The Commonwealth of Massachusetts

University of Massachusetts Amherst

Contract For

Webster ADA Rooms

Special Attention to Bidders

⇒ Bids must be made on the enclosed form.
⇒ Fill in all applicable blank spaces on all pages of this form.
⇒ Return complete form intact.
Bid Express

All construction projects at the University of Massachusetts Amherst are available for bidding on the Bid Express website at: bidexpress.com. Submitting bids via the Bid Express website will become mandatory for any bid advertised on or after July 1, 2015.

Electronic bids may be submitted at the bidexpress.com website. All electronic bidders must first register on bidexpress.com and create an Info Tech Digital ID. Registration and Digital ID creation are free. It can take up to five business days to process your Digital ID and it is highly recommended that a Digital ID be enabled at least 48 hours in advance of submitting an electronic bid. Please plan accordingly. A fee of $25 will be incurred for bidding electronically on a pay-per solicitation basis; alternatively, you may subscribe for $50 per month to have access to all solicitations and email notifications.

Electronic Bid Bonds: To utilize the Electronic Bid Bond option, please contact either Surety 2000 at 800-660-3263 or help@surety2000.com or InSure Vision Technologies at 818-783-3460 or info@insurevision.com

For additional guidance, please contact the Bid Express team at toll free (888) 352-2439 (select option 1) or at support@bidexpress.com

Traditional Paper Bid Bonds or Certified Check: If you choose not to utilize the Electronic Bond Option you may upload a scanned copy of your Bond or Certified Check when submitting your bid, the scanned copies must be followed up with a hard copy delivered to the Procurement Office, Mass Venture Center, 100 Venture Way, Room 334, Hadley, MA, 01034 within 72 hours after the bid opening. Failure to submit a hard copy of your bid bond or certified check within the specified time period will result in the rejection of your bid.

Note that failure to submit a hard copy of your bid bond or certified check more than two times in a twelve month period will result in a twelve month ban on submitting bids to the University.

During the introductory period only one copy of your bid should be submitted either through Bid Express or a hard copy delivered to Procurement; in the event that a company submits a bid both on Bid Express and a hard copy to Procurement then the Bid Express bid will be considered the official bid and the hard copy will not be considered
Attention Contractors
(Effective July 1, 2013)

UMASS Amherst is a Tobacco-Free campus

Starting July 1, 2013, the University of Massachusetts will prohibit tobacco use everywhere on campus, inside buildings and throughout the grounds. The policy applies to everyone and anyone on campus, inside buildings and throughout the grounds. This policy applies to everyone and anyone, including students, staff, faculty, contractors and visitors. For the purpose of this policy, “tobacco” refers to any and all tobacco products, whether inhaled or ingested, as well as electronic cigarettes.

1. The use of tobacco will be prohibited in all buildings and vehicles owned or leased by UMASS Amherst, regardless of location.

2. The use of tobacco will also be prohibited on all University grounds and in any outdoor area controlled by the University. This includes all University land, parking lots and parking ramps, athletic fields, tennis courts and recreational areas.

3. The use of tobacco will be prohibited inside any vehicle located on University grounds.

4. When any person enters the grounds of the University, any smoking material shall be extinguished and disposed of in an appropriate receptacle at the perimeter of the grounds of the University.
Attention Contractors
(Effective July 1st, 2012)

The University of Massachusetts Amherst will be posting all addenda to the procurement website:

http://www.umass.edu/procurement/constructionprojects.htm

Effective July 1st 2012 the university will not be sending out hard copies of the addenda. Notification will be sent via e-mail to all plan holders of record once an addendum has been posted to the website.

***It is the sole responsibility of the Bidder to ascertain the existence of any addenda issued by the Awarding Authority, whether or not the same are mailed to, or received by, Bidder. Copies of addenda will be made available for inspection at the locations listed in the Advertisement where the Contract Documents are on file.***
ATTENTION CONTRACTORS & SUBCONTRACTORS
(EFFECTIVE AUGUST 1, 2006)

ALL CONTRACTORS AND SUBCONTRACTORS PLEASE NOTE THE NEW UNIVERSITY OF MASSACHUSETTS AMHERST CONTRACT PROVISIONS REQUIRING CONFIRMATION OF HIRING PRACTICES IN ACCORDANCE WITH FEDERAL DEPARTMENT OF HOMELAND SECURITY REQUIREMENTS. THIS INCLUDES BUT IS NOT LIMITED TO THE FAITHFUL COMPLETION OF THE FORM I-9 PROCESS FOR ALL PERSONS TO BE EMPLOYED IN THE WORK OF THE PROJECT WHO ARE REQUIRED TO BE LISTED ON THE CERTIFIED PAYROLL REPORTS. THE CONTRACTOR AND ALL SUBCONTRACTORS MUST: 1) EXECUTE ALONG WITH ITS CONTRACT/SUBCONTRACT AND CERTIFICATE OF COMPLIANCE WITH EMPLOYMENT ELIGIBILITY VERIFICATION REQUIREMENTS, AND 2) MUST CERTIFY IN EACH CERTIFIED PAYROLL REPORT SUBMITTED TO UNIVERSITY OF MASSACHUSETTS AMHERST, THAT THE FORM I-9 PROCESS WAS FAITHFULLY COMPLETED FOR ALL EMPLOYEES LISTED ON EACH CERTIFIED PAYROLL REPORT.SEE NOTICE TO BIDDERS AND GENERAL CONDITIONS

