) Coordinate the quantity and termination method of individual phone connections with the Elevator Contractor.
 - 3) Identify each phone line for connection by the Elevator Contractor to the appropriate elevator device(s).
 - 4) Telephone wiring, where required by applicable codes, shall be installed in conduit.
- s. Sumps in pits where provided, shall be covered. The cover shall be level with the pit floor so as not to produce a tripping hazard. Any repairs, replacements, filtration systems, or removal of existing sump sumps shall be provided per AHJ.

1.8 WARRANTY / MAINTENANCE SERVICES

A. Contract Close-Out, Guarantee and Warranties

1. The Contractor agrees to certify that work performed in accordance with the Contract Documents shall remain free of defects in materials and quality of work for a period of one (1) year after final acceptance of the completed project.
2. The sole duty of the Contractor under this warranty is to correct any non-conformance or defect and all damages caused by such defect without any additional cost to the Owner and within fifteen (15) days of notification.
3. The express warranty contained herein is in lieu of all other warranties, express or implied, including any warranty of merchantability or fitness for a particular purpose.
4. In the event the Contractor fails to fulfill its obligations defined herein, the Owner shall have the express right to perform the Contractor’s obligations and to charge the Contractor the cost of such performance or deduct an equal amount from any monies due the Contractor.

B. Maintenance Coverage

1. The following maintenance coverage apply:
 - a. Interim Maintenance
 - 1) Provide full protective maintenance services and equipment coverage for one (1) traction passenger elevators at least one (1) month prior to the commencement of work, during the work implementation and until final acceptance of the finished project.
 - 2) Interim full comprehensive maintenance services shall be provided in accordance with these specifications and included in the base bid.
 - b. Warranty Maintenance
 - 1) Provide full comprehensive preventative maintenance services for a period of twelve (12) months after the final completion and acceptance of the project.
 - 2) Guarantee maintenance and related services shall be provided in accordance these specifications.
 - 3) Costs related to guarantee maintenance shall be included in the base bid quotation.
 - c. Long-Term Maintenance (Not Included)
 - 1) Long-term full comprehensive maintenance and related services shall be provided for under a separate agreement between owner and contractor and is not part of this project.
 - 2) Long-term full comprehensive maintenance services would not become effective until the completion of the 12 month warranty maintenance and are not part of the base bid.

C. Maintenance

1. Interim Maintenance: Provide full protective maintenance on the units that are completed and accepted by the AHJ and that may be put in service prior to the overall project completion. The maintenance service shall be as hereinafter specified under the Full Protective Maintenance Service in "3" below and include all code mandated safety and local law tests and inspections that may come due while on this service.
 - a. The price for this service shall be included in the base price or as otherwise specified in the contract documents and shall begin no less than one (1) month prior to the start of work onsite for the modernization and shall continue until the completion of the project.
2. Warranty Maintenance: Provide full protective maintenance on the specified equipment for a period of twelve (12) months from the date of final acceptance of the entire project as specified under the Full Protective Maintenance Service in "3" below.
 - a. The price for this service shall be included in the base price or as otherwise specified in the contract documents.

3. Full Protective Maintenance Service: All maintenance shall comply with Part 8 of the ASME A17.1 Code and modified or amended by the Authority Having Jurisdiction.
 - a. Maintenance work shall be performed by certified/qualified personnel directly employed and supervised by the service contractor.
 - b. Perform scheduled maintenance work and repairs during the regular working hours of regular working days of the trade. All work shall be coordinated with the Building Manager.
4. Provide emergency callback service and repair twenty-four (24) hours a day, seven (7) days a week, including holidays, between regular examinations at no extra cost to the Owner. The response time during working hours shall not exceed one (1) hour. Perform emergency repairs within four (4) hours to restore the equipment to operating order. The following conditions will require emergency callback services for elevators:
 - a. Passenger entrapment.
 - b. Failure or malfunction of control system.
 - c. Shutdown of any elevator.
5. Maintenance shall include monthly examination, adjustment, lubrication, repair or replacement of electrical and mechanical parts of all equipment and apparatus.
6. The maintenance services shall also cover re-lamping of machine room and pit lighting fixtures, signal and operating fixtures, communication system, cab ventilation system, monitoring and control panels. The disconnect means, fuses, car enclosures, car doors and hoistway entrances are excluded. Repair equipment whenever required and use only genuine standard parts produced and manufactured for equipment concerned.
 - a. Include a minimum of two (2) hours of monthly labor for the specified scheduled preventive maintenance service.
 - b. The performance of mandated inspections and tests of the equipment, as required by the AHJ, shall be included in this agreement.
 - c. Provide firefighter and emergency power tests and inspections as may be required. Include at least one (1) emergency power/fire recall test per year which shall be conducted during regular work hours at no extra cost to the Owner.
 - d. Three (3) months prior to the warranty expiration period, perform a Performance and Maintenance survey of all devices covered under the agreement and submit a report listing the recorded performance data, the emergency call-back services rendered during the year, and recommendations to further improve reliability and performance.
 - 1) When requested, provide a recording of each car's acceleration, deceleration and jerk rates along with a 3-day history of average corridor call wait times from 7 a.m. to 6 p.m. as recorded on a specified Tuesday, Wednesday and Thursday.
 - 2) Provide and document all required periodic testing.
 - e. During every scheduled maintenance visit, make sure the machine room and pit areas are clean.
 - 1) Paint the machine room floor and machine room equipment as needed to maintain appearances of equipment and rooms.

- f. Adjust controls and maintain the equipment to meet the performance requirements as hereinafter specified.
 - g. If overtime repairs and maintenance services are requested and pre-approved by the Owner, the Contractor shall pay for the regular labor portion, and the Owner will cover the premium portion of the labor only.
 - h. Keep permanent record of inspections, maintenance services including lubrication procedures, emergency call-back services, repairs and replacements.
 - i. Maintain a complete set of updated wiring diagrams and schematic control diagrams in the machine room and provide the Owner with an additional record set.
7. Supply all necessary lubricants, cleaning materials and repair parts required to keep the system in good working order during maintenance periods.
 8. Maintain an adequate stock of spare parts for maintenance or repair work and minor callback service repairs within the confines of the building in areas designated and assigned by the Owner. Maintain a catalog of spare parts available on site.
 9. Additional parts of other equipment required for maintenance and repair of the systems may be stored at the Contractor's facilities with the understanding delivery of same for emergency procedures must be made within two (2) hours to the job site.
 10. Other materials and equipment normally not stocked by the Trade Contractor locally must be available within twenty-four (24) hours for delivery to the job site from remote facilities and/or Supplier Contractors responsible to the Contractor for stocking the materials or equipment.
 11. If the requirements for stockade of parts as defined herein are not met on any item, immediately notify the Owner in writing as to the circumstances and provide a confirmed delivery date for the required materials and equipment.
 12. Should it become necessary to work on the equipment, proper safety barricades shall be erected to protect people from all hazards.
 13. Should the Owner request that the maintenance Contractor perform any work on the equipment of this Contract, but not included in the terms of the Contract, then payment for such work shall be based on the rates included in the Contract for time and material.
 14. Cancellation: The Owner has the right to cancel this coverage on 30 days' notice.
 - a. The Purchaser/Owner may have the Contractor's work and systems' performance operation checked monthly to ensure the Contractor is performing in accordance with this Contract. If the work requirements are not maintained, the Purchaser/Owner will retain the payment to the Contractor until the Consultant verifies that the work and/or operating performance is back to standard. If three (3) consecutive months of substandard maintenance is noted, the Owner has the right to immediately cancel the coverage without notice to the Contractor.
 - 1) The Consultant, Purchaser and/or Owner's Designee may withhold approval for payment on any request to such extent as may be necessary to protect the Owner from loss on account of:
 - a) Negligence on the part of the Contractor to execute the work properly or failure to perform any provisions of the contract. The Owner, after three (3) days written notice to the Contractor, may, without prejudice to any other remedy make good such deficiencies and may deduct the cost of the contract.
 - b) Claims filed or reasonable evidence indicating probable filing of claims due to the Contractor's failure to perform.

- c) Failure of Contractor to make payments properly to subcontractor for material and labor used to fulfill contractual requirements.
 - d) Damage to the building as a result of work performed or another subcontractor's failure to perform.
- b. Contractor shall notify Purchaser and Consultant in writing regarding any necessary services, coverage or times which may have been omitted from the maintenance contract specifications and any irregularities, discrepancies or duplications that could affect the full comprehensive intent of the agreement.
- 1) Any duplication of work or coverage is specified as a means of demonstrating the contract requirements, but such duplication, if any, is not intended to expand coverage or increase requirements for such work or services and such duplication shall not increase costs or provide justification for extra or additional charge to the Purchaser.

1.9 AUXILIARY SYSTEMS / TESTING PROCEDURES

F. Emergency Power Selector Panel Operation and Testing (EPO Sequencer)

1. Visual signals and operating devices noted in the following testing procedure are included in the “Emergency Power Selector Panel” section.
 - a. Automatic Mode: If an elevator is requested to return to the main floor, the selector panel lamp will pulse on and off. When this elevator has accepted the request to return, the lamp will illuminate continuously. When the elevator has returned to the main floor, the lamp will extinguish.
 - b. Manual Mode: If an elevator has been selected for service, the selector panel lamp will illuminate continuously. If it is desired to deselect this elevator, push the pushbutton or rotate the selector to deselect. The lamp will pulse on and off until the elevator has returned to the main floor. When the elevator has returned the lamp will extinguish.
2. Emergency Power Operation Automatic/Manual Modes
 - a. Automatic Mode:
 - 1) If an elevator is requested to return to the main floor, the selector panel lamp will pulse on and off. When this elevator has accepted the request to return, the lamp will illuminate continuously. Means shall be provided adjacent to the selector switch(es) to indicate that the elevator is at the designated level with the doors in the normally open position.
 - 2) The auto/manual keyed switch must be in the “AUTO” position when on Normal Power. When emergency power is initiated, the EPS (Emergency Power Sequencer) will attempt to sequentially return all elevators to the main floor. Only one (1) elevator per group can be selected due to the limited power capacity of the emergency power generator. The order in which the elevators are returned can be predefined. If after a predetermined time (45 seconds) a selected elevator does not respond to the request to return, another elevator will be selected. When an elevator returns to the main floor, the elevator will

open the doors to allow passengers to exit and then close its doors. If there are any elevators that are not at the main floor, the EPS will repeatedly attempt to return these elevators, while in Automatic Mode, a maximum of three (3) times.

b. Manual Mode:

- 1) The auto/manual keyed switch can be turned at any time to the “MANUAL” position. At the time the auto/manual keyed switch is turned to the “MANUAL” position, the elevator that was selected while in the Automatic Mode, will automatically return to the lobby floor, open the doors to allow passengers to exit the elevator, and be removed from service. The newly selected elevator will then begin operation and respond normally to hall and car calls.

3. Emergency Power Sequence Elevator Controller Interlocking Operation

a. Automatic Mode EPS (Emergency Power Sequencer):

- 1) With the loss of Normal Power, the stop signal input will be active to inhibit movement of all the elevators.
- 2) When the signal from the emergency generator signals that the power is stable, the EPS will attempt to return all elevators to the main floor. Selection of an elevator is based upon a stop signal output being active to the controller input for all of the elevators that have not been selected to return. The run signal will then be activated to request the selected elevator to return.
- 3) If the request to return is accepted, the elevator will activate a run signal output to the EPS. If after a predetermined time the request to return is not accepted, the request will be withdrawn and another elevator will be selected for return operation.
- 4) When the selected elevator has returned to the main floor, the doors will open to allow passengers to exit and then close its doors. The run signal output will be deactivated and the stop signal output will be activated.
- 5) If while returning an elevator to the main floor or during a manual selection operating mode, the Normal Power becomes available, an input signal (Normal Power Returning) will be activated to force the elevator to slow down and stop at the nearest floor.
- 6) After a predetermined time, the primary elevator controls will be designed to restart elevators one at a time under Normal Power.

b. Manual Mode EPS (Emergency Power Sequencer)

- 1) For an elevator to run in normal service while on emergency power, the run signal input will be released with the selector or push button positioned accordingly.
- 2) To inhibit an elevator from running while on emergency power, the stop signal input will be activated with the selector or push button positioned accordingly.
- 3) If an elevator is running and Normal Power becomes available, a control signal input (Normal Power Returning) will be activated to force the elevator to slow down and stop at the nearest floor automatically and open the doors.

- 4) After Normal Power is restored, all elevators will be restarted on a sequential basis one (1) at a time.
- c. Other E.P.O. Functions and Supplemental Descriptions
- 1) Prior to commencing emergency generator testing, a contingent of personnel familiar with elevator, emergency generator and any other power systems tied into the emergency generator must have communications established between the respective parties, preferably through the use of walkie-talkies or other battery-supported communication devices.
 - 2) Testing of Transfer from Normal to Emergency Power
 - a) Pre-transfer Switch (Test Mode) - At the emergency generator area a test signal to the elevator equipment must be provided before start of emergency generator testing. This signal must be brought to the elevator dispatch controllers via a “dry contact”. (Dry contact logic to be determined by the Manufacturer of the Elevator Control Equipment.) This signal will immediately cause all elevators connected to the system to perform a normal slow down sequence and stop at the nearest available floor. All cars will stop and park with doors open.
 - b) Emergency generator will now be “on line” and when the generator ATS (Automatic Transfer Switch) is energized, connecting the elevator load to the emergency generator, the test signal should be turned “off”. Moving the test switch to “off” will signal the elevator computer to commence automatic recall upon sensing emergency power transfer has occurred. (Depending on the requirements of the Elevator Equipment, a second set of contacts may be required to indicate that the emergency generator is on-line and to begin the automatic sequential return program.)
 - c) Immediate automatic selection of an elevator via built-in software, will return the selected elevator to the main lobby, open the doors and remove the elevator from service. The next elevator in the sequence will be automatically selected to be brought down.
 - d) After all cars that are able to be brought down and secured (with doors open), one car (the “duty” car) will be chosen by on-board controller software to run on emergency power operation.
 - e) If the selected “duty” car, automatically chosen by the controller software, is not desired, an alternate car can be selected by turning the Emergency Power Panel “Auto/Manual” keyed switch to the “Manual” position and move the “Emergency Panel Selection” switch to the position corresponding to the desired car. (The “Manual” key switch must remain in the “Manual” position for the chosen car to remain in service).
 - f) When another car is chosen with an elevator in motion, the car which was running at the time will return to the lobby, open doors and be removed from service. The chosen car will then go into service.
 - g) The emergency panel will be simplified so as to have an “Automatic Position” and “Manual Position”. These positions will be keyed the same as the firemen’s service keys in the designated lobbies.

- 3) Testing of Transferring Emergency Generator to Normal Power
 - a) Prior to transferring to normal power, a “Pre-Transfer” signal shall be provided by the “ATS”. Should an automatic “Pre-Transfer” signal not be provided, the assigned person at the “Emergency Generator Area” should operate the pre-transfer test switch “on”.
 - b) The elevator which was running on the emergency generator will stop automatically at the nearest landing and park with the doors open.
 - c) The emergency generator can now be disconnected and normal power connected upon notification from building personnel that the elevator has parked and is not in motion.

1.10 ALTERNATES:

The following alternatives are elective upgrades which constitute changes to the base scope of work specified. Pricing for each alternate upgrade is requested from the bidder with costs indicated in the appropriate space in the Request for Proposal (RFP). Contractor shall take into consideration, as part of the alternative pricing, alternate work that is required either in lieu of, or in addition to, work specified in the base scope and shall not duplicate costs.

A. Alternate No. 1 - VVVF Emergency Return / Auxiliary Power System (Deduct)

1. Bidders are required to state the deduct amount to not provide and install this system as outlined in 2.6, H. of the specification and only include provisions for Emergency Power operation as outlined in 2.5, I of the specifications in lieu of including emergency battery traction lowering.

PART 2 - PRODUCTS

2.1 GENERAL DESCRIPTION

A. Elevator - No. 1 - State ID: 160-P-318

1.	Quantity	One (1)
2.	Type	Traction/Passenger
3.	Capacity (lbs.)	2,000 lbs.
4.	Speed (fpm)	100 fpm
5.	Travel in Feet	Retain (V.I.F.)
6.	Roping	1:1
7.	Machine Type	New – ACPM Gearless
8.	Power Drive	New – VVVF w/Regenerative
9.	Machine Location	Overhead
10.	Machine Beams	Retain & Modify
11.	Overspeed Governor	New
12.	Governor Tension Sheave	New
13.	Compensation	As Required
14.	Number of Landings	Seven (7) @ *1- 7
15.	Number of Openings	Seven (7)
16.	Front Openings	All
17.	Rear Openings	None
18.	Operation	Simplex selective collective
19.	Controller	New - Microprocessor
20.	Fireman's Service	Phase I and II
21.	Emergency Power	Include Provisions
22.	Emergency Battery Lowering	Include (Alternate No. 1 Deduct)
23.	Car Safety	New
24.	Car Frame	New
25.	Car Platform	New
26.	Counterweight Assembly	Retain & Refurbish
27.	Guide Rails Car & Cwt.	Retain & Refurbish
28.	Car Guide Assemblies	New – Roller
29.	Cwt Guide Assemblies	New - Roller
30.	Car Buffers	New
31.	Cwt Buffers	New
32.	Car Door Size / Type	3'-0" w x 7'-0" h / Single speed side opening
33.	Hoistway Door Size / Type	3'-0" w x 7'-0" h / Single speed side opening
34.	Car Master Door Operator	New – Closed Loop Linear
	a. Car Door Equipment	New – Header, Tracks, Hangers, Clutch
	b. Car Door Panel(s)	New
35.	Hall Entrance Sills	Retain and Clean
36.	Hall Entrance Door Equipment	New – Tracks, Hangers, Closers, Interlocks
37.	Hall Entrance Frames	Retain & Refurbish
38.	Hall Entrance Door Panels	New
39.	Pit Ladder	New
40.	Power Supply	Retain - 208 Volt 3 Phase 60Hz (V.I.F)
41.	Wiring and Traveling Cables	New

42.	CCTV	Include Provisions
43.	Number of Push Button Risers	One (1)
44.	Hall Operating Fixtures	New
45.	Car Operating Fixtures	New
46.	Button and Indicator Illumination	New – As Selected by Owner
47.	Communication	New
48.	Door Protective Device	New
49.	Emergency Cab Lighting	New
50.	Car Ventilation	New
51.	Car Enclosure	New
52.	Car Wall Panels	New – Per Dwg. & Detail Provided
53.	Car Ceiling/Lighting	New – Per Dwg. & Detail Provided
54.	Car Lighting	New – Per Dwg. & Detail Provided
55.	Car Doors	New
56.	Car Flooring	New – Rubber as Selected by Architect
57.	Car Sill	New – Nickel Silver

2.2 MANUFACTURERS

A. Pre-Approved Equipment Manufacturers

1. The following manufacturer's equipment and materials have been pre-approved for use on this project.
2. Other equipment not specifically mentioned shall be considered for approval on an individual basis.
 - a. Controller –Motion Control Engineering (MCE), GAL (GALaxy), Smartrise.
 - b. Tracks, Hangers, Closers, Interlocks - G.A.L. or equal.
 - c. Door Operators – GAL, Wittur, or equal.
 - d. Fixtures - G.A.L., Innovation, Monitor, MAD or approved equal.
 - e. Door Protective Device – Janus Panachrome 3D or approved equal.
 - f. Entrance Door Panels - Tyler, Velis, Gunderlin, Columbia, Peelle or approved equal.
 - g. Cabs – Draper, EID, Hamilton, Roy or approved equal.
 - h. Machines - Imperial, Torin, Hollister-Whitney, or approved equal.
 - i. VVVF Power Drives - MagneTek, Yaskawa, TorqMax, KEB
 - j. Electrical Traveling Cables - Draka, James Monroe.
 - k. Guide Shoes/Rollers – ELSCO, Hollister Whitney or approved equal.
 - l. Wire Ropes - Paulsen, Bethlehem, Wayland, Draka.
3. Original Equipment Manufacturers may substitute their own branded equipment subject to the following:
 - a. All requirements of the specifications are met regarding performance, appearance, serviceability and support.
 - b. A full stock of all regular and critical replacement parts required for this project are maintained at a facility within fifty (50) miles of the project site.
 - 1) Any parts not stocked at the above referenced facility shall be identified with the location of the nearest source and shall be available for next-day delivery upon demand.

- c. All parts and software shall be made available for purchase to a qualified elevator maintenance firm with one (1) business day delivery without direct Owner involvement.
 - 1) Provide details of parts supply facility and a list of current parts pricing for all major components required for the installation.
- d. All specialized tools, equipment, software, and passwords, required to maintain, repair, adjust the operation, and perform code mandated inspections are provided to the Owner as part of the base installation.
 - 1) Updates to these items shall be available via the parts supply facility referenced above.
- e. Technical support of the product(s) shall be available to the Owner's elevator service provider.

2.3 CONTROL FEATURES / OPERATION

A. Motion Control

- 1. Smooth stepless acceleration and deceleration of the elevator car shall be provided in either direction of travel during both single and multiple floor runs.
- 2. Use digital logic to calculate optimum acceleration and deceleration patterns during each run.
- 3. Acceleration, deceleration, jerk, maximum velocity, leveling accuracy and elapsed flight time, for a typical elevator one floor run, shall not exceed values as further specified.

B. Simplex Selective Collective Operation

- 1. Provide simplex selective collective operation from a riser of hall push button stations.
- 2. The registration of one or more car calls shall dispatch the car to the selected floors.
 - a. The car shall also respond to registered hall calls in the same direction of travel.
 - b. Car and hall calls shall be canceled when answered.
- 3. Stops in response to calls that are registered in either the car or hall push button stations shall occur in the natural order of progression in which the floors are encountered, depending on the direction of car travel, and irrespective of the order in which calls are registered.
- 4. When the car has responded to the highest or lowest call, and calls are registered for the opposite direction, the car shall reverse direction automatically and respond to those registered calls.
- 5. When the car arrives at its last stop and reverses direction of travel, all previously registered car calls shall be automatically cancelled.
- 6. When the car arrives at a landing where both up and down hall calls are registered, it will answer the call in the direction of travel.

- a. After a pre-determined delay, if no car call is registered, the car shall respond to calls registered for the opposite direction. Car doors shall close immediately, re-open and respond to the call for the opposite direction.
 - b. Hall lantern operation shall always correspond to direction of service.
7. When an empty car reverses direction at a landing with no hall calls, the doors shall not open and the hall lantern shall not operate.
 8. If the car has no car calls registered and arrives at a floor where both up and down hall calls have been registered, the car shall respond to the hall call corresponding to the last direction of car travel. If, after making its stop, a car call is not registered and no other hall calls exist ahead of the car corresponding to its original direction of travel, the doors shall close and immediately reopen in response to the hall call for the opposite direction.
 9. The car shall maintain its original direction at each stop until the doors are fully closed to permit a passenger to register a car call before the car reverses its direction of travel.

C. Independent Service Operation

1. The car operating station shall be equipped with a key-operated switch labeled “IND SER”.
2. Locate the switch in the locked service compartment.
3. When placed in the “on” position the following shall occur:
 - a. existing hall call registrations shall extinguish and hall buttons shall remain inoperative as an indication to passengers that there is no elevator service.
4. During Independent Service Operation, the elevator doors shall remain open at any landing until the door close or a car call push button is pressed and maintained until the doors are fully closed.
5. If more than one (1) car call is registered, all registered car calls shall extinguish when the elevator stops in response to the first call.
6. Fire Emergency Recall shall automatically override Independent Service Operation and engage Phase I - Fire Emergency Recall Operation following a period of approximately forty-five (45) seconds.

D. Inspection Service Operation

1. Provide a key operated switch in the main car operating panel locked service panel that, when turned to the ‘ON’ position, shall cause the elevator to be removed from service and placed in Inspection Service Operation.
2. Limited operation of the car shall be provided through pressing the Attendant Service up and down push buttons (if provided) or the highest or lowest car call push buttons (if up and down buttons are not provided) in the main car operating panel only.
3. The car shall move at a speed not to exceed 150 feet per minute (0.75 meters per second) as per code with both the hall and car door panels in the closed and locked position.
4. The Inspection Service switch shall be keyed differently than other typical keys used in the operation of the elevator. Keying shall be in accordance with Security Group Classifications as required by applicable code.
5. The top of the elevator car shall be equipped with a control for limited operation of the car during repairs, maintenance and inspection conducted in the hoistway. The transfer of control to the top of car operating device shall cause that device to be the sole means of control for the elevator.

- a. Visual and audible indication shall be provided on the top of the car when Firefighters' Emergency Operation is initiated.
 6. Power door operating equipment shall be rendered inoperative while the car is being operated in the Inspection Service mode with the exception of power closing of the door. The control system shall maintain closing power on the door while the elevator is moving under Inspection Service Operation.
 7. The in-car Inspection Service switch shall be rendered ineffective when the top of car inspection control is activated.
 8. Machine Room Inspection Operation and Inspection Operation with open door circuits shall be provided in accordance with A17.1 Safety Code, as modified and adopted, where required or allowed by the AHJ.
- E. Hoistway Access Operation
1. Provisions shall be made to allow access to the hoistway through the use of hoistway access switches.
 2. Operating the access switch shall permit the car to move at a speed not to exceed 150 feet per minute (0.75 meters per second) as per code with the hall and car doors in the open position to obtain access to the top of the car or climb-in pit.
 3. The car shall automatically stop motion when the car top is level with the hoistway door sill for access to top of car.
 4. The access key switch(es) shall be keyed differently than other typical keys used in the operation of the elevator. Keying shall be in accordance with Security Group Classifications as required by applicable code.
 5. Access operation shall be disabled when top of car inspection operation is in effect.
- F. Load Weighing Operation
1. A positive means shall be provided to continuously monitor the amount of load being transported by the elevator car.
 2. The system shall be used to:
 - a. Preload static motor drives.
 - b. Activate control features that include:
 - 1) anti-nuisance operation.
 - 2) load dispatch operation.
 - 3) load dependent non-stop operation where applicable.
 3. The anti-nuisance feature shall operate at loads not exceeding 200 lbs., whereas load dispatch and load non-stop shall be set to function at 65% of the rated loading capacity for the initial set up and adjustment procedure.
- G. Anti-Nuisance Operation
1. In the event car loading is not commensurate with the number of car calls registered, all car calls shall be canceled.
 - a. The system shall monitor the door protection device to determine if passenger transfer has occurred.

- b. If after the third (3rd) stop a passenger transfer has not occurred, the system shall cancel all remaining registered car calls and respond to assigned hall call demand.
- c. The number of calls registered with no passenger transfer that will trigger anti-nuisance shall be adjustable and initially set to three (3) calls.

H. Firefighters' Emergency Operation

1. Phase I Emergency Recall Operation shall be provided for each car in accordance with ASME A17.1 code as modified under the applicable local or State law.
2. Each main or auxiliary car operating station shall be provided with an indicator light and warning buzzer, each of which shall become activated whenever Phase I Operation is engaged.
 - a. The warning buzzer shall cease to function once the car has completed the recall sequence and is positioned at the designated recall landing.
 - b. The indicator light shall remain illuminated as long as Phase I Operation is activated.
3. A three-position, key-operated switch shall be provided on the designated recall landing to manually activate Phase I Operation.
 - a. When activated, Phase I Operation shall be arranged so that in order to reset normal service, all cars must first be returned to the designated recall landing, after which the Phase I key-switch must be turned to the "OFF" position.
4. A "Standardized Fire Recall Key" shall be used in accordance with the applicable Chapter of the Public Law. This key shall be a Yale #3502. The key switch grooves shall be constructed and installed with the cut side facing up per local AHJ.
 - a. The "Standardized Fire Recall Key" shall apply to both Phase I and Phase II Operation as well as firefighters' operation panel cover
5. Phase II Emergency Recall In-Car Operation shall be provided in accordance with ASME A17.1 code as modified under local or State law.
6. Locate controls required for Phase II In-Car Operation in a locked access cabinet in the main car operating panel.
 - a. The cover of the locked access panel shall be engraved as required by local or State law.
 - b. The locked access panel shall contain:
 - 1) "Standardized Fire Recall Key" Phase II key switch.
 - 2) Fire indicator light.
 - 3) Call cancel push button.
 - 4) Door open push button.
 - 5) Door close push button.
 - 6) Run/Stop switch.
 - 7) Other devices as may be required by local law.
 - c. Engrave the Firefighters' Service operating Instructions on the inside of the locked cabinet door.

I. Emergency Power Operation

1. Upon loss of normal power, and establishing of emergency power, all elevators shall automatically resume normal operation.
 - a. Elevators shall start sequentially so as to prevent overloading of the emergency power system.
 - b. Sequential transformer connection operation shall be employed where necessary to reduce half-cycle inrush currents.
2. An illuminated signal marked “ELEVATOR EMERGENCY POWER” shall be provided in the elevator lobby at the designated level to indicate that the normal power supply has failed and the emergency power is in effect.
3. Prior to return to normal power, the building ATS shall provide a “pre-transfer” signal to the elevator equipment that will initiate the landing of elevators prior to transfer from emergency power to normal power.
 - a. Timer of the pre-transfer signal shall be adjustable from fifteen (15) to thirty (30) seconds.
4. The following additional requirements apply:
 - a. Firefighters’ Service Operation, if in effect, will remain active at all times during emergency power operation.
 - b. Car lighting will remain active with car lighting on separate emergency power feeders in addition to battery back-up.
 - c. Communications will remain active at all times on emergency power feeders in addition to battery back-up.
 - d. Remote monitoring, where provided, will be active from each group dispatcher for selected elevators using an uninterrupted power supply (UPS) to maintain the central processing unit during power transfers.
 - e. Position indicator for each elevator will be active in the selected elevator and security room (where applicable), as well as lobby display panels.
5. Testing of elevators under emergency power shall be accomplished with the building ATS providing necessary “pre-transfer” signals to the elevator control apparatus.
 - a. Prior to testing, the building ATS shall provide a “pre-transfer” signal to initiate the landing of the elevators prior to the transfer from normal to emergency power.
 - b. After testing, the building ATS shall provide a “pre-transfer” signal to initiate the landing of the elevators prior to the transfer from emergency to normal power.
6. Where modernization of elevators is to be performed in phases, emergency power operation shall be tested by the building personnel upon completion of each individual elevator, after regular business hours. Contractor shall provide all necessary labor and include all corresponding overtime cost in the base bid.

J. Floor Lockout Feature / Keyless - Card Reader Control / Wiring Provisions

1. Wiring: Provide six (6) pair of 20 gauge two (2) flexible conductor low voltage cables with an overall braided shield in the traveling cable of all elevators for card reader interface.

- a. The cables shall extend from the security interface terminal cabinet in the elevator machine room to behind the elevator return panel above the space allotted for the card reader.
 - b. Terminate the cable to dual screw barrier terminal strips on each end.
2. Card Reader Space: Allocate card reader space in each main car station as directed by the Architect. Provide a flush Lexan lens and mounting provisions for the card reader unit which is provided by others.
 3. Interface: For floor programmable card access control in all elevators, provide a pair of terminals for all floors such that application of a momentary dry (no voltage present) contact closure across those terminals by the security system shall enable the selection of the corresponding floor from the floor selector button in the elevator cab.
 - a. Locate the terminals inside an interface terminal cabinet in the elevator machine room.
 - b. Provide all relays required to interface the elevator control system to the momentary dry contact closures provided for under another section of these specifications.
 - c. If applicable, the card reader shall be operable and compatible with the issued card keys used building wide.
 - d. Coordinate system requirements with the manufacturer of the issued card key system.
 4. The card reader operation shall bypass floor cut-out switches.
 5. Firefighters' Service Operation shall override Floor Lockout Feature.

K. Elevator Security Interface Requirements / CCTV

1. Interface Terminal Cabinet
 - a. Provide a terminal cabinet in each elevator machine room for elevator / CCTV system interface. The terminal cabinet shall contain all terminals required to interface the elevators located in the machine room to the CCTV system provided by others.
2. Interface Terminal Cabinet Installation
 - a. Install the interface terminal cabinet within the elevator machine room in a readily accessible location no more than 6'-0" AFF.
 - b. Provide interconnect wiring from the elevator control system to the interface terminal cabinet.
3. CCTV Camera Installation
 - a. Where existing CCTV cameras are in place, the CCTV camera shall be carefully removed, labeled, stored and re-installed shall by the Elevator Contractor.
 - 1) The security contractor shall provide supervision, wiring details and installation diagrams to the Elevator Contractor if requested.
 - b. The exact CCTV camera locations shall be specified by the owner.

- c. Where existing CCTV camera exists, re-install in the same location and configuration unless otherwise directed.
 - d. Where no camera exists, the owner will provide the new camera and security contractor supervision.
 4. Traveling Cable Installation
 - a. Traveling cables for the CCTV camera shall extend from the elevator / security interface terminal cabinet in the elevator machine room to the top of the elevator cab. Provide an excess loop of ten (10) feet of cable at each end.
 5. Conduit, Power and Wiring
 - a. Provide all conduit, power and wiring required for the installation of the terminal cabinet, traveling cables and interfacing to the elevator control system.
 - b. Provide one (1) 120V duplex unswitched outlet dedicated to security on top of each elevator equipped with CCTV camera.
- L. Door Operation
 1. Car and hoistway doors shall be arranged to operate in unison without excessive noise or slamming in either direction of travel.
 - a. Door opening speeds of two (2) feet per second shall be provided in conjunction with closing speeds of 1.0 foot per second in accordance with governing code.
 - b. Door operation shall commence as the car stops level at the floor and the machine brake is applied. Pre-door opening shall not be permitted.
 2. Where the hoistway door and the car door are mechanically coupled, the kinetic energy of the closing door system shall be based upon the sum of the hoistway and the car door weights, as well as all parts rigidly connected thereto, including the rotational inertia effects of the door operator and the connecting transmission to the door panels.
 3. The force necessary to prevent closing of the car and hoistway door from rest shall not exceed thirty (30) lbf. This force shall be measured on the leading edge of the door with the door at any point between one-third and two-thirds of its travel.
 4. Door open and door close time shall be measured between the moment car door operation in either direction begins and the instant at which that cycle is completed.
 5. When responding to either a car or corridor call, the amount of time that the elevator door remains stationary in the open position shall be adjustable up to sixty (60) seconds.
 - a. Door open dwell time for a corridor call shall be separate of that for a car call, and in both cases, dwell time shall be canceled whenever the car door protection device is momentarily interrupted by passenger transfers, followed by a reduced door open dwell time of approximately one (1) second (adjustable) after the door protection device is cleared of obstructions.
 6. The operation of the door protective device by interruption of one or more infrared light beams (dual or multi-beam non-contact) during the close cycle shall cause the immediate reversing of the doors to the full open position.
 7. The door closing cycle shall be arranged so that, in the event the door protective devices become continually obstructed after the normal door open dwell time has expired, and

- following a time interval of approximately thirty (30) seconds (adjustable), a warning tone shall sound and the door closing cycle shall commence at reduced speed and torque per applicable Code requirements.
8. Each car operating station shall be provided with a “door open” and “door close” push button.
 - a. Pressure on the “door open” button shall cause doors in the full open position to remain so and doors engaged in the close cycle to reverse direction and assume the full open position so long as pressure remains applied to the button.
 - b. The “door open” buttons shall also control the open cycle during Phase II - Emergency In-car Operation.
 - c. The “door close” push button shall function on Independent Service, Attendant Service and Phase II - Emergency In-car Operation as well as during normal automatic operations.
 9. The car operating station shall be provided with a “door hold” push button.
 - a. Pressure on the “door hold” button shall cause doors in the full open position to remain in the open position and doors operating in the close cycle to reverse direction and travel to the full open position for an extended (adjustable) period of time to allow for loading and unloading.
 - b. The “door hold” feature shall be overridden when the elevator is on Fire Emergency Phase I and Phase II.
 - c. The “door hold” feature shall be canceled when the “door close” button is pressed.
 10. Repeated attempts by the power door operator to open or close the door at any landing shall be monitored by the control system.
 - a. In the event the door fails to cycle properly after a preset (adjustable) number of attempts, the car shall either travel to the next stop or remove itself from service, depending upon whether the malfunction is in the open or close cycle.
 11. Each hoistway door shall be provided with an automatic self-closing mechanism arranged so that the door shall close and lock if the car should leave the landing while the hoistway door is unlocked.
 12. Car doors shall be arranged to prevent their being manually opened from inside the car unless the elevator is positioned within a floor landing zone.

2.4 MACHINE ROOM / SECONDARY EQUIPMENT

A. Control Equipment (New)

1. Provide a microprocessor-based elevator control system.
2. Digital logic shall calculate optimum acceleration, deceleration and velocity patterns for the car to follow during each run.
3. Closed-loop distance and velocity feedback shall monitor the actual performance of the elevator car with the desired speed profile.
4. System operating software shall be stored in non-volatile memory.