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ATTENTION CONTRACTORS & SUB-CONTRACTORS
(EFFECTIVE JULY 1, 2006)

M.G.L. c. 30, § 39S (a)(2) REQUIRES 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 ALL CONTRACTORS, SUBCONTRACTORS AND OTHERS WORKING AT THE SITE SHALL FURNISH DOCUMENTATION OF SUCCESSFUL COMPLETION OF SAID COURSE WITH THE FIRST CERTIFIED PAYROLL REPORT FOR EACH EMPLOYEE.
ATTENTION FILED SUB-BIDDERS
(EFFECTIVE JANUARY 1, 2006)

A VALID SUB-BIDDER CERTIFICATE

OF ELIGIBILITY ISSUED BY THE DIVISION

OF CAPITAL ASSET MANAGEMENT (DCAM)

IN THE CATEGORY OF WORK OF YOUR

SUB-BID AND A COMPLETED SUB-BIDDER

UPDATE STATEMENT MUST ACCOMPANY

EACH AND EVERY FILED SUB-BID SUBMITTED.

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UNIVERSITY OF MASSACHUSETTS AMHERST

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Daily Time and Material Report for Change Orders
Request and Agreement for a Change in the Plans,
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BID PACKAGE

PART I

INSTRUCTIONS TO BIDDERS

Instructions to Bidders

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Sample Certificate of Eligibility – Prime Bidder

Sample Sub-bidder Certificate of Eligibility

Update Statement – Prime Bidder

Sub-bidder Update Statement

Form for General Bid

Form for Sub-Bid
UNIVERSITY OF MASSACHUSETTS AMHERST

INSTRUCTIONS TO BIDDERS

Awarding Authority:
University of Massachusetts Amherst
Procurement Office, Mass Venture Center
100 Venture Way, Room 334
Hadley, MA 01035
Telephone: 413/545-0361

UMA No. 17-22
Project No. 16-1010221

Title: Webster ADA Rooms

Category of Work: General

Project Description and Scope:
General Construction & Plumbing
Note: Completion date based upon executed contract date is: August 1, 2017

Pre-Bid Meeting Information (if any):
March 23, 2017 at 1:00 p.m. at Webster Hall, 1st Floor Main Lobby Entrance
141 Orchard Hill Drive, Amherst, MA

Deadline for filing filed Sub-bids is 12:00 noon on April 7, 2017.
Deadline for filing General bids is 2:00 p.m. on April 14, 2017.
The list of filed subtrades for this project is found at Page 10 of these Instructions to Bidders.

The minimum wage rate requirements for this Contract are located in Attachment A to these Instructions to Bidders.

Pursuant to M.G.L. c. 30, §39S(a) (2) all employees to be employed on the worksite must have successfully completed a course in construction safety and health approved by OSHA and of at least 10 hours in duration.

The Contractor must provide written verification as detailed in the General Conditions at Article X, of compliance with Federal Department of Homeland Security Requirements, including but not limited to the Employment Eligibility Verification (Form I-9) Process.

Bid forms for this Contract are located in Attachment B to these Instructions to Bidders.

The combined participation goal for Minority/Women Business Enterprise for this Contract is __5.5__%.

The MBE/WBE participation goal must include a reasonable representation of both MBE and WBE firms that meet or exceeds the combined goal. MBE/WBE participation plans that consist solely of either a MBE or WBE representing 100% of the overall combined goals will not be considered reasonable or responsive. Firms submitting MBE/WBE participation plans which do not provide reasonable participation by both MBE/WBE firms shall be provided an opportunity to revise and resubmit their plans within the time frame set by the awarding authority; however, no price adjustments shall be permitted as a result of the revised plan. Firms failing to submit an MBE/WBE participation plan deemed reasonable, and accepted by the awarding authority, shall not be awarded the contract.

The time for completion of the Work is specified in Article 2 of the Owner - Contractor Agreement. Liquidated damages for failure to complete work on time are as stated in Article 8 of the Owner - Contractor Agreement.

Bidding Documents may be examined at the University of Massachusetts Amherst, Procurement Office, Mass Venture Center, 100 Venture Way, Room 334, Hadley, MA 01035, and copies may be obtained by depositing a company, treasurer's, cashier's, or bank check, in the sum of $50.00 per set payable to the University of Massachusetts. A refund will be made to those returning the documents in satisfactory condition within 10 working days after the general bid opening. Otherwise this deposit shall become the property of the University.