- a. Elevator control relays, contactors, switches, capacitors, resistors, fuses, circuit breakers, overload relays, power supplies, circuit boards, static motor drive units, wiring terminal blocks and related components shall be totally enclosed inside a free-standing metal cabinet with hinged access doors.
- b. The motor drive may be located in its own cabinet where the physical size of the drive prohibits installation within the elevator signal controller cabinet.
- c. Mechanical ventilation of the cabinet shall be provided and shall be adequate to dispose of the full load heat losses without exceeding 40° C (104° F) ambient temperature.
 - 1) Control equipment cabinets shall be provided with forced air ventilation to prevent overheating of the electrical components housed therein.
- d. All electrical wiring inside the control equipment cabinet shall be performed in a neat manner with field wiring terminated at stud blocks provided inside the control cabinet.
- e. Each wiring terminal shall be clearly identified according to the nomenclature used on the “as built” wiring diagrams. No more than two (2) field wires may be connected to any single terminal stud.
- f. Spare wires shall be tagged according to their point of termination, bundled, and placed at the bottom of the control equipment cabinet.
- g. Each electrical component within the cabinet shall be permanently identified with symbols, identical to those used on the “as-built” wiring diagrams.
- h. A data plate that indicates the edition of the Code in effect at the time of installation and/or alteration shall be provided in accordance with applicable code and requirements of ASME A17.1 Code. The data plate shall be in plain view and securely attached on the mainline disconnect or on the controller.
- i. Control equipment shall comply with requirements of all applicable Sections of the ASME A17.1 Code as approved and adopted by the AHJ.
- j. The manufacturer’s standard on-board “LCD” display shall be incorporated on the main processor board and/or otherwise incorporated in the controller cabinet. The “LCD” shall be capable of providing alpha-numeric characters to view the operational status of the elevator and/or group functions depending on the application. The display shall provide the user with necessary information for troubleshooting and reprogramming of the basic system parameters.
 - 1) Where the “LCD” is not an integral part of the controller and troubleshooting/reprogramming requires the use of a separate tool, the tool shall be maintained in the machine room and accessible to service personnel. This tool, along with all technical documentation for the correct use of the tool, shall remain the property of the Owner.
 - 2) Password protection of critical programming features is required to prevent accidental changes to life-safety and other non-typical control settings.
 - 3) Where a separate dispatch or group control panel is provided, a separate “LCD” display shall be provided to view group functions.

B. Machine Beams (Existing)

1. Provide additional support beams, angles, plates, bearing plates, blocking steel members, etc., to support new machine, governors, dead end hitches, deflector and overhead sheaves from existing machine beams where applicable.

2. Contractor shall verify adequacy of all existing supports scheduled to be reused and report any potential issues to the Owner.

C. Gearless Elevator Hoisting Machine (New)

1. Provide a permanent magnet synchronous motor (PMSM) alternating current (AC) gearless traction machine, specially designed and manufactured for elevator service. The machine shall have high starting torque and low starting current, rated for 50⁰ C (90⁰ F) continuous operation, and a minimum of 240 starts per hour.
 - a. The traction driving sheave and brake drum shall be cast integral and bolted securely to the main armature shaft.
 - b. Securely mount the machine frame, including motor fields, bearing stands and brake on a heavy steel bedplate.
 - c. The armature shaft shall be supported in ball or roller type bearings.
 - d. Minimum class “F” (or approved equal) insulation shall be used to ensure long-term reliability.
 - e. The driving sheave shall be cast from the best grade of metal with a Brinell hardness of 215 to 230 and shall be machined with grooves, providing maximum traction with a minimum of rope and sheave wear.
 - 1) Roping requirements and type of steel rope used as suspension means shall be engineered by the contractor and manufacturer of the equipment for maximum life of ropes and sheave.
 - f. Ensure that adequate ventilation of internal stator windings and rotating element is provided to prevent overheating with thermal overload protection. (Constant velocity fan for constant cooling.)
 - g. Equip housing with eyebolt(s) for lifting.
 - h. Provide the machine with an electro-mechanical brake.
 - 1) Brakes shall be drum or disk-type.
 - 2) The brake shall be spring applied and electrically released.
 - 3) Design the brake electro-magnet for quick release and application of the brake.
 - 4) The brake lining material shall be non-asbestos.
 - i. Design the brake for quick release to provide smooth and gradual application of the brake shoes or pads.
 - 1) An emergency brake shall be an integral part of the machine design.
 - j. Provide 14-gauge hoist cable guards at the car-drop and counterweight-drop side of the machine sheave.
 - 1) Guards shall cover cables from the point of slab penetration to the point where the hoist cables contact the sheave.
 - 2) Guards shall prevent access to cables at pinch points.
 - 3) Guards shall have no sharp edges.
 - 4) Guards shall be properly mounted to prevent vibration.

- k. Provide a sheave guard to prevent hoisting rope from jumping off grooves and to prevent possible entrapment on both sides of the floor penetrations.
- l. Design and construct the hoisting machine based on passenger elevator cab enclosure weight as specified and as shown on the architectural drawings.

D. Emergency Brake (New)

1. Ascending Car Overspeed Protection Device

- a. Provide a device designed to prevent an ascending elevator from striking the hoistway overhead structure.
- b. The device shall decelerate the car with any load up to the rated capacity by applying an emergency brake.
 - 1) The device shall detect an ascending car overspeed condition of not greater than 10% higher than the speed that the car governor is set to trip.
 - 2) The device, when activated, shall prevent operation of the car until the device is manually reset.
 - 3) The device shall meet the requirements of the ASME A17.1 Safety Code as may be modified by the AHJ.

2. Unintended Car Movement Protection Device

- a. Provide a device to prevent unintended car movement away from the landing when the car and hoistway doors are not closed and locked.
 - 1) The device shall prevent such movement in the event of failure of:
 - a) The electric driving machine motor.
 - b) The brake.
 - c) The machine shaft or shaft coupling.
 - d) Machine gearing.
 - e) Control system.
 - f) Any component upon which the speed of the car depends.
 - g) Suspension ropes and the drive sheave of the traction machine are excluded.
 - 2) The device shall prevent operation of the car until the device is manually reset.
 - 3) The device shall meet the requirements of the ASME A17.1 Safety Code as may be modified by the AHJ.

3. Where the installation of the Emergency Brake involves the raising of existing hoisting machines or modifications to the machine room slab, the contractor shall provide necessary engineering data, structural review and drawings as part of the submittal process.

E. Deflector Sheave (New)

1. Provide overhead wire rope deflector sheave(s) with related apparatus and structural mounting supports.

- a. Locate and size new sheave to maximize use of available clearances maintaining the present car and counterweight hitch drops.
- b. New support bearings shall be of a roller type designed for a minimum of twice the total load calculation.
- c. The sheaves shall be equipped with suitable lubrication devices.
- d. The deflector sheave shall be provided with means to guard the hoist ropes so they do not jump out of their respective grooves during a slack rope condition. This guarding shall be equipped with a cover for additional protection.
- e. Required new mounting beams and structural supports shall be interfaced with existing building structures as may be modified under the terms of this contract for the new design rated loading where applicable.

F. VVVF AC Drive (New)

1. Provide a solid-state, variable voltage, variable frequency (VVVF), 3-phase AC hoist motor drive system as part of the microprocessor-based equipment.
 - a. VVVF drive system shall be a low-noise, flux-vector inverter device.
 - b. Include a digital LED readout and touch-key pad to facilitate software parameter adjustments, monitor system operation and display fault codes.
2. The drive shall utilize a 3-phase, full wave rectifier and capacitor bank to provide direct current power for solid-state inversion.
3. The inverter shall utilize IGBT power semiconductors and duty cycle modulation fundamental frequency of not less than one kilohertz to synthesize 3-phase, variable voltage variable frequency output.
4. The system shall be designed and configured with the following countermeasures for noise generated by the pulse-width modulated (PWM) inverters.
 - a. Control of radiated noise via inverter and/or motor cables.
 - b. Conducted noise through power lines.
 - c. Induction noise and ground noise.
5. Inverter shall be encased in metal and independently grounded.
6. A noise filter for the input power line shall be provided to prevent penetration into radios, wireless equipment and smoke detectors.
7. A 3% three-phase line reactor shall be provided on the power system rated at the utility voltage input to the drive and sized for the rated drive current.
8. The drive shall:
 - a. Be configured as a complete digital drive system.
 - b. Be totally software configurable.
 - c. Interface with external equipment/signals via either discrete local I/O connections or high speed Local Area Network (LAN).
 - d. Be located within the limits of the control cabinet (where system size allows) or separately mounted in an appropriate chassis with hinged swing-out doors with clearances equal to the cabinet width dimensions.
 - e. Provide programmable linear or S-curve acceleration.
 - f. Provide free run or programmable linear or S-curve deceleration.
 - g. Have controlled reversing.

9. Operating and Environmental Conditions:

- a. Have a service factor of 1.0.
- b. Rated for continuous duty.
- c. Humidity - 90% rated humidity non-condensing.
- d. Cooling - forced air when required.
- e. Digital display for:
 - 1) Running - output frequency, motor RPM, output current, voltage.
 - 2) Setting - Parameters values for setup and review.
 - 3) Trip - separate message for each trip, last thirty (30) trips to be retained in memory.

10. Protective Features:

- a. Motor overspeed.
- b. Adjustable current limit.
- c. Isolated control circuitry.
- d. Digital display for fault conditions.
- e. Selectable automatic restart at momentary power loss.
- f. Manual restart.
- g. Over/Under Voltage.
- h. Line to line and line to ground faults.
- i. Over-temperature.

G. VVVF AC Drive - Regenerative Module (New)

1. The system shall provide full regenerative capabilities to control overhauling motor speed and reduce hoist motor deceleration time by allowing overhaul power to be discharged back into the power lines.
 - a. The regenerative section may be an integral part of the drive or a stand-alone unit mounted in a separate cabinet with proper ventilation as required by the manufacturer.

H. VVVF Emergency Return / Auxiliary Power System (New) – **Alternate No. 1 (Deduct)**

1. Provide a system that will make back-up power available to the elevator when commercial power fails.
2. The unit shall safely move the elevator to a landing and provide power to the door operator to allow passengers to exit.
3. Movement of the car may be load dependent utilizing dynamic braking to control car speed.
4. The unit shall include:
 - a. On board controller.
 - b. UPS status monitor capable of notifying building management system.
 - c. Restart input from the car door open button.
 - d. Test button to simulate power failure.
 - e. UPS bypass control.
 - f. Monitoring of the disconnect switch.
 - g. Lockable shut-off switch.

- h. Three phase, 208/460 VAC input.
- i. Battery level LED indicator.
- j. Necessary fusing for batteries, outputs, logic circuitry and charger.

I. Overspeed Governor (New)

- 1. Provide a speed governor, located overhead in the machine room or secondary level to operate the car safety.
 - a. Maintain the proper tension in the governor rope with a weighted tension sheave located in the pit.
 - 1) Springs used to develop the tension are not acceptable.
 - b. Provide rope grip jaws, designed to clamp the governor rope to actuate the car safety upon a predetermined overspeed downward.
 - 1) The centrifugal type governor shall trip and set rope jaws within 60 degrees of governor sheave rotation after reaching rated tripping speed.
 - c. Design the governor rope tripping device so that no appreciable damage to or deformation of the governor rope shall result from the stopping action of the device in operating the car safety.
 - d. Provide an electrical governor overspeed protective device which shall remove power from the driving machine motor and brake before or at the application of the safety.
 - 1) The setting for the overspeed switch shall be as prescribed in the ASME A17.1 Safety Code.
 - 2) Locate and enclose the switch to ensure that excess lubrication will not enter the switch enclosure.
 - 3) Overspeed switch shall operate in both direction of travel on systems employing a static power drive unit.
 - e. Seal and tag the governor with the running speed, tripping speed and date last tested.
 - f. Design the governor to prevent false tripping due to conditions caused by rope dynamics.

J. Equipment Isolation (New)

- 1. Provide sound reducing vibration isolation elements at all support points of elevator controller, solid-state motor drives, isolation transformers, reactance units, hoisting motors and machines.
- 2. The elements for controllers, solid-state motor drives and isolation transformers shall be similar to double deflection neoprene-in-shear mounts, as manufactured by Mason Industries, Type ND, with 0.35” static deflection under design load ratings.
- 3. Elements between the hoisting machine unitized base and machine support beams shall be similar to triple layer ribbed neoprene pads, separated by appropriate steel shims as manufactured by Mason Industries, Type W pads, at 50 durometer, loaded for 40 psi or approved equal.

4. All bolts through isolation elements, where necessary, are to incorporate resilient washers and bushings.

K. Emergency Stop Switches (New)

1. Provide a positive action stop switch at the following locations as required by applicable code:
 - a. Machine Room & Secondary level(s).
2. The switch(es) shall be arranged to prevent the application of power to the hoist motor and machine brake when placed in the “OFF” position.
 - a. Clearly identify the switch with permanent marking on the switch cover that indicates “RUN” and “STOP” positions per AHJ.

2.5 HOISTWAY EQUIPMENT

A. Guide Rails / Inserts / Brackets (Reuse)

1. Car and counterweight guide rails, fishplates, rail brackets, backing support and related attachments shall be inspected to determine if unfavorable conditions exist that diminish the structural integrity of any component.
 - a. In the event substandard conditions are disclosed by means of this inspection, the Contractor shall immediately inform the Consultant as to the exact nature of said problems and then undertake whatever repairs and/or replacements the Consultant may deem appropriate to remedy the situation.
2. Each stack of guide rails shall be individually examined to determine if excessive compression has occurred from building settlement.
 - a. In the event such conditions are found to exist, each affected stack shall be cut off enough to relieve pressure.
 - b. Jacking bolts shall be provided underneath each stack of both car and counterweight guide rails.
3. Each stack of guide rails shall be realigned so that total deviation from plumb in any direction does not exceed 1/8” over the entire length of the hoistway and that DBG measurements never vary more than .030”.
4. As required, car guide rails joints shall be individually filled, filed and sanded in order to eliminate minor variations in adjoining machined surfaces.

B. Counterweight Assembly (Reuse)

1. The existing counterweight assembly shall be refurbished to as new condition and reused.
2. Individual counterweight frame members shall be inspected for any indication of damage and to determine if the overall assembly is twisted, racked, or otherwise distorted.

- a. All fastenings between counterweight frame members shall be individually examined, tightened and if necessary renewed.
 - b. In case any of these conditions are found to exist, the Contractor shall immediately inform the Consultant about the exact nature of the problem and undertake whatever corrective action the Consultant may deem appropriate to remedy the situation.
3. The amount of filler weight placed within the counterweight frame shall be adjusted so the weight of the entire counterweight assembly is equal to that of the renovated elevator car, plus forty to forty-two percent (40-42%) of its rated loading capacity unless otherwise required by a manufacturer where new hoisting machinery is employed.
- a. Filler weights shall be held securely in place at all times with tie rods passing through holes in both the weights and the counterweight frame with tie rods secured on each end with double lock nut and a cotter pin arrangement.

C. Roller Guides (New)

1. Provide roller guide shoes with adjustable mounting base, rigidly bolted to the top and bottom of each side of the car and counterweight frame.
 - a. Roller guides shall consist of a set of sound reducing neoprene or polyurethane wheels, as recommended by manufacturer, in precision bearings held in contact with the three (3) finished rail surfaces by adjustable stabilizing springs
 - b. The bearings shall be sealed or provided with grease fittings for lubrication.
 - c. Equip roller guides with adjustable stops to control postwise float.
 - d. Fit the top car roller guides with galvanized, painted or powder coated steel guards.
2. Roller guides shall not be installed on counterweight frames where traveling buffers with separate guide shoes are employed and lubrication of the rails is necessary for proper guide operation.
3. Roller guides shall not be installed on counterweight frames where counterweight safeties are employed and prevailing conditions prohibit installation due to limitations in clearances or in cases where rollers will interfere with the operation of the safety plank.

D. Hoist Ropes (New)

1. Pre-formed traction steel wire rope, specifically constructed for elevator applications, shall be provided for suspension of the elevator car and counterweight assembly.
 - a. Fastenings shall be accomplished by use of individual tapered rope sockets (wedge clamp) with adjustable shackles.
 - b. General design requirements for rope shackles and the method of securing wire rope shall conform with ASME A17.1 elevator safety code as modified by, and/or in addition to codes and standards accepted by the AHJ.
2. Broken rope shackle springs shall be replaced on an as needed basis.
3. New rope shackles shall be provided.
4. Existing hitch plates shall be inspected for wear. Hitch plates with elongated holes or other conditions that may damage shackles shall be replaced with new.
5. Provide anti-spinout as required by applicable code at all shackles where applicable.

E. Governor Rope (New)

1. Pre-formed wire rope specifically constructed for elevator applications, shall be provided for governor ropes.
 - a. Rope shall be traction steel or iron in accordance with OEM design requirements.
 - b. Rope diameter and method of fastening shall be in accordance with ASME A17.1 Safety Code as adopted and/or otherwise modified by the AHJ.

F. Electrical Conduit / Wiring / Traveling Cable (New)

1. Electrical wiring shall be provided.
 - a. All wiring shall be stranded copper conductors, manufactured in compliance with ANSI/ASTM B174-71 and UL 62 requirements, and polyvinyl chloride insulation complying with ETT requirements of UL 62 and Article 400 of the National Electric Code.
 - b. Electrical wiring provided for hoistway interlock shall be of a flame retardant type, capable of withstanding temperatures of at least 392 degrees Fahrenheit. Conductors shall be Type SF or equivalent.
 - c. Each run of electrical conduit or duct shall contain no less than 10% spare wires and, in any case, no fewer than two (2) spare wires.
 - d. Crimp-on type wire terminals shall be used where possible.
2. Traveling cable shall be provided.
 - a. Each traveling cable shall be provided with a flame and water resistant polyvinyl chloride jacket.
 - b. Electrical wiring shall consist of stranded copper conductors, manufactured in compliance with ANSI/ASTM B174-71 and UL 62 requirements, and polyvinyl chloride insulation complying with ETT requirements of UL 62 and Article 400 of the National Electric Code.
 - c. Each traveling cable shall contain no less than 10% spare wires.
 - d. Traveling cable exceeding 100' in length shall be provided with a steel wire rope support strand from which the cable shall be suspended.
 - e. Traveling cable must be contained within an approved electrical conduit to within 6' of the final suspension point in the hoistway.
 - f. Each traveling cable shall be arranged to provide no fewer than six (6) individually shielded pairs of 20 gauge wire and arranged to contain no less than one (1) coaxial cable for CCTV remote monitoring.
 - g. Traveling cable conductors that terminate at a hoistway center box shall be connected to stud blocks provided for that purpose.
 - 1) Each wiring terminal shall be clearly identified by its nomenclature as shown on the "as built" wiring diagrams and solderless, crimp-on type wire terminals shall be used where possible.
 - h. The attachment of a traveling cable to the underside of the elevator car shall be performed so that a minimum loop diameter of 30x the cable diameter is provided.
 - i. Pre-hang the cables for at least twenty-four (24) hours with ends suitably weighted to eliminate twisting during operation.

3. Rigidly supported EMT conduit, flexible metal conduit and galvanized steel trough shall be utilized throughout the hoistway.
 - a. Both EMT and flexible conduit shall be connected on either end by use of compression fittings and secured in place with metal clamps sized in accordance with the diameter of conduit utilized.
 - 1) Wire or plastic wire ty-raps shall not constitute an acceptable means of fastening.
 - b. The use of flexible metal conduit shall be limited to runs not greater than three feet (3') in length.
 - c. All abandoned or unused electrical conduit shall be removed from the hoistway.
 - d. Existing conduit and wiring duct may be reused if suitable for the application.
 - 1) Reuse of existing conduit/duct shall be at the discretion of the Consultant.

G. Normal and Final Terminal Stopping Devices (New)

1. Provide normal terminal stopping devices to stop the car automatically from any speed obtained under normal operation within the top and bottom overtravel, independent of the operating devices, final terminal stopping device and the buffers.
2. Provide final terminal stopping devices to stop the car automatically from the speed specified within the top clearance and bottom overtravel.
3. The terminal stopping devices shall have rollers with rubber or other approved composition tread to provide silent operation when actuated by the cam fixed to the top of the car.
 - a. Terminal stopping devices that are not mechanically operated (i.e.: magnetic proximity) shall be provided by the manufacturer of the control equipment, intended for use as a terminal limit, and designed for reliable operation in the hoistway environment.
4. Final terminal limits shall be pinned so as to prevent movement after final adjustment where required by the AHJ.

2.6 PIT EQUIPMENT

A. Car and Counterweight Buffers (New)

1. Provide buffer with necessary blocking and horizontal steel braces under the car and counterweight.
2. Provide spring type buffers for elevators with operating speeds of up to and including 200 fpm.
3. Use oil buffers for elevators with operating speeds over 200 fpm.
4. Oil buffer shall bring the car and counterweight to rest from governor tripping speed at an average rate of retardation not exceeding gravity (32 ft/s²).
5. Oil buffer shall be of the spring return type and shall have means of checking oil supply level.
6. Use reduced stroke buffer with associated terminal slowdown devices where runby is restrictive.

- a. Buffer and emergency terminal slowdown device shall operate in accordance with applicable codes.
 7. The buffer shall be tested and approved by a qualified testing laboratory.
 8. Provide a permanent buffer marking plate which indicates the manufacturer's name, identification number, rated impact speed and stroke.
 9. Provide a permanent data plate in the vicinity of the counterweight buffer indicating the maximum designed counterweight runby.
 10. Support buffers from the pit floor level with all required blocking and bracing steel members.
 11. Coordinate the installation of the buffer inspection platform and ladder under this scope of work. Provide details and drawings for approval.
- B. Governor Rope Tension Assembly (New)
1. Provide a governor rope tension assembly.
 - a. Maintain the proper tension in the governor rope with a weighted tension sheave located in the pit.
 - 1) Springs used to develop the tension are not acceptable.
 - b. The sheave shall be of proper diameter and set directly plumb with the governor rope drop to prevent the rope from pulling off of the sheave at an angle.
 - c. Lubrication fittings shall be provided on the assembly.
 - d. The assembly shall have necessary rope guards to prevent accidental contact of the rope/sheave by service personnel and to prevent the governor rope from jumping off of the sheave.
- C. Pit Stop Switch (New)
1. Where pit depth does not exceed 67", each elevator pit shall be provided with a push/pull or toggle switch that is conspicuously designated "EMERGENCY STOP" and located so as to be readily accessible from the hoistway entrance on the lowest landing served at a height of approximately 18" above the floor.
 - a. This switch shall be arranged to prevent the application of power to the hoist motor and machine brake when placed in the "OFF" position.
 2. Where climb-in pit depth exceeds 67", each pit shall be provided with two (2) push/pull or toggle switches conspicuously designated "EMERGENCY STOP".
 - a. Both of these stop switches, shall be located immediately adjacent to the pit access ladder.
 - 1) Place one stop switch approximately 47" above the pit floor.
 - 2) Place the second stop switch 18" above the hoistway entrance sill on the lowest landing served.
 - 3) These switches shall be arranged so as to prevent the application of power to the hoist motor or machine brake when either one is placed in the "OFF" position.

3. Where a walk-in pit exists, each elevator shall be provided with a push/pull or toggle switch that is conspicuously numbered and designated “EMERGENCY STOP”.
 - a. The location of this stop switch shall be approximately 47” above the pit floor at the nearest point of pit entry from the access door.
 - b. This switch shall be arranged so as to prevent the application of power to the hoist motor and machine brake when placed in the “OFF” position.
4. Provide an electric contact safety switch for the pit access door if any equipment attached to the car extends within the space of the hoistway pit when the car is level at the bottom terminal landing.
 - a. Opening the pit access door shall cause the electric contact switch to stop the elevator by interrupting electric power to the driving machine and brake.
 - b. Provide a sign on the pit door with proper signage per AHJ.

2.7 HOISTWAY ENTRANCES

A. Hoistway Entrances (Reuse)

1. Hoistway entrance sills, sill supports, entrance frames and supports shall be reused and refurbished.
 - a. Hoistway entrances that have become distorted or bent shall be straightened, plumbed, reset to the proper width dimension and reinforced as necessary.
 - b. Provide 14-gauge steel fascia plates that extend at least the full width of the door and be secured at hanger support and sill with oval head machine screws.
 - 1) Reinforce fascia to allow not more than ½” of deflection.
 - 2) Provide fascia plates where the clearance between the edge of the loading side of the platform and the inside face of the hoistway enclosure exceeds the code allowed clearance.
 - c. Provide 14-gauge steel toe guards that extend 12” below any sill not protected by fascia.
 - 1) The toe guards shall extend the full width of the door and shall return to the hoistway wall at a 15-degree angle and be firmly fastened.
 - d. Remove oil, dirt and impurities on new and existing apparatus and give a factory coat of rust inhibitive paint to all exposed surfaces of struts, hanger supports, covers, fascias, toe guards, dust covers and other ferrous metal.

B. Hoistway Door Panels (New)

1. Provide a new elevator hoistway entrance door reusing existing entrance frame.
2. Each new door shall be as follows:
 - a. Hollow metal construction.
 - b. 1-1/2-hour fire-rated test approved with required label.

- c. Manufactured of cold rolled furniture steel.
 - d. Flush design both sides.
 - e. Rigidly reinforced.
 - f. Sound deadened.
3. Where conditions warrant, and where otherwise required by code, equip all hoistway landing doors with one-piece full height non-vision wings of material and finish to match hall side of door panels.
 4. Provide each door panel with two (2) removable laminated plastic composition guides, arranged to run in existing sill grooves with a minimum clearance.
 - a. The guide mounting shall permit their replacement without removing the door from the hangers.
 - b. A steel fire stop shall be enclosed in each guide.
 5. Provide a special key so that an authorized person can open any landing door when the car is elsewhere.
 - a. The key-hole shall be not less than 3/8" in diameter and shall be fitted with a stainless steel or bronze ferrule to match related equipment.
 6. Finish all door panels to match elevator entrances and or as directed by the Architect.

C. Tracks / Hangers / Closers / Related Equipment (New)

1. Formed or extruded steel landing door hanger tracks shall be provided.
2. Each landing door panel shall be suspended from a pair of door hanger assemblies that are compatible with the hanger tracks.
 - a. Hanger assemblies shall be directly mounted to the door panel using 3/8" diameter or better hardware.
 - b. Solid steel blocks shall be used where job-site conditions dictate the use of spacers between hanger assemblies and the landing door panel.
 - c. Hanger assemblies shall be adjusted or shimmed so that door panels are suspended in a plumb manner with no more than 3/8" vertical clearance to the cab entrance threshold.
 - d. Upthrust rollers shall be adjusted for minimal operating clearance against the bottom edge of the hanger track.
 - e. Means shall be provided to prevent hangers from jumping the track.
 - f. Blocks shall be provided to prevent rollers from overrunning the end of the track.
 - g. Provide header and header support where required for installation of new tracks.
3. Each set of single speed side slide landing doors shall be provided with a sill-mounted spring closing mechanism.
 - a. Spirator-type spring closers shall be acceptable should prevailing sill depth or runby clearance conditions require their use.
4. Where applicable, each hoistway door interlock assembly shall be provided with an emergency release mechanism utilizing manufacturers' standard type access key at all landings served.

- a. Drill each hoistway door to accommodate manufacturers standard lock release key and install escutcheon.
 - 1) Escutcheon shall be brushed stainless steel to match door panels where required.
 - 2) Aluminum shall be provided at all other typical floors.

D. Interlocks / Unlocking Devices (New)

1. Each set of landing doors shall be provided with a complete electromechanical interlock assembly.
 - a. Each interlock assembly shall consist of:
 - 1) A switch housing with contacts.
 - 2) Lock keeper.
 - 3) Clutch engagement/release subassembly.
 - 4) Associated linkages.
 - b. Arrange the lock so that individual leading door panels (side slide or center opening) are locked when in the closed position.
2. Non-typical mounting arrangements for interlocks and/or related mechanisms must receive prior approval from the Consultant.
3. Each hoistway door interlock assembly shall be provided with an emergency release mechanism utilizing a drop-leaf type access key at all landings served.
 - a. Each hoistway door shall accommodate manufacturers standard lock release key with escutcheon.
 - 1) The key hole shall be fitted with a metal ferrule that matches the door finish.
 - 2) Drilling key holes in the field will not be accepted.

E. Hoistway Door Bottom Guides / Safety Retainers (New)

1. The bottom of each side sliding type hoistway door panel shall be equipped with a minimum of two (2) guiding members.
 - a. Metal mounting angles shall be secured to the integral panel frame structure; and when conditions warrant, additional external metal support plates or angles shall be installed to ensure the integrity of the panel frame is not compromised.
 - b. Guides shall be manufactured of low friction non-metal material with sufficient strength to withstand forces placed on door panels per ASME A17.1 Standards.
 - c. Each guide assembly shall incorporate a steel wear indicator and be so designed to permit sliding member replacements without removal of door panel(s) from top hanger devices.
 - d. Panels shall be hung with a maximum vertical clearance of 3/8 inch between top of sill and bottom of panel and the guide shall engage the sill groove by not less than 1/4 inch.

2. The bottom of each side sliding type hoistway door panel shall be equipped with a guiding member safety retainer to prevent displacement in the event of primary guide means failure.
 - a. A metal reinforcement (12 gauge stainless or galvanized steel) shall be installed between the two (2) primary guiding members (a.k.a. “Z” bracket).
 - b. The reinforcement shall be designed with a minimum length of eight (8) inches or the maximum possible length that will fit between the primary members and a minimum overall height of two and one-half (2.5) inches secured on the internal face of the door panel. (Hoistway side)
 - c. The retainer shall be set with the supplemental safety angle 3/8 inch into the corresponding sill groove; and be capable of preventing displacement of the panel no more than 3/4 inch with an applied force of 1125 lbf at right angles over an area twelve (12) inches x twelve (12) inches at the approximate center of the door panel.

2.8 CAR EQUIPMENT / FRAME

A. Car Frame and Platform (New)

1. The car frame shall be made of steel members, with the required factor of safety.
2. The car platform shall consist of a steel frame with necessary steel stringers, all securely welded together.
3. The frame and platform shall be so braced and reinforced that no strain will be transmitted to the elevator car.
4. Passenger Elevator Designs
 - a. Provide platform with two (2) layers of 3/4" thick marine grade plywood.
 - b. Cover the underside of the car platform with sheet steel.
 - c. The support frame shall carry rubber pads on which the platform shall rest without any connection to the steel frame for sound and vibration isolation.
 - d. Provide extruded nickel silver thresholds having non-slip surface, guide grooves.
 - e. Recess the platform to receive finished flooring as selected by the architect and specified under another section of their specification.

B. Car Safety (New)

1. Provide a governor actuated mechanical safety device mounted under the car platform and securely bolted to the car sling.
2. The car safety shall be sized for the capacity and speed noted herein.
 - a. When tripped, the safety mechanism shall engage the rails with sufficient force to stop a fully loaded car with an average rate of retardation within the limits given in A17.1 Safety Code as adopted and/or otherwise modified by the AHJ.
3. Install a car safety marking plate of corrosion resistant metal and, in addition to the data required by Code, indicate the manufacturer's name and manufacturer's catalog designation number for safety.
4. Make provisions to release the car safety. In no event shall the safety be released by downward motion of the car. Raising the car to reset the safety shall be allowed.

5. Provide an electrical safety plank switch that will interrupt the power to the hoist machine and apply the machine brakes when the safety is set.

C. Automatic Leveling / Releveling / Positioning Device (New)

1. Equip the elevator with a floor leveling device which shall automatically bring the car to a stop within 1/4" of any floor for which a stop has been initiated regardless of load or direction of travel.
2. This device shall also provide for releveling which shall be arranged to automatically return the elevator to the floor in the event the elevator should move below or above floor level in excess of 1/4".
3. This device shall be operative at all floors served and whether the hoistway or car door is open or closed provided there is no interruption of power to the elevator.
4. A positioning device shall be part of the controller microprocessor systems.
 - a. Position determination in the hoistway may be through fixed tape in the hoistway or by sensors fitted on each driving machine to encode and store car movement.
 - b. Design the mechanical features and electrical circuits to permit accurate control and rapid acceleration and retardation without discomfort.
5. Where there are consecutive floors/stops that are short stops, the system shall be capable of distinguishing between the two landing zones without error.
6. All equipment and logic required for leveling system to properly function with short stops shall be included.

D. Top-of-Car Inspection Operating Station (New)

1. An inspection operating station shall be provided on top of the elevator car.
2. This station shall be installed so that the controls are plainly visible and readily accessible from the hoistway entrance without stepping on the car.
3. When the station is operational, all operating devices in the car shall be inoperative.
4. Provide the following control devices and features:
 - a. A push/pull or toggle switch designated "EMERGENCY STOP" shall be arranged so as to prevent the application of power to the hoist motor or machine brake when in the "off" position.
 - b. A toggle switch designated "INSPECTION" and "NORMAL" to activate the top of car Inspection Service Operation.
 - c. Push button designated "Up", "Down" and "Enable" to operate the elevator on Inspection Service (the "Enable" button shall be arranged to operate in conjunction with either the "Up" or "Down" button).
 - d. An indicator light and warning buzzer that are subject to activation under Phase I - Fire Emergency Recall Operation.

E. Load Weighing Device (New)

1. Provide means to measure the load in the car within an accuracy of $\pm 4\%$ of the elevator capacity.
2. Provide one of the following types of devices:

- a. A device consisting of four (4) strain gauge load cells located at each corner of the car platform and supporting a free floating car platform and cab with summing circuits to calculate the actual load under varying conditions of eccentric loading.
 - b. A strain gauge device located on the crosshead, arranged to measure the deflection of the crosshead and thus determine the load in the car.
 - c. A device consisting of four (4) strain gauge load cells, supporting the weight of the elevator machine with summing circuits to calculate the actual load under varying conditions of load.
 - d. A device to measure the tension in the elevator hoist ropes and thus determine the load in the car.
3. Arrange that the output signal from the load weighing device be connected as an input to the signal and motor control systems to pre-torque of the hoisting machine motors where applicable.
 4. Provide audible and visual signals in connection with the load weighing device when used as an “overload” device.
- F. Car Enclosure Work Light / Receptacle (New)
1. The top and bottom of each car shall be provided with a permanent lighting fixture and 110 volt GFI receptacle.
 2. Light control switches shall be located for easy accessibility from the hoistway entrance.
 3. Where sufficient overhead clearance exists, the car top lighting fixture shall be extended no less than 24” above the crosshead member of the car frame.
 4. Light bulbs shall be guarded so as to prevent breakage or accidental contact.
- G. Emergency Exits / Top (New)
1. Ensure they operate as per code and have proper electrical contacts and mechanical locks on the exterior of the cab enclosure.
 2. The top of car emergency exit shall be so arranged that it can be opened from within the car by means of a keyed spring-return cylinder-type lock. This key shall be a Yale #3502. The top of the car shall be operable without the use of a key.
 3. No other key to the building shall unlock the emergency exit lock except access switch keys which may be keyed alike.
- H. Master Door Power Operator System – VVVF/AC (New)
1. Provide a heavy-duty master door operator on top of the elevator car enclosure for power opening and closing of the cab and hoistway entrance door panels.
 2. The operator may be of the belted linear drive type.
 3. Operator shall utilize an alternating current motor, controlled by a variable voltage, variable frequency (VVVF) drive and a closed-loop control with programmable operating parameters.
 - a. System may incorporate an encoder feedback to monitor positions with a separate speed sensing device or an encoderless closed-loop VVVF-AC control to monitor motor parameters and vary power applied to compensate for load changes.

4. The type of system shall be designated as a high speed operator, designed for door panel opening at an average speed of two (2.0) feet per second and closing at approximately one (1.0) foot per second.
 - a. Reduce the closing speed as required to limit kinetic energy of closing doors to within values permitted by ASME A17.1 as may be adopted and/or modified by the AHJ.
 5. The door shall operate smoothly without a slam or abrupt motion in both the opening and closing cycle directions.
 - a. Provide controls to automatically compensate for load changes such as:
 - 1) Wind conditions (stack effect).
 - 2) Use of different weight door panels on multiple landings.
 - 3) Other unique prevailing conditions that could cause variations in operational speeds.
 - b. Provide nudging to limit speed and torque in conjunction with door close signaling/closing and timing devices as permitted by ASME A17.1 as may be adopted and/or modified by the AHJ. Nudging shall be initiated by the signal control system and not from the door protective device.
 6. In case of interruption or failure of electric power from any cause, the door operating mechanism shall be so designed that it shall permit emergency manual operation of both the car and corridor doors only when the elevator is located in the floor landing unlocking zone.
 - a. The hoistway door shall continue to be self-locking and self-closing during emergency operation.
 - b. The door operator and/or car door panel shall be equipped with safety switches and electrical controls to prevent operation of the elevator with the door in the open position as per ASME A17.1 Code Standards.
 - c. Provide zone-lock devices as required by ASME A17.1 as may be adopted and/or otherwise modified by the AHJ.
 7. Construct all door operating levers of heavy steel or reinforced extruded aluminum members.
 8. Belts shall be designed for long life and operate noise free.
 9. All components shall be designed for stress and forces imposed on the related parts, linkages and fixed components during normal and emergency operation functions.
 - a. All pivot points, pulleys and motors shall have either ball or roller-type bearings, oilite bronze bushings or other non-metallic bushings of ample size.
 10. Provide operating data / data tag permanently attached to the operator as required by applicable code and standards.
- I. Car Door Hangers / Tracks / Gate Switch (New)
1. Provide sheave type two-point suspension hangers and track for each car door.

- a. Sheaves shall be hardened steel, not less than 3-1/4 inches in diameter with sealed grease packed precision ball bearings.
 - b. The upthrust shall be taken by a roller mounted on the hanger and arranged to ride on the underside of the track.
2. The track shall be of formed cold rolled steel or cold drawn steel and shall be rounded on the track surface to receive the hanger sheaves.
 - a. The track shall be removable and shall not be integral with the header.
 3. Provide a gate switch that mounts directly to the car door track.
 - a. The gate switch shall prevent movement of the elevator until such time as it signals the control equipment that the car door has physically closed.
- J. Car Door Panel (New)
1. Provide standard 1” thick, 14-gauge hollow metal flush construction panel(s), reinforced for power operation and insulated for sound deadening.
 2. Paint the hoistway side of each panel black and face the cab side with 16-gauge sheet steel matching the existing returns or in selected material and finish as otherwise directed by Owner/Architect.
 3. The panels shall have no binder angles and welds shall be continuous, ground smooth and invisible.
 4. Drill and reinforce panels for installation of door operator hardware, door protective device, door gibs, etc.
 - a. Provide each door panel with two (2) removable laminated plastic composition guides, arranged to run in the sill grooves with minimum clearance.
 - b. The guide mounting shall permit their replacement without removing the door from the hangers.
 5. Provide the meeting edge of center opening doors with necessary continuous rubber astragal bumper strips.
 - a. These strips shall be relatively inconspicuous when the doors are closed.
- K. Door Reopening Device / “3D” (New)
1. Provide a combination infrared curtain and 3D door protection system.
 2. The door shall be prevented from closing and will reopen when closing if any one of the curtain light rays is interrupted or should an object enter the 3D detection zone.
 3. The door shall start to close when the protection system is free of any obstruction.
 4. The infrared curtain and 3D zone protective system shall provide:
 - a. Protective curtain field not less than 71” above the sill.
 - b. 3D protective zone field not less than 61” above the sill.
 - c. Accurately positioned infrared lights to conform to the requirements of the applicable handicapped code.
 - d. Modular design to permit on board test operation and replacement of all circuit boards without removing the complete unit.

- e. Self-contained, selectable 3D zone timeout feature to allow for closing at nudging speed with audible signal.
- f. Automatic turning-off of the 3D zone in the event of three (3) consecutive 3D triggers.
 - 1) Light curtain shall continue to operate after 3D system timeout.
- g. Selectable control of the 3D zone operation on an “always-on” or “as doors close” basis.
- h. Controls to shut down the elevator when the unit fails to operate properly.
- i. Provide audible and visual notification of pending door close.

2.9 FINISH / MATERIALS / SIGNAGE

A. Material, Finishes and Painting

1. General

- a. Cold-rolled Sheet Steel Sections: ASTM A366, commercial steel, Type B
- b. Rolled Steel Floor Plate: ASTM A786
- c. Steel Supports and Reinforcement: ASTM A36
- d. Aluminum-alloy Rolled Tread Plate: ASTM B632
- e. Aluminum Plate: ASTM B209
- f. Stainless Steel: ASTM A167 Type 302, 304 or 316
- g. Stainless Steel Bars and Shapes: ASTM A276
- h. Stainless Steel Tubes: ASTM A269
- i. Aluminum Extrusions: ASTM B221
- j. Nickel Silver Extrusions: ASTM B155
- k. Bronze Sheet: ASTM B36(36M) alloy UNS No. C2800 (Muntz Metal)
- l. Structural Tubing: ASTM A500
- m. Bolts, Nuts and Washers: ASTM A325 and A490
- n. Laminated / Safety Tempered Glass: ANSI Z97.1

2. Finishes

- a. Stainless Steel
 - 1) Satin Finish: No. 4 satin, long grain.
 - 2) Mirror Finish: No. 8 non-directional mirror polished.
- b. Sheet Steel:
 - 1) Shop Prime: Factory-applied baked on coat of mineral filler and primer.
 - 2) Finish Paint: Two (2) coats of low sheen baked enamel, color as selected by the Architect.
 - 3) Steel Equipment: Two (2) coats of manufacturer’s standard rust-inhibiting paint to exposed ferrous metal surfaces in both the hoistway and pit that do not have galvanized, anodized, baked enamel, or special architectural finishes.

3. Painting
 - a. Apply two (2) coats of paint to the machine room floor.
 - b. Apply two (2) coats of paint to all retained steel equipment within hoistway.
 - c. Apply two (2) coats of clear lacquer to bronze or similar non-ferrous materials to prevent tarnishing during a period of not less than twelve (12) months after initial acceptance by the Owner or Agent.
 - d. Identify all equipment including buffers, car apron, crosshead, safety plank, machine, controller, drive, governor, disconnect switch, etc., by 4" high numerals which shall contrast with the background to which it is applied. The identification shall be either decalomania or stencil type.
 - e. Paint or provide decal-type floor designation not less than four (4) inches high on hoistway doors (hoistway side), fascias and/or walls as required by A17.1 as may be adopted and/or modified by the AHJ. The color of paint used shall contrast with the color of the surface to which it is applied.

B. Hoistway Entrances Finish and Design

1. Hoistway door panels shall be finished as specified by the Architect.
2. Where no finish is specified, finishes shall be baked enamel primer gray where painting is indicated by other trades.
3. Refer to specifications and drawings for other design requirements.

C. Car Interior Finishes

1. Car interior finishes shall be as selected by Owner and/or Architect.
2. Contractor shall provide samples of finishes as required for approval prior to fabrication.
3. Refer to specifications for other design requirements where provided.
4. Special attention shall be given to flooring materials and suitability for intended duty.

D. Designation and Data Plates, Labeling and Signage.

1. Provide an elevator identification plate on or adjacent to each entrance frame where required by the AHJ.
2. Provide floor designation cast plates at each elevator entrance, on both sides of the jamb at a height of sixty (60) inches to the baseline of floor indication.
 - a. Floor number designations and Braille shall be 2" high, 0.03" raised.
3. If applicable, identify the designated medical emergency services elevator with 3" high international symbol at each elevator entrance on both sides of the jamb.
4. Provide raised designations and Braille markings to the left of the car call and control buttons of the car operating panel(s).
 - a. Designations shall be a minimum of 5/8" high, 0.03" raised and stud mounted.
5. Provide elevators with data and marking plates, labels, signages and refuge space markings complying with A17.1 Elevator Safety Code as may be adopted and/or otherwise modified by the AHJ.
6. Architect shall select the designation and data plates from manufacturer's premium line of plates.

2.10 FIXTURES / SIGNAL EQUIPMENT

A. General - Design and Finish

1. The design and location of the hall and car operating and signaling fixtures shall comply with the ADAAG and local requirements of the AHJ.
2. The operating fixtures shall be selected from the manufacturer's premium line of vandal resistant fixtures.
3. Custom designed operating and signaling fixtures shall be as shown on the drawings or as approved by the Owner / Architect.
4. The layout of the fixtures including all associated signage and engraving shall be as approved by the Owner / Architect prior to installation. The fixtures shall be designed to incorporate as many switches, jewels, buttons, etc. as allowed by AHJ to limit the number of fixtures.
5. Where no special design is shown on the drawings, the buttons shall be as follows:
 - a. Stainless steel convex type as selected by the Owner / Architect] from the manufacturer's premium line of push buttons.
 - b. The button shall have a small round indicator on the button with LED call registered light.
6. Where no special design is shown on the drawings, the faceplates shall be as follows:
 - 1) All Floors - 1/8" thick stainless steel with No. 4 finish and tamperproof screws.
7. Mount elevator fixtures with tamperproof fasteners and screws. The screw/fastener and key switch cylinder finishes shall match faceplate finish. Car or Hall Lanterns shall be of vandal resistant design.
8. Where key-operated switch and or key operated cylinder locks are furnished in conjunction with any component of the installation, four (4) keys for each individual switch or lock shall be furnished, stamped or permanently tagged to indicate function.
9. All caution signs, pictographs, code mandated instructions and directives shall be engraved and filled with epoxy in code required colors per AHJ.

B. Main Car Operating Panel (New)

1. Provide a main car operating push button panel on the inside front return panel of the car.
2. Car operating panel shall be flush mounted with applied type, hinged one-piece faceplate with heavy-duty concealed hinges.
 - a. Mount all key switches that are required to operate and maintain the elevators exposed on the car station except those specified within a locked service cabinet.
3. The push buttons shall become individually illuminated as they are pressed and shall extinguish as the calls are answered.
4. The operating panel shall include:
 - a. A call button for each floor served, located not more than 48" above the cab floor.
 - b. "Door open" / "Door close" / "Door Hold" buttons.

- c. “Alarm” button, interfaced with emergency alarm. The alarm button shall illuminate when pressed.
 - d. “Emergency Stop” switch per local law located at 35” above the cab floor.
 - e. Self-dialing, hands-free emergency communication system actuation button with call acknowledging feature and ASME A17.1. design provisions.
 - f. Three (3) position firefighter key operated switch, call cancel button and illuminated visual/audible signal system with mandated signage engraved per ASME A 17.1 Standards as modified by the AHJ.
 5. Locked Firemen’s Service cabinet, keyed in accordance with local Code, containing required devices and signals in accordance with ASME A17.1 Standards.
 - a. Automatic opening of the locked cabinet door may be provided with signals initiated by the fire detection and alarm system where approved by the Authority Having Jurisdiction.
 - b. The firefighters' operation panel cover shall be openable with the use of a Yale 3502 key. The key switch grooves shall be constructed and installed with the cut side facing up per local AHJ.
 6. Provide a locked service cabinet flush mounted and containing the key switches required to operate and maintain the elevator, including, but not limited to:
 - a. Independent service switch.
 - b. Light switch.
 - c. Fan switch.
 - d. G. F. I. duplex receptacle.
 - e. Emergency light test button and indicator.
 - f. Inspection Service Operation key switch.
 - g. Dimmer for cab interior lighting.
 7. Car operating panel shall incorporate:
 - a. An integral (no separate faceplate) digital L.E.D. floor position indicator.
 - b. Emergency light fixture (without a separate faceplate)] and black-filled engraved unit I.D. number or other nomenclature, as approved by Owner.
 - c. A “No Smoking” advisory.
 - d. The rated passenger load capacity in pounds.
 - e. Any required signage by AHJ.
 8. Post Inspection Certificate behind an opening in the car operating panel locked service cabinet door that is fitted with a flush-mounted clear Plexiglas without a frame.
- B. Car Position Indicator (New)
1. The position of the car in the hoistway shall be indicated by the illumination of the position indicator numeral corresponding to the floor at which the car has stopped or is passing.
 - a. Provide 2” high, 10-segment LED type position indicator with direction arrows, integral with the car operating panel.
 - b. Provide Lexan cover lens with hidden support frame behind fixture plate to protect the indicator readout.

- c. The lens shall of the manufacturer's vandal resistant design.
- d. Use tamperproof screws / concealed fasteners for flush faceplate with hairline joint.
- e. Provide audible floor passing signal per ADA standards where not provided by the elevator signal control.

C. Car Direction Lantern (New)

1. Provide a car riding lantern with visual and audible signal in the edge of the strike and/or return post.
2. The lens shall of the manufacturer's vandal resistant design.
3. Use tamperproof screws / concealed fasteners for flush faceplate with hairline joint.
4. Car lantern shall indicate the direction of travel when doors are 3/4 open.
5. The unit shall sound once for the "up" direction and twice for the "down" direction.
 - a. Provide an electronic chime with adjustable sound volume.

D. Voice Annunciator (New)

1. Provide a voice annunciator in each elevator.
2. The device features shall comply with the requirements of ADAAG and local accessibility requirements.
3. Coordinate size, shape and design with Designer and other trades.
4. The system shall include, but not limited to:
 - a. Solid state digital speech annunciator.
 - b. Playback option.
 - c. Built-in voice amplifier.
 - d. Master volume control.
 - e. Audible indication for selected floor, floor status or position, direction of travel, floor stop, seismic operation, firefighter service and nudging.
5. Locate all associated equipment in a single, clearly labeled enclosure located either in the machine room and/or on car top.

E. Corridor Push Button Stations (New)

1. Push button signal fixtures shall be provided on each landing.
2. Each signal fixture shall consist of:
 - a. Up and down illuminating push buttons measuring 3/4" at their smallest dimension as selected by the Owner.
 - b. A recessed mounting box, electrical conduit and wiring.
3. Intermediate landings shall be provided with fixtures containing two (2) push buttons while terminal landings shall be provided with fixtures containing a single push button.
4. The main lobby fixture shall include the following:
 - a. Fire Recall Key Switch and Jewel
 - b. Emergency Power Jewel
 - c. Line Communication Failure Device (Jewel, Key Switch and Buzzer)
 - d. Required Engraving

5. Where existing fixtures are located greater than 48” above the floor:
 - a. The existing back boxes shall be removed.
 - b. New back boxes shall be installed to provide a new centerline to buttons of 42” above the floor.
 - c. Standardize the new centerline on each floor.
 6. All cutting, patching, grouting and/or plastering of masonry walls resulting from the removal or installation of corridor fixtures shall be performed by the Contractor so as to maintain the fire rating of the hoistway.
 - a. Finished painting or decorating of wall surfaces shall be by Others.
- B. Floor Position Indicator (New)
1. Remove existing floor position indicator at the lobby only and provide new digital LED type unit.
 2. New plate shall completely cover the present cutout and provide 2” numerals located on center.
 3. Provide integral direction arrows that will indicate the direction in which the elevator is traveling.
 4. All cutting, patching, grouting and/or plastering of masonry walls resulting from the removal or installation of corridor fixtures shall be performed by the Contractor so as to maintain the fire rating of the hoistway.
 5. Finished painting or decorating of wall surfaces shall be by Others
- C. Hoistway Access Switches (New)
1. Install a cylindrical type keyed switch at top terminal in order to permit the car to be moved at slow speed with the doors open to allow authorized persons to obtain access to the top of the car.
 2. Where there is no separate pit access door, a similar switch shall be installed at the lowest landing in order to permit the car to be moved away from the landing with the doors open in order to gain access to the pit.
 3. Locate the switch in the hall call push button station at the top and bottom terminal landings where required if allowed by the Authority Having Jurisdiction.
 4. This switch is to be of the continuous pressure spring-return type and shall be operated by a cylinder type lock having not less than a five (5) pin or five (5) disc combination with the key removable only in the “OFF” position.
 - a. The lock shall not be operable by any key which operates locks or devices used for other purposes in the building and shall be available to and used only by inspectors, maintenance men and repairmen in accordance with A17.1 applicable Security Group.

2.11 CAR ENCLOSURES

A. Elevator Car Enclosure(s) and the Five Percent (5%) Rule:

1. In accordance with A17.1, Section 8.7, as adopted and/or modified by the AHJ, entitled “Alterations”, where a new or remodeled elevator car enclosure is included in the base scope of work, the Contractor shall, within thirty (30) days after execution of the contract, weigh the elevator, or one (1) elevator of each group of elevators included in the base scope of work, to determine the present deadweight of the platform/sling/cab assembly.
2. The Contractor shall, when necessary, weigh the interior materials of a single cab to better estimate the total existing weight of existing materials being removed as part of the alteration.
3. The Contractor shall make every effort to provide accurate weight measurements while taking into consideration all weights that may present themselves at the time the measurement is taken such as compensation, compensating sheave, hoist ropes and traveling cables that may affect the measurement of the assembly itself.
4. The Contractor shall evaluate the actual counterbalance percentage for each sample elevator to identify prevailing conditions.
5. Measurements of actual cab weight shall be compared to the original deadweight of the car as stamped on the crosshead data tag.
6. Where no data tag exists, the Contractor shall make every effort to determine the original weight of the platform/sling/cab through calculations based on the current weight of the counterweight assembly and the verified percent of full load counterbalance.
7. The amount of weight that may be added to the car, so as to remain within the limits of the “5% Rule”, shall be calculated based on the following:
 - a. $(\text{Original Deadweight} + \text{Capacity}) \times (0.05) = \text{Maximum Additional Weight Allowed}$
8. The Contractor shall document and notify the Owner and Consultant of the results of the measurements taken and what weight, if any, can be added or needs to be removed from the cab in order to maintain compliance with the 5% Rule.
9. The Contractor shall work diligently with the Owner and/or Owner’s Representative and/or Architect as well as the manufacturer of the car enclosure to minimize additional weights of the new or remodeled car enclosure so as to maintain compliance with the 5% Rule.
10. Contractor shall be responsible for proper adjustment of the counterbalance of the system, including the static balance of the platform/sling/car enclosure, upon completion of the car interior work.
11. Costs associated with this work shall be included in the base modernization price.
12. Provide a new data tag on the crosshead of the elevator indicating the new deadweight, the current percent counterbalance and the date of the alteration.

B. Elevator Cab / General Design Requirements

1. The design, materials and finishes of the cab enclosures shall be as shown on the Architectural Drawings.
2. Steel Shell: 14-gauge furniture steel reinforced and designed to accept finished wall panels. Finish shell panels with one coat of rust inhibitive primer and two (2) coats of enamel paint in accordance with Section 09900. Apply 1/8" thick, rubberized sound deadening material to the hoistway side of the shell.

- a. All panels shall have minimum radii. Apply sealant beads to panel joints before bolting together with lock washers.
3. Aluminum Shell: Minimum .090" walls and .125" canopy. Reinforce wall panels and ceiling as may be necessary.
 - a. Apply sealant beads to panel joints before bolting together with lock washers.
4. Canopy: Canopy construction methods shall match the shell walls. Use 12-gauge furniture sheet steel and adequately support canopy to comply with the loading requirements of the Code.
 - a. Provide necessary cutouts for the installation of fan and top emergency exit. Arrange exit panel to swing up using a heavy duty piano hinge.
 - b. The exit panel shall have dual locks, necessary stops and a handle.
 - c. When in the locked position, the panel shall be flush with the interior face of the canopy with hairline joints.
5. Base: Where finished base provided under another section of these specifications, recess and prepare the shell to accept the base.
 - a. Provide concealed vent slots above side and rear wall base for proper ventilation. Arrange and size vent slots for quiet operation without any whistling. Use 16 gauge baffles to protect the hoistway side of the vent slots.
 - b. The elevator cab shop drawings shall include elevator vent calculations and number, location and size of top and bottom vent holes.
6. Flooring: Where finished flooring is provided under another section of these specifications, recess and prepare sub-flooring to accept the finished flooring.
7. Front Return Panels, Entrance Posts and Transom: Use 14-gauge furniture sheet steel with proper reinforcing to prevent oil canning.
 - a. Fixed type return panel shall have required cutouts for car operating and signaling fixtures.
 - b. Swing front return panels shall have required cutouts for the car call buttons, keyed switches, indicators, emergency light fixture, cabinets and the specified special control and signaling devices.
 - 1) Provide concealed full height stainless steel piano hinges of sufficient strength to support the panel, without sagging, in the open position.
 - 2) The concealed locks shall secure the panel at two (2) points with linkage that shall be free of vibration and noise when in the locked position.
 - 3) When locked in the closed position, the front return panel shall be in true alignment with the transom and base.
 - 4) Lock release holes shall be not more than 1/4" diameter and be located at the return side jamb of the panel.
 - 5) Engrave the elevator identification number and capacity, no smoking sign, firefighter instructions, and other code mandated instructions and caution signs directly in the front return panel. Applied panels are unacceptable.

- c. Transom shall be 14 gauge, and be reinforced and constructed the same as the front return panels.
 - d. Construct entrance posts for the passenger elevators from 12-gauge sheet steel and reinforce to maintain vertical alignment with the adjacent panels.
 - e. Provide channel post entrance jambs for the service elevators. Clad channels with 14-gauge sheet steel and through bolt channels to the floor and to the reinforced header section.
8. Cab Doors: Standard 1" thick, 14-gauge hollow metal flush construction, reinforced for power operation and insulated for sound deadening. Paint hatch side of doors black and face cab side with 16-gauge sheet steel in selected material and finish.
 - a. The door panels shall have no binder angles. All welds shall be continuous, ground smooth and invisible.
 - b. Drill and reinforce doors for installation of door operator hardware, door protective device, door gibbs, etc.
9. Ceiling: Construction techniques for wall panels shall apply to ceiling panel construction. Locate top emergency exit inconspicuously. Construct and mount the exit panel to prevent light leakage around the perimeter of panel.
10. Ventilation: The ventilation system of the exhaust type shall be provided in each elevator.
 - a. The system shall include a blower driven by a direct connected motor and mounted on top of car with isolation to effectively prevent transmission of vibration to the car structure. The blower shall have not less than two (2) operating speeds. The ventilation system shall be sized to provide one (1) air change per minute at low speed and one and one-half (1.5) air changes per minute at high speed. The unit design and installation shall be such that the maximum noise level, when operating at high speed, shall not exceed 55 dBA approximately three (3) feet above the car floor. A three (3)-position switch to control the blower shall be provided in the service panel.
11. Lighting: Arrange lighting fixtures and ceiling assembly to provide even illumination without hot spots and shadows. Overlap fluorescent lamps where cove lighting is specified.
 - a. Design and configure lighting system to facilitate maintenance of the fixtures.
12. Handrails: All attachment hardware shall match the selected handrail and shall permit handrail removal from within the cab.
 - a. Provide a minimum of 10-gauge plate at the hatch side of the shell, aligned with the handrail attachment points, to assure secure handrail mounting.
 - b. Design handrail attachment system to support the weight of a person (two hundred fifty [250] pounds) sitting on it without any deflection and damage to the handrail, cab panel and the shell.
13. Protective Pads and Pad Hooks: Provide pad hooks at locations as directed by the Architect. Protective pads shall cover the front return panels, and the side and rear walls. Provide cutouts in pads for access to the cab operating and signaling devices. Pads shall be fire-resistant canvas with two (2) layers of cotton batting padding.

- a. Identify each pad by elevator number and wall location.
14. Accessories: Construct elevator cab to accommodate the door operator, hangers, interlocks and all accessory equipment provided under other sections of these specifications, including firefighter phones, card readers and CCTV.
 15. All cab materials shall conform to the code prescribed flame spread rating and smoke development requirements.
- C. Cab Fabrication and Installation (New)
1. Maintain accurate relation of planes and angles with hairline fit of contacting panels and/or surfaces.
 2. Any shadow gaps (reveals) between panels shall be consistent and uniform.
 3. Unless otherwise specified or shown on the drawings, for work exposed to view use concealed fasteners.
 4. Maximum exposed edge radius at corner bends shall be 1/16". There shall be no visible grain difference at the bends.
 5. Form the work to the required shapes and sizes with smooth and even curves, lines and angles. Provide necessary brackets, spacers and blocking material for assembly of the cab.
 6. Interior cab surfaces shall be flat and free of bow or oil canning. The maximum overall deviation between the low and high points of 24" x 24" panel section shall not exceed 1/32".
 7. Make weights of connections and accessories adequate to safely sustain and withstand stresses to which they will be subjected.
 8. All steel work except stainless steel and bronze materials shall be painted with an approved coat of primer and one (1) coat of baked enamel paint.
 9. Cab Finish Warranty Enhancement
 - a. Contractor shall be responsible for engineering and installing interior cab finishes in a manner that will withstand all code mandated inspections and test procedures. Failure of finishes during testing shall be repaired by the contractor without expense to the owner. Any objections or qualifications to material selection or design shall be identified during the engineering of the cab interior drawings for review by the owner.
- D. Elevator Cab Enclosure Fan (New)
1. Provide an exhaust type two (2)-speed fan unit with cover grill, mounting accessories and necessary cab enclosure modifications.
 - a. Fan unit shall include self-lubricating motor with housing rubber mounted for sound vibration isolation.
 2. Provide a key switch in the elevator cab enclosure for control of fan unit.
 3. Provide necessary wiring and approved conduit to properly connect fan unit with power source and control key switch.

2.12 EMERGENCY LIGHTING / COMMUNICATIONS / SIGNALING

A. Battery Back Up Emergency Lighting Fixture and Alarm (New)

1. Provide a self-powered emergency light unit.
 - a. Arrange two (2) of the cab light fixtures to operate as the emergency light system.
 - b. Where cab lighting is utilized for emergency lighting, Contractor shall coordinate the battery back-up equipment so that it is compatible with the type of cab lighting specified by the Owner or Architect.
2. Provide a car-mounted battery unit including solid-state charger and testing means enclosed in common metal container.
 - a. The battery shall be rechargeable nickel cadmium with a ten (10)-year minimum life expectancy. Mount the power pack on the top of the car.
 - b. Provide a 6" diameter alarm bell mounted directly to the battery/charger unit and connected to sound when any alarm push button or stop switch in the car enclosure is operated.
 - c. The bell shall be configured to operate from power supplied by the building emergency power generator. The bell shall produce a sound output of between 80-90 dBa (measured from a distance of 10') mounted on top of the elevator car.
 - 1) Activation of this bell shall be controlled by the stop switch and alarm button in the car operating station.
 - 2) The alarm button shall illuminate when pressed.
3. Where required by Code for the specific application, the unit shall provide mechanical ventilation for at least one (1) hour.
4. The operation shall be completely automatic upon failure of normal power supply.
5. Unit shall be connected to normal power supply for car lights and arranged to be energized at all times so it automatically recharges battery after use.

B. Emergency Voice Communication / Telephone (New)

1. A hands-free emergency voice communication system shall be furnished in each car mounted as an integral part of the car operating panel.
 - a. Necessary wires shall be included in the car traveling cable and shall consist of a minimum of one shielded pair of 20AWG conductors.
 - b. 120V power shall be provided to power the hands-free device.
2. The telephone shall be equipped with an auto-dialer and illuminating indicator which shall illuminate when a call has been placed and begin to flash when the call has been answered.
 - a. Engraving shall be provided next to the indicator which says "When lit help is on the way".
3. In addition to the standard "Alarm" button, a separate activation button shall be provided on the car operating panel to initiate the emergency telephone and place a call.

- a. The telephone must not shut off if the activating button is pushed more than once.
 - b. The telephone shall transmit a pre-recorded location message only when requested by the operator and be provided with an adjustable call time which can be extended on demand by the operator.
 - c. Once two-way communication has been established, voice prompts shall be provided which instruct the operator on how to activate these functions as well as alerting the operator when a call is being attempted from another elevator in the building.
4. The system shall be compatible with ring down equipment and PBX switchboards.
 5. The system shall be capable of serving as the audio output for an external voice annunciation system.
 - a. Conversation levels shall measure 60 dbA or higher and measure 10 dbA above ambient noise levels.
 - b. Each device shall be provided with a self-diagnostic capability in order to automatically alert building personnel should an operational problem be detected.
 6. The phone shall be able to:
 - a. Receive incoming calls from any On-Site Rescue Station (when provided or required).
 - b. Receive incoming calls from other off-site locations via the public telephone system.
 - c. Acknowledge incoming calls and automatically establishing hands-free two way communications.
 - 1) If no On-Site Rescue Station is provided, each hands-free device shall have built in line consolidation which will allow up to six (6) elevators to be called individually from outside the building over a single telephone line and up to eighty (80) elevators if an On-Site Rescue Station is provided.
 7. The system shall provide its own four-hour backup power supply in case of a loss of regular AC power.
 8. The system must provide capability for building personnel to call into elevators and determine the charge state of any backup batteries provided for the emergency telephones.
 9. Pushing the activation button in any of the elevator car stations will cause any on-site Rescue Station (where provided or required) or security telephone to ring.
 - a. If the on-site call is not picked up within thirty (30) seconds, the call will be automatically forwarded to a twenty-four (24)-hour off-site monitoring service.
 - b. The arrangements and costs of the off-site monitoring and telephone line shall be by others.
 10. All connections from the junction box to the telephone system shall be done by the Elevator Contractor where existing provisions can be reused.
 11. New telephone lines, where required, shall be provided and interfaced by others.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Inspection

1. Study the Contract Documents with regard to the work as specified and required so as to ensure its completeness.
2. Examine surface and conditions to which this work is to be attached or applied and notify the Owner in writing if conditions or surfaces are detrimental to the proper and expeditious installation of the work. Starting the work shall imply acceptance of the surfaces and conditions to perform the work as specified.
3. Verify, by measurements at the job site, dimensions affecting the work. Bring field dimensions which are at variance with those on the accepted shop drawings to the attention of the Owner. Obtain the decision regarding corrective measures before the start of fabrication of items affected.
4. Cooperate in the coordination and scheduling of the work of this section with the work of other sections so as not to delay job progress.

3.2 INSTALLATION

A. Installation

1. Modernize the elevator, using skilled personnel in strict accordance with the final accepted shop drawings and other submittals.
2. Comply with the code, manufacturer's instructions and recommendations.
3. Coordinate work with the work of other building functions for proper time and sequence to avoid delays and to ensure right-of-way of system. Use lines and levels to ensure dimensional coordination of the work.
4. Accurately and rigidly secure supporting elements within the shaftways to the encountered construction within the tolerance established.
5. Provide and install motor, switch, control, safety and maintenance and operating devices in strict accordance with the submitted wiring diagrams and applicable codes and regulations having jurisdiction.
6. Ensure sill-to-sill running clearances do not exceed 1 ¼" at all landings served.
7. Arrange door tracks and sheaves so that no metal-to-metal contact exists.
8. Reinforce hoistway fascias to allow not more than 1/2" of deflection.
9. Install elevator cab enclosure on platform plumb and align cab entrance with hoistway entrances.
10. Sound isolate cab enclosure from car structure. Allow no direct rigid connections between enclosure and car structure and between platform and car structure.
11. Isolate cab fan from canopy to minimize vibration and noise.
12. Remove oil, dirt and impurities and give a factory coat of rust inhibitive paint to all exposed surfaces of struts, hanger supports, covers, fascias, toe guards, dust covers and other ferrous metal in hoistway.
13. Prehang traveling cables for at least twenty-four (24) hours with ends suitably weighted to eliminate twisting after installation.
14. After installation, touch up in the field, surfaces of shop primed elements which have become scratched or damaged.

15. Lubricate operating parts of system as recommended by the manufacturer.

3.3 FIELD QUALITY CONTROL

A. Inspection and Testing

1. Upon completion of each work phase or individual elevator specified herein, the Contractor shall, at its own expense, arrange and assist with inspection and testing as may be required by the A.H.J. in order to secure a permit to operate.

B. Contractor's Superintendent

1. The Contractor shall assign a competent project superintendent during the work progress and any necessary assistant, all satisfactory to the Owner. The superintendent shall represent the Contractor and all instructions given to him shall be as binding as if given to the Contractor.

3.4 PROTECTION / CLEANING

A. Protection and Cleaning

1. Adequately protect surfaces against accumulation of paint, mortar, mastic and disfiguration or discoloration and damage during shipment and installation.
2. Upon completion, remove protection from finished surfaces and thoroughly clean and polish surfaces with due regard to the type of material. Work shall be free from discoloration, scratches, dents and other surface defects.
3. The finished installation shall be free of defects.
4. Before final completion and acceptance, repair and/or replace defective work, to the satisfaction of the Owner, at no additional cost.
5. Remove tools, equipment and surplus materials from the site.

B. Barricades and Hoistway Screening

1. The Contractor shall provide barricades where necessary in order to maintain adequate protection of areas in which work specified by the Contract Documents is being performed, including open hoistway entrances. Fabrication and erection as all barricades shall be in compliance with applicable OSHA regulations.
2. As required, the Contractor shall provide temporary wire mesh screening in the hoistway and of any elevator undergoing work specified in the Contract Documents. This screening shall be installed in such a manner as to completely segregate the hoistway from that of adjacent elevators. Screening shall be constructed from .041" diameter wire in a pattern that rejects passage of a 1" diameter ball.

3.5 DEMONSTRATION

A. Performance and Operating Requirements

1. Passenger elevators shall be adjusted to meet the following performance requirements:

- a. Speed: within $\pm 3\%$ in both directions of travel under any loading condition.
- b. Leveling: within $\pm 1/4"$ as measured between the car entrance threshold and the landing sill on any given floor under any loading condition.
- c. Typical Floor-to-Floor Time: (Recorded from the doors start to close on one floor until they are $3/4$ open at the next floor) under various loading conditions.

Passenger Elevator 16.0 – 17.0 seconds.

d. Door Operating Times

Door Type	Opening	Closing
Single Speed Side Opening	2.0 – 3.0 secs.	4.0 – 5.0 secs.

- e. Door dwell time for hall calls: 4.0 – 5.0 seconds.
- f. Door dwell time for car calls: 3.0 – 4.0 seconds.
- g. Reduced non-interference dwell time: 1.0 – 2.0 seconds.

2. Maintain the following ride quality requirements for the passenger elevators:

- a. Where pit permits, extend bottom roller guides by not less than one half the distance from the centerline of the upper roller guides to the platform.
- b. Noise levels inside the car shall not exceed the following:
 - 1) Car at rest with doors closed and fan off - 40 dba.
 - 2) Car at rest with doors closed, fan running - 55 dba.
 - 3) Car running at high speed, fan off - 50 dba.
 - 4) Door in operation - 60 dba.
- c. Vertical [and horizontal accelerations shall not exceed 14 milli-g and horizontal accelerations shall not exceed 20 milli-g.
 - 1) The accelerometer used for this testing shall be capable of measuring and recording acceleration to nearest 0.01 m/s^2 (1 milli-g) in the range of $0\text{-}2 \text{ m/s}^2$ over a frequency range from $0\text{-}80 \text{ Hz}$ with ISO 8041 filter weights applied. Accelerometer should provide contact with the floor similar to foot pressure, 60 kPA (8.7psi).
- d. The amplitude of acceleration and deceleration shall not exceed $2.6\text{ - }2.8 \text{ ft./sec}^2$ for geared and MRL traction, and $3.5\text{ - }4 \text{ ft./sec}^2$ for gearless traction elevators.
- e. The maximum jerk rate shall be 1.5 to 2.0 times the acceleration and deceleration.
- f. The maximum velocity which the elevator achieves in either direction of travel while operating under load conditions that vary between empty car and full rated load shall be within $\pm 3\%$ of the rated speed.

B. Acceptance Testing

1. Comply with the requirements of Division 01.
2. The Contractor shall provide at least five (5) days prior written notice to the Owner and Consultant regarding the exact date on which work specified in the Contract Documents will reach completion on any single unit of vertical transportation equipment.
3. In addition to conducting whatever testing procedures may be required by local inspecting authorities in order to gain approval of the completed work, and before seeking approval of said work by the Owner, the Contractor shall perform certain other tests in the presence of the Consultant.
4. The Contractor shall provide test instruments, test weights, and qualified field labor as required to safely operate the unit under load conditions that vary from empty to full rated load and, in so doing, to successfully demonstrate compliance with applicable performance standards set forth in the project specifications with regard to:
 - a. Operation of safety devices.
 - b. Sustained high-speed velocity of the elevator in either direction of travel.
 - c. Brake-to-brake running time and floor-to-floor time between adjacent floors.
 - d. Floor leveling accuracy.
 - e. Door opening/closing and dwell times.
 - f. Ride quality inside the elevator car.
 - g. Communication system.
 - h. Load settings at which anti-nuisance, load dispatch, and load non-stop features are activated.
5. Upon completion of work specified in the Contract Documents on the last car in any group of elevators, and in conjunction with the aforementioned testing procedures, the Contractor shall carry out additional testing of group dispatch/supervisory control features in the presence of the Consultant.
6. The Contractor shall provide test instruments and qualified field labor as required to successfully demonstrate:
 - a. The back-up operating mode for group dispatch failure.
 - b. Simulated and actual emergency power operation.
 - c. Firefighter, attendant and independent service operations.
 - d. Restricted access security features and card reader controls.
 - e. Zoning operations and floor parking assignments.
 - f. Up/down peak operation.
7. Upon completion of the modernization of each individual elevator, emergency power testing shall be conducted after normal business hours and/or weekends if requested.
8. After hour tests of systems such as emergency generators, fire service, and security systems shall be conducted at no extra cost to the Owner.

END OF SECTION

SECTION 142423
HYDRAULIC PASSENGER ELEVATORS
(FILED SUB-BID REQUIRED)

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.
- B. Time, Manner and Requirements for Submitting Sub-Bids:
1. Sub-bids filed with the Division of Capital Asset Management and Maintenance shall be accompanied by BID BOND or CASH or CERTIFIED CHECK or TREASURER'S CHECK or CASHIER'S CHECK issued by a responsible bank or trust company payable to the Commonwealth of Massachusetts in the amount of five percent of the sub-bid. A sub-bid accompanied by any other form of bid deposit than those specified will be rejected.
- C. Sub-Bid Requirements:
2. Sub bidder's attention is directed to Massachusetts G.L. Chapter 149 Section 44F, as amended, which provides in part as follows.
 3. Each sub-bidder shall list in Paragraph E of the "Form for Sub-bids" the name and bid price of each person, firm or corporation performing each class of work or part thereof for which the Section of the Specifications for that sub trade requires such listing, provided that, in the absence of a contrary provision in the Specifications, any sub-bidder may, without listing any bid price, list his own name or part thereof and perform that work with persons on his own payroll, if such sub-bidders, after sub-bid openings, shows to the satisfaction of the Awarding Authority that he does customarily perform such class of work with persons on his own payroll and is qualified to do so. This Section of the Specifications requires that the following classes of work shall be listed in Paragraph E under the conditions indicated herein.

<u>CLASSES OF WORK</u>	<u>REFERENCE SECTION</u>
NONE	NONE

- D. Reference Drawings: The Work of this Trade Bid is shown on the following Contract Drawings:

<u>NUMBER</u>	<u>SHEET NAME</u>
A-1.0	ELEVATOR ACCESS & CAB INTERIORS

1.2 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
1. All Work of Section 142423– HYDRAULIC PASSENGER ELEVATORS

2. Drawings and general provisions of the Contract, Massachusetts General Laws (Ter Ed) Chapter 149, Sections 44A to 44I, inclusive, as amended. apply to this Section

1.3 SUMMARY AND DEFINITIONS

B. Related Documents

1. Drawings and general provisions of the Contract, Massachusetts General Laws (Ter Ed) Chapter 149, Sections 44A to 44I, inclusive, as amended. apply to this Section.