CLOSING: Should the University of Massachusetts Amherst close the campus for any reason on the scheduled day of the bid opening, the bid opening date will be extended to the next normal business day for the University at the same time/same place. It is the bidder's responsibility to verify by going to the University closing website at: www.umass.edu/closing or by public announcements.
The filed sub-trades for this project are as follows:

<table>
<thead>
<tr>
<th>Section #</th>
<th>Filed Sub-trade</th>
<th>All Bid Deposits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>5% of Bid Amount</td>
</tr>
</tbody>
</table>

(Sub-bid forms pages 60-64)

220001  Plumbing

As used herein, capitalized terms shall have the meaning assigned to them in the General Conditions of the Contract and the Owner - Contractor Agreement unless the context clearly indicates otherwise.
The filed sub-trades for this project are as follows:

<table>
<thead>
<tr>
<th>Section #</th>
<th>Filed Sub-trade</th>
<th>All Bid Deposits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>5% of Bid Amount</td>
</tr>
</tbody>
</table>

(Sub-bid forms pages 59-62)

As used herein, capitalized terms shall have the meaning assigned to them in the General Conditions of the Contract and the Owner - Contractor Agreement unless the context clearly indicates otherwise.
SECTION I - BIDDER’S REPRESENTATION

1.1 Each general bidder or sub-bidder (hereinafter sometimes referred to as "Bidder") by making a bid or sub-bid (hereinafter sometimes referred to as "Bid") represents and warrants that Bidder has visited the site and examined the Contract Documents, that Bidder is familiar with the local conditions under which the Work is to be performed, that Bidder has correlated personal observations with the requirements of the Contract Documents, and that where the Contract Documents require, in any part of the Work, a given result to be produced, the Contract Documents are adequate and that Bidder will produce the required result within the Bid price and that the Bid is made in accordance therewith.

1.2 Failure to so examine the Contract Documents and the Site will not relieve any Bidder from any obligation under the Bid as submitted. Neither the University of Massachusetts nor the Designer will be responsible for errors, omissions and/or charges for extra work arising from Bidder's failure to familiarize itself with the Contract Documents or existing conditions.

SECTION 2 -- GENERAL BIDDERS - CERTIFICATE OF ELIGIBILITY AND UPDATE STATEMENT

2.1 Every general Bidder must submit the following with its general Bid:
   --A current Certificate of Eligibility issued by the Division of Capital Asset Management and Maintenance ("DCAM"), DCAM Form CQ 7, showing that the Bidder has been approved to bid on projects of the category of work required and that the Bidder has a single project limit in an amount no lower than the amount of its Bid including all "add" alternates.
   --A fully completed current Contractor Update Statement, DCAM Form CQ3.

2.2 It is the Bidder's responsibility to obtain the necessary forms from DCAM and to submit its Application for Certificate of Eligibility so as to allow sufficient time for DCAM's evaluation of the application and issuance of a Certificate of Eligibility prior to the deadline for bidding.

2.3 The Contractor Update Statement is not a public record as defined in M.G.L. c. 4, § 7 and will not be open to public inspection.
SECTION 3 – FILED SUB-BIDDERS - CERTIFICATE OF ELIGIBILITY AND UPDATE STATEMENT

3.1 Every Filed Sub-Bidder must submit the following with each filed sub-bid:
--A current Certificate of Eligibility issued by the Division of Capital Asset Management and Maintenance ("DCAM") for that sub-bid trade, showing that the Sub-Bidder has been approved to bid on projects of the category of work required.
--A fully completed current Sub-Bidder Update Statement.

3.2 It is the Sub-Bidder’s responsibility to obtain the necessary forms from DCAM and to submit its Application for Sub-bidder Certificate of Eligibility so as to allow sufficient time for DCAM's evaluation of the application and issuance of a Sub-Bidder Certificate of Eligibility prior to the deadline for bidding.

3.3 The Sub-Bidder Update Statement is not a public record as defined in M.G.L. c. 4, §7 and will not be open to public inspection.

SECTION 4 -- REQUESTS FOR INTERPRETATION

4.1 Any questions by prospective Bidders concerning interpretation of the Contract Documents must be submitted in writing to the Awarding Authority and should be in its possession at least five (5) calendar days, excluding weekend and holidays, unless otherwise specified, before the date set for the receipt of general Bids, or, if a question pertains to Item 2 filed sub-Bid work, at least five (5) calendar days, excluding weekend and holidays, unless otherwise specified, before the date set for the receipt of filed sub-Bids. The Awarding Authority will post any addenda or written interpretations that it deems necessary on the Procurement website: [http://www.umass.edu/procurement/constructionprojects.htm](http://www.umass.edu/procurement/constructionprojects.htm). Bidders may not rely upon oral communications or interpretations from the Awarding Authority or the Designer and the Awarding Authority shall not be bound by them.

4.2 It is the sole responsibility of the Bidder to ascertain the existence of any addenda issued by the Awarding Authority, as posted on the website. Copies of addenda will be made available for inspection at the locations listed in the Advertisement where the Contract Documents are on file.

4.3 Wherever in the Contract Documents reference is made to Massachusetts General Laws, it shall be construed to include all amendments thereto effective as of the date of the issuance of the invitation to bid on the proposed work.
SECTION 5 -- PREPARATION OF BIDS; ALTERNATES

5.1 General Bids shall be submitted on the Form for General Bid included in Attachment B to these Instructions to Bidders. Filed sub-Bids shall be submitted on the Form for Sub-Bid included in Attachment B to these Instructions to Bidders.