C. Intent

1. This section includes:
 - a. Modernization of one (1) hydraulic passenger elevator.
2. The following outlines the scope of work covered in this Section:
 - a. Upgrade of one (1) hydraulic passenger elevator to include but not limited to upgrading existing control system, pump and tank unit assembly, car and hall door equipment, cab enclosures, interiors, fixtures, and wiring and related equipment to 2013 A17.1 Code with MA CMR 524 modifications.
3. Related equipment shall be designed, constructed, installed and adjusted to produce the highest results with respect to smooth, quiet, convenient and efficient operation, durability, economy of maintenance, and the highest standard of safety.
4. It is not the intent of these specifications to detail the construction and design of all parts of the equipment, but it is expected that the type, materials, design, quality of work and construction of each part shall be adequate for the service required, durable, properly coordinated with all other parts, and in accordance with the best commercial standards applicable and of the highest commercial efficiency possible.
5. Electric and magnetic circuits and related parts shall be of proper size, design and material to avoid heating and arcing, and all other objectionable effects which may reduce the efficiency of operation, economy of maintenance and/or net-useful life of the apparatus.
6. Minimum requirements for design, materials, etc., are for certain parts of the equipment. Equivalent requirements approved by the Consultant shall apply to such parts as are of special design, construction or material and to which the specified requirements are not directly applicable. These minimum requirements as a whole shall be considered as establishing proportionate general minimum standards for all parts of the equipment.
7. The Consultant may permit variations from the requirement of these specifications to permit use of the Contractor's standard equipment, provided such standard equipment is in every way adequate for the intended use and meets the full intent of these specifications. All such variations proposed by the manufacturer shall be called to the attention of the Consultant and shall only be made if approved in writing prior to the award of the contract.
8. General requirements for design, materials and construction are intended primarily to apply to the heavy-duty and important parts of the equipment specifically mentioned and to other parts of similar duty and importance. Less important and light-duty parts may be of the standard design, materials and construction provided that, in the opinion of the Consultant, such standards are in accordance with the best commercial practice and are fully adequate for

- the purpose of use. All such variations shall be made only on the Consultant's written approval.
9. All equipment and component parts installed, supplied or provided under this contract shall be manufactured and distributed by a third-party, non-installer company servicing the vertical transportation industry.
 - a. Apparatus shall conform to the design and construction standards referenced herein, and shall be rated the best commercial grade suitable for this application.
 - b. Equipment and component systems shall not employ any experimental devices or proprietary designs that could hamper and/or otherwise prohibit subsequent maintenance repairs or adjustments by all qualified contractors.
 - c. Manufacturers of the apparatus shall provide technical support and parts replacements for their equipment and component systems for a minimum of twenty (20) years, and issue such guarantee of support to the purchaser with written certification naming the final Owner of their product(s) to ensure the apparatus or systems remain maintainable regardless of who may be selected for future service.
 10. All equipment provided shall be factory and field tested with a history of design reliability and net-useful life established.
 - a. Contractor must be able to demonstrate the apparatus to be installed has been used successfully in a substantially similar manner under comparable conditions.
 - b. If the apparatus proposed differs substantially in construction, material composition, design, size, capacity, duty or other such rating from the equipment previously used for the same purpose by the manufacturer, the Consultant may reject the apparatus or require the vendor test and demonstrate the adequacy and suitability for this particular situation. Any necessary tests shall be performed at the sole expense of the Contractor with no prior guarantee of acceptance after the testing procedure.
 11. The Contractor shall not use as part of the permanent equipment any experimental devices, proprietary design, components, construction of materials which have not been fully tried out in at least substantially similar or under comparable service, except as may be especially approved by the Consultant. If any important equipment or devices to be used on this installation differ substantially in construction, materials, design, size, capacity or duty from corresponding items previously used for the same purpose by the manufacturer, they shall pass such tests as the Consultant may require to fully show their adequacy and suitability. These tests shall be in addition to tests herein specified and shall be made at the expense of the Contractor.
 12. Certain design limitations, tests, etc., are herein specified as a partial check of the adequacy of design, construction and materials used. These requirements do not cover all features necessary to ensure satisfactory and approved operation, etc., of the equipment.
 13. It is understood, the entire system shall be designed, fabricated, modified and/or upgraded in full compliance with applicable local laws and code standards. The absence of a particular item or requirement shall not relieve the Contractor of the full and sole responsibility for such equipment, features and/or procedures.
 14. With the exception of only those items specifically identified as being performed by others, the Specifications are intended to include all engineering, material, labor, testing, and inspections needed to achieve work specified by the Contract Documents. Inasmuch as it is understood that any incidental work necessary to complete the project is also covered by the Specifications, bidders are cautioned to familiarize themselves with the existing job site

conditions. Additional charges for material or labor shall not be permitted subsequent to execution of the Contract.

15. Bidders must report discrepancies or ambiguities occurring in the Specifications to the Consultant for resolution prior to the bidding deadline, otherwise the Specifications shall be deemed acceptable in their existing form.
16. Fixtures, Operating Devices and Signage Survey
 - a. Upon award of the Contract, Contractor shall perform a survey of the existing elevator operating fixtures and devices, including signage, and present a report to the Building Management. The report shall include photographs of the following existing items:
 - 1) Hall call push buttons
 - 2) “You are Here” signage if integral with the hall call fixture cover plate
 - 3) Floor identification / Braille signage in entrance jambs
 - 4) Lobby directional lanterns at all floors
 - 5) Applicable wall surfaces
 - b. The Contractor shall submit, as part of the report, pictures or catalog cuts of the new devices intended to be installed under the modernization project at the various locations including any additional signage either new or replacing existing.

D. Termination of Existing Agreement(s)

1. By submitting a bid, the existing maintenance provider agrees that any service contract(s) in effect shall be terminated by the Owner should the project be awarded to another vendor upon 30-day written notice to the Contractor by the Owner.
 - a. The contract(s) shall be terminated with no penalty to the Owner or Contractor.
 - b. Owner will be responsible for money owed the Contractor for services provided and work performed up until the date of cancellation.

E. Abbreviations and Symbols

1. The following abbreviations, Associations, Institutions, and Societies may appear in the Project Manual or Contract Documents:

AHJ	Authority Having Jurisdiction
AIA	American Institute of Architects
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWS	American Welding Society
CMR	Code of Massachusetts Regulations
IBC	International Building Code
IEEE	Institute of Electrical and Electronics Engineers
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Agency
OPSI	Office of Public Safety and Inspections
OSHA	Occupational Safety and Health Act

F. Codes and Ordinances / Regulatory Agencies

1. Work specified by the Contract Documents shall be performed in compliance with applicable Federal, State, and municipal codes and ordinances in effect at the time of Contract execution. Regulations of the Authority Having Jurisdiction shall be fulfilled by the Contractor and Subcontractors. The entire installation, when completed, shall conform with all applicable regulations set forth in the latest editions of:
 - a. Local and/or State laws applicable for logistical area of project work.
 - b. Building Code applicable to the AHJ.
 - c. Elevator Code applicable to the AHJ.
 - d. Safety Code for Elevators and Escalators, ASME A17.1 and all supplements as modified and adopted by the AHJ.
 - e. Safety Code for Elevators and Escalators, A17.1S supplement to A17.1 as modified and adopted by the AHJ for Machine Room Less installations (MRL).
 - f. Guide for Inspection of Elevators, Escalators, and Moving Walks, ASME A17.2.
 - g. Safety Code for Existing Elevators and Escalators, ASME A17.3 as modified and adopted by the AHJ.
 - h. Guide for emergency evacuation of passengers from elevators, ASME A17.4.
 - i. National Electrical Code (ANSI/NFPA 70).
 - j. American with Disabilities Act - Accessibility Guidelines for Building and Facilities and/or A117.1 Accessibility as may be applicable to the AHJ.
 - k. ASME A17.5/CSA-B44.1 - Elevator and escalator electrical equipment.
 - l. ECC (Energy Conservation Code) as may be applicable to the AHJ.
2. The Contractor shall advise the Owner's Representative of pending code changes that could be applicable to this project and provide quotations for compliance with related costs.

G. Definitions

1. Defective Work: Operation or control system failure, including excessive malfunctions; performances below specified ratings; excessive wear; unusual deterioration or aging of materials or finishes; unsafe conditions; need for excessive maintenance; abnormal noise or vibration; and similar unusual, unexpected, and unsatisfactory conditions.
2. Provide: Where used in this document, provide shall mean to install new device, apparatus, system, equipment or feature as specified in this document.
3. Definitions in ASME A17.1 as amended or modified by the AHJ apply to work of this Section.

1.2 PERMITS AND SUBMITTALS

A. Permits

1. Comply with the requirements of Division 01.
2. Prior to commencing work specified by the Contract Documents, the Contractor shall, at its own expense, obtain all permits or variances as may be required by the AHJ and provide satisfactory evidence of having obtained said permits and variances to both the Owner's Representative and Consultant.
3. File necessary drawings for approval of all Authorities Having Jurisdiction.
4. The Elevator Contractor shall undertake the necessary review and search procedure to identify open applications and/or outstanding violations for this property; and, close-out such

applications and/or expunge such violations relative to the project scope as required for final acceptance by the AHJ.

- a. Outstanding applications and violations must be indicated on the request for permit filing for this procedure to ensure such applications and/or violations are dismissed accordingly.
- b. All relative costs shall be included in the base bid proposal with the understanding that corrective actions are covered under the specified scope of work.

B. Submittals

- a. Shop Drawings – Submit computer generated project specific drawings for approval. Include the following:
 - 1) A listing of all components, devices and sub-systems including:
 - a) Manufacturer and location of plant
 - b) Size and model number
 - 2) Minimum Submittals Required:
 - a) Main Car Operating Panel – Cut Sheet, Finish Sample, Drawings
 - b) Cab Interior - Finish Samples, Drawings
 - c) Cylinder Assembly and PVC Liner – Cut Sheet
 - d) Hall Fixtures – Cut Sheet, Finish Sample, Drawings
 - e) Hall Lanterns/Indicators- Cut Sheet, Finish Sample, Drawings.
 - f) Controller Manufacturer, Model and Features – Cut Sheet
 - g) Pump and Tank Manufacture/ Model and Features – Cut Sheet
 - h) Door Operators Manufacturer - Model and Cut Sheet
 - i) Detector Edge Manufacturer - Model and Cut Sheet
 - j) Scavenger Pump – Model and Cut Sheet
2. The Consultant and the Owner's Representative shall pass on the submittals with reasonable promptness and the Contractor shall be responsible to ensure that there will be no delay in their work or that of any other trade involved.
3. Approved filing and submittal requirements must be completed before equipment and related materials are ordered.
4. Copies of Department of Buildings' permits and/or governing authority's documents will be posted at the job site with copies issued to the Owner's Agent, Owner's Representative and Consultant.
5. Samples of wood, metal, plastic, paint or other architectural finish material applicable to this project shall be submitted for approval by the Owner's designee.
6. It shall be understood that approval of the drawings and cuts by Owner's designee, Architect and/or Consultant shall be for general arrangement only and does not include measurements which are the Contractor's responsibility or approval of variations from the contract documents required by the AHJ.
7. The Contractor shall prepare a record log and maintain all submittals, shop drawings, catalog cuts and samples.

C. Measurements and Drawings

1. Drawings or measurements included with the bidding material shall be for the convenience of the bidders only and full responsibility for detailed dimensions lies with the Contractor.
2. In the execution of the work on the job, the Contractor shall verify all dimensions with the actual conditions.
3. Where the work of the Elevator Contractor is to join other trades, the shop drawings shall show the actual dimensions and the method of joining the work of the various trades.

D. Substitutions

1. Requests for substitutions will be considered under the following time limitations and situations:
 - a. Not less than ten (10) calendar days before bids are due.
 - b. Work or equipment specified becomes unavailable through unforeseen events such as strikes, loss of manufacturer's plant through fire, flood or bankruptcy.
2. Requested substitutions will be reviewed and adjudged. Failure of the Consultant to raise objection shall not constitute a waiver of any of the requirements of the Contract Documents.
3. Request for substitutions shall include complete data with drawings and samples as required, including the following:
 - a. Quality Comparison - Proposed substitution versus the specified product.
 - b. Changes required in other work because of the substitution.
 - c. Effect on the construction schedule.
 - d. Cost Data - Resulting from the proposed substitution versus the specified product. The Contractor shall certify that the cost data presented is complete and includes all related costs under this Contract.
4. When proposing a substitution, the Contractor represents that:
 - a. They have investigated the proposed substitution and have determined that it is equal to or better than the product specified.
 - b. They will guarantee the substitution in the same manner as the product specified.
 - c. They will coordinate and make other changes as required in the work as a result of the substitution.
 - d. They waive all claims for additional costs as a result of the substitution, with the exception of those identified above under "cost data".
5. The Consultant will be sole judge of the acceptability of the proposed substitution.
6. The Consultant will have authority to approve or reject substitutions or to change the specified standards of quality. However, neither this authority to act under this provision nor any decision made in good faith, either to exercise or not to exercise this authority, shall give rise to any duty or responsibility of the Consultant to the Contractor, any Subcontractor, any Sub-Subcontractor, any of their agents or employees or any other persons performing the work or offering to perform the work.

E. Changes in Scope and Extra Work

1. The Owner may at any time make changes in the specifications, plans and drawings, omit work, and require additional work to be performed by the Contractor.
 - a. Each such addition or deletion to the Contract shall require the Owner and the Contractor to negotiate a mutually acceptable adjustment in the contract price, and, for the Contractor to issue a change order describing the nature of the change and the amount of price adjustment.
 - b. The Contractor shall make no additions, changes, alterations or omissions or perform extra work except on written authorization of the Owner.
 - c. Each change order shall be executed by the Contractor, Owner, and the Consultant.

F. Keys

1. Upon the initial acceptance of work specified by the Contract Documents on each unit, the Contractor shall deliver to the Owner, six (6) keys for each general key-operated device that is provided under these specifications in accordance with ASME A17.1, Part 8 standards as may be adopted and modified by the AHJ.
2. All other keying of access or operation of equipment shall be provided in accordance with ASME A17.1 Part 8 as may be adopted and modified by the AHJ.

G. Diagnostic Tools

1. Prior to seeking final acceptance of the project, the Contractor shall deliver to the Owner any specialized tools required to perform diagnostic evaluations, adjustments, and/or programming changes on any microprocessor-based control equipment installed by the Contractor. All such tools shall become the property of the Owner.
 - a. Owner's diagnostic tools shall be configured to perform all levels of diagnostics, systems adjustment and software program changes which are available to the Contractor.
 - b. Owner's diagnostic tools that require periodic re-calibration and/or re-initiation shall be performed by the Contractor at no additional cost to the Owner for a period equal to the term of the maintenance agreement from the date of final acceptance of the project.
 - c. The Contractor shall provide a temporary replacement, at no additional cost to the Owner, during those intervals in which the Owner might find it necessary to surrender a diagnostic tool for re-calibration, re-initiation or repair.
2. Contractor shall deliver to the Owner, printed instructions, access codes, passwords or other proprietary information necessary to interface with the microprocessor-control equipment.

H. Service Support Requirements / Spare Parts

1. Software / Firmware Updates
 - a. During the life of the equipment and subject to the term of the maintenance agreement, where revisions to firmware and/or software are issued by the control manufacturer or manufacturer of solid state and microprocessor based subsystems subsequent to the beneficial use of the equipment, updates shall be provided so that the installation and spare circuit boards are current with respect to software and firmware versions.

2. Spare Parts
 - a. Provide spare parts required for maintenance of the elevator equipment installed under this contract.
 - 1) The spare parts shall be placed in new storage cabinets, located in the machine room, and become the property of the Owner.

I. Wiring Diagrams, Operating Manuals and Maintenance Data

1. Comply with the requirements of Division 01.
2. Deliver to the Owner, four (4) identical volumes of printed information organized into neatly bound manuals prior to seeking final acceptance of the project.
3. The manuals shall also be submitted in electronic format on non-volatile media, incorporating raw 'CAD' and/or Acrobat 'PDF' file formats.
4. Manuals, as well as electronic copies, shall contain the following:
 - a. Step-by-step adjusting, programming and troubleshooting procedures that pertain to the solid-state microprocessor-control and motor drive equipment.
 - b. Passwords or identification codes required to gain access to each software program in order to perform diagnostics or program changes.
 - c. A composite listing of the individual settings chosen for variable software parameters stored in the software programs of both the motion and dispatch controllers.
 - d. Method of control and operation.
5. Provide four (4) sets of "AS INSTALLED" straight-line wiring diagrams in both hard and electronic format in accordance with the following requirements:
 - a. Displaying name and symbol of each relay, switch or other electrical component utilized including identification of each wiring terminal.
 - b. Electrical circuits depicted shall include all those which are hard wired in both the machine room and hoistway.
 - c. Supplemental wiring changes performed in the field shall be incorporated into the diagrams in order to accurately replicate the completed installation.
6. Furnish four (4) bound instructions and recommendations for maintenance, with special reference to lubrication and lubricants.
7. Manuals or photographs showing controller repair parts with part numbers listed.

J. Training

1. Prior to seeking final acceptance of the project, the Contractor shall conduct a one (1) hour training program on-site with building personnel selected by the Owner.
2. The focus of the session shall include:
 - a. Instructions on proper safety procedures and who to contact for the purpose of assisting passengers that may become entrapped inside an elevator car.
 - b. Explain each control feature and its correct sequence of operation.

3. Control features covered shall include but, not be limited to:
 - a. Independent Service Operation.
 - b. Emergency Fire Recall Operation - Phase I
 - c. Emergency In-car Operation - Phase II.
 - d. Emergency Power Operation.
 - e. Emergency Communications Equipment.
 - f. Security Operating Features.
 - g. Interactive Systems Management.

K. Patents

1. Patent licenses which may be required to perform work specified by the Contract Documents shall be obtained by the Contractor at its own expense.
2. The Contractor agrees to defend and save harmless the Owner, Consultant and agents, servants, and employees thereof from any liability resulting from the manufacture or use of any patented invention, process or article of appliance in performing work specified in the Contract Documents.

L. Advertising

1. Advertising privileges shall be retained by the Owner.
2. It shall be the responsibility of the Contractor to keep the job site free of posters, signs, and/or decorations.
3. Contractor's logo shall not appear on faceplates or entrance sills without the approval of the Owner.

1.3 QUALITY ASSURANCE

A. Materials and Quality of Work

1. All materials are to be new and of the best quality of the kind specified.
2. Installation of such materials shall be accomplished in a neat manner and be of the highest quality.
 - a. Should the Contractor receive written notification from the Owner stating the presence of inferior, improper, or unsound materials or quality of installation, the Contractor shall, within twenty-four (24) hours, remove such work or materials and make good all other work or materials damaged.
 - b. Should the Owner permit said work or materials to remain, the Owner shall be allowed the difference in value or shall, at its election, have the right to have said work or materials repaired or replaced as well as the damage caused thereby, at the expense of the Contractor, at any time within one (1) year after the completion of the work; and neither payment made to the Contractor, nor any other acts of the Owner shall be construed as evidence of acceptance and waiver.

B. Mechanical Design Requirements (General)

1. The following typical requirements shall apply to all parts of the work where applicable and are supplementary to other requirements noted under the respective headings.

- a. All bearings, pivots, guides, guide shoes, gearing, door hanger sheaves, door hanger tracks and similar elements subject to friction or rolling wear in the entire elevator installation shall be accurately and smoothly finished and shall be arranged and equipped for adequate and convenient lubrication. Means shall be provided for flushing and draining the larger bearings and gear case. All oiling holes shall have dustproof, self-cleaning caps.
- b. Bearings of governor and governor sheaves and important supporting bearings of other parts in motion when the elevator is traveling shall, unless otherwise specified or approved, be of ball or roller bearing type.
- c. Bearings for brake levers and similar uses where the amount of movement under load is light and the wear negligible may be unlined.
- d. All plain bearings shall be liberally sized in accordance with the best commercial elevator usages which have proved entirely satisfactory on heavy-duty installations.
- e. Bearings of motors shall be arranged and equipped for adequate automatic lubrication. Ring or chain oilers, spring-fed grease cups and equivalent devices properly used in accordance with the best commercial elevator practice will be acceptable. Approved means shall be provided for visibly checking the amount of lubricant contained and for flushing and draining. Means shall also be provided for preventing leakage of lubricant when the reservoirs or grease cups are filled to proper levels.
- f. Ball and roller bearings shall be of liberal size and of a type and make which have been extensively and successfully used on other similar, heavy-duty elevator installations. They shall be fully enclosed. Loading, lubrication, support and all other conditions of use shall be in accordance with the recommendations of the bearing manufacturer based on previous extensive and satisfactory elevator usage.
- g. All armature spiders and similar items intended to rotate with their shafts shall be keyed and/or firm press or shrunk fit on the shafts. Set screw fastening will be permitted only for minor items not subject to hoisting loads and where means for field adjustment is required.
- h. All bolts used to connect moving parts, bolts carrying hoisting stresses and all other bolts, except guide rail bolts, subject to vibration or shock shall be fitted with adequate means to prevent loosening of the nuts and bolts. Bolts transmitting important shearing stresses between machine parts shall have tight body fit in drilling holes.
- i. All machine work, assembling and installing shall be done by skilled and experienced mechanics using first-class, modern equipment and tools. All work shall be thoroughly high grade in every respect. All parts will be manufactured to high precision standards so that wearing parts will be readily interchangeable with stock repair parts with a minimum of field fitting.
- j. All bearing and sliding surfaces of shafts, pins, bearings, bushings, guides, etc., shall be smoothly and accurately finished. They shall be assembled and installed in accurate alignment and with working clearance most suitable for the load, speed, lubrication and other conditions of use.
- k. Structural steel used for supporting and securing equipment and for the construction of car slings, etc., shall conform to the A.S.T.M. specification for Structural Steel for Buildings. Design stresses shall not exceed those specified in the local Building Code.
- l. Castings of motor frames, sheaves, gear casings, etc., shall be of the best quality metallurgically controlled, hard, close grained gray machinery cast iron, free from blow holes, sand holes, or shrinkage cracks, ground to remove overruns, sanded and machined so as to leave a finish suitable for its particular application. Surfaces of sheaves and brake drums shall be entirely free from defects and shall show a hardness of not less than 220 Brinell.

C. Electrical Design Requirements (General)

1. The following typical requirements shall apply to all parts of the work and are supplementary to other requirements noted under the respective headings.
 - a. The design and construction of the motors shall conform to the requirements of these specifications and to the ASME Standards for Rotating Electrical Machinery with revisions issued to the first day when the work of this Contract was advertised.
 - 1) Motors shall operate successfully under all loads and speeds and during acceleration and deceleration.
 - 2) Motors shall be designed for quiet operation without excessive heat.
 - 3) Insulation on motor coils and windings and on all insulated switch, relay, brake and other coils shall conform to the requirements of minimum Class “F” insulation, as defined in ANSI Standards for Rotating Electrical Machinery. All motors shall be impregnated twice.
 - 4) Switches, relays, etc., on controller, starter and signal panels and similar items on other parts of the equipment shall be the latest improved type for the condition of use. They shall function properly in full accordance with the requirements of the machines controlled and with the specified operating requirements of the elevator. Any of these parts showing wear or other injurious effects during the guarantee period to the extent that abnormal maintenance is required or indicated shall be replaced with proper and adequate parts by the Contractor.
 - 5) Contacts in elevator motor circuits which are intended to be opened by governors or other safety devices shall be copper to carbon or other approved non-fusing type.
 - 6) Where required, controllers and other component parts of the installation shall be labeled in accordance with the latest codes and standards as adopted and/or otherwise modified by the AHJ.
 - 7) Electrical equipment, motors, controllers, etc., installed under this contract shall have necessary CSA/US or UL/US listing as may be required by the AHJ. Equipment shall be labeled or tagged accordingly.

D. Materials, Painting and Finishes

1. Two (2) coats of rust inhibiting machinery enamel shall be applied to exposed ferrous metal surfaces in the pit that do not have a galvanized, anodized, baked enamel, or special architectural finishes.
2. Two (2) coats of rust inhibiting enamel paint to the machinery located within the machine room and secondary level (where applicable) as well as to the machine room floors.
3. Architectural metal surfaces of bronze or similar non-ferrous materials which are specified to be refinished, re clad and/or provided new, shall be sufficiently clear coated so as to resist tarnishing during normal usage for a period of not less than twelve (12) months after final acceptance by the Owner.
4. Identify all equipment including buffers, crosshead, safety plank, machine, controller, drive, governor, disconnect switch, etc., by 4" high numerals which shall contrast with the background to which it is applied. The identification shall be either decalcomania or stencil type.
5. Paint or provide decal-type floor designation not less than six (6) inches high on hoistway doors (hoistway side), fascias and/or walls as required by Code at intervals not exceeding 7'-0". The color of paint used shall contrast with the color of the surface to which it is applied.

E. Accessibility Requirements

1. Locate the alarm button and emergency stop switch at 35", and floor and control buttons not more than 48" above the finished floor. The alarm button shall illuminate when pressed for visual acknowledgement to user.
2. Provide raised markings in the panel to the left of the car call and other control buttons. Letters and numbers shall be a minimum of 5/8" and raised .03" and shall be in contrasting color to the call buttons and cover plate.
3. The centerline of new hall push button shall be 42" above the finished floor or as instructed by AHJ.
4. The hall arrival lanterns, or cab direction lantern provided shall sound once for the "up" direction and twice for the "down" direction. Design and locate fixtures per Federal standards.
5. Provide floor designations at each entrance on both sides of jamb at a height of 60" above the floor.
 - a. Use cast metal plates and polished numbers secured with tamper-proof hardware.
 - b. Designations shall be 2" high, raised .03" on a contrasting color background as selected by the Owner.
6. Provide an audible signal within the elevator to tell passenger that the car is stopping or passing a floor served by the elevator.
7. Where elevators operate at a speed greater than 200 fpm, provide a verbal annunciator to announce the floor at which the elevator is stopping where required by the AHJ.
8. Provide signal control timing for passenger entry/exit transitions per Federal and/or Local standards.
9. Ensure sill-to-sill running clearances do not exceed 1-1/4" at all landings served.
10. Provide visual call acknowledgment signal for car emergency intercommunication device.

1.4 DELIVERY / STORAGE / HANDLING / COORDINATION

A. Delivery and Storage of Material and Tools

1. Comply with the requirements of Division 01.
2. Delivery, Storage and Handling:
 - a. Deliver materials to the site ready for use in the accepted manufacturer's original and unopened containers and packaging, bearing labels as to type of material, brand name and manufacturer's name. Delivered materials shall be identical to accepted samples.
 - b. Store materials under cover in a dry and clean location, off the ground.
 - c. Remove delivered materials which are damaged or otherwise not suitable for installation from the job site and replace with acceptable materials.
3. The Owner shall bear no responsibility for the materials, equipment or tools of the Contractor and shall not be liable for any loss thereof or damage thereto.
4. The Contractor shall confine storage of materials on the job site to the limits and locations designated by the Owner and shall not unnecessarily encumber the premises or overload any portion with materials to a greater extent than the structural design load of the Facility.

B. Work with Other Trades / Coordination

1. Coordinate installation of sleeves, block outs, equipment with integral anchors, and other items that are embedded in concrete or masonry for the applicable equipment. Furnish templates, sleeves, equipment with integral anchors, and installation instructions and deliver to Project site in time for installation.
2. Coordinate sequence of installation with other work to avoid delaying the Work.
3. Coordinate locations and dimensions of other work relating to the equipment scheduled for installation including pit ladders, sumps, and floor drains in pits; entrance subsills; machine beams; and electrical service, electrical outlets, lights, and switches in pits and machine rooms, secondary levels, overhead sheave rooms and hoistways as it relates to the specific equipment.

C. Removal of Rubbish and Existing Equipment

1. On a scheduled basis, the Contractor shall remove all rubbish generated in performing work specified in the Contract Documents from the job site.
2. Any component of the existing elevator plant that is not reused under the scope of work specified in the Contract Documents shall become property of the Contractor and, as such, shall be removed from the premises at the Contractor's sole expense.
3. The Contractor agrees to dispose of the aforementioned equipment and rubbish in accordance with any and all applicable Federal, State, and municipal environmental regulations, and further accepts all liability that may result from handling and/or disposing of said material.

D. Protection of Work and Property

1. The Contractor shall continuously maintain adequate protection of all their work from damage and shall protect the Owner's property from injury or loss arising out of this contract.
2. The Contractor shall make good any such damages, injury or loss, except such as may be directly caused by agents or employees of the Owner.
3. The Contractor shall provide all barricades required to protect open hoistways or shafts per OSHA regulations. Such protection shall include any necessary guards or other barricades for employee protections during and after the modernization procedure.

1.5 RELATED WORK**A. Work by Elevator Contractor Included in the Base Bid**

1. The following requirements shall be applicable based on prevailing conditions at the site of work and/or mandated modifications for code compliance.
 - a. Provide the following signage, plates and tags:
 - 1) Provide all required manufacturer data plates and installation-specific tags and signs of the types and styles containing information as required by applicable Codes and Standards as adopted and/or modified by the AHJ.
 - 2) Provide any walk-in pit entrance door(s) with sign reading "'DANGER - ACCESS ONLY ALLOWED WHEN ACCOMPANIED BY A MASSACHUSETTS-LICENSED ELEVATOR MECHANIC" shall be placed on the public side of the locked pit door. The signage letter size shall be a

- minimum of $\frac{3}{4}$ inch high and shall be of a contrasting color with that of the background.” as required by AHJ.
- 3) In addition to (1) above, walk-in pit(s) with pit door stop switches shall be provided with a sign that reads “WARNING – Opening the Pit Door Will Stop the Elevator” as required by AHJ.
 - 4) Provide access doors to each electrical control room, secondary or machinery space with signs that reads “ELEVATOR MACHINE ROOM - NO STORAGE ALLOWED” and on separate lines: "DANGER - ACCESS ONLY ALLOWED WHEN ACCOMPANIED BY A MASSACHUSETTS-LICENSED ELEVATOR MECHANIC." The letter size shall be a minimum of $\frac{3}{4}$ inch high and shall be of a contrasting color with that of the background as required by AHJ.
- b. Provide a standard railing conforming to Code on the outside perimeter of the car top on all sides where the perpendicular distance between the edges of the car top and the adjacent hoistway enclosure exceeds 300 mm (12 in.) horizontal clearance or as otherwise required by the Authority Having Jurisdiction.
 - c. Provide necessary patching, repairing of masonry and/or dry wall for smooth and legal elevator hoistways where new fixture back boxes are installed.
 - d. The top surface of any setback or projection in the hoistway that measures 2” or more in width shall be beveled at an angle of not less than 75 degrees from horizontal, constructed from prime painted 14 gauge cold-rolled steel and installed so as to conform with ASME A17.1 elevator safety code as modified by, and/or in addition to codes and standards accepted by the AHJ.
 - e. Where the pit extends more than 3 feet below the sill of the pit access door, provide a permanent fixed metal ladder.
 - 1) Ladder shall extend no less than 48” above the sill of the access door. Handgrips shall extend from the ladder to a point no less than 48” above the sill of the access door where the ladder does not comply.
 - 2) The rungs shall be a minimum of 12” wide. Where prevailing conditions prevent a 12” wide rung, the rung may be reduced to no less than 9”.
 - 3) The rungs shall be spaced 12” on center.
 - 4) A clear distance of no less than 4 $\frac{1}{2}$ ” from the centerline of the rungs and handgrips to the nearest permanent object in back of the ladder shall be provided.

B. Work by Others (Specified in other Sections)

1. The following requirements shall be applicable based on prevailing conditions at the site of work and/or mandated modifications for code compliance.
 - a. Installation of new main line power feed with related disconnect switch designed and located per local law requirements.
 - b. Provide remote/auxiliary disconnects where new or existing disconnect switches are not in line-of-sight of the controller.
 - c. Installation of auxiliary power feed with related distribution panel(s) and disconnect(s) designed and located per local law requirements.
 - 1) Voltage shall be 110 VAC with one 15 Amp circuit breaker or fuse for lighting of each individual elevator car enclosure.

- 2) Circuit breakers and/or fused disconnects shall be lockable in the “OFF” position in accordance with applicable code.
- d. Installation of new permanent lighting fixtures with protective guards and 110-volt duplex GFI receptacles inside the machine room. Illumination shall be no less than 30 foot-candles at floor level. A light control switch shall be provided immediately adjacent to the machine room on the lock-jamb side of the access door as per AHJ.
 - e. Provide necessary receptacles as required by Elevator Contractor to supply power to auxiliary elevator equipment and/or remotely located monitors.
 - f. Provide necessary patching, repairing and installation of masonry and/or dry wall for smooth and legal elevator hoistways.
 - g. Provide any required repair of smoke holes with subway grating covers in the machine rooms and/or secondary levels where applicable. All smoke ventilation provisions, including duct work, dampers, fans, fire control interfaces, in accordance with local codes.
 - h. Provide each elevator pit with a 110 volt GFI duplex receptacle and a permanent lighting fixture equipped with protective guard. Illumination shall be no less than 10 foot-candles at pit floor level. A light control switch shall be provided and so positioned as to be readily accessible from the pit entrance door or ladder.
 - i. Installation of hoistway and machine room smoke relief provisions in accordance with local laws.
 - j. Provide each machine room, secondary space and pit with a self-closing, self-locking access door. Locking means shall be spring-type arranged to permit the doors to be opened from the inside without a key.
 - k. Provide a smoke detector system meeting the requirements of A17.1 and/or the Local Governing Authority.
 - l. Installation of fire emergency control interface provisions for automatic recall of the elevator(s) through operation of the fire detection system. Provisions shall be made for alternate designated fire recall landing with connection contingent on Codes recognized by the local governing authority. The interfacing contacts shall be wired to an electrical junction box located inside each elevator machine room for connection to the elevator control systems by the Elevator Contractor. Each wire shall be clearly labeled with its control function. Coordinate the type of interface required for the specific elevator control apparatus with the Elevator Contractor.
 - m. Installation of emergency power control interface provisions to signal the elevator control apparatus of a transfer from normal (utility) power to the building emergency (generator) power supply. Also, provide additional control interface to give advanced notification to the elevator control apparatus that the power source will transfer from emergency (generator) power to normal (utility) power. Interfacing contacts shall be wired to an electrical junction box located inside each machine room for connection to the elevator control equipment by the Elevator Contractor. Coordinate the type of interface required for the specific elevator control apparatus with the Elevator Contractor.
- 1) On the line side of each main line disconnect switch, provide some means to absorb power that may be regenerated by the elevator hoist motor during emergency power operation.
 - 2) Normal Power/Emergency Power Control Signals consisting of two (2) dry contacts provided by others to function as follows:

- a) One (1) dry contact normally open to make when Normal Power is available. (Logic state of dry contact is to be confirmed by the Manufacturer of the Elevator Control Equipment).
 - b) One (1) dry contact normally open to make when emergency power is available. (Logic state of dry contact is to be confirmed by the Manufacturer of the Elevator Control Equipment).
- n. Installation of HVAC inside the Machinery spaces, machine rooms, secondary levels, control spaces, and control rooms to maintain ambient temperature and humidity levels in the range of 50°F to 90°F within the range specified by the microprocessor-control equipment manufacturers to ensure safe and normal operation of the elevator(s).
- o. Provide a class “ABC” fire extinguisher in electrical machinery and control spaces. Locate the extinguisher in close proximity to the access door.
- p. Provide necessary telephone wiring with connection to local telephone service for two-way voice emergency communications systems.
- 1) Terminate the telephone wiring in junction boxes or standard phone jack terminals in the machine room.
 - 2) Coordinate the quantity and termination method of individual phone connections with the Elevator Contractor.
 - 3) Identify each phone line for connection by the Elevator Contractor to the appropriate elevator device(s).
 - 4) Telephone wiring, where required by applicable codes, shall be installed in conduit.
- q. Sumps in pits where provided, shall be covered. The cover shall be level with the pit floor so as not to produce a tripping hazard. Any repairs, replacements, filtration systems, or removal of existing sump sumps shall be provided per AHJ.

1.6 WARRANTY / MAINTENANCE SERVICES

A. Contract Close-Out, Guarantee and Warranties

- 1. The Contractor agrees to certify that work performed in accordance with the Contract Documents shall remain free of defects in materials and quality of work for a period of one (1) year after final acceptance of the completed project.
- 2. The sole duty of the Contractor under this warranty is to correct any non-conformance or defect and all damages caused by such defect without any additional cost to the Owner and within fifteen (15) days of notification.
- 3. The express warranty contained herein is in lieu of all other warranties, express or implied, including any warranty of merchantability or fitness for a particular purpose.
- 4. In the event the Contractor fails to fulfill its obligations defined herein, the Owner shall have the express right to perform the Contractor’s obligations and to charge the Contractor the cost of such performance or deduct an equal amount from any monies due the Contractor.