5.2 All entries on the Bid form shall be typewritten or in ink.

5.3 Where so indicated on the Bid form, sums shall be expressed in both words and numerals. Where there is a discrepancy between the Bid sum expressed in words and the Bid sum expressed in figures, the Bid sum expressed in words shall control unless the intention of the Bidder clearly is otherwise as determined by the Awarding Authority in its sole discretion.

5.4 Each general Bidder shall acknowledge all required alternates in Section C on the Form for General Bid by entering the dollar amount of addition or subtraction necessitated by the alternate. General Bidders shall enter on the Form for General Bid a single amount for each alternate that shall consist of the sub-Bidders' amounts and the amount for work performed by the general Bidder.

5.5 If an alternate includes work within the Bidder's scope of work and does not involve a change in the cost of the Bid, the Bidder shall so indicate by writing "No Change" or "N/C" or "0" in the space provided for that alternate. Sub-Bidders shall enter on the Form for Sub-Bid the amount of addition or subtraction necessitated only for those alternates expressly identified in the Bid Documents as part of the sub-Bidder's category of work. If the alternate is not identified in the Bid Documents as affecting the sub-Bidder's category of work then the sub-Bidder shall so indicate by writing "N/A" and only "N/A" or leaving the alternate blank.

5.6 The lowest Bidder will be determined on the basis of the sum of the base Bid and the accepted alternates.

5.7 If the space for indicating a requirement for payment and performance bonds for filed subcontractors is left blank by the general Bidder on the Form for General Bid, the Awarding Authority shall interpret this as a "No."

5.8 Costs for subcontractors' bond premiums shall be paid for by the general Contractor in accordance with M.G.L. c. 149, § 44F unless the project is a project in which contractor and subcontractor prequalification are required pursuant to M.G.L. 149, §§ 44D1/2 or 44D3/4.
5.9 If the general Bidders are instructed to carry an amount for a given sub-trade listed under Item 2, general Bidders shall list the sub-trade and the amount provided by the Awarding Authority. The line under "bonds required" on the Form for General Bid should be left blank or marked "N/A" in order for subsection 5.10 to apply.

5.10 Upon solicitation of a subcontractor to perform the work required with respect to a sub-trade referenced in subsection 5.9, the general Bidder's Contract Price shall be adjusted by the following: a) the difference between the subcontract amount and the amount carried in the general Bid; b) the total cost of the subcontractor's bonds, if the general Bidder requires such bonds after the solicitation is completed and if the general Bidder complied with 5.9 above; c) the documented increased costs for the general Bidder's bonds, if any, attributable to the incremental difference between the amount carried for the given sub-trade and the actual subcontract amount.

5.11 Overhead and profit for supervision of the sub-trade mentioned in subsections 5.9 and 5.10 above shall be included by all general Bidders in Item 1 of the subdivision of the Contract Price. No additional overhead or profit will be paid on the incremental difference between the amount carried for the sub-trade and the subcontract amount as stated in M.G.L. c. 149, § 44F(4)(a)(2).

5.12 Sub-Bidders should not list Paragraph E sub-subcontractors unless requested to do so by the Awarding Authority.

5.13 Each general Bid and each Bid of a filed subcontractor must be accompanied by a bid deposit in the form of a bid bond; a check certified by, or a treasurer's or cashier's check issued by, a responsible bank or trust company, payable to the University of Massachusetts Amherst. Any bid bond shall be (a) in a form satisfactory to the Awarding Authority, (b) with a surety company qualified to do business in the Commonwealth and (c) conditioned upon the faithful performance by the principal of the agreements contained in the Bid.

5.14 The amount of such bid deposit shall be 5% five per cent of the value of the Bid including alternates.
SECTION 6 - SUBMISSION OF BIDS

6.1 Each sub-Bid, including the bid deposit, Sub-Bidder Certificate of Eligibility and properly completed Sub-Bidder Update Statement shall be enclosed in a sealed envelope with the following plainly marked on the outside:

Filed Sub-Bid for:

UMA No. ________________________
Project No. ________________________
Title: ____________________________
Sub-Bid Section No. _____________
Trade: ____________________________
Sub-Bidders name, business address, and telephone number: ________________________________

6.2 Each general Bid, including the bid deposit, DCAM Certificate of Eligibility (CQ7), and properly completed Update Statement (CQ3), shall be enclosed in a sealed envelope with the following plainly marked on the outside:

General Bid for:
UMA No. ________________________
Project No. ________________________
Title: ____________________________
General Bidders name, business address, and telephone number.

6.3 All Bids must be received by the Procurement Department at the address specified on page 8 of these Instructions to Bidders no later than the applicable date and time specified on page 8 of these Instructions to Bidders. Any Bid not received by the applicable deadline will not be accepted.

6.4 Bidding results will not be given out over the telephone prior to 1:00 PM of the day following the Bid opening.
SECTION 7 - WITHDRAWAL OF BIDS; REJECTION OF BIDS

7.1 Any Bid may be withdrawn prior to the specified deadline for the receipt of Bids provided that the withdrawal shall be made by a written request signed by a person having the authority to bind the Bidder. The written request must be hand delivered or otherwise delivered to the University of Massachusetts Amherst, Attn: Director of Procurement, Procurement Office, Mass Venture Center, 100 Venture Way, Room 334, Hadley, MA 01035 and must be received on or before the date and time appointed as the deadline for the receipt of Bids.