B. Maintenance Coverage

1. The following maintenance coverage apply:

a. Interim Maintenance

- 1) Provide full protective maintenance services and equipment coverage for two (1) hydraulic passenger elevators at least one (1) month prior to the commencement of work, during the work implementation and until final acceptance of the finished project.
- 2) Interim full comprehensive maintenance services shall be provided in accordance with these specifications and included in the base bid.

b. Warranty Maintenance

- 1) Provide full comprehensive preventative maintenance services for a period of twelve (12) months after the final completion and acceptance of the project.
- 2) Guarantee maintenance and related services shall be provided in accordance these specifications.
- 3) Costs related to guarantee maintenance shall be included in the base bid quotation.

c. Long-Term Maintenance (Not Included)

- 1) Long-term full comprehensive maintenance and related services shall be provided for under a separate agreement between owner and contractor and is not part of this project.
- 2) Long-term full comprehensive maintenance services would not become effective until the completion of the 12 month warranty maintenance and are not part of the base bid.

C. Maintenance

1. Interim Maintenance: Provide full protective maintenance on the units that are completed and accepted by the AHJ and that may be put in service prior to the overall project completion. The maintenance service shall be as hereinafter specified under the Full Protective Maintenance Service in "3" below and include all code mandated safety and local law tests and inspections that may come due while on this service.

- a. The price for this service shall be included in the base price or as otherwise specified in the contract documents and shall begin no less than one (1) month prior to the start of work onsite for the modernization and shall continue until the completion of the project.

2. Warranty Maintenance: Provide full protective maintenance on the specified equipment for a period of twelve (12) months from the date of final acceptance of the entire project as specified under the Full Protective Maintenance Service in "3" below.

- a. The price for this service shall be included in the base price or as otherwise specified in the contract documents.

3. Full Protective Maintenance Service: All maintenance shall comply with Part 8 of the ASME A17.1 Code and modified or amended by the Authority Having Jurisdiction.
 - a. Maintenance work shall be performed by certified/qualified personnel directly employed and supervised by the service contractor.
 - b. Perform scheduled maintenance work and repairs during the regular working hours of regular working days of the trade. All work shall be coordinated with the Building Manager.
4. Provide emergency callback service and repair twenty-four (24) hours a day, seven (7) days a week, including holidays, between regular examinations at no extra cost to the Owner. The response time during working hours shall not exceed one (1) hour. Perform emergency repairs within four (4) hours to restore the equipment to operating order. The following conditions will require emergency callback services for elevators:
 - a. Passenger entrapment.
 - b. Failure or malfunction of control system.
 - c. Shutdown of any elevator.
5. Maintenance shall include monthly examination, adjustment, lubrication, repair or replacement of electrical and mechanical parts of all equipment and apparatus.
6. The maintenance services shall also cover re-lamping of machine room and pit lighting fixtures, signal and operating fixtures, communication system, cab ventilation system, monitoring and control panels. The disconnect means, fuses, car enclosures, car doors and hoistway entrances are excluded. Repair equipment whenever required and use only genuine standard parts produced and manufactured for equipment concerned.
 - a. Include a minimum of one (1) hour of monthly labor for the specified scheduled preventive maintenance service.
 - b. The performance of mandated inspections and tests of the equipment, as required by the AHJ, shall be included in this agreement.
 - c. Provide firefighter and emergency power tests and inspections as may be required. Include at least one (1) emergency power/fire recall test per year which shall be conducted during regular work hours at no extra cost to the Owner.
 - d. Three (3) months prior to the warranty expiration period, perform a Performance and Maintenance survey of all devices covered under the agreement and submit a report listing the recorded performance data, the emergency call-back services rendered during the year, and recommendations to further improve reliability and performance.
 - 1) When requested, provide a recording of each car's acceleration, deceleration and jerk rates along with a 3-day history of average corridor call wait times from 7 a.m. to 6 p.m. as recorded on a specified Tuesday, Wednesday and Thursday.
 - 2) Provide and document all required periodic testing.
 - e. During every scheduled maintenance visit, make sure the machine room and pit areas are clean.
 - 1) Paint the machine room floor and machine room equipment as needed to maintain appearances of equipment and rooms.

- f. Adjust controls and maintain the equipment to meet the performance requirements as hereinafter specified.
 - g. If overtime repairs and maintenance services are requested and pre-approved by the Owner, the Contractor shall pay for the regular labor portion, and the Owner will cover the premium portion of the labor only.
 - h. Keep permanent record of inspections, maintenance services including lubrication procedures, emergency call-back services, repairs and replacements.
 - i. Maintain a complete set of updated wiring diagrams and schematic control diagrams in the machine room and provide the Owner with an additional record set.
7. Supply all necessary lubricants, cleaning materials and repair parts required to keep the system in good working order during maintenance periods.
 8. Maintain an adequate stock of spare parts for maintenance or repair work and minor callback service repairs within the confines of the building in areas designated and assigned by the Owner. Maintain a catalog of spare parts available on site.
 9. Additional parts of other equipment required for maintenance and repair of the systems may be stored at the Contractor's facilities with the understanding delivery of same for emergency procedures must be made within two (2) hours to the job site.
 10. Other materials and equipment normally not stocked by the Trade Contractor locally must be available within twenty-four (24) hours for delivery to the job site from remote facilities and/or Supplier Contractors responsible to the Contractor for stocking the materials or equipment.
 11. If the requirements for stockade of parts as defined herein are not met on any item, immediately notify the Owner in writing as to the circumstances and provide a confirmed delivery date for the required materials and equipment.
 12. Should it become necessary to work on the equipment, proper safety barricades shall be erected to protect people from all hazards.
 13. Should the Owner request that the maintenance Contractor perform any work on the equipment of this Contract, but not included in the terms of the Contract, then payment for such work shall be based on the rates included in the Contract for time and material.
 14. Cancellation: The Owner has the right to cancel this coverage on 30 days' notice.
 - a. The Purchaser/Owner may have the Contractor's work and systems' performance operation checked monthly to ensure the Contractor is performing in accordance with this Contract. If the work requirements are not maintained, the Purchaser/Owner will retain the payment to the Contractor until the Consultant verifies that the work and/or operating performance is back to standard. If three (3) consecutive months of substandard maintenance is noted, the Owner has the right to immediately cancel the coverage without notice to the Contractor.
 - 1) The Consultant, Purchaser and/or Owner's Designee may withhold approval for payment on any request to such extent as may be necessary to protect the Owner from loss on account of:
 - a) Negligence on the part of the Contractor to execute the work properly or failure to perform any provisions of the contract. The Owner, after three (3) days written notice to the Contractor, may, without prejudice to any other remedy make good such deficiencies and may deduct the cost of the contract.
 - b) Claims filed or reasonable evidence indicating probable filing of claims due to the Contractor's failure to perform.

- c) Failure of Contractor to make payments properly to subcontractor for material and labor used to fulfill contractual requirements.
 - d) Damage to the building as a result of work performed or another subcontractor's failure to perform.
- b. Contractor shall notify Purchaser and Consultant in writing regarding any necessary services, coverage or times which may have been omitted from the maintenance contract specifications and any irregularities, discrepancies or duplications that could affect the full comprehensive intent of the agreement.
- 1) Any duplication of work or coverage is specified as a means of demonstrating the contract requirements, but such duplication, if any, is not intended to expand coverage or increase requirements for such work or services and such duplication shall not increase costs or provide justification for extra or additional charge to the Purchaser.

1.7 ALTERNATES

The following alternatives are elective upgrades which constitute changes to the base scope of work specified. Pricing for each alternate upgrade is requested from the bidder with costs indicated in the appropriate space on the Invitation to Bids (IFB). Contractor shall take into consideration, as part of the alternative pricing, alternate work that is required either in lieu of, or in addition to, work specified in the base scope and shall not duplicate costs.

- 1. None

PART 2 - PRODUCTS

2.1 GENERAL DESCRIPTION

A. Elevator - Elevator No. 2 - State ID: 160-P-319

1.	Quantity	One (1)
2.	Type	Hydraulic w/standard in-ground jack unit
3.	Capacity (lbs.)	2,500 lbs.
4.	Speed (fpm)	125 fpm
5.	Travel in Feet	Retain – Verify in field
6.	Number of Landings	Two (2)
7.	Number of Openings	Two (2)
8.	Front Opening	All @ G, 1
9.	Rear Opening	None
10.	Operation	Simplex selective collective
11.	Controller	New
12.	Fireman's Control	Phase I and II
13.	Emergency Power	None
14.	Motor Starter	New - Solid State
15.	Machine Room Location	Retain
16.	Power Unit	New – Submersible
17.	Hydraulic Jack / Cylinder	New
18.	Piping	Modify
19.	Scavenger Pump	New
20.	Battery Lowering	New (Backup to EP)
21.	Emergency Power	New
22.	Car Platform	Retain and Modify
23.	Car Frame	Retain and Modify
24.	Guide Rails	Retain and Refurbish
25.	Guides	New
26.	Buffers	New
27.	Car Door Size/Type	3'-0" w x 7'-0" h / Single Speed Side Sliding
28.	Hoistway Door Size	Same as above (V.I.F.)
29.	Car Door Operator	New
30.	Car Door Tracks/Hangers	New
31.	Hall Door Tracks / Hangers	New
32.	Hall Door Interlocks/Closers	New
33.	Hall Door Entrance Frames	Retain
34.	Hall Door Panels	New
35.	Hall Keyed Access	New
36.	Power Supply	Retain 208 Volt 3 Phase 60 Hz (V.I.F.)
37.	Wiring and Traveling Cables	New
38.	CCTV	Include Provisions
39.	Security / Key / Card Reader	Include Provisions
40.	Hall Operating Fixtures	New
41.	Car Operating Fixtures	New
42.	Communication	New
43.	Door Protective Device	New
44.	Emergency Cab Lighting	New

45.	Car Ventilation	New
46.	Car Enclosure	New
47.	Car Wall Panels	New – Per Dwg. & Detail Provided
48.	Car Ceiling	New – Per Dwg. & Detail Provided
49.	Car Lighting	New – Per Dwg. & Detail Provided
50.	Car Doors	New – Stainless Steel
51.	Car Flooring	New- Rubber As Selected by Architect
52.	Car Sill	New – Nickel Silver

2.2 MANUFACTURERS

A. Pre-Approved Equipment Manufacturers

1. The following manufacturer's equipment and materials have been pre-approved for use on this project.
2. Other equipment not specifically mentioned shall be considered for approval on an individual basis.
 - a. Controller –Motion Control Engineering (MCE), GAL (GALaxy), Smartrise.
 - b. Tracks, Hangers, Closers, Interlocks - G.A.L. or equal.
 - c. Door Operators – GAL, Wittur, or equal.
 - d. Fixtures - G.A.L., Innovation, Monitor, MAD or approved equal.
 - e. Door Protective Device – Janus Panachrome 3D or approved equal.
 - f. Entrance Door Panels - Tyler, Velis, Gunderlin, Columbia, Peelle or approved equal.
 - g. Cabs – Draper, EID, Hamilton, Roy or approved equal
 - h. Electrical Traveling Cables - Draka, James Monroe.
 - i. Hydraulic Systems/Components - Canton, MEI or approved equal.
 - j. Guide Shoes/Rollers – ELSCO, Elpro or approved equal.
3. Original Equipment Manufacturers may substitute their own branded equipment subject to owner, consultant approval and the following:
 - a. All requirements of the specifications are met regarding performance, appearance, serviceability and support.
 - b. A full stock of all regular and critical replacement parts required for this project are maintained at a facility within fifty (50) miles of the project site.
 - 1) Any parts not stocked at the above referenced facility shall be identified with the location of the nearest source and shall be available for next-day delivery upon demand.
 - c. All parts and software shall be made available for purchase to a qualified elevator maintenance firm with one (1) business day delivery without direct Owner involvement.
 - 1) Provide details of parts supply facility and a list of current parts pricing for all major components required for the installation.

- d. All specialized tools, equipment, software, and passwords, required to maintain, repair, adjust the operation, and perform code mandated inspections are provided to the Owner as part of the base installation.
 - 1) Updates to these items shall be available via the parts supply facility referenced above.
- e. Technical support of the product(s) shall be available to the Owner's elevator service provider.

2.3 CONTROL FEATURES / OPERATION

A. Simplex Selective Collective Operation

1. Provide simplex selective collective operation from a riser of hall push button stations.
2. The registration of one or more car calls shall dispatch the car to the selected floors.
 - a. The car shall also respond to registered hall calls in the same direction of travel.
 - b. Car and hall calls shall be canceled when answered.
3. Stops in response to calls that are registered in either the car or hall push button stations shall occur in the natural order of progression in which the floors are encountered, depending on the direction of car travel, and irrespective of the order in which calls are registered.
4. When the car has responded to the highest or lowest call, and calls are registered for the opposite direction, the car shall reverse direction automatically and respond to those registered calls.
5. When the car arrives at its last stop and reverses direction of travel, all previously registered car calls shall be automatically cancelled.
6. When the car arrives at a landing where both up and down hall calls are registered, it will answer the call in the direction of travel.
 - a. After a pre-determined delay, if no car call is registered, the car shall respond to calls registered for the opposite direction. Car doors shall close immediately, re-open and respond to the call for the opposite direction.
 - b. Hall lantern operation shall always correspond to direction of service.
7. When an empty car reverses direction at a landing with no hall calls, the doors shall not open and the hall lantern shall not operate.
8. If the car has no car calls registered and arrives at a floor where both up and down hall calls have been registered, the car shall respond to the hall call corresponding to the last direction of car travel. If, after making its stop, a car call is not registered and no other hall calls exist ahead of the car corresponding to its original direction of travel, the doors shall close and immediately reopen in response to the hall call for the opposite direction.
9. The car shall maintain its original direction at each stop until the doors are fully closed to permit a passenger to register a car call before the car reverses its direction of travel.

B. Independent Service Operation

1. The car operating station shall be equipped with a key-operated switch labeled "IND SER".
2. Locate the switch in the locked service compartment.

3. When placed in the “on” position the following shall occur:
 - a. Group elevator - the elevator shall bypass corridor calls and travel directly to any floor chosen by registration of a car call. Hall calls shall remain registered for service by another elevator in the group.
 - b. Simplex elevator - existing hall call registrations shall extinguish and hall buttons shall remain inoperative as an indication to passengers that there is no elevator service.
4. During Independent Service Operation, the elevator doors shall remain open at any landing until the door close or a car call push button is pressed and maintained until the doors are fully closed.
5. During Independent Service Operation, the elevator doors shall remain open at any landing until the door close or a car call push button is pressed and maintained until the doors are fully closed.
6. If more than one (1) car call is registered, all registered car calls shall extinguish when the elevator stops in response to the first call.
7. Fire Emergency Recall shall automatically override Independent Service Operation and engage Phase I - Fire Emergency Recall Operation following a period of approximately forty-five (45) seconds.

C. Inspection Service Operation

1. Provide a key operated switch in the locked service panel that, when turned to the ‘ON’ position, shall cause the elevator to be removed from service and placed in Inspection Service Operation.
2. Limited operation of the car shall be provided through pressing the Attendant Service up and down push buttons (if provided) or the highest or lowest car call push buttons (if up and down buttons are not provided) in the main car operating panel only.
3. The car shall move at a speed not to exceed 150 feet per minute (0.75 meters per second) as per code with both the hall and car door panels in the closed and locked position.
4. The Inspection Service switch shall be keyed differently than other typical keys used in the operation of the elevator. Keying shall be in accordance with Security Group Classifications as required by applicable code.
5. The top of the elevator car shall be equipped with a control for limited operation of the car during repairs, maintenance and inspection conducted in the hoistway. The transfer of control to the top of car operating device shall cause that device to be the sole means of control for the elevator.
 - a. Visual and audible indication shall be provided on the top of the car when Firefighters’ Emergency Operation is initiated.
6. Power door operating equipment shall be rendered inoperative while the car is being operated in the Inspection Service mode with the exception of power closing of the door. The control system shall maintain closing power on the door while the elevator is moving under Inspection Service Operation.
7. The in-car Inspection Service switch shall be rendered ineffective when the top of car inspection control is activated.
8. Machine Room Inspection Operation and Inspection Operation with open door circuits shall be provided in accordance with A17.1 Safety Code, as modified and adopted, where required or allowed by the AHJ.

D. Hoistway Access Operation

1. Provisions shall be made to allow access to the hoistway through the use of hoistway access switches.
2. Operating the access switch shall permit the car to move at a speed not to exceed 150 feet per minute (0.75 meters per second) as per code with the hall and car doors in the open position to obtain access to the top of the car or climb-in pit.
3. The car shall automatically stop motion when the car top is level with the hoistway door sill for access to top of car.
4. The access key switch(es) shall be keyed differently than other typical keys used in the operation of the elevator. Keying shall be in accordance with Security Group Classifications as required by applicable code.
5. Access operation shall be disabled when top of car inspection operation is in effect.

E. Firefighters' Emergency Operation

1. Phase I Emergency Recall Operation shall be provided for each car in accordance with ASME A17.1 code as modified under the applicable local or State law.
2. Each main or auxiliary car operating station shall be provided with an indicator light and warning buzzer, each of which shall become activated whenever Phase I Operation is engaged.
 - a. The warning buzzer shall cease to function once the car has completed the recall sequence and is positioned at the designated recall landing.
 - b. The indicator light shall remain illuminated as long as Phase I Operation is activated.
3. A three-position, key-operated switch shall be provided on the designated recall landing to manually activate Phase I Operation.
 - a. When activated, Phase I Operation shall be arranged so that in order to reset normal service, all cars must first be returned to the designated recall landing, after which the Phase I key-switch must be turned to the "OFF" position.
4. A "Standardized Fire Recall Key" shall be used in accordance with the applicable Chapter of the Public Law. This key shall be a Yale #3502.
 - a. The "Standardized Fire Recall Key" shall apply to both Phase I and Phase II Operation.
5. Phase II Emergency Recall In-Car Operation shall be provided for each car in accordance with ASME A17.1 code as modified under local or State law.
6. Locate controls required for Phase II In-Car Operation in a locked access cabinet in the main car operating panel.
 - a. The cover of the locked access panel shall be engraved as required by local or State law.
 - b. The locked access panel shall contain:
 - 1) Phase II key switch.
 - 2) Fire indicator light.
 - 3) Call cancel push button.
 - 4) Door open push button.
 - 5) Door close push button.

- 6) Run/Stop switch.
 - 7) Other devices as may be required by local law.
 - c. Engrave the Firefighters' Service operating Instructions on the inside of the locked cabinet door.
- F. Floor Lockout Feature / Keyless - Card Reader Control / Wiring Provisions
 1. Wiring: Provide six (6) pair of 20 gauge two (2) flexible conductor low voltage cables with an overall braided shield in the traveling cable of all elevators for card reader interface.
 - a. The cables shall extend from the security interface terminal cabinet in the elevator machine room to behind the elevator return panel above the space allotted for the card reader.
 - b. Terminate the cable to dual screw barrier terminal strips on each end.
 2. Card Reader Space: Allocate card reader space in each main car station as directed by the Architect. Provide a flush Lexan lens and mounting provisions for the card reader unit which is provided by others.
 3. Interface: For floor programmable card access control in all elevators, provide a pair of terminals for all floors such that application of a momentary dry (no voltage present) contact closure across those terminals by the security system shall enable the selection of the corresponding floor from the floor selector button in the elevator cab.
 - a. Locate the terminals inside an interface terminal cabinet in the elevator machine room.
 - b. Provide all relays required to interface the elevator control system to the momentary dry contact closures provided for under another section of these specifications.
 - c. If applicable, the card reader shall be operable and compatible with the issued card keys used building wide.
 - d. Coordinate system requirements with the manufacturer of the issued card key system.
 4. The card reader operation shall bypass floor cut-out switches.
 5. Firefighters' Service Operation shall override Floor Lockout Feature.
- G. Low Oil Protection and Protective Device
 1. Provide low oil protection operation and appropriate device(s) that will discontinue operation of the hydraulic elevator pump when:
 - a. The elevator stalls due to a low oil condition.
 - b. Fails to reach the landing in the up direction.
 2. Pressure Switch:
 - a. Where the top of the cylinder head is above the top of the tank, provide a pressure switch between the cylinder and the valve which shall be activated by the loss of pressure at the top of the cylinder, and control the operation of the elevator as required by Code.
 3. Provide an additional protective device that shall automatically return the elevator to the bottom landing, open the door and shut down the system.

4. The protective device shall be an integral part of the control system.

H. Hydraulic Auto Lowering

1. Provide automatic battery powered lowering feature for the hydraulic elevator.
 - a. In the case of normal power outage, the elevator shall be automatically lowered to the Main Lobby level.
 - b. The door shall open automatically to discharge passengers.
 - c. The elevator shall remain parked with its door closed and door open button operative until normal power is restored.
2. The control panel shall be located in the machine room or be an integral part of the control system.
 - a. It shall include necessary batteries, solid-state controls, charger, monitor lights and a test button.
 - b. It shall be fed by a 120 volt, 20 Ampere branch circuit from the emergency power source, provided under another section of these specifications.
3. Provide necessary circuitry within the controller to determine the difference between an “intentional” loss of power and an “actual” loss of power in order to prevent operation of the auto lowering unit when the main line disconnect has been opened for elevator servicing.
4. Provide necessary terminals for connection to an auxiliary switch in main line disconnect provided by others.

I. Emergency Power Operation

1. Upon loss of normal power, and establishing of emergency power, all elevators shall automatically resume normal operation.
 - a. Elevators shall start sequentially so as to prevent overloading of the emergency power system.
 - b. Sequential transformer connection operation shall be employed where necessary to reduce half-cycle inrush currents.
2. An illuminated signal marked “ELEVATOR EMERGENCY POWER” shall be provided in the elevator lobby at the designated level to indicate that the normal power supply has failed and the emergency power is in effect.
3. Prior to return to normal power, the building ATS shall provide a “pre-transfer” signal to the elevator equipment that will initiate the landing of elevators prior to transfer from emergency power to normal power.
 - a. Timer of the pre-transfer signal shall be adjustable from fifteen (15) to thirty (30) seconds.
4. The following additional requirements apply:
 - a. Firefighters’ Service Operation, if in effect, will remain active at all times during emergency power operation.

- b. Car lighting will remain active with car lighting on separate emergency power feeders in addition to battery back-up.
 - c. Communications will remain active at all times on emergency power feeders in addition to battery back-up.
 - d. Remote monitoring, where provided, will be active from each group dispatcher for selected elevators using an uninterrupted power supply (UPS) to maintain the central processing unit during power transfers.
 - e. Position indicator for each elevator will be active in the selected elevator and security room (where applicable), as well as lobby display panels.
 5. Testing of elevators under emergency power shall be accomplished with the building ATS providing necessary “pre-transfer” signals to the elevator control apparatus.
 - a. Prior to testing, the building ATS shall provide a “pre-transfer” signal to initiate the landing of the elevators prior to the transfer from normal to emergency power.
 - b. After testing, the building ATS shall provide a “pre-transfer” signal to initiate the landing of the elevators prior to the transfer from emergency to normal power.
 6. Where modernization of elevators is to be performed in phases, emergency power operation shall be tested by the building personnel upon completion of each individual elevator, after regular business hours. Contractor shall provide all necessary labor and include all corresponding overtime cost in the base bid.
- J. Elevator Security Interface Requirements / CCTV
 1. Interface Terminal Cabinet
 - a. Provide a terminal cabinet in each elevator machine room for elevator / CCTV system interface. The terminal cabinet shall contain all terminals required to interface the elevators located in the machine room to the CCTV system provided by others.
 2. Interface Terminal Cabinet Installation
 - a. Install the interface terminal cabinet within the elevator machine room in a readily accessible location no more than 6'-0" AFF.
 - b. Provide interconnect wiring from the elevator control system to the interface terminal cabinet.
 3. CCTV Camera Installation
 - a. Where existing CCTV cameras are in place, the CCTV camera shall be carefully removed, labeled, stored and re-installed shall by the Elevator Contractor.
 - 1) The security contractor shall provide supervision, wiring details and installation diagrams to the Elevator Contractor if requested.
 - b. The exact CCTV camera locations shall be specified by the owner.
 - c. Where existing CCTV camera exists, re-install in the same location and configuration unless otherwise directed.
 - d. Where no camera exists, the owner will provide the new camera and security contractor supervision.

4. Traveling Cable Installation
 - a. Traveling cables for the CCTV camera shall extend from the elevator / security interface terminal cabinet in the elevator machine room to the top of the elevator cab. Provide an excess loop of ten (10) feet of cable at each end.
5. Conduit, Power and Wiring
 - a. Provide all conduit, power and wiring required for the installation of the terminal cabinet, traveling cables and interfacing to the elevator control system.
 - b. Provide one (1) 120V duplex unswitched outlet dedicated to security on top of each elevator equipped with CCTV camera.

K. Door Operation

1. Car and hoistway doors shall be arranged to operate in unison without excessive noise or slamming in either direction of travel.
 - a. Door opening speeds of two (2) feet per second shall be provided in conjunction with closing speeds of 1.0 foot per second in accordance with governing code.
 - b. Door operation shall commence as the car stops level at the floor and the machine brake is applied. Pre-door opening shall not be permitted.
2. Where the hoistway door and the car door are mechanically coupled, the kinetic energy of the closing door system shall be based upon the sum of the hoistway and the car door weights, as well as all parts rigidly connected thereto, including the rotational inertia effects of the door operator and the connecting transmission to the door panels.
3. The force necessary to prevent closing of the car and hoistway door from rest shall not exceed thirty (30) lbf. This force shall be measured on the leading edge of the door with the door at any point between one-third and two-thirds of its travel.
4. Door open and door close time shall be measured between the moment car door operation in either direction begins and the instant at which that cycle is completed.
5. When responding to either a car or corridor call, the amount of time that the elevator door remains stationary in the open position shall be adjustable up to sixty (60) seconds.
 - a. Door open dwell time for a corridor call shall be separate of that for a car call, and in both cases, dwell time shall be canceled whenever the car door protection device is momentarily interrupted by passenger transfers, followed by a reduced door open dwell time of approximately one (1) second (adjustable) after the door protection device is cleared of obstructions.
6. The operation of the door protective device by interruption of one or more infrared light beams (dual or multi-beam non-contact) during the close cycle shall cause the immediate reversing of the doors to the full open position.
7. The door closing cycle shall be arranged so that, in the event the door protective devices become continually obstructed after the normal door open dwell time has expired, and following a time interval of approximately thirty (30) seconds (adjustable), a warning tone shall sound and the door closing cycle shall commence at reduced speed and torque per applicable Code requirements.

8. Each car operating station shall be provided with a “door open” and “door close” push button.
 - a. Pressure on the “door open” button shall cause doors in the full open position to remain so and doors engaged in the close cycle to reverse direction and assume the full open position so long as pressure remains applied to the button.
 - b. The “door open” buttons shall also control the open cycle during Phase II - Emergency In-car Operation.
 - c. The “door close” push button shall function on Independent Service, Attendant Service and Phase II - Emergency In-car Operation as well as during normal automatic operations.
9. Each car operating station shall be provided with a “door hold” push button.
 - a. Pressure on the “door hold” button shall cause doors in the full open position to remain in the open position and doors operating in the close cycle to reverse direction and travel to the full open position for an extended (adjustable) period of time to allow for loading and unloading.
 - b. The “door hold” feature shall be overridden when the elevator is on Fire Emergency Phase I and Phase II.
 - c. The “door hold” feature shall be canceled when the “door close” button is pressed.
10. Repeated attempts by the power door operator to open or close the door at any landing shall be monitored by the control system.
 - a. In the event the door fails to cycle properly after a preset (adjustable) number of attempts, the car shall either travel to the next stop or remove itself from service, depending upon whether the malfunction is in the open or close cycle.
11. Each hoistway door shall be provided with an automatic self-closing mechanism arranged so that the door shall close and lock if the car should leave the landing while the hoistway door is unlocked.
12. Car doors shall be arranged to prevent their being manually opened from inside the car unless the elevator is positioned within a floor landing zone.

2.4 MACHINE ROOM EQUIPMENT

A. Control Equipment (New)

1. Provide a microprocessor-based elevator control system.
2. System operating software shall be stored in non-volatile memory.
3. Utilize solid state motor starter.
 - a. Elevator control relays, contactors, switches, capacitors, resistors, fuses, circuit breakers, overload relays, power supplies, circuit boards, static motor drive units, wiring terminal blocks and related components shall be totally enclosed inside a free-standing metal cabinet with hinged access doors.
 - b. The motor drive may be located in its own cabinet where the physical size of the drive prohibits installation within the elevator signal controller cabinet.
 - c. All electrical wiring inside the control equipment cabinet shall be performed in a neat manner with field wiring terminated at stud blocks provided inside the control cabinet.

- d. Each wiring terminal shall be clearly identified according to the nomenclature used on the “as built” wiring diagrams. No more than two (2) field wires may be connected to any single terminal stud.
- e. Spare wires shall be tagged according to their point of termination, bundled, and placed at the bottom of the control equipment cabinet.
- f. Each electrical component within the cabinet shall be permanently identified with symbols, identical to those used on the “as-built” wiring diagrams.
- g. A data plate that indicates the edition of the Code in effect at the time of installation and/or alteration shall be provided in accordance with applicable code and requirements of ASME A17.1 Code. The data plate shall be in plain view and securely attached on the mainline disconnect or on the controller.
- h. Control equipment shall comply with requirements of all applicable Sections of the ASME A17.1 Code as approved and adopted by the AHJ.
- i. The manufacturer’s standard on-board “LCD” display shall be incorporated on the main processor board and/or otherwise incorporated in the controller cabinet. The “LCD” shall be capable of providing alpha-numeric characters to view the operational status of the elevator and/or group functions depending on the application. The display shall provide the user with necessary information for troubleshooting and reprogramming of the basic system parameters.
 - 1) Where the “LCD” is not an integral part of the controller and troubleshooting/reprogramming requires the use of a separate tool, the tool shall be maintained in the machine room and accessible to service personnel. This tool, along with all technical documentation for the correct use of the tool, shall remain the property of the Owner.
 - 2) Password protection of critical programming features is required to prevent accidental changes to life-safety and other non-typical control settings.
 - 3) Where a separate dispatch or group control panel is provided, a separate “LCD” display shall be provided to view group functions.

B. Sound Reducing Protection (New)

1. When operating in accordance with plans and specifications, the elevator equipment shall not generate noise levels in excess of NC-40 in occupied tenant spaces and shall be free of pure tones.
 - a. For the purpose of this specification, a pure tone shall be defined as a sound level in any one-third octave band which is greater than 5 dB above both adjacent one-third octave bands, in the range 45 to 11,200 Hz.
2. Provide the following treatments as a minimum.
 - a. Where dry type pump units are utilized, mount sound insulating panels, manufactured of reinforced 16 gauge steel panels with a 1" thick 1-1/2 lbs. core of fiberglass affixed to interior, on all four open sides of the power unit frame to isolate airborne noise from belt driven motor-pump assembly.
 - b. Where submersible pump units are utilized, mount the unit on manufactures recommended rubber isolation between the floor and the tank unit to reduce vibration transfer.

- c. Install a minimum of two (2) sound isolating couplings in the oil line in the machine room between pump and jack.
 - 1) Each coupling shall consist of two (2) machined flanges separated by two (2) neoprene seals to absorb vibration and to positively prevent metal-to-metal contact in the oil line.
 - 2) Build coupling in such a manner that they will be absolutely blow-out proof.
- d. Install an oil-hydraulic muffler in oil line near power unit.
 - 1) The mufflers contain pulsation absorbing material inserted in a blow-out proof housing.
 - 2) Rubber hose without blow-out proof features will not be acceptable.
- e. Provide sound reducing vibration isolation elements at all support points of elevator controllers and pump units.
 - 1) The elements shall be similar to double deflection neoprene-in-shear mounts, as manufactured by Mason Industries.
 - 2) All bolts through isolation elements, where necessary, are to incorporate resilient washers and bushings.
- f. Locate the power unit at least six inch (6") from any walls.
- g. Use flexible conduit with ground wire for pump unit connections.

C. Hydraulic Power Unit / Motor (New)

- 1. Provide a self-contained power unit which includes:
 - a. Structural steel outer base.
 - b. Tank support.
 - c. Oil tight drip pan.
 - d. Floating inner base to prevent metallic contact for mounting the motor pump assembly.
 - e. Sound isolation panels to enclose the unit and reduce airborne noise.
- 2. Provide a reinforced overhead oil reservoir with a tight fitting tank over the oil control unit which includes:
 - a. An oil fill strainer with air filter.
 - b. An oil level gauge assembly.
 - c. A self-cleaning strainer in the suction line.
- 3. The pump shall be for oil hydraulic elevator service with positive displacement screw type design for steady discharge with minimum vibration.
- 4. The drive shall be by multiple V-Belts and sheaves or directly driven by a submersible pump depending on the HP requirements of the system.
 - a. The use of submersible pumps having more than a 40 HP motor is unacceptable.
- 5. Pump drive motor control shall utilize solid state motor starter circuitry to provide reduced current starting and maximum protection of the motor.

6. The oil control unit shall be of the manufacturer's own design but shall include relief, safety check, start and slow down valves.
 - a. Use lowering and leveling valves for drop away speed, lowering speed, leveling speed and stopping speed to ensure smooth down starts and stops.
 - b. Provide a valve for manual lowering of the elevator car in event of power failure and for use in servicing and adjusting the elevator mechanism.
 - c. Design the tank shut-off valve for isolating oil in the power unit tank to ensure servicing and adjusting the elevator mechanism without removing oil from the tank.
 - d. All valves shall be accessible for adjustment without removing the assembly from the oil line.
7. Manufacture the unit to operate under 700 psi working pressure.
8. Provide a thermostatically controlled heater in the oil tank to maintain proper operating oil temperature.

D. Hydraulic Piping (New)

1. Provide all necessary pipes and fittings to connect the power unit to the jack.
 - a. Use minimum Schedule 80 steel pipe to remote machine rooms.
 - b. Provide a shut off valve in the machine room for maintenance service.
 - c. Use rubber isolated pipe stands and hanging brackets.

E. Hydraulic Mainline Oil Strainer (New)

1. Provide a mainline hydraulic oil strainer of the self-cleaning, compact type, equipped with a 40 mesh element and installed in the oil line.
2. Design the strainer for maximum system working pressure.

F. Hydraulic Oil (New)

1. Provide new hydraulic oil with type and grade as recommended by the Hydraulic component manufacture.
2. Include the removal and disposal of the existing hydraulic oil within the base bid of this project. It is understood that the owner may be required to sign the manifest as the generator of the waste oil.

2.5 HOISTWAY EQUIPMENT

A. Guide Rails / Inserts / Brackets (Reuse)

1. Car guide rails, fishplates, rail brackets, backing support and related attachments shall be inspected to determine if unfavorable conditions exist that diminish the structural integrity of any component.
 - a. In the event substandard conditions are disclosed by means of this inspection, the Contractor shall immediately inform the Consultant as to the exact nature of said problems and then undertake whatever repairs and/or replacements the Consultant may deem appropriate to remedy the situation.

2. Each stack of guide rails shall be individually examined to determine if excessive compression has occurred from building settlement.
 - a. In the event such conditions are found to exist, each affected stack shall be cut off enough to relieve pressure.
 - b. Jacking bolts shall be provided underneath each stack of both car and counterweight guide rails.
 3. Each stack of guide rails shall be realigned so that total deviation from plumb in any direction does not exceed 1/8" over the entire length of the hoistway and that DBG measurements never vary more than .030".
 4. As required, car guide rails joints shall be individually filled, filed and sanded in order to eliminate minor variations in adjoining machined surfaces.
- B. Roller Guides (New)
1. Provide roller guide shoes with adjustable mounting base, rigidly bolted to the top and bottom of each side of the car frame.
 - a. Roller guides shall consist of a set of sound reducing wheels in precision bearings held in contact with the three (3) finished rail surfaces by adjustable stabilizing springs.
 - b. The bearings shall be sealed or provided with grease fittings for lubrication.
 - c. Equip roller guides with adjustable stops to control postwise float.
 - d. Fit the top car roller guides with galvanized, painted or powder coated steel guards.
- C. Electrical Conduit / Wiring / Traveling Cable (New)
1. Electrical wiring shall be provided.
 - a. All wiring shall be stranded copper conductors, manufactured in compliance with ANSI/ASTM B174-71 and UL 62 requirements, and polyvinyl chloride insulation complying with ETT requirements of UL 62 and Article 400 of the National Electric Code.
 - b. Electrical wiring provided for hoistway interlock shall be of a flame retardant type, capable of withstanding temperatures of at least 392 degrees Fahrenheit. Conductors shall be Type SF or equivalent.
 - c. Each run of electrical conduit or duct shall contain no less than 10% spare wires and, in any case, no fewer than two (2) spare wires.
 - d. Crimp-on type wire terminals shall be used where possible.
 2. Traveling cable shall be provided.
 - a. Each traveling cable shall be provided with a flame and water resistant polyvinyl chloride jacket.
 - b. Electrical wiring shall consist of stranded copper conductors, manufactured in compliance with ANSI/ASTM B174-71 and UL 62 requirements, and polyvinyl chloride insulation complying with ETT requirements of UL 62 and Article 400 of the National Electric Code.
 - c. Each traveling cable shall contain no less than 10% spare wires.
 - d. Traveling cable exceeding 100' in length shall be provided with a steel wire rope support strand from which the cable shall be suspended.