7.2 A Bidder may withdraw its Bid without penalty at any time up to the time of Award as defined below in subsection 9.1 only upon demonstrating to the satisfaction of the Awarding Authority that a death or disability has occurred or a bona fide clerical or mechanical error of a substantial nature was made during the preparation of the bid. Failure to demonstrate conclusively that a bona fide clerical or mechanical error of a substantial nature was made may result in forfeiture of the Bid deposit.

7.3 The Awarding Authority reserves the right to waive any informality in or to reject any and all Bids if it is in the public interest to do so. Without limiting the foregoing, the Awarding Authority reserves the right to reject unit prices which it deems unduly high or unduly low as unbalanced.

SECTION 8 - MBE AND WBE PARTICIPATION

8.1 The apparent low Bidder's compliance with the requirements of this Section 8 is a prerequisite for receiving the Award of the Contract.

8.2 The MBE and WBE participation goals for this Contract are as set forth on the first page of these Instructions to Bidders. The Awarding Authority reserves the right to reduce or waive the MBE or WBE participation goals established for this Contract upon written request made by a general Bidder within the time frame set forth in Section 8.3. Such written request must demonstrate to the satisfaction of the Awarding Authority that it is not feasible for a non-MBE or non-WBE general Bidder to meet the goals established for this Contract based upon any or all of the following: (i) actual M/WBE availability, (ii) the geographic location of the project to the extent related to M/WBE availability, (iii) the scope of the work, (iv) the percentage of work available for subcontracting to M/WBEs and/or (v) other relevant factors, including a documented inability by the prospective Bidder to obtain commitments from M/WBE subcontractors sufficient to meet the M/WBE goals after having made a diligent, good faith effort to do so. All of the foregoing documentation shall accompany the Bidder’s request for a reduction or waiver of the M/WBE participation goals. Such documentation shall include, at a minimum, the following:
-- A list of all items of work under the Contract that the Bidder made available for subcontracting to M/WBEs. The Bidder shall identify all items of work, other than work to be performed by filed sub-Bidders, that the Bidder did not make so available and shall state the reasons for not making such work available for subcontracting to M/WBEs. The Bidder shall also demonstrate that, where commercially reasonable, subcontracts were divided into units capable of being performed by M/WBEs.

-- Evidence that the Bidder sent written notices soliciting Bids or proposals to perform the items of work made available by the Bidder for subcontracting to M/WBEs to all M/WBEs qualified to perform such work. The Bidder shall identify (i) each M/WBE solicited, and (ii) each M/WBE listed in the SOMWBA directory under the applicable trade category that was not solicited and reasons therefor. The Bidder shall also state the dates that notices were mailed and provide a copy of the written notice(s) sent.

-- Evidence that the Bidder made reasonable efforts to follow up the written notices sent to M/WBEs with telephone calls or personal visits in order to determine with certainty whether the M/WBEs were interested in performing the work. Phone logs or other documentation must be submitted.

-- A statement of the response received from each M/WBE solicited, including the reason for rejecting any M/WBE who submitted a bid or proposal.
-- Evidence of efforts made to assist M/WBEs that needed assistance in obtaining bonding or insurance, or lines of credit with suppliers if the inability of M/WBEs to obtain bonding, insurance, or lines of credit is the reason given for the Bidder’s inability to meet the M/WBE goals.

The Bidder may also submit any other information supporting its request for a waiver or reduction in the M/WBE participation goals, including without limitation evidence that the Bidder placed advertisements in appropriate media and trade association publications announcing the Bidder’s interest in obtaining bids or proposals from M/WBEs, and/or sent written notification to M/WBE economic development assistance agencies, trade groups and other organizations notifying them of the Contract and the work to be subcontracted by the Bidder to M/WBEs. The Bidder shall also submit any other information reasonably requested by the Awarding Authority to show that the Bidder has taken all actions that could reasonably be expected to achieve the M/WBE participation goals.

8.3 If filed sub-Bids are solicited for this Contract, requests from prospective general Bidders to reduce or waive the M/WBE participation goals for this Contract must be received by the Awarding Authority no later than four (4) working days after the list of filed sub-Bidders is mailed by the Awarding Authority to persons who have taken out plans for the Contract.
there are no filed sub-Bids solicited for this Contract, requests to reduce or waive the W/MBE participation goals for this Contract must be received by the Awarding Authority no later than fourteen (14) calendar days before the date set for the receipt of general Bids. **THE AWARDING AUTHORITY WILL NOT CONSIDER ANY REQUEST TO REDUCE OR WAIVE THE M/WBE PARTICIPATION GOALS FOR THIS CONTRACT THAT IS RECEIVED AFTER THESE DEADLINES.** Any reduction or waiver of the M/WBE participation goals for this Contract will be made by written addendum mailed to all persons who have taken out plans for the project.