- e. Traveling cable must be contained within an approved electrical conduit to within 6' of the final suspension point in the hoistway.
 - f. Each traveling cable shall be arranged to provide no fewer than six (6) individually shielded pairs of 20 gauge wire and arranged to contain no less than one (1) coaxial cable for CCTV remote monitoring.
 - g. Traveling cable conductors that terminate at a hoistway center box shall be connected to stud blocks provided for that purpose.
 - 1) Each wiring terminal shall be clearly identified by its nomenclature as shown on the "as built" wiring diagrams and solderless, crimp-on type wire terminals shall be used where possible.
 - h. The attachment of a traveling cable to the underside of the elevator car shall be performed so that a minimum loop diameter of 30x the cable diameter is provided.
 - i. Pre-hang the cables for at least twenty-four (24) hours with ends suitably weighted to eliminate twisting during operation.
3. Rigidly supported EMT conduit, flexible metal conduit and galvanized steel trough shall be utilized throughout the hoistway.
- a. Both EMT and flexible conduit shall be connected on either end by use of compression fittings and secured in place with metal clamps sized in accordance with the diameter of conduit utilized.
 - 1) Wire or plastic wire ty-raps shall not constitute an acceptable means of fastening.
 - b. The use of flexible metal conduit shall be limited to runs not greater than three feet (3') in length.
 - c. All abandoned or unused electrical conduit shall be removed from the hoistway.
 - d. Existing conduit and wiring duct may be reused if suitable for the application.
 - 1) Reuse of existing conduit/duct shall be at the discretion of the Consultant.
- D. Normal and Final Terminal Stopping Devices (New)
- 1. Provide normal terminal stopping devices to stop the car automatically from any speed obtained under normal operation within the top and bottom overtravel, independent of the operating devices, final terminal stopping device and the buffers.
 - 2. Provide final terminal stopping devices to stop the car automatically from the speed specified within the top clearance and bottom overtravel.
 - 3. The terminal stopping devices shall have rollers with rubber or other approved composition tread to provide silent operation when actuated by the cam fixed to the top of the car.
 - a. Terminal stopping devices that are not mechanically operated (i.e.: magnetic proximity) shall be provided by the manufacturer of the control equipment, intended for use as a terminal limit, and designed for reliable operation in the hoistway environment.
 - 4. Final terminal limits shall be pinned so as to prevent movement after final adjustment where required by the AHJ.

2.6 PIT EQUIPMENT

A. Car Buffers (New)

1. Provide buffer with necessary blocking and horizontal steel braces under the car.
2. Provide spring type buffers for elevators with operating speeds of up to and including 200 fpm.
3. The buffer shall be tested and approved by a qualified testing laboratory.
4. Provide a permanent buffer marking plate which indicates the manufacturer's name, identification number, rated impact speed and stroke.
5. Support buffers from the pit floor level with all required blocking and bracing steel members.

B. Hydraulic Cylinder/Piston Assembly (New/Replacement)

1. Existing hydraulic cylinder, piston and pit channels shall be removed.
2. The jack hole shall be fitted with a schedule 40 waterproof PVC casing.
3. The jack assembly shall be of sufficient size to lift the gross load at the rated speed to the height specified and shall be factory tested to ensure adequate strength and freedom from leakage.
 - a. No brittle material, such as grey cast iron, shall be used in the jack construction.
4. The base components of this assembly shall be a cylinder, cylinder head and plunger.
5. Installation shall be plumb and at the exact center of the car guide rail DBG.
6. Channel iron pit structure shall be provided as a means of support and attachment.
7. The hydraulic cylinder shall be constructed from heavy steel pipe meeting ASTM-A53, grade B standards with a forged seamless end cap, threaded inlet fitting and brackets for pit channel attachment.
 - a. Outside walls of the cylinder shall receive no less than three (3) applications of an approved corrosion inhibiting compound.
8. The cylinder head and flange shall be machined from carbon steel and designed to provide a collision point for the plunger stop ring.
 - a. The head shall be equipped with two (2) packing rings separated by a single lantern ring, an oil wiper ring, a bronze guide ring, and an air bleed port.
 - b. The flange shall be arc welded to the upper end of the cylinder to provide a means of attachment and mating surface for the head.
 - c. Immediately prior to seeking final acceptance of the completed project as specified herein, the Contractor shall renew both packing rings in the cylinder head.
9. The plunger shall be constructed from precision ground steel pipe meeting ASTM-A53, grade B standards.
 - a. In cases where multiple plunger sections are necessary, threaded coupling with neoprene O-ring seals shall be provided.
 - b. The upper end of the plunger shall be fitted with an inset steel plate that is fillet welded to the inner walls of the plunger and then drilled and tapped for platen plate attachment.
 - c. A heavy steel stop ring shall be arc welded outside the plunger near the bottom end.

10. Contractor shall be responsible for the costs necessary to remove sand, water and spoils within the existing casing upon removal of the existing hydraulic cylinder.
 - a. Include the cost of the hole cleanout and disposal as part of the base bid. It is understood that the owner may be required to sign the manifest as the generator of the waste.
 11. In the event any unforeseen below-ground conditions arise, Contractor shall save and hold harmless against delay and allow for the additional time to solicit bids for subcontractors for performance of the work required. The Contractor shall supply all standby labor required for performance of site inspections for access and performance of the remedial work per the labor rates provided in this solicitation.
 12. Unforeseen below-ground conditions include but are not limited to: Any physical obstruction, hindrance or cave in discovered found below ground that requires excavation, using any additional special hoisting or excavating equipment, when an existing well casing would have to be removed or when such installation would require modifications to the building, or any structure, hoistway, or entrance for access for specialty equipment mentioned above, or removal/reinstallation of rail(s) for the same ingress/egress of specialty equipment Scavenger.
- C. Hydraulic Check Valve (New)
1. A check valve shall be provided and installed so that it will hold the elevator with rated load at any point when the pump stops and the down valves are closed or the maintained pressure drops below the minimum operating pressure.
- D. Overspeed (Rupture) Valve (New)
1. Where required by Code, an overspeed valve shall be provided and installed so that it will cause the flow of oil from the hydraulic jack through the pressure piping to cease when such flow exceeds a preset value relative to car speed in accordance with applicable codes.
- E. Pit Stop Switch (New)
1. Where pit depth does not exceed 67", each elevator pit shall be provided with a push/pull or toggle switch that is conspicuously designated "EMERGENCY STOP" and located so as to be readily accessible from the hoistway entrance on the lowest landing served at a height of approximately 18" above the floor.
 - a. This switch shall be arranged to prevent the application of power to the hoist motor and machine brake when placed in the "OFF" position.
 2. Where climb-in pit depth exceeds 67", each pit shall be provided with two (2) push/pull or toggle switches conspicuously designated "EMERGENCY STOP".
 - a. Both of these stop switches, shall be located immediately adjacent to the pit access ladder.
 - 1) Place one stop switch approximately 47" above the pit floor.
 - 2) Place the second stop switch 18" above the hoistway entrance sill on the lowest landing served.
 - 3) These switches shall be arranged so as to prevent the application of power to the hoist motor or machine brake when either one is placed in the "OFF" position.

3. Where a walk-in pit exists, each elevator shall be provided with a push/pull or toggle switch that is conspicuously numbered and designated “EMERGENCY STOP”.
 - a. The location of this stop switch shall be approximately 47” above the pit floor at the nearest point of pit entry from the access door.
 - b. This switch shall be arranged so as to prevent the application of power to the hoist motor and machine brake when placed in the “OFF” position.
4. Provide an electric contact safety switch for the pit access door if any equipment attached to the car extends within the space of the hoistway pit when the car is level at the bottom terminal landing.
 - a. Opening the pit access door shall cause the electric contact switch to stop the elevator by interrupting electric power to the driving machine and brake.
 - b. Provide a sign on the pit door “WARNING – OPENING OF PIT DOOR WILL STOP ELEVATOR” using lettering a minimum of two (2) inches high.
5. Existing stop and/or pit door switch conforming to the requirements set forth herein may be refurbished to as new condition and reused subject to approval of the Consultant.

2.7 HOISTWAY ENTRANCES

A. Hoistway Entrances (Reuse)

1. Hoistway entrance sills, sill supports, entrance frames and supports shall be reused and refurbished.
 - a. Hoistway entrances that have become distorted or bent shall be straightened, plumbed, reset to the proper width dimension and reinforced as necessary.
 - b. Provide 14-gauge steel fascia plates that extend at least the full width of the door and be secured at hanger support and sill with oval head machine screws.
 - 1) Reinforce fascia to allow not more than ½” of deflection.
 - 2) Provide fascia plates where the clearance between the edge of the loading side of the platform and the inside face of the hoistway enclosure exceeds the code allowed clearance.
 - c. Provide 14-gauge steel toe guards that extend 12” below any sill not protected by fascia.
 - 1) The toe guards shall extend the full width of the door and shall return to the hoistway wall at a 15-degree angle and be firmly fastened.
 - d. Remove oil, dirt and impurities on new and existing apparatus and give a factory coat of rust inhibitive paint to all exposed surfaces of struts, hanger supports, covers, fascias, toe guards, dust covers and other ferrous metal.

2. Hoistway Entrance (1R)

- a. Remove Fixture and Riser @ Landing.
- b. Pin Hall Door from Hoistway side

B. Slide Type Hoistway Door / New in Existing Frame (New)

1. Provide a new elevator hoistway entrance door reusing existing entrance frame.
2. Each new door shall be as follows:
 - a. Hollow metal construction.
 - b. 1-1/2-hour fire-rated test approved with required label.
 - c. Manufactured of cold rolled furniture steel.
 - d. Flush design both sides.
 - e. Rigidly reinforced.
 - f. Sound deadened.
3. Where conditions warrant, and where otherwise required by code, equip all hoistway landing doors with one-piece full height non-vision wings of material and finish to match hall side of door panels.
4. Provide each door panel with two (2) removable laminated plastic composition guides, arranged to run in existing sill grooves with a minimum clearance.
 - a. The guide mounting shall permit their replacement without removing the door from the hangers.
 - b. A steel fire stop shall be enclosed in each guide.
5. Provide the meeting edge of center opening doors with necessary new continuous rubber astragal bumper strips.
 - a. Astragal shall be relatively inconspicuous when the doors are closed.
 - b. Provide rubber bumpers at the top and bottom of each section of door to stop them at their limit of travel in the opening direction.
6. In multi-speed door arrangements, provisions shall be made to interlock the individual panels so all panels close should the normal door panel relating means fail.
7. Provide a special key so that an authorized person can open any landing door when the car is elsewhere.
 - a. The key hole shall be not less than 3/8" in diameter and shall be fitted with a stainless steel or bronze ferrule to match related equipment.
8. Finish all door panels as indicated by the Architect.

C. Tracks / Hangers / Closers / Related Equipment (New)

1. Formed or extruded steel landing door hanger tracks shall be provided.
2. Each landing door panel shall be suspended from a pair of door hanger assemblies that are compatible with the hanger tracks.
 - a. Hanger assemblies shall be directly mounted to the door panel using 3/8" diameter or better hardware.
 - b. Solid steel blocks shall be used where job-site conditions dictate the use of spacers between hanger assemblies and the landing door panel.
 - c. Hanger assemblies shall be adjusted or shimmed so that door panels are suspended in a plumb manner with no more than 3/8" vertical clearance to the cab entrance threshold.

- d. Upthrust rollers shall be adjusted for minimal operating clearance against the bottom edge of the hanger track.
 - e. Means shall be provided to prevent hangers from jumping the track.
 - f. Blocks shall be provided to prevent rollers from overrunning the end of the track.
3. Each set of center opening landing doors shall be provided with a cable driven relating mechanism which is compatible for use with the door hanger assemblies.
 - a. The relating mechanism shall be properly tensioned and adjusted so as to equalize the relationship between the door panels and the hoistway entrance.
 4. Each set of single speed side slide landing doors shall be provided with a sill-mounted spring closing mechanism.
 - a. Spirator-type spring closers shall be acceptable should prevailing sill depth or runby clearance conditions require their use.
 5. Where applicable, each hoistway door interlock assembly shall be provided with an emergency release mechanism utilizing manufacturers' standard type access key at all landings served.
 - a. Drill each hoistway door to accommodate manufacturers standard lock release key and install escutcheon.
 - 1) Escutcheon shall be brushed stainless steel to match door panels where required.
 - 2) Aluminum shall be provided at all other typical floors.

D. Interlocks / Unlocking Devices (New)

1. Each set of landing doors shall be provided with a complete electromechanical interlock assembly.
 - a. Each interlock assembly shall consist of:
 - 1) A switch housing with contacts.
 - 2) Lock keeper.
 - 3) Clutch engagement/release subassembly.
 - 4) Associated linkages.
 - b. Arrange the lock so that individual leading door panels (side slide or center opening) are locked when in the closed position.
2. Non-typical mounting arrangements for interlocks and/or related mechanisms must receive prior approval from the Consultant.
3. Each hoistway door interlock assembly shall be provided with an emergency release mechanism utilizing a drop-leaf type access key at all landings served.
 - a. Each hoistway door shall accommodate manufacturers standard lock release key with escutcheon.
 - 1) The key hole shall be fitted with a metal ferrule that matches the door finish.

- 2) Drilling key holes in the field will not be accepted.

E. Hoistway Door Bottom Guides / Safety Retainers (New)

1. The bottom of each side sliding type hoistway door panel shall be equipped with a minimum of two (2) guiding members.
 - a. Metal mounting angles shall be secured to the integral panel frame structure; and when conditions warrant, additional external metal support plates or angles shall be installed to ensure the integrity of the panel frame is not compromised.
 - b. Guides shall be manufactured of low friction non-metal material with sufficient strength to withstand forces placed on door panels per ASME A17.1 Standards.
 - c. Each guide assembly shall incorporate a steel wear indicator and be so designed to permit sliding member replacements without removal of door panel(s) from top hanger devices.
 - d. Panels shall be hung with a maximum vertical clearance of 3/8 inch between top of sill and bottom of panel and the guide shall engage the sill groove by not less than 1/4 inch.
2. The bottom of each side sliding type hoistway door panel shall be equipped with a guiding member safety retainer to prevent displacement in the event of primary guide means failure.
 - a. A metal reinforcement (12 gauge stainless or galvanized steel) shall be installed between the two (2) primary guiding members (a.k.a. “Z” bracket).
 - b. The reinforcement shall be designed with a minimum length of eight (8) inches or the maximum possible length that will fit between the primary members and a minimum overall height of two and one-half (2.5) inches secured on the internal face of the door panel. (Hoistway side)
 - c. The retainer shall be set with the supplemental safety angle 3/8 inch into the corresponding sill groove; and be capable of preventing displacement of the panel no more than 3/4 inch with an applied force of 1125 lbf at right angles over an area twelve (12) inches x twelve (12) inches at the approximate center of the door panel.

2.8 CAR EQUIPMENT / FRAME

A. Car Frame (Reuse)

1. The existing car frame assembly shall be refurbished to as new condition and reused.
2. Individual car frame members, platform isolation framework, door operator support structure, related bracing and hardware shall be inspected for any indication of damage or distortion.
 - a. Where damage is detected, the Contractor shall immediately inform the Consultant and then undertake corrective action deemed appropriate by the Consultant to remedy the condition.
3. Provide new elastomer isolation pads for all existing platforms where pads are presently installed.
4. The car frame, door operator support and related bracing shall be modified or reconfigured as necessary in order to accommodate new cab enclosure and/or master door operating equipment specified herein.

B. Car Platform (Reuse)

1. The existing platform shall be modified to accommodate the new apparatus specified herein.
 - a. Where necessary, the underside of platform shall be refurbished and treated with fire-rated material.
 - b. Make any necessary repairs required to set and receive new finished floor covering as selected by Owner.
 - c. Provide two (2) layers of 3/4" marine grade plywood subfloor.
 - d. At Contractor's option or when conditions warrant, provide a totally new platform in lieu of repairs, modifications and upgraded specified above.

C. Automatic Leveling / Releveling / Positioning Device (New)

1. Equip the elevator with a floor leveling device which shall automatically bring the car to a stop within 1/4" of any floor for which a stop has been initiated regardless of load or direction of travel.
2. This device shall also provide for releveling which shall be arranged to automatically return the elevator to the floor in the event the elevator should move below or above floor level in excess of 1/4".
3. This device shall be operative at all floors served and whether the hoistway or car door is open or closed provided there is no interruption of power to the elevator.
4. A positioning device shall be part of the controller microprocessor systems.
 - a. Position determination in the hoistway may be through fixed tape in the hoistway or by sensors fitted on each driving machine to encode and store car movement.
 - b. Design the mechanical features and electrical circuits to permit accurate control and rapid acceleration and retardation without discomfort.
5. Where there are consecutive floors/stops that are short stops, the system shall be capable of distinguishing between the two landing zones without error.
6. All equipment and logic required for leveling system to properly function with short stops shall be included.

D. Top-of-Car Inspection Operating Station (New)

1. An inspection operating station shall be provided on top of the elevator car.
2. This station shall be installed so that the controls are plainly visible and readily accessible from the hoistway entrance without stepping on the car.
3. When the station is operational, all operating devices in the car shall be inoperative.
4. Provide the following control devices and features:
 - a. A push/pull or toggle switch designated "EMERGENCY STOP" shall be arranged so as to prevent the application of power to the hoist motor or machine brake when in the "off" position.
 - b. A toggle switch designated "INSPECTION" and "NORMAL" to activate the top of car Inspection Service Operation.
 - c. Push button designated "Up", "Down" and "Enable" to operate the elevator on Inspection Service (the "Enable" button shall be arranged to operate in conjunction with either the "Up" or "Down" button).

- d. An indicator light and warning buzzer that are subject to activation under Phase I - Fire Emergency Recall Operation.
- E. Car Enclosure Work Light / Receptacle (New)
1. The top and bottom of each car shall be provided with a permanent lighting fixture and 110 volt GFI receptacle.
 2. Light control switches shall be located for easy accessibility from the hoistway entrance.
 3. Where sufficient overhead clearance exists, the car top lighting fixture shall be extended no less than 24" above the crosshead member of the car frame.
 4. Light bulbs shall be guarded so as to prevent breakage or accidental contact.
- F. Emergency Exits / Top (New)
1. Ensure they operate as per code and have proper electrical contacts and mechanical locks on the exterior of the cab enclosure.
 2. The top of car emergency exit shall be so arranged that it can be opened from within the car by means of a keyed spring-return cylinder-type lock. This key shall be a Yale #3502. The top of the car shall be operable without the use of a key.
 3. No other key to the building shall unlock the emergency exit lock except access switch keys which may be keyed alike.
- G. Master Door Power Operator System – VVVF/AC (New)
1. Provide a heavy-duty master door operator on top of the elevator car enclosure for power opening and closing of the cab and hoistway entrance door panels.
 2. The operator may be of the pivot/lever or belted linear drive type.
 3. Operator shall utilize an alternating current motor, controlled by a variable voltage, variable frequency (VVVF) drive and a closed-loop control with programmable operating parameters.
 - a. System may incorporate an encoder feedback to monitor positions with a separate speed sensing device or an encoderless closed-loop VVVF-AC control to monitor motor parameters and vary power applied to compensate for load changes.
 4. The type of system shall be designated as a high speed operator, designed for door panel opening at an average speed of two (2.0) feet per second and closing at approximately one (1.0) foot per second.
 - a. Reduce the closing speed as required to limit kinetic energy of closing doors to within values permitted by ASME A17.1 as may be adopted and/or modified by the AHJ.
 5. The door shall operate smoothly without a slam or abrupt motion in both the opening and closing cycle directions.
 - a. Provide controls to automatically compensate for load changes such as:
 - 1) Wind conditions (stack effect).
 - 2) Use of different weight door panels on multiple landings.
 - 3) Other unique prevailing conditions that could cause variations in operational speeds.

2. Paint the hoistway side of each panel black and face the cab side with 16-gauge sheet steel matching the existing returns or in selected material and finish as otherwise directed by Owner/Architect.
3. The panels shall have no binder angles and welds shall be continuous, ground smooth and invisible.
4. Drill and reinforce panels for installation of door operator hardware, door protective device, door gibs, etc.
 - a. Provide each door panel with two (2) removable laminated plastic composition guides, arranged to run in the sill grooves with minimum clearance.
 - b. The guide mounting shall permit their replacement without removing the door from the hangers.
5. Provide the meeting edge of center opening doors with necessary continuous rubber astragal bumper strips.
 - a. These strips shall be relatively inconspicuous when the doors are closed.

J. Door Reopening Device / “3D” (New)

1. Provide a combination infrared curtain and 3D door protection system.
2. The door shall be prevented from closing and will reopen when closing if any one of the curtain light rays is interrupted or should an object enter the 3D detection zone.
3. The door shall start to close when the protection system is free of any obstruction.
4. The infrared curtain and 3D zone protective system shall provide:
 - a. Protective curtain field not less than 71” above the sill.
 - b. 3D protective zone field not less than 61” above the sill.
 - c. Accurately positioned infrared lights to conform to the requirements of the applicable handicapped code.
 - d. Modular design to permit on board test operation and replacement of all circuit boards without removing the complete unit.
 - e. Self-contained, selectable 3D zone timeout feature to allow for closing at nudging speed with audible signal.
 - f. Automatic turning-off of the 3D zone in the event of three (3) consecutive 3D triggers.
 - 1) Light curtain shall continue to operate after 3D system timeout.
 - g. Selectable control of the 3D zone operation on an “always-on” or “as doors close” basis.
 - h. Controls to shut down the elevator when the unit fails to operate properly.
 - i. Provide audible and visual notification of pending door close.

2.9 FINISH / MATERIALS / SIGNAGE

A. Material, Finishes and Painting

1. General
 - a. Cold-rolled Sheet Steel Sections: ASTM A366, commercial steel, Type B
 - b. Rolled Steel Floor Plate: ASTM A786

- c. Steel Supports and Reinforcement: ASTM A36
- d. Aluminum-alloy Rolled Tread Plate: ASTM B632
- e. Aluminum Plate: ASTM B209
- f. Stainless Steel: ASTM A167 Type 302, 304 or 316
- g. Stainless Steel Bars and Shapes: ASTM A276
- h. Stainless Steel Tubes: ASTM A269
- i. Aluminum Extrusions: ASTM B221
- j. Nickel Silver Extrusions: ASTM B155
- k. Bronze Sheet: ASTM B36(36M) alloy UNS No. C2800 (Muntz Metal)
- l. Structural Tubing: ASTM A500
- m. Bolts, Nuts and Washers: ASTM A325 and A490
- n. Laminated / Safety Tempered Glass: ANSI Z97.1

2. Finishes

- a. Stainless Steel
 - 1) Satin Finish: No. 4 satin, long grain.
 - 2) Mirror Finish: No. 8 non-directional mirror polished.
- b. Sheet Steel:
 - 1) Shop Prime: Factory-applied baked on coat of mineral filler and primer.
 - 2) Finish Paint: Two (2) coats of low sheen baked enamel, color as selected by the Architect.
 - 3) Steel Equipment: Two (2) coats of manufacturer's standard rust-inhibiting paint to exposed ferrous metal surfaces in both the hoistway and pit that do not have galvanized, anodized, baked enamel, or special architectural finishes.

3. Painting

- a. Apply two (2) coats of paint to the machine room floor.
- b. Apply two (2) coats of paint to the pit floor.
- c. Apply two (2) coats of paint to retained steel components within the hoistway
- d. Apply two (2) coats of clear lacquer to bronze or similar non-ferrous materials to prevent tarnishing during a period of not less than twelve (12) months after initial acceptance by the Owner or Agent.
- e. Identify all equipment including buffers, car apron, crosshead, safety plank, machine, controller, drive, governor, disconnect switch, etc., by 4" high numerals which shall contrast with the background to which it is applied. The identification shall be either decalomania or stencil type.
- f. Paint or provide decal-type floor designation not less than four (4) inches high on hoistway doors (hoistway side), fascias and/or walls as required by A17.1 as may be adopted and/or modified by the AHJ. The color of paint used shall contrast with the color of the surface to which it is applied.

B. Designation and Data Plates, Labeling and Signage.

- 1. Provide an elevator identification plate on or adjacent to each entrance frame where required by the AHJ.

2. Provide floor designation cast plates at each elevator entrance, on both sides of the jamb at a height of sixty (60) inches to the baseline of floor indication.
 - a. Floor number designations and Braille shall be 2” high, 0.03” raised.
3. Identify the designated medical emergency services elevator with 3” high international symbol at each elevator entrance on both sides of the jamb.
4. Provide raised designations and Braille markings to the left of the car call and control buttons of the car operating panel(s).
 - a. Designations shall be a minimum of 5/8” high, 0.03” raised and stud mounted.
5. Provide elevators with data and marking plates, labels, signages and refuge space markings complying with A17.1 Elevator Safety Code as may be adopted and/or otherwise modified by the AHJ.
6. Architect shall select the designation and data plates from manufacturer’s premium line of plates.

2.10 FIXTURES / SIGNAL EQUIPMENT

A. General - Design and Finish

1. The design and location of the hall and car operating and signaling fixtures shall comply with the ADAAG and local requirements of the AHJ.
2. The operating fixtures shall be selected from the manufacturer's premium line of fixtures.
3. Custom designed operating and signaling fixtures shall be as shown on the drawings or as approved by the Owner.
4. The layout of the fixtures including all associated signage and engraving shall be as approved by the Owner.
5. Where no special design is shown on the drawings, the buttons shall be as follows:
 - a. Stainless steel convex type as selected by the Owner from the manufacturer's premium line of push buttons.
 - b. The button shall have a small round indicator on the button with LED call registered light.
6. Where no special design is shown on the drawings, the faceplates shall be as follows:
 - a. Passenger Elevators
 - 1) All Floors: 1/8" thick stainless-steel faceplate with No. 4 brushed finish.
7. Mount passenger elevator fixtures with tamperproof fasteners and tamperproof screws. The screw/fastener and key switch cylinder finishes shall match faceplate finish.
8. Where key-operated switch and or key operated cylinder locks are furnished in conjunction with any component of the installation, four (4) keys for each individual switch or lock shall be furnished, stamped or permanently tagged to indicate function.
9. All caution signs, pictographs, code mandated instructions and directives shall be engraved and filled with epoxy in code required colors.

B. Main Car Operating Panel (New)

1. Provide a main car operating push button panel on the inside front return panel of the car
2. Car operating panel shall be flush mounted with hinged type, one-piece faceplate with heavy-duty concealed hinges.
 - a. Mount all key switches that are required to operate and maintain the elevators exposed on the car station except those specified within a locked service cabinet.
3. The push buttons shall become individually illuminated as they are pressed and shall extinguish as the calls are answered.
4. The operating panel shall include:
 - a. A call button for each floor served, located not more than 48” above the cab floor.
 - b. “Door open” / “Door close” / “Door Hold” buttons.
 - c. “Alarm” button, interfaced with emergency alarm. The alarm button shall illuminate when pressed.
 - d. “Emergency Stop” switch per local law located at 35” above the cab floor.
 - e. Self-dialing, hands-free emergency communication system actuation button with call acknowledging feature and ASME A17.1. design provisions.
 - f. Three (3) position firefighter key operated switch, call cancel button and illuminated visual/audible signal system with mandated signage engraved per ASME A 17.1 Standards as modified by the AHJ.
5. Locked Firemen’s Service cabinet, keyed in accordance with local Code, containing required devices and signals in accordance with ASME A17.1 Standards.
 - a. Automatic opening of the locked cabinet door may be provided with signals initiated by the fire detection and alarm system where approved by the Authority Having Jurisdiction.
6. Provide a locked service cabinet flush mounted and containing the key switches required to operate and maintain the elevator, including, but not limited to:
 - a. Independent service switch
 - b. Light switch.
 - c. Fan switch.
 - d. G. F. I. duplex receptacle.
 - e. Emergency light test button and indicator.
 - f. Inspection Service Operation key switch.
 - g. Port for hand-held service tool where applicable.
 - h. Dimmer for cab interior lighting.
7. Car operating panel shall incorporate:
 - a. An integral (no separate faceplate) digital L.E.D. floor position indicator
 - b. Emergency light fixture (without a separate faceplate) and black-filled engraved unit I.D. number or other nomenclature, as approved by Owner
 - c. A “No Smoking” advisory.

8. Post Inspection Certificate behind an opening in the car operating panel locked service cabinet door that is fitted with a flush-mounted clear Plexiglas without a frame.
- C. Car Position Indicator (New)
1. The position of the car in the hoistway shall be indicated by the illumination of the position indicator numeral corresponding to the floor at which the car has stopped or is passing.
 - a. Provide 2” high, 10-segment LED type position indicator with direction arrows located over car entrance in transom.
 - a. Provide Lexan cover lens with hidden support frame behind fixture plate to protect the indicator readout.
 - b. Provide audible floor passing signal per ADA standards where not provided by the elevator signal control.
- D. Car Direction Lantern (New)
1. Provide a car riding lantern with visual and audible signal in the edge of the strike and/or return post.
 2. The lens shall project a minimum of 1/4” and shall be of solid Plexiglas.
 3. Use tamperproof screws / concealed fasteners [for flush faceplate with hairline joint.
 4. Car lantern shall indicate the direction of travel when doors are 3/4 open.
 5. The unit shall sound once for the “up” direction and twice for the “down” direction.
 - a. Provide an electronic chime with adjustable sound volume.
- E. Voice Annunciator (New)
1. Provide a voice annunciator in each elevator.
 2. The device features shall comply with the requirements of ADAAG and local accessibility requirements.
 3. Coordinate size, shape and design with Designer and other trades.
 4. The system shall include, but not limited to:
 - a. Solid state digital speech annunciator.
 - b. Playback option.
 - c. Built-in voice amplifier.
 - d. Master volume control.
 - e. Audible indication for selected floor, floor status or position, direction of travel, floor stop, seismic operation, firefighter service and nudging.
 5. Locate all associated equipment in a single, clearly labeled enclosure located either in the machine room and/or on car top.
- F. Corridor Push Button Stations (New)
1. Push button signal fixtures shall be provided on each landing.
 2. Each signal fixture shall consist of:
 - a. Up and down illuminating push buttons measuring 3/4” at their smallest dimension as selected by the Owner.

- b. A recessed mounting box, electrical conduit and wiring.
 3. Intermediate landings shall be provided with fixtures containing two (2) push buttons while terminal landings shall be provided with fixtures containing a single push button.
 4. Include the following in the main lobby level fixtures:
 - a. Firefighter key switch and jewel indicator.
 - b. Line communication failure jewel indicator and reset key switch.
 - c. Emergency Power jewel.
 5. Where existing fixtures are located greater than 48” above the floor:
 - a. The existing back boxes shall be removed.
 - b. New back boxes shall be installed to provide a new centerline to buttons of 42” above the floor.
 - c. Standardize the new centerline on each floor.
 6. All cutting, patching, grouting and/or plastering of masonry walls resulting from the removal or installation of corridor fixtures shall be performed by the Contractor so as to maintain the fire rating of the hoistway.
- G. Combination Floor Position Indicator / Hall Lanterns (New)
 1. Remove existing floor position indicator at each landing and provide new digital LED type unit.
 2. New plate shall completely cover the present cutout and provide 2” numerals located on center.
 3. Provide integral direction arrows that will indicate the direction of travel and, where applicable, which car shall stop in response to the hall call. Design the lantern single indication at terminal landings
 - a. Lanterns shall sound once for the up direction and twice for the down direction.
 - 1) Provide an electronic chime with adjustable sound volume.
 - b. Provide adjustable signal time (three [3] to ten [10] seconds, with one [1] second increments) to notify passengers which car shall answer the hall call and preset per ADAAG notification standards.
- H. Hoistway Access Switch (New)
 1. Install a cylindrical type keyed switch at top terminal in order to permit the car to be moved at slow speed with the doors open to allow authorized persons to obtain access to the top of the car.
 2. Where there is no separate pit access door, a similar switch shall be installed at the lowest landing in order to permit the car to be moved away from the landing with the doors open in order to gain access to the pit.
 3. Locate the switch in the hall call push button station at the top and bottom terminal landings where required if allowed by the Authority Having Jurisdiction.

4. This switch is to be of the continuous pressure spring-return type and shall be operated by a cylinder type lock having not less than a five (5) pin or five (5) disc combination with the key removable only in the “OFF” position.
 - a. The lock shall not be operable by any key which operates locks or devices used for other purposes in the building and shall be available to and used only by inspectors, maintenance men and repairmen in accordance with A17.1 applicable Security Group.

2.11 CAR ENCLOSURES

A. Elevator Cab / General Design Requirements

1. The design, materials and finishes of the cab enclosures shall be as shown on the Architectural Drawings.
2. Steel Shell: 14-gauge furniture steel reinforced and designed to accept finished wall panels. Finish shell panels with one coat of rust inhibitive primer and two (2) coats of enamel paint in accordance with Section 09900. Apply 1/8" thick, rubberized sound deadening material to the hoistway side of the shell.
 - a. All panels shall have minimum radii. Apply sealant beads to panel joints before bolting together with lock washers.
3. Aluminum Shell: Minimum .090" walls and .125" canopy. Reinforce wall panels and ceiling as may be necessary.
 - a. Apply sealant beads to panel joints before bolting together with lock washers.
4. Canopy: Canopy construction methods shall match the shell walls. Use 12-gauge furniture sheet steel and adequately support canopy to comply with the loading requirements of the Code.
 - a. Provide necessary cutouts for the installation of fan and top emergency exit. Arrange exit panel to swing up using a heavy duty piano hinge.
 - b. The exit panel shall have dual locks, necessary stops and a handle.
 - c. When in the locked position, the panel shall be flush with the interior face of the canopy with hairline joints.
5. Base: Where finished base provided under another section of these specifications, recess and prepare the shell to accept the base.
 - a. Provide concealed vent slots above side and rear wall base for proper ventilation. Arrange and size vent slots for quiet operation without any whistling. Use 16 gauge baffles to protect the hoistway side of the vent slots.
 - b. The elevator cab shop drawings shall include elevator vent calculations and number, location and size of top and bottom vent holes.
6. Flooring: Where finished flooring is provided under another section of these specifications, recess and prepare sub-flooring to accept the finished flooring.

7. Front Return Panels, Entrance Posts and Transom: Use 14-gauge furniture sheet steel with proper reinforcing to prevent oil canning.
 - a. Fixed type return panel shall have required cutouts for car operating and signaling fixtures.
 - b. Swing front return panels shall have required cutouts for the car call buttons, keyed switches, indicators, emergency light fixture, cabinets and the specified special control and signaling devices.
 - 1) Provide concealed full height stainless steel piano hinges of sufficient strength to support the panel, without sagging, in the open position.
 - 2) The concealed locks shall secure the panel at two (2) points with linkage that shall be free of vibration and noise when in the locked position.
 - 3) When locked in the closed position, the front return panel shall be in true alignment with the transom and base.
 - 4) Lock release holes shall be not more than 1/4" diameter and be located at the return side jamb of the panel.
 - 5) Engrave the elevator identification number and capacity, no smoking sign, firefighter instructions, and other code mandated instructions and caution signs directly in the front return panel. Applied panels are unacceptable.
 - c. Transom shall be 14 gauge, and be reinforced and constructed the same as the front return panels.
 - d. Construct entrance posts for the passenger elevators from 12-gauge sheet steel and reinforce to maintain vertical alignment with the adjacent panels.
 - e. Provide channel post entrance jambs for the service elevators. Clad channels with 14-gauge sheet steel and through bolt channels to the floor and to the reinforced header section.
8. Cab Doors: Standard 1" thick, 14-gauge hollow metal flush construction, reinforced for power operation and insulated for sound deadening. Paint hatch side of doors black and face cab side with 16-gauge sheet steel in selected material and finish.
 - a. The door panels shall have no binder angles. All welds shall be continuous, ground smooth and invisible.
 - b. Drill and reinforce doors for installation of door operator hardware, door protective device, door gibbs, etc.
9. Ceiling: Construction techniques for wall panels shall apply to ceiling panel construction. Locate top emergency exit inconspicuously. Construct and mount the exit panel to prevent light leakage around the perimeter of panel.
10. Ventilation: The ventilation system of the exhaust type shall be provided in each elevator.
 - a. The system shall include a blower driven by a direct connected motor and mounted on top of car with isolation to effectively prevent transmission of vibration to the car structure. The blower shall have not less than two (2) operating speeds. The ventilation system shall be sized to provide one (1) air change per minute at low speed and one and one-half (1.5) air changes per minute at high speed. The unit design and installation shall be such that the maximum noise level, when operating at high speed, shall not exceed 55 dBA approximately three (3) feet above the car floor. A three (3)-position switch to control the blower shall be provided in the service panel.

11. Lighting: Arrange lighting fixtures and ceiling assembly to provide even illumination without hot spots and shadows. Overlap fluorescent lamps where cove lighting is specified.
 - a. Design and configure lighting system to facilitate maintenance of the fixtures.
 12. Handrails: All attachment hardware shall match the selected handrail and shall permit handrail removal from within the cab.
 - a. Provide a minimum of 10-gauge plate at the hatch side of the shell, aligned with the handrail attachment points, to assure secure handrail mounting.
 - b. Design handrail attachment system to support the weight of a person (two hundred fifty [250] pounds) sitting on it without any deflection and damage to the handrail, cab panel and the shell.
 13. Protective Pads and Pad Hooks: Provide pad hooks at locations as directed by the Architect. Protective pads shall cover the front return panels, and the side and rear walls. Provide cutouts in pads for access to the cab operating and signaling devices. Pads shall be fire-resistant canvas with two (2) layers of cotton batting padding.
 - a. Identify each pad by elevator number and wall location.
 14. Accessories: Construct elevator cab to accommodate the door operator, hangers, interlocks and all accessory equipment provided under other sections of these specifications, including firefighter phones, card readers and CCTV.
 15. All cab materials shall conform to the code prescribed flame spread rating and smoke development requirements.
- B. Cab Fabrication and Installation (New)
1. Maintain accurate relation of planes and angles with hairline fit of contacting panels and/or surfaces.
 2. Any shadow gaps (reveals) between panels shall be consistent and uniform.
 3. Unless otherwise specified or shown on the drawings, for work exposed to view use concealed fasteners.
 4. Maximum exposed edge radius at corner bends shall be 1/16". There shall be no visible grain difference at the bends.
 5. Form the work to the required shapes and sizes with smooth and even curves, lines and angles. Provide necessary brackets, spacers and blocking material for assembly of the cab.
 6. Interior cab surfaces shall be flat and free of bow or oil canning. The maximum overall deviation between the low and high points of 24" x 24" panel section shall not exceed 1/32".
 7. Make weights of connections and accessories adequate to safely sustain and withstand stresses to which they will be subjected.
 8. All steel work except stainless steel and bronze materials shall be painted with an approved coat of primer and one (1) coat of baked enamel paint.
 9. Cab Finish Warranty Enhancement
 - a. Contractor shall be responsible for engineering and installing interior cab finishes in a manner that will withstand all code mandated inspections and test procedures. Failure of finishes during testing shall be repaired by the contractor without expense to the owner. Any objections or qualifications to material selection or design shall be identified during the engineering of the cab interior drawings for review by the owner.

C. Elevator Cab Enclosure Fan (New)

1. Provide an exhaust type two (2)-speed fan unit with cover grill, mounting accessories and necessary cab enclosure modifications.
 - a. Fan unit shall include self-lubricating motor with housing rubber mounted for sound vibration isolation.
2. Provide a key switch in the elevator cab enclosure for control of fan unit.
3. Provide necessary wiring and approved conduit to properly connect fan unit with power source and control key switch.

2.12 EMERGENCY LIGHTING / COMMUNICATIONS / SIGNALING

A. Battery Back Up Emergency Lighting Fixture and Alarm (New)

1. Provide a self-powered emergency light unit.
 - a. The light fixture shall contain a minimum of two (2) LED lamps. Flush mount the light fixture in the main car station. The fixture shall have a milk white lens.
2. Provide a car-mounted battery unit including solid-state charger and testing means enclosed in common metal container.
 - a. The battery shall be rechargeable nickel cadmium with a ten (10) year minimum life expectancy. Mount the power pack on the top of the car.
 - b. Provide a 6" diameter alarm bell mounted directly to the battery/charger unit and connected to sound when any alarm push button or stop switch in the car enclosure is operated.
 - c. The bell shall be configured to operate from power supplied by the building emergency power generator. The bell shall produce a sound output of between 80-90 dBa (measured from a distance of 10') mounted on top of the elevator car.
 - 1) Activation of this bell shall be controlled by the stop switch and alarm button in the car operating station.
 - 2) The alarm button shall illuminate when pressed.
3. Where required by Code for the specific application, the unit shall provide mechanical ventilation for at least one (1) hour.
4. The operation shall be completely automatic upon failure of normal power supply.
5. Unit shall be connected to normal power supply for car lights and arranged to be energized at all times so it automatically recharges battery after use.

B. Emergency Voice Communication / Telephone (New)

1. A hands-free emergency voice communication system shall be furnished in each car mounted as an integral part of the car operating panel.
 - a. Necessary wires shall be included in the car traveling cable and shall consist of a minimum of one shielded pair of 20AWG conductors.

- b. 120V power shall be provided to power the hands-free device.
2. The telephone shall be equipped with an auto-dialer and illuminating indicator which shall illuminate when a call has been placed and begin to flash when the call has been answered.
 - a. Engraving shall be provided next to the indicator which says, "When lit help is on the way".
3. In addition to the standard "Alarm" button, a separate activation button shall be provided on the car operating panel to initiate the emergency telephone and place a call.
 - a. The telephone must not shut off if the activating button is pushed more than once.
 - b. The telephone shall transmit a pre-recorded location message only when requested by the operator and be provided with an adjustable call time which can be extended on demand by the operator.
 - c. Once two-way communication has been established, voice prompts shall be provided which instruct the operator on how to activate these functions as well as alerting the operator when a call is being attempted from another elevator in the building.
4. The system shall be compatible with ring down equipment and PBX switchboards.
5. The system shall be capable of serving as the audio output for an external voice annunciation system.
 - a. Conversation levels shall measure 60 dbA or higher and measure 10 dbA above ambient noise levels.
 - b. Each device shall be provided with a self-diagnostic capability in order to automatically alert building personnel should an operational problem be detected.
6. The phone shall be able to:
 - a. Receive incoming calls from any On-Site Rescue Station (when provided or required).
 - b. Receive incoming calls from other off-site locations via the public telephone system.
 - c. Acknowledge incoming calls and automatically establishing hands-free two way communications.
 - 1) If no On-Site Rescue Station is provided, each hands-free device shall have built in line consolidation which will allow up to six (6) elevators to be called individually from outside the building over a single telephone line and up to eighty (80) elevators if an On-Site Rescue Station is provided.
7. The system shall provide its own four-hour backup power supply in case of a loss of regular AC power.
8. The system must provide capability for building personnel to call into elevators and determine the charge state of any backup batteries provided for the emergency telephones.
9. Pushing the activation button in any of the elevator car stations will cause any on-site Rescue Station (where provided or required) or security telephone to ring.
 - a. If the on-site call is not picked up within thirty (30) seconds, the call will be automatically forwarded to a twenty-four (24)-hour off-site monitoring service.
 - b. The arrangements and costs of the off-site monitoring and telephone line shall be by others.

10. All connections from the junction box to the telephone system shall be done by the Elevator Contractor where existing provisions can be reused.
11. New telephone lines, where required, shall be provided and interfaced by others.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Inspection

1. Study the Contract Documents with regard to the work as specified and required so as to ensure its completeness.
2. Examine surface and conditions to which this work is to be attached or applied and notify the Owner in writing if conditions or surfaces are detrimental to the proper and expeditious installation of the work. Starting the work shall imply acceptance of the surfaces and conditions to perform the work as specified.
3. Verify, by measurements at the job site, dimensions affecting the work. Bring field dimensions which are at variance with those on the accepted shop drawings to the attention of the Owner. Obtain the decision regarding corrective measures before the start of fabrication of items affected.
4. Cooperate in the coordination and scheduling of the work of this section with the work of other sections so as not to delay job progress.

3.2 INSTALLATION

A. Installation

1. Modernize the elevators using skilled personnel in strict accordance with the final accepted shop drawings and other submittals.
2. Comply with the code, manufacturer's instructions, and recommendations.
3. Coordinate work with the work of other building functions for proper time and sequence to avoid delays and to ensure right-of-way of system. Use lines and levels to ensure dimensional coordination of the work.
4. Accurately and rigidly secure supporting elements within the shaftways to the encountered construction within the tolerance established.
5. Provide and install motor, switch, control, safety and maintenance and operating devices in strict accordance with the submitted wiring diagrams and applicable codes and regulations having jurisdiction.
6. Ensure sill-to-sill running clearances do not exceed 1 ¼" at all landings served.
7. Arrange door tracks and sheaves so that no metal-to-metal contact exists.
8. Reinforce hoistway fascias to allow not more than 1/2" of deflection.
9. Remove oil, dirt and impurities and give a factory coat of rust inhibitive paint to all exposed surfaces of struts, hanger supports, covers, fascias, toe guards, dust covers and other ferrous metal.
10. Prehang traveling cables for at least 24 hours with ends suitably weighted to eliminate twisting after installation.
11. Pack openings around oil line with fire resistant, sound isolating glass or mineral wool.]
12. Provide isolation pad between platen head and car structure.

13. Sound isolate pump units and controllers from building structure.
14. After installation, touch up in the field, surfaces of shop primed elements which have become scratched or damaged.
15. Lubricate operating parts of system as recommended by the manufacturer.

3.3 FIELD QUALITY CONTROL

A. Inspection and Testing

1. Upon completion of each work phase or individual elevator specified herein, the Contractor shall, at its own expense, arrange and assist with inspection and testing as may be required by the A.H.J. in order to secure a permit to operate.

B. Substantial Completion

1. The work shall be deemed “Substantially Complete” for an individual unit or group of units when, in the opinion of the Consultant, the unit is complete, such that there are no material and substantial variations from the Contract Documents, and the unit is fit for its intended purpose.
2. Governing authority testing shall be completed and approved in conjunction with inspection for operation of the unit; a certificate of operation or other required documentation issued; and remaining items mandated for final acceptance completion are limited to minor punch list work not incorporating any life safety deficiencies.
3. The issuance of a substantial completion notification shall not relieve the Contractor from its obligations hereunder to complete the work.
4. Final completion cannot be achieved until all deliverables, including but not limited to training, spare parts, manuals, and other documentation requirements, have been completed.

C. Contractor’s Superintendent

1. The Contractor shall assign a competent project superintendent during the work progress and any necessary assistant, all satisfactory to the Owner. The superintendent shall represent the Contractor and all instructions given to him shall be as binding as if given to the Contractor.

3.4 PROTECTION / CLEANING

A. Protection and Cleaning

1. Adequately protect surfaces against accumulation of paint, mortar, mastic and disfiguration or discoloration and damage during shipment and installation.
2. Upon completion, remove protection from finished surfaces and thoroughly clean and polish surfaces with due regard to the type of material. Work shall be free from discoloration, scratches, dents and other surface defects.
3. The finished installation shall be free of defects.
4. Before final completion and acceptance, repair and/or replace defective work, to the satisfaction of the Owner, at no additional cost.
5. Remove tools, equipment and surplus materials from the site.

B. Barricades and Hoistway Screening

1. The Contractor shall provide barricades where necessary in order to maintain adequate protection of areas in which work specified by the Contract Documents is being performed, including open hoistway entrances. Fabrication and erection as all barricades shall be in compliance with applicable OSHA regulations.
2. As required, the Contractor shall provide temporary wire mesh screening in the hoistway and of any elevator undergoing work specified in the Contract Documents. This screening shall be installed in such a manner as to completely segregate the hoistway from that of adjacent elevators. Screening shall be constructed from .041” diameter wire in a pattern that rejects passage of a 1” diameter ball.

3.5 DEMONSTRATION

A. Performance and Operating Requirements

1. Passenger elevators shall be adjusted to meet the following performance requirements:
 - a. Speed within 5% of rated speed in the up direction under any loading condition.
 - b. Leveling: within $\pm 1/4$ ” as measured between the car entrance threshold and the landing sill on any given floor under any loading condition.
 - c. Typical Floor-to-Floor Time: (Recorded from the doors start to close on one floor until they are 3/4 open at the next floor) under various loading conditions.

Simplex Passenger Elevators	14.0 – 15.0 seconds.
-----------------------------	----------------------

- d. Door Operating Times ($\pm .5$ seconds)

Door Type	Opening	Closing
Single Speed Side Opening	2.8 sec.	3.4 sec.

- e. Door dwell time for hall calls: 4.0 to 8.0 seconds.
- f. Door dwell time for car calls: 3.0 to 5.0 seconds.
- g. Reduced non-interference dwell time: 1.0 to 2.0 seconds.

2. Maintain the following ride quality requirements for the passenger elevators:

- a. Noise levels inside the car shall not exceed the following:

- 1) Car at rest with doors closed and fan off - 40 dba.
- 2) Car at rest with doors closed, fan running - 55 dba.
- 3) Car running at high speed, fan off - 50 dba.
- 4) Door in operation - 60 dba.

B. Acceptance Testing

1. Comply with the requirements of Division 01.
2. The Contractor shall provide at least five (5) days prior written notice to the Owner and Consultant regarding the exact date on which work specified in the Contract Documents will reach completion on any single unit of vertical transportation equipment.

3. In addition to conducting whatever testing procedures may be required by local inspecting authorities in order to gain approval of the completed work, and before seeking approval of said work by the Owner, the Contractor shall perform certain other tests in the presence of the Consultant.
4. The Contractor shall provide test instruments, test weights, and qualified field labor as required to safely operate the unit under load conditions that vary from empty to full rated load and, in so doing, to successfully demonstrate compliance with applicable performance standards set forth in the project specifications with regard to:
 - a. Operation of safety devices.
 - b. Floor leveling accuracy.
 - c. Door opening/closing and dwell times.
 - d. Ride quality inside the elevator car.
 - e. Communication system.
5. Upon completion of work specified in the Contract Documents on the last car in any group of elevators, and in conjunction with the aforementioned testing procedures, the Contractor shall carry out additional testing of group dispatch/supervisory control features in the presence of the Consultant.
6. The Contractor shall provide test instruments and qualified field labor as required to successfully demonstrate:
 - a. Firefighter and independent service operations.
 - b. Restricted access security features and card reader controls.
7. Upon completion of the modernization of each individual elevator, emergency power testing shall be conducted after normal business hours and/or weekends if requested.
8. After hour tests of systems such as emergency generators, fire service, and security systems shall be conducted at no extra cost to the Owner.

END OF SECTION

SECTION 230000 - HVAC
(FILED SUB-BID NOT REQUIRED)

PART 1 – GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications.

1.2 WORK INCLUDED

- A. The work included in the Heating, Ventilating and Air Conditioning specifications consists of furnishing all materials, labor, equipment, and appurtenances to perform, and leave in satisfactory operating condition the new systems.
- B. It is the intention of these specifications to call for finished work, fully tested and ready for continuous operation. Any apparatus, equipment, material or work not mentioned in the specifications or incidental accessories to make the work completely balanced, perfect in all respects and ready for operation, even if not specifically mentioned, shall be furnished, tested, adjusted or balanced at no additional expense to the Owner. Should there appear to be discrepancies or questions of intent, the Sub-Contractors shall refer the matter to the Architect for decision before start of any related work.
- C. The drawings, where applicable, show equipment and device locations, required flows at those devices and locations of new thermostats and controls. In addition, the drawings identify routing for new ducting and new piping as well as their respective sizes. The HVAC Contractor shall field verify that the routing is free of obstacles and other trades work.
- D. The Contractor shall confer and cooperate with all other building trades so that all work will be installed in the proper relationship to all other work.
- E. The Contractor shall provide and maintain all staging, scaffolding, ladders and hoisting equipment required for the execution of the work by his personnel. Remove same from premises when no longer required.
- F. The work under this section shall include furnishing all motor starters and components for installation by the electrical sub-contractor.
- G. The work under this section shall include all labor, materials, accessories, services, and equipment necessary to furnish and install:
1. All pipe guides, supports, hangers and anchors.
 2. Motorized dampers with accessories.
 3. All refrigeration piping and insulation.
 4. All condensate piping.
 5. All ductless split system air conditioning systems.
 6. All control system components to provide a fully operational automatic temperature control system.
 7. All Testing, Adjusting and Balancing of all components of the HVAC systems.
- H. The following work is not included in this section and will be provided under other sections, except as specified herein:
1. Electrical wiring for all equipment
 2. Structural supports necessary to distribute loading equipment to roof or floor
 3. Temporary light, power, water, heat, gas and sanitary facilities for use during construction and testing. Refer to Division I, General Conditions.
 4. Concrete work including concrete housekeeping pads and blocks for vibrating and

- rotating equipment, and cast-in-place manholes
- 5. Flashing roof and wall penetrations
- 6. Painting
- l. The Contractor shall coordinate their scope of work with requirements as noted on architectural drawings.

1.3 DEFINITIONS

- A. Where used in this specification, the following definitions shall apply:
1. “Test” means to determine quantitative performance of HVAC equipment.
 2. “Adjust” means to produce the specified fluid at the terminal equipment.
 3. “Balance” means to establish the specified air flows within the distribution systems.
 4. “Procedure” is the standardized approach and execution of sequence of work operations to yield reproducible results.
 5. Report forms shall be test data sheets arranged for collection of test data in logical order for submission and review. These data shall form the permanent record which shall be used as the basis for any future testing, adjusting, and balancing required.
 6. The testing, adjusting, and balancing Contractor shall hereinafter be referred to as “The TAB Sub-Contractor”, who shall be a subcontractor to the HVAC sub- contractor.
 7. Where specifications refer to SMACNA standards, the SMACNA standards shall be considered as the minimum acceptable. If local codes require other standards than the local codes shall govern.
 8. “Work” shall mean all labor, materials, equipment, apparatus, controls, accessories and all other items required for a proper and complete installation.
 9. “Concealed” shall mean hidden from sight in chases, furred in spaces, shafts, embedded in construction, in a crawl space, and above hung ceilings.
 10. “Exposed” shall mean not installed underground or concealed as defined above.
 11. “Furnish” shall mean purchase and deliver to the project site, complete with every necessary appearance and support.
 12. “Install” shall mean unload at the delivery point at the site and perform all work necessary to establish secure mounting, proper location and operation in the project.
 13. “Provide” shall mean furnish and install.
 14. “Piping” shall mean, in addition to pipe or tubing, all fittings, flanges, unions, valves, strainers, drains, hangers and other accessories relative to such piping.
 15. “Furnished by others” shall mean materials or equipment purchased and set-in place under other sections of the general contract and connected to the systems covered by this section of the specifications by the HVAC Sub-Contractor.
 16. “Coordinate” shall mean all work provided under this section of the specification shall be in compliance with work of other trades.
 17. “HVAC Subcontractor,” “Subcontractor,” or “Installing Contractor” shall be the Subcontractor responsible for the work of this section of the specifications and shall be responsible for coordination of the work of this section.
 18. “ATC” shall mean Automatic Temperature Controls and shall be interchangeable with Building Automation System.
 19. “Owner’s Representative” shall be the party responsible to make decisions regarding all contractual obligations in reference to the Scope of Work for the Owner.
 20. The “Sheetmetal Sub-Contractor” shall herein after be responsible for the sheetmetal work of this section.
 21. The “TAB Sub-Contractor” shall herein after be responsible for the balancing work of this section.

22. The “ATC Sub-Contractor” shall herein after be responsible for the ATC work of this section.

1.4 EXAMINATION OF SITE AND DOCUMENTS

A. Bidders are expected to examine and to be thoroughly familiar with all contract documents and with the conditions under which work will be carried out. The Awarding Authority (Owner) will not be responsible for errors, omissions and/or charges for extra work arising from General Contractor's or Filed subcontractor's failure to familiarize themselves with the Contract Documents or existing conditions. By submitting a bid, the Bidder agrees and warrants that he has had the opportunity to examine the site and the Contract Documents, that he is familiar with the conditions and requirements of both and where they require, in any part of the work a given result to be produced, that the Contract Documents are adequate and that he will produce the required results.

1.5 RELATED WORK IN OTHER SECTIONS

A. The following is a list of related work to be performed or furnished by other trades under other sections of the specifications:

1. Electrical power wiring.

1.6 CODES AND STANDARDS

A. Materials, installation of systems and equipment provided under this section shall be done in strict accordance with the latest governing edition of the following standards, codes, specifications, requirements, and regulations, and any ‘other Codes-and Regulations having jurisdiction including but not limited to:

1. All applicable NFPA Standards
2. State and Local Building, Mechanical, Electrical and Energy Codes
3. American Society of Mechanical Engineers (ASME)
4. American Society of Testing and Materials (ASTM)
5. American National Standards Institute (ANSI)
6. Underwriters Laboratories, Inc. (UL)
7. Occupational Safety and Health Administration (OSHA)
8. Any other ‘local codes’ or authorities having jurisdiction

B. Heating, pumping, sheet metal and refrigeration systems shall be installed by contractors and personnel appropriately licensed in the State (Installing Contractor).Electrical and automatic temperature control wiring shall be done in accordance with applicable codes by licensed electricians.

C. All equipment shall meet the more efficient requirements:

1. As shown on bid documents, or
2. Minimum efficiencies stated in the governing Energy Code.

D. Unless otherwise specified or indicated, materials, workmanship and equipment performance shall conform with the latest governing edition of the following standards, codes, specifications, requirements and regulations, except when more rigid requirements are specified or are required by applicable codes but not limited to:

1. Air Conditioning and Refrigeration Institute (ARI)
2. Air Diffusion Council (ADC)
3. Air Movement and Control Association (AMCA)
4. American National Standards Institute (ANSI)
5. American Society of Heating, Refrigeration and Air Conditioning (ASHRAE)
6. American Society of Mechanical Engineers (ASME)

7. American Society of Testing and Materials (ASTM)
 8. Associated Air Balance Council (AABC)
 9. Copper Development Association (CDA)
 10. Factory Mutual System (FM)
 11. Institute of Electrical and Electronics Engineers (IEEE)
 12. Manufacturer's Standardization Society of the Valve & Fitting Industry (MSS)
 13. National Electric Manufacturers-Association (NEMA)
 14. National Environmental Balancing Bureau (NEBS)
- F. The date of the code or standard is that in effect at the Bid Date.
- G. Give all notices, file all plans, obtain all permits and licenses, and obtain all necessary approvals from authorities having jurisdiction. Deliver all certificates of inspection to the authorities having jurisdiction. No work shall be covered before examination and approval by the Owner's Representative, inspectors, and authorities having jurisdiction. Replace imperfect or condemned work to conform to requirements, satisfactory to Owner's Representative, and without extra cost to the owner. If work is covered before inspection and approval, the HVAC Contractor shall pay costs of uncovering and reinstalling the covering, whether it meets contract requirements or not.

1.7 INTERPRETATION OF DRAWINGS AND SPECIFICATIONS

- A. It is the intention of the Specifications and Drawings to call for complete, finished work, tested and ready for continuous operation. Any apparatus, appliance, material or work not shown on the Drawings, but mentioned in the Specifications or vice versa, or any incidental accessories necessary to make the work complete in all respects and ready for operation, even if not particularly specified, shall be provided by the HVAC Sub- Contractor or his/her Sub-subcontractors, without additional expense to the Owner.
- B. The drawings are generally diagrammatic. The locations of all items that are not definitely fixed by dimensions are approximate only. The exact locations must be determined at the site and shall have the approval of the Architect-before being installed. The HVAC Contractor and related Sub-Contractors shall follow Drawings, including shop drawings, in laying out work and shall check the Drawings of other trades to verify spaces in which work will be installed. Maintain maximum headroom and space conditions. Where space conditions appear inadequate, notify the Architect before proceeding with the installation. The HVAC Contractor and related Sub-Contractors shall, without extra charge, make reasonable modifications in the layout as needed to prevent conflict with work of other trades or for proper execution of the work.
- C. Sizes of ducts and pipes and routing are shown, but it is not intended to show every offset and fitting, nor every structural difficulty that may be encountered. To carry out the intent and purpose of the Drawings, all necessary parts to make complete approved working systems ready for use, shall be furnished without extra charge.

1.8 SURVEY AND MEASUREMENTS

- A. Base all required measurements, horizontal and vertical, from referenced points established with the Owner's Representative and be responsible for correctly laying out the Work required under this Section of the Specification.
- B. In the event of discrepancy between actual measurements and those indicated, notify the Owner's Representative in writing and do not proceed with the related work until instructions have been issued.

1.9 COORDINATION WITH OTHER BUILDING TRADES

- A. Structural members and building openings for HVAC equipment, ducts, piping, fans, etc., for use by the HVAC Contractor shown on the architectural or structural plans are the coordination responsibility of the HVAC Sub-Contractor.
- B. The work shall be so performed that the progress of the entire building construction, including all other trades, shall not be delayed or interfered with. Materials and apparatus shall be installed as fast as conditions of the building will permit and must be installed promptly when and as required.
- C. Confer with all other trades relative to location of all apparatus and equipment to be installed and select locations so as not to conflict with work of other sections. Any conflicts shall be referred immediately to the Owner's Representative for decision to prevent delay in installation of work. All work and materials placed in violation of this clause shall be readjusted to the Owner's Representative's satisfaction at no expense to the Owner.
- D. Where work of this section will be installed in close proximity to work of other sections or where there is evidence that the work of this section may interfere with work of other sections, assist in working out space conditions to make satisfactory adjustment. Prepare and submit for approval 3/8" scale or larger working drawings and sections, clearly showing how the work is to be installed in relation to the work of other sections. If the work of this section is installed before coordinating with other trades or so as to cause interference with work of other trades, make changes necessary to protect conditions without extra charge.
- E. Keep fully informed as to the shape, size and position of all openings required for all apparatus, piping, ductwork, etc., and give information in advance to build openings into the work. Furnish all sleeves, pockets, supports and incidentals, and coordinate with the Owner's Representative for the proper setting of same.
- F. All distribution systems which require pitch or slope such as condensate drains, and refrigerant piping shall have the right of way over those which do not.
- G. The HVAC Contractor shall, with the approval of the Architect and without extra charge, make reasonable modifications in his work as required by normal structural interferences, or by interference with work of other trades, or for proper execution of the work.
- H. Keep fully informed as to the size, shape and location of all openings required for the work of this Section and give full information to all Contractors and Sub-Contractors and the Owner's Representative.

1.10 GENERAL REQUIREMENTS

- A. Nameplates
 - 1. Each item of equipment shall have a nameplate bearing the manufacturer's name, address, type or style, model number, catalog number, and serial number securely affixed in a conspicuous place; the nameplate of the distributing agent will not be acceptable.
- B. Maintenance Information
 - 1. Systems and equipment which require periodic maintenance to maintain efficient operation shall be furnished with complete necessary maintenance information. Required routine maintenance actions, as specified by the manufacturer, shall be stated clearly and incorporated on a readily accessible label on the equipment. Such label may be limited to identifying, by title or publication number, the operation and maintenance manual for that particular model and type of product.
- C. Equipment Guards
 - 1. Belts, pulleys, chains, gears, couplings, projecting setscrews, keys and other rotating parts so located that any person may come in close proximity thereto shall be completely enclosed or guarded. High-temperature equipment and piping so located as to endanger

personnel or create a fire hazard shall be guarded or covered with insulation of type specified for service.

1.11 MATERIAL AND EQUIPMENT STANDARDS

- A. Where equipment or materials are specified with the name of a manufacturer, such specifications shall be deemed to be used for the purpose of establishing a standard for that particular item. No equipment or material shall be used unless previously approved by the Owner's Representative.
- B. Substitutions (approved equals) may be offered for review provided the material, equipment or process offered for consideration, is equal in every respect to that indicated or specified. In order for requests for substitution to be considered, all must be submitted for pre-approval of manufacturer within 30 days of award of contract. All requests must be accompanied by a list of minimum 5-year-old successful installations of similar scope (with owner contact and phone number), complete specifications together with drawings or samples to properly appraise the materials, equipment, or process. Allow 30 days for Owner's Representative's review.
- C. If a substitution of materials or equipment in whole or in part is made, this HVAC Sub-Contractor shall bear the cost of any changes necessitated by any other trade as a result of said substitution.
- D. All materials, equipment and accessories provided under this section shall be new and unused products of recognized manufacturers as approved.

1.12 SHOP DRAWINGS AND SUBMITTALS

- A. Conform to the requirements of Division I, General Conditions, for schedule and form of all submittals unless specifically noted otherwise in this section. Coordinate this submittal with submittals for all other finishes. Shop drawings and design layouts shall be prepared by licensed installing contractors and shall note the name(s), license number(s) and license expiration date(s) of the contractor(s) installing the heating, piping, and refrigeration systems.
- B. Provide any additional submittals not noted below that may be required by local utility and Massachusetts Clean Energy Center Commercial Scale Air Source Heat Pump Program for confirmation of conformance with the requirements of the Advanced Buildings program.
- C. Definitions:
 - 1. Shop drawings are information prepared by the HVAC Contractor to illustrate portions of the work in more detail than indicated in the Contract Documents.
 - 2. Acceptable Manufacturers: The mechanical design for each product is based on the single manufacturer listed in the schedule or shown on the drawings. In Part 2 of the specifications certain Alternate Manufacturers are listed as being acceptable. In addition, the MATERIAL AND EQUIPMENT STANDARDS paragraph potentially allows for substitutions as being acceptable. These are acceptable only if, as a minimum, they:
 - a. Meet all performance criteria listed in the schedules and outlined in the specifications. For example, to be acceptable, a fan coil unit must deliver equal CFM against equal external static pressure (with the allowed pressure drop of dirty filters) using equal or less horsepower as the fan coil unit listed in the schedules.
 - b. Fit within the available space it was designed for, including space for maintenance and component removal, with no modification to either the space or the product. Clearances to walls, ceilings, and other equipment will be at least equal to those shown on the design drawings. The fact that a manufacturer's name appears as acceptable shall not be taken to mean the Engineer has determined that the

manufacturer's products will fit within the available space this determination is solely the responsibility of the HVAC Sub- Contractor.

- c. For rooftop mounted equipment and equipment mounted in areas where structural matters are a concern, the products must have a weight no greater than the product listed in the schedules or specifications.
 - d. Products must adhere to all architectural considerations including, but not limited to: being of the same color as the product scheduled or specified, fitting within the architectural enclosures and details, and for diffusers – being the same size and of the same physical appearance as scheduled or specified products.
- D. Submittal Procedures, Format and Requirements
1. Shop drawings showing manufacturer's product data shall contain detailed dimensional drawings (minimum 1/4" scale) including plans and sections (where physical clearance could be an issue). Provide larger scale details as necessary. Sheet metal drawings shall show elements of Architect's reflected ceiling plan, exposed ductwork, walls and partitions (highlighting fire walls and smoke partitions), diffusers, registers, grilles, fire and smoke dampers, sleeves and other aspects of construction as necessary for coordination.
 2. Submit accurate and complete description of materials of construction, manufacturer's published performance characteristics, sizes, weights, capacity ratings (performance data, alone, is not acceptable), electrical requirements, starting characteristics, wiring diagrams, and acoustical performance for complete assemblies. Drawings shall clearly indicate location (terminal block or wire number), voltage and function for all field terminations, and other information necessary to demonstrate compliance with all requirements of Contract Documents.
 3. If shop drawings showing connection details are not submitted and connections are found to be installed incorrectly, the HVAC Contractor shall reinstall them within the original contract price.
 4. Provide complete data for all auxiliary services and utilities required by submitted equipment. This shall include power, condenser or cooling water, condensate and compressed air requirements and points of connection.
 5. Provide a complete description of all controls and instrumentation required, including electrical power connection drawing for all components and interconnection wiring to starters, detailed information on starters, control diagrams, termination diagrams, and all control interfaces with a central control system.
 6. Provide installation and erection information including lifting requirements, and any special rigging or installation requirements for all equipment.
 7. The Owner's Representative shall approve all materials before commitment for materials is made.
- E. Product Data: Submit complete manufacturer's product description and technical information including:
1. Piping and Fittings (all systems, types and joining methods)
 2. Pipe Hangers and Supports
 3. Ductless split system air conditioners
 4. Motorized damper & accessories.
 5. Sleeves.
 6. Valves and Accessories (all types).
 7. Pipe Insulation.
 8. Refrigerant.
 9. Equipment Nameplates

10. Vibration Isolation equipment
 11. Complete ductwork, equipment layout, and shop drawings, construction details and construction standards
 12. Operating and maintenance instructions and manuals
 13. HVAC Control Systems
 14. Color selection charts and samples for equipment and systems in finished areas.
- F. Submit shop drawings and product data grouped to include complete submittals of related systems, products, and accessories in an individual (combined) submittal with a screwed together post binding system. Three-ring binders shall not be accepted.
- G. Deviations
1. Proposed deviations from the Contract Documents, other than substitutions, shall be requested individually in writing whether deviations result from field conditions, standard shop practice, or other cause. Submit letter with transmittal of Shop Drawings which flags the deviation to the attention of the Architect.
 2. Without letters flagging the deviation, it is possible that the Architect may not notice such deviation or may not realize its ramifications. Therefore, if such letters are not submitted to the Owner's Representative, the Seller shall hold the Architect, his consultants, and the Owner harmless for any and all adverse consequences resulting from the deviations being implemented. This shall apply regardless of whether the Architect has reviewed, or approved shop drawings containing the deviation and will be strictly enforced.
 3. Approval of proposed deviations, if any, will be made at discretion of Architect.
- H. Schedule: Incorporate shop drawing review period into construction schedule so that work is not delayed. The HVAC Contractor shall assume full responsibility for delays caused by not incorporating the following shop drawing review time requirements into his project schedule: Allow at least 10 working days, exclusive of transmittal time, for review each time shop drawing is submitted or resubmitted with the exception that 20 working days, exclusive of transmittal time are required for the following:
1. HVAC temperature control submittals
 2. HVAC balancing report
 3. Coordination drawings
 4. If more than five shop drawings of a single trade are received in one calendar week.
- I. Responsibility
1. Intent of submittal review is to check for capacity, rating and certain construction features. HVAC Contractor shall ensure that work meets requirements of Contract Documents regarding information that pertains to fabrication processes' or means, methods, techniques, sequences and procedures of construction; and for coordination of work of this and other sections. Work shall comply with approved submittals to extent that they agree with Contract Documents. Submittal review shall not diminish responsibility under this Contract for dimensional coordination, quantities, installation, wiring, supports and access for service, nor the shop drawing errors or deviations from requirements of Contract Documents. The Engineer's noting of some errors while overlooking others will not excuse the HVAC Sub- Contractor from proceeding in error. Contract Documents requirements are not limited, waived nor superseded in any way by review.
 2. Inform sub-contractors, manufacturer's suppliers, etc. Of scope and limited nature of review process and enforce compliance with contract documents.
- J. If the HVAC Contractor fails to provide Shop Drawings for any of the products specified herein:

1. The HVAC Contractor shall furnish and install all materials and equipment herein specified in complete accordance with these Specifications.
 2. If the HVAC Contractor furnishes and installs material and/or equipment that are not in complete accordance with these Specifications, he shall be responsible for the removal of this material and/or equipment. He shall also be responsible for the replacement of this material and/or equipment with material and/or equipment that is in complete accordance with these Specifications, at the direction of the Owner's Representative.
 3. Removal and replacement of materials and/or equipment that are not in complete compliance with these Specifications shall be done at no extra cost to the Owner.
 4. Removal and replacement of materials and/or equipment that are not in complete compliance with these Specifications shall not be allowed as a basis for a claim of delay of completion of the Work.
- J. Mark dimensions and values in units to match those specified.
- K. Submit Material Safety Data Sheets (MSD) on each applicable product with submittal.

1.13 APPROVAL OF SUBMITTALS

- A. The Architect will return signed and approved or disapproved submittals to the Contractor within the time allowed by other sections of the specifications. Any submittals, which have been disapproved, shall be resubmitted by the Contractor within the time allowed by other sections of the specifications.

1.14 RESPONSIBILITY FOR ACCURACY OF SUBMITTALS

- A. The HVAC Contractor is solely responsible for the accuracy and completeness of all submittals, regardless of corrections made in, or approval given to, such submittals. When the Architect makes comments and returns the submittals, it is incumbent upon the HVAC Contractor to thoroughly review the comments and notations made by the Architect. When, in the HVAC Sub-Contractor's opinion, the notes made by the Architect are in error or in conflict with other elements of the system, it is incumbent upon the HVAC Contractor to promptly notify the Architect of his findings or opinion along with substantiating data, in writing to preclude misunderstanding or expensive alterations caused by a review error or oversight. The submittals are intended to provide detailed documentation of the system design and its components. The responsibility for their correctness rests completely, totally, and solely with the HVAC Sub-Contractor.

1.15 SUBSTITUTION OF MATERIALS OR EQUIPMENT

- A. Named manufacturers for any equipment specified herein or identified on the drawings are identified for the purpose of identifying quality standards, performance information or type. Any substitution as "or equal" shall be considered. The Architect shall determine whether or not the offered equipment is equal to the specified. Where dimensional constraints exist the HVAC Contractor shall be responsible for any extra costs associated with extra work required to make the "or equal" equipment fit.
- B. After approval of the submittals, substitution of materials or equipment of makes other than those specifically named in the submittals will be approved by the Architect only if the material or equipment proposed for substitution is equal to and/or superior to material or equipment named in construction, efficiency, utility and accuracy; and further that the material or equipment named in the submittals cannot be delivered to the job in proper sequence due to conditions beyond the control of the HVAC Sub-Contractor.
- C. To receive consideration, requests for substitution shall be accompanied by documentary

proof of equality or difference of both proposed equipment to be substituted and equipment named in the approved submittals. Substitution by the HVAC Contractor of other materials or processes than those named in the approved submittals shall be done only upon written authorization from the Architect.

- D. Substitutions of fans shall have noise ratings that are equal to or better than the specified units. The substituted equipment shall be provided with the sound power data for both the substituted and specified equipment graphed on an NC curve chart for review with the submittal.

1.18 FEES AND PERMITS

- A. The HVAC Contractor shall apply for, obtain and pay for all required permits, inspections, certificates, and incidental charges required for proper performance of the work, and shall furnish the Architect with copies of applications and all correspondence.