8.4 No later than five (5) working days after the opening of general Bids, the apparent low Bidder shall submit the following documents to the Awarding Authority's Compliance Office: (i) a completed Schedule for Participation by Minority/Women Business Enterprises ("Schedule for Participation") in the form provided by the Awarding Authority showing M/ WBE participation in amounts equal to or exceeding the M/WBE participation goals for this Contract, (ii) a completed Letter of Intent in the form provided by the Awarding Authority for each M/WBE listed in the Schedule for Participation, and (iii) a current SOMWBA certification letter for each M/WBE listed in the Schedule of M/WBE Participation showing that the M/WBE is certified in the area of work for which it is listed on the Letter of Intent.

8.5 Each Letter of Intent shall identify and describe the work to be performed by the named M/WBE (the “M/WBE Work”) with enough specificity to permit the Awarding Authority to identify the particular items of contract work that the M/WBE will perform for M/WBE participation credit. The Awarding Authority reserves the right to reject any Letter of Intent if the price to be paid for the M/WBE Work does not bear a reasonable relationship to the value of such work under the Contract as determined by the Awarding Authority.

8.6 Within five (5) working days after receipt of the Schedule For M/WBE Participation, Letters of Intent, and SOMWBA certification letters, the Awarding Authority shall review and either approve or disapprove the apparent low Bidder’s submissions. If the apparent low Bidder has not submitted an appropriate Schedule For M/WBE Participation and appropriate Letters of Intent and SOMWBA certification letters establishing that the M/WBE participation goal for the project will be met, the apparent low Bidder will be considered ineligible for Award of the Contract and the Awarding Authority will Award the Contract to the second lowest Bidder, subject to said Bidder’s compliance with these conditions.

8.7 The Bidder’s attention is called to Article XIII of the General Conditions of the Contract which requires the Contractor to submit, within 30 days of the Contract Date, signed subcontracts with all subcontractors or a purchase order or invoice from each material supplier and/or manufacturer listed on the Schedule For M/WBE Participation.
8.8 A filed sub-Bidder is not required to submit a Schedule of M/WBE Participation with its Bid. A filed sub-Bidder may, at its option, submit a Letter of Intent with its Bid if it is a SOMWBA certified M/WBE. If a filed sub-Bidder intends to sub-subcontract work to a SOMWBA certified M/WBE, and the filed sub-Bidder wishes that sub-subcontract to be credited toward the participation goals for this Contract, the filed sub-Bidder should submit a Letter of Intent from that M/WBE with its Bid. A filed sub-Bidder can subcontract out up to 20% of its work to M/WBEs unless such work is designated as sub-subcontract Paragraph E work in the Bid Documents in which case the 20% cap does not apply.

SECTION 9 -- CONTRACT AWARD

9.1 "Award" means the determination, selection, and notification of the lowest, responsible and eligible Bidder by the Awarding Authority.

9.2 The Awarding Authority will award the Contract within thirty days, Saturdays, Sundays, and legal holidays excluded after the opening of Bids in accordance with M.G.L. c.149 §44A.

9.3 The Contract will be awarded to the lowest responsible and eligible Bidder as determined by the Awarding Authority, except in the event of substitution as provided under M.G.L. c.49, §§44E and 44F, in which cases the procedure as required by said sections shall govern the award of the Contract.

9.4 As used herein, the term "lowest responsible and eligible Bidder" shall mean the general Bidder whose Bid is the lowest of those Bidders who, in the Awarding Authority's opinion, are ready, willing and able to comply with all requirements of the Contract Documents and demonstrably possess the skill, ability, and integrity necessary for the faithful performance of the Work, based on the determination of past performance and financial soundness under (i) M.G.L. c.49 §44A and following sections, (ii) the rules, regulations, orders, guidelines and policies promulgated from time to time by the Commissioner of the Division of Capital Asset Management and Maintenance ("DCAM") and (iii) any other relevant criteria that the Commissioner may prescribe. If the Awarding Authority determines that any non-filed subcontractor chosen by a Bidder is not qualified or responsible, then the Bidder shall obtain another subcontractor satisfactory to Awarding Authority and the contract price shall not be adjusted.

9.5 The general Bid price shall be the price set forth in paragraph C of the Form for General Bid. No general Bid shall be rejected (i) because the sum of the prices set forth in Item 1 and 2 does not equal the general Bid price set forth in said paragraph C or (ii) because of one or more errors in setting forth the name, the sub-Bid price of a sub-Bidder, or the total of Item 2, provided that
the sub-Bidder or sub-Bidders designated are clearly identifiable, or (iii) because the plans and specifications do not accompany the Bid or are not submitted with the Bid.

**9.6** Should the Contract Documents require submission of special data to accompany the Bid, the Awarding Authority reserves the right to rule the Bidder’s failure to submit such data an informality and to received said data subsequently within a reasonable time as set by the Awarding Authority, provided that no such ruling shall result in an unfair advantage to the Bidder.

**9.7** The Awarding 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 fewer than three sub-Bids are received for a sub-trade, and the Bid prices are not reasonable for acceptance without further competition.

**9.8** If the Awarding Authority decides to reject all general Bids or if the Awarding Authority does not receive any general Bids, the Awarding Authority may retain and use the sub-Bids received for a second opening of general Bids; provided, however, that there are no changes in the work involved for the sub-trades for which the sub-Bids are so retained and used; and provided, further, that the Awarding Authority shall obtain the consent of each sub-Bidder included in any award of a general Contract made pursuant to the second opening of general Bids if such award is not made within ninety days, Saturdays, Sundays and legal holidays excluded, after the opening of such sub-Bids.