1.19 OPERATION AND MAINTENANCE INSTRUCTIONS

- A. Commence preparation of the Operating and Maintenance manuals immediately upon receipt of “Approved” or “Approved as Noted” shop drawings and submit each section within one month. The last submission shall be no later than two months prior to the date of Substantial Completion of the project.
- B. The manual shall consist of (3) sets of manuals and include (3) CDs, which shall contain the scanned content of the entire manual. The manual shall be submitted for review prior to creation of the CDs.
- C. The manual shall contain the following:
 - 1. Operations Manual
 - a. Systems description including all-relevant information needed for day-to-day operations and management including start-up and shut-down instructions.
 - b. Wiring diagrams, schematics, logic diagrams and sequence of operations that accurately depict the controls system.
 - c. Depiction of each interface screen where programmable logic and visual displays are provided. Descriptors shall be provided to define displayed data; alarms, etc.
 - d. A single sheet (for ease of removal) of all access codes and passwords necessary to access all levels of control and programming.
 - e. Trouble shooting guide defining common alarms/problems with possible cause and effect.
 - 2. Maintenance Manual
 - a. Define all maintenance activities required to ensure system operation within manufacturers’ specified parameters. Provide table of all required activities plotted vs. interval with adequate fill-in-space for “activity completion date” and “comments”. Where multiple instrument readings are required, provide data sheet formatted to accommodate activity.
 - b. Provide as part of each package, lubricating charts indicating equipment tag number, location, equipment service, greasing and lubricating requirements, lubricants, and intervals.
 - c. Provide as part of each package, a valve and system chart that corresponds to the valve tags. Provide directions for normal positions and positions for equipment failure modes.
 - d. The HVAC Contractor shall furnish spare-parts data for each different item of equipment furnished. The data shall include a complete list of: parts and supplies, with current unit prices, lead time, and source of supply; a list of parts and supplies

that are either normally furnished at no extra cost with the purchase of the equipment, or specified herein after to be furnished as part of the contract; and a list of additional items recommended by the manufacturer to assure efficient operation for a period of 360 days at the particular installation. The foregoing shall not relieve the HVAC Contractor of any responsibilities under the guarantees specified herein.

- e. Provide copy of all warranty information with associated date of substantial completion (commencement of warranty) and end date of coverage. Define all components/subsystems specifically included and excluded.
- D. Provide O&M manuals for each of the following as a minimum:
 - 1. Fan coil units
 - 2. Vibration Isolation

1.20 COORDINATION DRAWINGS

- A. Before materials are purchased or work is begun, prepare coordination drawings showing the size and location of equipment, piping, etc., in the manner described under SUPPLEMENTARY CONDITIONS.
- B. Coordination drawings are for the General Contractor's and the Architect's use during construction and shall not be construed as replacing any shop, "as-built" or record drawings required elsewhere in these contract documents.
- C. The HVAC Contractor shall be responsible for initiating the preparation of the coordination drawings and passing the drawings to other trades through the General Contractor for addition of the other trade's work.
- D. Before work progresses, and in addition to the shop drawings listed herein, submit coordination drawings at a suitable scale of not less than 3/8 inches equals one foot.
- E. Provide one reproducible and one blueprint of the drawings.
- F. Provide composite systems coordination drawings showing HVAC duct, piping and equipment, plumbing pipe and equipment and electrical conduit, cable, lights and other equipment.
- G. All trades are required to coordinate with the other trades and revise the composite systems coordination drawings to eliminate interferences.

1.21 RECORD DRAWINGS

- A. The Architect will furnish the HVAC Contractor electronic files of the mechanical drawings as issued for this contract in AutoCAD 2015 format. The HVAC Contractor shall change these drawings to indicate accurately and neatly the actual duct routing and duct sizes. At the end of the project the HVAC Contractor shall deliver to the Architect one set of reproducible As-built drawings and a Compact Disk with As-Built drawing files in AutoCAD 2015 format for the owner's permanent record.
- B. The "As-Built" drawings shall show the actual location of all air volume dampers and actuators.

1.22 WARRANTIES

- A. Submit manufacturers standard replacement warranties for material and equipment furnished under this Section. Such warranties shall be in addition to and not in lieu of all liabilities which the manufacturer and the HVAC Contractor and related Sub-Contractors may have by law or by provisions of the Contract Documents.
- B. Guarantee that all elements of each system meet the specified performance requirements as set forth herein or as indicated on the Drawings.
- C. Upon receipt of notice from the Owner of the failure of any part of the systems during the

guarantee period, the affected parts shall be replaced. Any equipment requiring excessive service shall be considered defective and shall be replaced.

1.23 IDENTIFICATION OF MECHANICAL SERVICES

- A. Identify all ductwork with plastic adhesive labels identifying the system, supply or return, and flow arrows.
- B. Identify all piping with plastic adhesive labels identifying the system, supply or return, and flow arrows.
- C. Labels shall be located at all changes of direction, every 20 feet on long pipe runs, at valves and close to points of branch takeoffs.
- D. Identify all mechanical equipment with white limacoid engraved nameplates with black letters. Firmly secure with self-tapping screws.

1.24 DELIVERY, STORAGE AND HANDLING

- A. No materials shall be delivered or stored on site until Shop Drawings have been approved.
- B. All manufactured material shall be delivered to the site in original packages or containers bearing the manufacturer's labels and product identification.
- C. Protect materials against dampness. Store off floors, under cover, and adequately protected from damage.
- D. Inspect all equipment and materials, upon receipt at the job site, for damage and conformance to approved shop drawings.

1.25 PROTECTION OF WORK AND PROPERTY

- A. The HVAC Contractor shall be responsible for the care and protection of all work included under this section until the completion and final acceptance of this Contract.
- B. Protect all equipment and materials from damage from all causes; including, but not limited to, fire, vandalism, and theft. All materials and equipment damaged or stolen shall be repaired or replaced with equal material or equipment at no additional cost to the Owner.
- C. Protect all equipment, outlets and openings with temporary plugs, caps and covers. Protect work and materials of other trades from damage that might be caused by work or workmen under this section and make good damage thus caused.
- D. Damaged materials are to be removed from the site; no site storage of damaged materials will be allowed.

1.26 SAFETY PRECAUTIONS

- A. Life safety and accident prevention shall be a primary consideration. Comply with all the safety requirements of the owner and OSHA throughout the entire construction period of the project.

1.27 SCHEDULE

- A. Construct work in sequence under provisions of Division I and as coordinated with the Owner's Representative.

1.28 ACCESSIBILITY

- A. All work provided under this section of the specification shall be installed so that parts requiring periodic inspection, maintenance and repair are readily accessible. Work of this trade shall not infringe upon clearances required by equipment of other trades, especially

code required clearances to electrical gear. Minor deviations from the drawings may be made to accomplish this, but changes of substantial magnitude shall not be made prior to written approval from the Owner's Representative.

1.29 ELECTRICAL WORK

- A. All electrical apparatus and controls furnished, and the installation thereof, as a part of the HVAC work, equipment and controls shall conform to applicable requirements under specification 260000 – Electrical.

1.30 PROJECT CLOSEOUT

- A. Certificates of Approval
 - 1. Upon completion of all work, provide certificates of inspections from the following equipment manufacturers stating that the authorized factory representatives have inspected and tested the operation of their respective equipment and found the equipment to be in satisfactory operating condition and installed per the manufacturers installation instructions and requirements.
 - a. Automatic Temperature Controls
 - b. Variable Refrigerant Volume Heat Pump System
- B. Construction Observations by the Engineer
 - 1. The engineer is contracted to make progress site visits during construction, one substantial completion (punch list) site visit for determining substantial completion and one Final inspection visit to determine if all work is complete.
 - 2. The HVAC Contractor and the General Contractor are required to inspect their own work and make any corrections to the work to comply with the specifications and the contract documents. It is not the responsibility of the engineer to develop lists of incomplete work items.
 - 3. Progress Site Visits
 - a. The purpose of the progress site visit by the engineer is to observe if the work is proceeding in accordance with the contract documents.
 - b. The engineer will prepare a field report which will note in general the work completed since the last observation visit, work found not to be in accordance with the contract documents and work not corrected since the previous observation visit.
- C. Substantial Completion
 - 1. When the HVAC Contractor considers the work under this Section is substantially complete, the HVAC Contractor shall submit written notice, through the General Contractor, with a detailed list of items remaining to be completed or corrected and a schedule of when each remaining work item will be completed. Should the engineer determine the list of remaining work does not constitute substantial completion, the engineer will notify the Architect and/or Owner and he will not make a substantial completion site visit.
 - 2. The following items shall be submitted and approved by the Engineer prior to the written request for substantial completion inspection:
 - a. Certification of successful operation of all systems
 - b. Training of the Owner's personnel in the operation of the systems.
 - c. Record Drawings in accordance with the contract specifications.
 - d. Operation and Maintenance Manuals
 - e. Testing reports
 - f. Balancing reports

- g. Manufacturers certificates of approvals
 - h. Emergency contact list for reporting of malfunctioning equipment during the warrantee period
 - i. Contractors project completion certificate in accordance with the building code requirements.
 3. Should the engineer, during the substantial completion visit, observe that the work is substantially complete, s/he will provide a written listing of the observed deficiencies referred herein as the Punch List. The Punch List will provide for a place for the HVAC Contractor and general contractor to sign off and date each item and individually indicating that the observed deficiency item has been corrected.
 4. Should the Engineer, during the substantial completion site visit, observe that the work is not substantially complete, s/he will provide a written list of the major deficiencies and a reason for the work not being considered substantially complete.
 5. If the work is found not to be substantially complete, then the engineer shall be reimbursed for his time to re-observe the work. A re-observation fee shall be charged to the Subcontractor through the Contractual Agreement for any further observations by the engineer.
 6. The HVAC Contractor shall remedy all deficiencies listed in the punch list within the time frame required by the contract.
- D. Engineers Construction Completion Certificate
 1. Where required by the applicable code, the Engineers Construction Completion Certification will be issued by the Engineer when all life safety and health related issues are complete, all required functional tests are complete and all reports are complete. The following is a minimum listing of the required systems to be tested with reports generated indicating they are complete and ready for use:
 - a. Air Balancing
 - b. Pipe Pressure Test
 - c. Ductwork
 2. There shall be NO outstanding items identified on the punch list for scope within any of these categories.
- E. Final Completion
 1. The following items shall be submitted prior to the written request for Final completion:
 - a. Revised substantial completion items to be resubmitted in accordance with the review process comments
 - b. Warranties commencing the date of substantial completion
 - c. Individual signed and dated punch list acknowledging completion of all punch list items
 2. When the HVAC Contractor considers all the punch list work items complete, the HVAC Contractor shall submit written notice through the General Contractor that all punch list items are complete and resolved and the work is ready for final inspection. The signature lines for completion of each punch list item shall be signed by the HVAC Contractor indicating the work is complete and signed by the General contractor indicating site has inspected the work and found it to be complete. Should the Engineer find the work to be finally complete and all Punch list items are complete, the engineer will make a recommendation to the Architect or Owner. If the Engineer has found the punch list work to be incomplete during the final inspection, a written listing of the observed deficiencies will be prepared by the Engineer.
 3. If the work is not fully complete, then the engineer shall be reimbursed for his time to

re-observe the work. A re-observation fee shall be charged to the HVAC Sub-Contractor through the contractual agreement for any re-observations by the engineer.

- F. Re-Observation Fees
 - 1. The re-observation fee shall be \$1,800 per visit.
- G. HVAC Sub-Contractor's Project Completion Certificate
 - 1. Upon completion of work and prior to request for Certificate of Occupancy, the HVAC Contractor shall issue a certificate stating that work has been installed generally consistent with construction documents and all applicable codes. The certificate shall certify:
 - a. Execution of all work has been installed in accordance with the approved construction documents.
 - b. Execution and control of all methods of construction was in a safe and satisfactory manner in accordance with all applicable local, state and federal statutes and regulations.
 - 2. The certificate shall include the following information:
 - a. Project
 - b. Permit Number
 - c. Location
 - d. Construction Documents
 - e. Date on Plans and Specifications submitted for approval and issuance of the Building Permit
 - f. Addendum(a) and Revision Dates
 - 3. The certificate shall be signed by the HVAC Contractor and include the following:
 - a. Signature
 - b. Date
 - c. Company
 - d. License Number
 - e. License Expiration Date

1.31 SEQUENCING

- A. Phasing: Refer to Section 01 10 00 - Summary, and Drawings for phasing and milestone completion requirements which affect the Construction Manager's Work and the Work of the HVAC Contractor and related Sub-Contractors.
- B. Coordinate work of this Filed Subcontract with that of other trades, affecting or affected by this work, and cooperate with the other trades as is necessary to assure the steady progress of work.
- C. Do not order or deliver any materials until all submittals, required in the listed Specification Sections included as part of this Filed Subcontract, have been received and approved by the Architect.
- D. Before proceeding with installation work, inspect all project conditions and all work of other trades to assure that all such conditions and work are suitable to satisfactorily receive the work of this Section and notify the Architect in writing of any which are not. Do not proceed further until corrective work has been completed or waived.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. All materials, except as otherwise specified, shall be new, of current production, first

quality and the best of each class specified.

- B. Required materials not covered by detailed specifications shall be of a suitable class, grade, quality, and type and shall be subject to the approval of the Architect. Where two or more units of the same class of equipment are required, these units shall be the products of a single manufacturer.
- C. All equipment shall be installed and constructed to operate safely, as designed, without leakage, undue wear, noise, vibration, or corrosion.

2.2 HANGERS AND SUPPORTS

- A. Pipe hanger or stanchion support assemblies shall include turnbuckles or other means of vertical adjustment.
- B. Trapeze hangers may be used in lieu of separate hangers for closely spaced, parallel lines. Pipe hanger components shall be as per MSS SP-58.
- C. Hangers shall have steel rods with two nuts and shall be suspended from suitable beam clamps or concrete inserts. Rod sizes shall be as recommended by the hanger manufacturer and at least the following:
 - Pipe to 2" 3/8" diameter
 - 2½" - 3" 1/2" diameter
 - 4- 5" 5/8" diameter
- D. Maximum hanger or stanchion support spacing for copper or steel pipe shall be as follows:

PIPE SIZE	MAX SPACING	PIPE SIZE	MAX SPACING	PIPE SIZE	MAX SPACING
3/4" or less	5 feet	2 ½"	9 feet	6"	14 feet
1"	6 feet	3"	10 feet	8"	16 feet
1¼"	7 feet	3 ½"	11 feet	10"	18 feet
1½"	8 feet	4"	12 feet	12"	19 feet
2"	8 feet	5"	13 feet	14"	25 feet

- E. Hangers or stanchion supports for copper tubing shall be copper plated where they contact the copper tubing.
- F. Hangers or stanchion supports for insulated pipe shall have insulation shields.
- G. All rigid piping attached to the building and serving equipment subject to vibration shall be hung or supported on vibration isolators for the first 20 feet.
- H. Vertical rises shall be supported from stands at the bottom of the rise or hangers at the top of the rise as shown on the drawings per the HVAC Sub-Contractor's option.

2.3 ANCHORS

- A. Anchor points as shown on the drawings or as required shall be located and constructed to permit the piping system to take up its expansion and contraction freely in opposite directions away from the anchored points.

2.4 VIBRATION ISOLATORS

- A. Double deflection neoprene mountings shall have a minimum static deflection of 0.35". All metal surfaces shall be neoprene covered to avoid corrosion and have friction pads both top and bottom, so they need not be bolted to the floor. Bolt holes shall be provided for these areas where bolting is required.
- B. Spring type isolators shall be free standing and laterally stable without any housing and complete with ½" neoprene acoustical friction pads between the baseboard and the support.

All mountings shall have leveling bolts that must be rigidly bolted to the equipment. Spring diameters shall be no less than 80% of the compressed height of the spring at rated load. Springs shall have a minimum additional travel to solid equal to 50% of the rated deflection. Submittals shall include spring diameters, deflections, compressed spring height and solid spring height.

- C. Vibration hangers for piping and mechanical equipment shall contain a steel spring and 0.3" deflection neoprene element in series. The neoprene element shall be molded with a rod isolation bussing that passes through the hanger box. Spring diameters and hanger box lower hole sizes shall be large enough to permit the hanger rod to swing through an arc of 30° before contacting the hole and short circuiting the spring. Springs shall have a minimum additional travel to solid equal to 50% of the rated deflection. Submittals shall include a scale drawing showing the 30° swing capability. For locations requiring precise elevation during installation the hanger shall be pre-compressed to the rated deflection and the released after completion of the installation.
- D. Vibration hangers for duct systems shall contain a steel spring located in a neoprene cup manufactured with a grommet to prevent short circuiting of the hanger rod. The cup shall contain a steel washer designed to properly distribute the load on the neoprene and prevent its extrusion. Spring diameters and hanger box lower hole sizes shall be large enough to permit the hanger rod to swing through an arc of 30° before contacting the hole and short circuiting the spring. Springs shall have a minimum additional travel to solid equal to 50% of the rated deflection. Submittals shall include a scale drawing showing the 30° swing capability.
- E. Horizontal thrust restraints shall be provided on equipment subject to excessive displacement. The horizontal thrust restraint shall consist of a spring element in series with a neoprene pad. The spring element shall be contained within a steel frame and designed so that it can be preset for thrust and adjusted to allow for a maximum of ¼" movement when the equipment starts or stops. The assembly shall be furnished with one rod and angle brackets for attachment to the equipment and the ductwork. Horizontal thrust restraints shall be attached at the centerline of the thrust and symmetrically on each side of the unit.

2.5 CONDENSATE PIPING

- A. Condensate piping shall be type-L copper with soldered joints or PVC schedule 40. All 90deg. changes in direction shall be made with 45deg. elbows and tee-wyes with cleanouts, not with straight tees.

2.6 REFRIGERANT PIPING

- A. All refrigeration system piping shall be as follows:

Construction	Hard brazed joints
Piping	Copper tubing type ACR, hard drawn, cleaned, dehydrated and capped for refrigeration service, ANSI B70.1 ASTM A-280
Fittings	Wrought copper, Brazed joint type, ANSI B16.22
Coupling	Same as above
Brazing Alloy	Easy Flo, Silfos, Phos Co., Minimum 1100 °F melting temperature, ASTM 280

- B. Soft drawn copper tubing may be used in sizes acceptable to the refrigeration equipment manufacturer.

2.7 PIPING INSULATION MATERIALS

- A. Insulation for pipe shall be glass fiber with a K factor of .24 at 100° F mean temperature with a factory applied kraft reinforced foil all service vapor barrier jacket with a factory applied double pressure sensitive adhesive sealing system.
- B. Insulation for concealed fittings and valves shall be glass fiber blanket with a K factor of .24 at 75° F mean temperature with a factory applied kraft reinforced foil all service vapor barrier jacket.
- C. Exposed fittings, valves and flanges shall be insulated with molded fitting covers or fabricated segments of pipe insulation.
- D. Insulation, jacket, covers and sealant shall have a flame spread rating of 25 or less and a smoke developed rating of 50 or less per UL 723.
- E. Insulation shall be Owens-Corning Fiberglass ASJ/SSL-II or approved equal.
- F. All refrigerant piping (suction and liquid lines) shall be insulated with flexible foamed plastic, minimum 5.0 lb. per cubic foot density, thermal conductivity not greater than 0.27 Btu-in/sq ft/°F/hour at mean temperature difference of 75°F.
- G. Multiple layers of refrigerant piping insulation shall be provided to achieve the overall required thickness.
- H. All outdoor exposed refrigerant piping shall be painted with two coats of protective finish to prevent degradation due to exposure to sunlight. Prior to applying the finish, the insulation shall be wiped clean with denatured alcohol. The finish shall not be tinted. All seams shall be located on the lower half of the pipe.
- I. Insulation thickness shall be as follows:

SYSTEM	PIPE SIZE	THICKNESS
Refrigerant Piping	All	1½”

2.8 VALVES

- A. All valves shall be first quality of an approved manufacturer, shall be installed with the proper clearances and shall be tight at the specified pressures.
- B. Valves shall be of minimum working pressure and materials as fittings specified for the service, however, in no case shall valves be designed for less than 125 PSI working pressure.
- C. Where a specific manufacturer, brand and/or figure number is specified, an equivalent figure from an approved manufacturer shall be acceptable.
- D. For shut off service the HVAC Contractor shall use ball valves with full open ID.
- E. For throttling or modulating service the HVAC Contractor shall use a butterfly valve or another type of valve if a specific valve is specified on the drawings.
- F. Butterfly Valves
 - 1. Butterfly valves shall be of the flangeless type and may be lug or wafer style if not specified on the drawings.
 - 2. Butterfly valves shall be rated 200 PSI bi-directional, differential pressure with a 200 PSI dead end service rating.
 - 3. Butterfly valves shall have bodies of shock resistant ductile iron and shall have extended necks for 2" of insulation.
 - 4. Butterfly valves shall have no exposed fasteners in the waterway to pin the disc to the stem.

5. Liners shall be molded in and supported by the valve body at the flange seals.
 6. Top and bottom stem bushings of dissimilar material are required with a positive retention mechanism
 7. Butterfly valves shall be NIBCO figure W/LD 2000.
 8. Butterfly valves larger than 4" shall be provided with gear operators.
- G. Check Valves
1. Check valves shall be bronze 2." and smaller; Cast iron or cast steel with bronze trim for 3" and larger.
 2. All check valves shall have removable caps and regrindable disc and seat ring.
 3. Bronze check valves shall be rated 125 PSI SWP, 200 PSI WOG as NIBCO figure T-413 or S-413.
 4. Iron Check valves shall be 125 PSI SWP, 200 PSI WOG as NIBCO figure F-918.
- H. Globe Valves
1. Globe valves shall be bronze 2½" and smaller; Iron with iron trim for 3" and larger as NIBCO figure T-211 or S-211.
 2. Bronze globe valves shall be rated 125 PSI SWP, 200 PSI WOG
 3. Iron globe valves shall be OS&Y 125 PSI SWP, 200 PSI WOG as NIBCO figure F-718-N.
 4. All globe valves shall be suitable for repacking under pressure.
- I. Ball Valves.
1. Ball valves shall be bronze 2½" and smaller equal to Apollo Ball Valves 70 series.
 2. Ball valves shall be rated for 200 PSI @ 250°F.
- J. Combination Isolation/Balancing Valves
1. Combination Isolation/Balancing Valves ½" to 4" shall be Flowset or approved equal.
 2. Valves shall be rated to 300 PSI.
 3. A Flowset Meter Kit shall be supplied to the owner before completion of installation.
 - a. Meter kit shall include a carrying case containing readout instrumentation, differential pressure meter, transparent direct reading flow faces, 10' hoses with pressure taps, dial indicating thermometer and a pressure gauge.
- K. Valve Handles and Operators.
1. Butterfly valves shall be provided with locking lever type hand operators notched to allow incremental positioning and with a positional lock to function as a memory stop. The lock shall be lockable via a padlock.
 2. Gate valves shall be provided with hand wheels.

2.9 PIPE LABELS

- A. All refrigerant piping shall be labeled with plastic adhesive labels. Labels shall indicate the piping system (refrigerant suction, refrigerant liquid, etc.), and shall indicate the direction of flow. Piping shall be labeled every 20 feet minimum on straight runs, within 2 feet of access panels and shall be labeled within five feet of changes of direction. Labels shall be applied to the insulation jacket.

2.10 DUCTLESS SPLIT SYSTEM AIR CONDITIONER

- A. The ductless split system heat pump shall be by Mitsubishi, Daikin, or LG. Capacity per schedule with accessories as noted.
- B. Unit shall provide cooling down to 0°F outdoor air temperature.
- C. Unit shall be run tested at the factory prior to shipment.
- D. Unit shall use refrigerant 410a.
- E. The unit shall be microprocessor controlled.

- F. Unit shall be controlled by a factory programmable hardwired controller, thermostat.
- G. The unit shall have a minimum efficiency of 14.0 SEER and 12.0 EER as required to comply with the NStar Advanced Buildings program. Unit shall be tested in accordance with ARI standards.
- H. Outdoor unit
 - 1. Units shall be completely factory assembled, piped, and wired.
 - 2. Casing shall be fabricated of galvanized steel, finished with an electrostatically applied coating.
 - 3. Cabinet shall have four slotted mounting holes.
 - 4. Fan shall be direct drive propeller type.
 - 5. Coil shall be non-ferrous construction with plate fins on copper tubing. Coil shall be protected with a guard.
 - 6. Refrigerant flow shall be controlled by linear expansion valves.
 - 7. Compressor shall be hermetic, inverter driven type, with variable capacity operation down to 50% of maximum.
 - 8. Outdoor unit shall be roof mount.
- I. Indoor Unit
 - 1. Indoor unit shall be wall mount.
 - 2. Fan shall be multispeed, with automatic fan speed control.

2.11 MOTORIZED DAMPER, ACTUATOR

- A. Provide damper motor-operators of rugged commercial/industrial construction and quiet in operation. When operated at rated voltage, each motor capable of delivering not less than twice the torque required by the valve of damper, and to withstand, without damage, continuous stalling. Motors designed to function properly with a 10% plus or minus change in line voltage feeding the equipment, maximum 120/1/60 HZ control system voltage.
 - 1. Motors of either the hydraulic type or of the geared typed. Motor drive pinions and high speed gears may be made of a unstable nonmetallic composition to ensure quiet operation. All other gears of steel or bronze. All gears accurately machine cut, with face widths or not less than 1/8-in. Shafts or hardened steel, running in bronze, hardened steel, nylon or other suitable sleeves or ball bearings. Lever arms attached to motor shafts with setscrews or other secure and adjustable means.
 - 1. Motors and gear trains totally enclosed in rustproof housing of pressed steel or acceptable metal with rigid conduit connections. Gear trains oil immersed.
 - 2. Motors provided with spring return so they will "fail safe" normally open position, as indicated or required to suit job conditions, in the event of power failure.

2.12 SCAFFOLDS AND STAGING

- A. General: Filed subcontractors shall obtain required permits for, and provide scaffolds, staging, and other similar raised platforms, required to access their Work as specified in Section 01 50 00 - Temporary Facilities and Controls and herein.
 - 1. Scaffolding and staging required for use by this Filed subcontractor pursuant to requirements of Section 01 50 00 - Temporary Facilities and Controls shall be furnished, erected, maintained in a safe condition, and dismantled when no longer required, by this Filed Subcontract requiring such scaffolding.
 - 2. Each Filed subcontractor is responsible to provide, maintain and remove at dismantling, all tarpaulins and similar protective measures necessary to cover scaffolding for

inclement weather conditions other than those required to be provided, maintained and removed by the General Contractor pursuant to MGL (Refer to Section 01 50 00 - Temporary Facilities and Controls and as additionally required for dust control).

- a. General Contractor is responsible to provide enclosures required for temporary heat from November 1 to March 31; refer to Section 01 50 00 - Temporary Facilities and Controls.
3. Furnishing portable ladders and mobile platforms of all required heights, which may be necessary to perform the work of this trade, are the responsibility of this Filed subcontractor.

2.13 HOISTING MACHINERY AND EQUIPMENT

- A. All hoisting equipment, rigging equipment, crane services and lift machinery required for the work by this Filed subcontractor shall be furnished, installed, operated and maintained in safe conditions by this Filed subcontractor, as referenced under Section 01 50 00 - Temporary Facilities and Controls.

2.15 SEQUENCE OF OPERATION

- A. Refer to HVAC floor plans and Piping Schematics located on the drawings for equipment designations and locations.
- B. Ductless System
 1. The variable refrigerant volume system shall operate on internal controls to modulate the compressors to provide heating or cooling as required.
 2. Indoor Units (FCUs)
 - a. The indoor units shall be controlled by space thermostats.
 1. The indoor units shall operate to maintain the space thermostat setpoint; 85degF
- C. Space Mounted Motorized Damper
 1. A reverse acting space thermostat to open the motorized damper whenever the space temperature exceeds 90 degF (adjustable) setpoint.

PART 3 – EXECUTION

3.1 WORKMANSHIP

- A. All work shall be coordinated with the work to be installed by other sections of these specifications.
- B. All work shall be executed in a workmanlike manner by workmen skilled in this type of work and shall present a neat appearance when completed.
- C. All duct supports, structural members, hangers, and other apparatus necessary to support firmly and substantially the various components of the systems shall be provided under this section.
- D. Nameplates, catalog numbers, and rating identifications shall be securely attached to equipment.
- E. The work shall be performed in a timely manner to cause no delay in the overall job progress. The HVAC Contractor shall cooperate with the other trades so that the work is installed in the most beneficial sequence for expeditious project completion.

3.2 CLEANING OF SYSTEMS AND PREMISES

- A. Before the systems are tested and balanced, all ducts serving the area under construction shall be cleaned so that no dirt, dust or other foreign matter will be carried through or deposited in the systems or the space served by the duct systems.
- B. At all times keep the premises clear of rubbish.
- C. Upon completion of the work in an area, remove all debris and rubbish resulting from the execution of this contract, and dispose of same. At any time should the General Contractor be dissatisfied with the performance of the HVAC Sub-Contractor's clean up responsibilities, he may elect after notifying the HVAC Contractor to undertake this operation and to back charge the HVAC Contractor accordingly.

3.3 HVAC SUB-CONTRACTOR'S WARRANTY

- A. The HVAC Contractor shall provide a one-year warranty against failure of the installed materials for any reason. The warranty shall cover the full costs of parts and labor required to remedy the defect, including, if necessary, replacement at the site, and shall run from the date of the Architect's acceptance of the system. The warranty shall also include provision for field inspection at no charge to the Owner, to verify failure, establish probable cause, and determine corrective action required. The HVAC Sub- Contractor shall furnish all service during the first year of operation. Any material, that in the opinion of the architect, requires excessive service during the first year of operation shall be considered defective and will be replaced by the HVAC Contractor at no charge to the Owner.
- B. The HVAC Contractor shall provide a listing of all manufacturers' commercial warranties provided by those manufacturers on their Materials. The list of these warranties must include the time period of each warranty. One copy each of those warranties shall be submitted with the listing.
- C. The HVAC Contractor shall be responsible for warranting the testing, adjusting, and balancing work for a period of one year after final date of completion. The HVAC Sub- Contractor shall also be responsible for all damage to existing systems as a result of the work performed. All damaged systems shall be repaired or replaced at the option of the Owner at no additional cost to the Owner. All such repair or replacement work shall be done immediately upon finding.
- D. Warranty response to any malfunction shall be on a next day, normal working hour basis.
- E. Work under warranty shall be performed by fully qualified workmen and/or technicians.
- F. All guarantees and warranties required to be provided for the work in this Section shall begin their term on the date of final written acceptance of the entire system by the Owner.

3.4 SUBMITTALS

- A. The capacity of each HVAC unit shall be substantiated by computer generated selection data or other detailed selection data provided by the manufacturer, for the specific conditions defined on the drawings.
 - 1. The selection data shall clearly show the entering and leaving fluid conditions, the fluid flow volume and the fluid pressure drop through the unit, the ambient conditions, the heat rejection media entering and leaving conditions, the available external static pressure, the unit total static pressure, the airside pressure drops, the refrigerant and the saturated suction temperature, the required RPM of the unit, the motor horsepower, the motor voltage, the motor efficiency, the motor RPM, the motor type, the fuel efficiency, the fuel consumption rate, the maximum capacity, the part load performance data of the

anticipated operation of the system, and the radiated sound ratings at design conditions as may be appropriate for any specific piece of equipment.

- B. HVAC Contractor shall submit shop drawings indicating the method of supporting all units.

3.5 PERFORMANCE

- A. The drawings are diagrammatic, and the final arrangement of the work shall suit the existing and field conditions, the characteristics of the materials used and the instructions of the Engineer and/or the Architect.
- B. The HVAC Contractor shall be responsible for repair of damaged or disturbed existing work or the work of other trades caused by his work, testing of his work or repair to his work.
- C. All devices shall be installed in accordance with the manufacturer's recommendations, the Engineer's instructions and so as to provide all required access for cleaning, operation, repair and maintenance.

3.6 START UP

- A. All equipment, systems, controls, and units shall be started as part of a heating, ventilating and air conditioning system, in accordance with all manufacturers' recommendations.
- B. Copies of startup sheets shall be included in Operations & Maintenance Manuals.

3.7 VIBRATION ISOLATION

- A. All equipment, piping, etc. shall be mounted on or suspended from approved foundations and supports, as specified herein or as shown on the drawings.
- B. Mounting sizes shall be determined by the mounting manufacturer and the mountings shall be installed in accordance with the manufacturer's recommendations. The HVAC Contractor shall be responsible for the adequacy of the mountings to provide the minimum isolation efficiency required by these specifications or as specifically noted on the drawings.
- C. Suspended centrifugal fans shall be installed on vibration isolation hangers.

3.8 PIPE HANGERS, SUPPORTS, ANCHORS AND GUIDES

- A. The HVAC Contractor shall submit shop drawings indicating the method of supporting all piping furnished by this trade.
- B. The Structural Engineer or Architect must approve the method of hanging before work is commenced.
- C. Shop drawings of anchors shall be submitted before work is commenced.
- D. Shop drawings of guides shall be submitted before work is commenced.
- E. Sleeves of the specified type shall be installed wherever pipelines penetrate walls, roofs, floors or partitions.
- F. Sleeves shall be installed in accordance with the requirements of NFPA and the Massachusetts State Building Code.

3.9 PIPING SYSTEM INSTALLATION AND ASSEMBLY

- A. All piping shall be installed at right angles to building surfaces, supports and structures.
- B. Pipe welding shall be performed by a certified welder with oxy-acetylene or electric arc in accordance with the latest revision of the applicable code, ASME Boiler Construction Code, ASA Code for Pressure Piping, or state and/or local codes which may supersede codes mentioned.

- C. Threaded joints shall be made with Teflon tape only applied to male threads and care being taken to insure that the tape does not reach the interior of the pipe. All burrs and/or cuttings shall be removed and the pipe shall be reamed or filed out to not less than the original diameter. Piping shall be kept free from scale and dirt.
- D. All pipes shall be straight, true and round without obstructions and with sharp, full cut threads or with ends beveled for welding.
- E. Provide drain valves with hose connections at all low points and at the bottoms of all risers to allow for complete drainage of the system.
- F. All openings shall be capped or plugged during construction to prevent dirt and/or rubbish from entering the piping.
- G. Unions or flanged connections shall be placed wherever necessary to permit easy dismantling of the piping and equipment.
- H. Where possible, piping shall be grouped together and supported in a neat and orderly manner.
- I. Insulating bushings or dielectric nipples shall be provided between steel piping and copper piping on equipment.
- J. Air vents shall be provided where indicated on the drawings and at all high points in the water systems.
- K. Pipe must be supported before and after expansion compensation devices.
- L. Mount all pressure gauges to be read from the floor.
- M. Install pressure gauges on the suction and discharge of pumps.
- N. Provide two spare pressure gauges of each pressure range and type.
- O. Mount all thermometers to be read from the floor.
- P. Install thermometers on the supply and return of the chill water system.
- Q. Provide two spare thermometers of each range and type.

3.10 SEISMIC RESTRAINTS

- A. Seismic restraints shall be provided in accordance with 780 CMR 1612.0 EARTHQUAKE LOADS. This specification does not require any additional seismic restraints beyond those of 780 CMR.
- B. Seismic restraints are required for:
 - 1. The energy recovery ventilator.
 - 2. Make Up Air Unit
- C. The HVAC Contractor shall be responsible for the design of the seismic restraints. The HVAC Contractor shall have the seismic restraint shop drawings stamped by a registered structural engineer.

3.11 FINAL ACCEPTANCE

- A. The HVAC Contractor shall leave all system components in proper working order, such as belt guards in place, access doors closed, doors to electrical switch boxes closed, thermostats restored to specified setting. All recorded data shall represent a true, actually measured, or observed condition. Any abnormal conditions in the mechanical systems or conditions that prevent total system balance shall be reported to the Architect immediately upon finding. The HVAC Contractor shall permanently mark all dampers and other adjustment devices in a manner that will allow the settings to be restored.
- B. The HVAC Contractor shall verify control system operation as specified and shall report all system problems and malfunctions. The verification and checkout of the control system shall be accomplished during the heating and cooling cycles of operation for an appropriate period of time to assure control response and overall stability.

- C. The HVAC Contractor shall verify that all air systems are in compliance with all standards, such as ASHRAE minimum outside air, and all other applicable codes and requirements.
- D. All filters shall be replaced by the HVAC Contractor before commencing.
- E. The HVAC Contractor shall make any necessary changes in fan speed and shall realign all belts when necessary.

3.12 START UP AND TESTING OF COOLING AND HEATING EQUIPMENT

- A. All cooling equipment shall be tested to verify that the equipment operates mechanically and electrically as specified.
- B. All heating equipment shall be tested to verify that the equipment operates mechanically and electrically as specified.
- C. The HVAC Contractor shall verify that all operating and safety controls are correctly adjusted.
- D. The HVAC Contractor shall verify that the cooling equipment controls are operating properly.
- E. Tests shall be made to verify that the capacity control is fully modulating according to the required load. Tests shall be made at minimum load, 50% load, 100% load and various other loads throughout the modulating cycle.
- F. The HVAC Contractor shall record the following non-test data:
 - 1. Equipment designation number.
 - 2. Equipment manufacturer.
 - 3. Model number.
 - 4. Serial number.
 - 5. Rated input.
 - 6. Rated output.
 - 7. All other pertinent data.
- G. The HVAC Contractor shall perform and record the following to meet minimum requirements:
 - 1. Verify proper system operation.
 - 2. Verify that the cooling system controls are operating according to design specifications.
 - 3. All other measurements required for complete system testing.
- H. The HVAC Contractor shall calculate the system coefficient of performance as measured. All calculations made using the measured data shall be included in the report. In general, the HVAC Contractor shall complete all tests necessary for complete cooling and heating systems analysis.

- END OF SECTION -