**SECTION 10 - EXECUTION OF CONTRACTS**

**10.1** If a selected filed sub-Bidder fails, within five days, Saturdays, Sundays and legal holidays excluded, after presentation of a Subcontract by the general Bidder to which the Contract was awarded, to perform its agreement to execute a Subcontract in the form provided by the Awarding Authority with such general Bidder contingent upon the execution of the general Contract, and, if requested to do so by such general Bidder in the generalBid, to furnish a performance and a payment bond as stated in its filed sub-Bid, such general Bidder and the Awarding Authority shall select from the other filed sub-Bids duly filed with the Awarding Authority for such sub-trade and not rejected the lowest responsible and eligible filed sub-Bidder at the amount named in its filed sub-Bid as so filed against whose standing and ability the general Contractor makes no objection, and the Contract price shall be adjusted by the difference between the amount of such filed sub-bid and the amount of the sub-bid of the delinquent filed sub-Bidder.

**10.2** Upon receipt of the Award, the general Bidder awarded the Contract shall submit three (3) properly executed originals of each of the following documents prior to execution of the Contract by the Awarding Authority. All such documents shall be in the form prescribed by the Awarding Authority. Note: The successful general Bidder must submit its Schedule For Participation of
Minority/Women Business Enterprises and Letters of Intent as set forth in Section 8.4 above prior to Award of the Contract.
-Owner-Contractor Agreement
-Certificate of Corporate Vote
-Joint Venture Authorization (if appropriate)
-Performance and Payment Bonds with power of attorney attached
-Certificates of Insurance evidencing coverage in amounts required by the Contract
Documents

-Written representation by the General Contractor to the effect that it has presented subcontracts to all selected filed sub-Bidders and a statement as to whether or not each such selected filed sub-Bidder has executed its subcontract such that the Awarding Authority may release the Bid deposit with respect to the same. Misrepresentation of the foregoing shall render the general Contractor liable to the Awarding Authority for the sum of any Bid deposit released by the Awarding Authority with respect to a filed sub-Bidder that fails to execute its subcontract.

-Any other documents that the Awarding Authority may reasonably require in connection with the Contractor's execution of the Contract.

10.3 Please note that no part of the General Contractor's work may be subcontracted without the prior written approval of the Awarding Authority. If the General Contractor desires to subcontract any part of the Work, other than work covered by Item 2, filed sub-Bidders, the General Contractor must promptly forward to the Awarding Authority a list in triplicate designating the work to be performed and the name of each proposed subcontractor for approval by the Awarding Authority. Approved subcontractors are eligible for direct payments under M.G.L. 30, § 39F, as amended. Material suppliers not involving site labor need not be submitted for approval.

SECTION 11 - RETURN OF BID DEPOSITS

11.1 All Bid deposits of general Bidders, except those of the three (3) lowest responsible and eligible general Bidders, shall be returned within five (5) days, Saturdays, Sundays and legal holidays excluded, after the opening of the general Bids. The Bid deposits of the three (3) lowest responsible and eligible general Bidders shall be returned upon the execution and delivery of the General Contractor, if no award is made, upon the expiration of the time prescribed in M.G.L. c. 149, § 44A for making an award; except that, if any general Bidder fails to perform its agreement to execute the Contract and furnish Performance and Payment Bonds as stated in its Bid, then said general Bidder's Bid deposit shall become the property of the Commonwealth as liquidated damages; provided that the amount of the Bid deposit that
becomes the property of the Commonwealth shall not exceed the difference between the Contractor's Bid price and the Bid price of the next lowest responsible and eligible Bidder; and provided further that, in the case of death, disability, bona fide clerical or mechanical error of a substantial nature, or other similar unforeseen circumstances affecting the general Bidder, such general Bidder's Bid deposit shall be returned.

11.2 All Bid deposits of sub-Bidders, except (i) those of the sub-Bidders named in the general Bids of the three (3) lowest responsible and eligible general Bidders and (ii) those of the three (3) lowest responsible and eligible sub-Bidders for each sub-trade, shall be returned within five (5) days, Saturdays, Sundays and legal holidays excluded, after the opening of the general Bids. The Bid deposits of sub-Bidders not returned pursuant to the provisions of the preceding sentence shall be returned within five (5) days, Saturdays, Sundays, and legal holidays excluded, after the execution of the General Contract; except that, if a selected sub-Bidder fails to perform its agreement to execute a sub-contract with the general Bidder selected as the general Contractor, contingent upon the execution of the General Contract, and, if requested to do so in the general Bid by such general Bidder, to furnish a Performance and Payment Bonds as stated in its sub-Bid in accordance with M.G.L. c. 149, § 44F(2), the Bid deposit of such sub-Bidder shall become the property of the Commonwealth as liquidated damages, provided that the amount of the Bid deposit that shall become the property of the Commonwealth shall not exceed the difference between its sub-Bid price and the sub-Bid price of the next lowest responsible and eligible sub-Bidder.

11.3 In addition to the provisions for the return of Bid deposits as provided above, upon receipt of a Bid Bond in an amount not less than the amount of the required Bid deposit, the Awarding Authority shall return any Bid deposit of a Bidder forthwith after the public opening of Bids.
ATTACHMENT A

PREVAILING WAGE SCHEDULE

The minimum wage rates provided in the following pages have been provided by the Division of Occupational Safety of the Massachusetts Department of Labor and Workforce Development. The Awarding Authority is not responsible for errors or omissions in such wage rates.

M.G.L. c. 149, §§ 26 and 27 provide as follows:

"... Payments by employers to health and welfare plans, pension plans and supplementary unemployment benefit plans under collective bargaining agreements or understandings between organized labor and employers shall be included for the purpose of establishing minimum wage rates as herein provided.

... The aforesaid rates of wages in the schedule of wage rates shall include payments by employers to health and welfare plans, pension plans and supplementary unemployment benefit plans as provided in said section twenty-six, and such payments shall be considered as payments to persons under this section performing work as herein provided. Any employer engaged in the construction of such works who does not make payments to a health and welfare plan, a pension plan and a supplementary unemployment benefit plan, where such payments are included in said rates of wages, shall pay the amount of said payments directly to each employee engaged in said construction "

23
ATTACHMENT B:

Forms Used During Bidding

Sample Certificate of Eligibility - Prime Bidder
Sample Certificate of Eligibility - Sub-Bidder
Update Statement – Prime Bidder
Update Statement - Sub-Bidder
Blanket Deposit Bond
Form of General Bid
Form of Sub-Bid
Certificate of Eligibility

Contractor:  CONSTRUCTOR  #05 6666  
CONTRACTOR ADDRESS  
CONTRACTOR CITY  MA  00000

In accordance with M.G.L. Chapter 149, Section 44D and 810 CMR 4.00, you are hereby certified to file bids under Chapter 149, Section 44A in the following categories:

- Exterior Siding
- General Building Construction
- Painting

Your Single Project Limit is:  $2,500,000  
Your Aggregate Work Limit is: $5,000,000  
This certificate is valid from  10/15/2005  to  10/15/2006

________________________________________________________________________________

George M. Matthews, Deputy General Counsel  
for David B. Perini, Commissioner

Official DCAM Amendments  Date  Authorization

Extension to:  
Name:  
SPL:  
GBC SPL:  
AWL:  
Category:  
Address:  

25
Sub-Bidder Certificate of Eligibility

Contractor: CONTRACTOR

CONTRACTOR ADDRESS

CONTRACTOR CITY MA 00000

In accordance with M.G.L. Chapter 149, Section 44D and 810 CMR 4.00, you are hereby certified to file sub-bids under Chapter 149, Section 44A in the following categories:

Metal Windows

Glass & Glazing

The average numerical value on projects evaluated by: 89

Number of prior construction projects evaluated by DCAM on this: 15

Number of projects given numerical values below a passing score: 1

This certificate is valid 10/16/200 to 10/16/2006

______________________________
George M. Matthews, Deputy General Counsel Date

for David B. Perini, Commissioner

Official DCAM Amendments Date Authorization

Extension to: ________________________________

Name: ________________________________

Category: ________________________________

Address: ________________________________
SPECIAL NOTICE TO AWARDING AUTHORITY

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

Effective March 30, 2010

Commonwealth of Massachusetts
Division of Capital Asset Management
PRIME/GENERAL CONTRACTOR
UPDATE STATEMENT

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.

[Enter Bid Date Here]  [Enter Name of Prime/General Contractor Here]
Bid Date  Name of Prime/General Contractor

[Enter Project Number Here]  [Enter Business Address Here]
Project Number (or  Business Address
name if no number)

[Enter Name of Awarding Authority Here]  [Enter Your Telephone Number Here]
Awarding Authority  Telephone Number

SIGNATURE⇒
Bidder’s Authorized Representative

---

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.
• Information is to cover the period from the date your most recent annual Certificate of Eligibility was issued (not extended) to the date of the bid.
• 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/cam
• 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 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. 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 YOUR CURRENT CERTIFICATE OF ELIGIBILITY WAS ISSUED (NOT EXTENDED). *

<table>
<thead>
<tr>
<th>PROJECT TITLE &amp; LOCATION</th>
<th>WORK CATEGORY</th>
<th>CONTRACT PRICE</th>
<th>START DATE</th>
<th>DATE COMPLETED</th>
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</thead>
<tbody>
<tr>
<td>[Enter Project Title &amp; Location Here]</td>
<td>[Enter Work Category]</td>
<td>[Enter Contract Price]</td>
<td>[Enter Start Date]</td>
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<td>[Enter Contract Price]</td>
<td>[Enter Start Date]</td>
<td>[Date Completed]</td>
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</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>PROJECT TITLE</th>
<th>COMPANY NAME</th>
<th>CONTACT PERSON</th>
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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.

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<th>8</th>
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<tbody>
<tr>
<td>PROJECT TITLE &amp; LOCATION</td>
<td>WORK CATEGORY</td>
<td>START AND END DATES</td>
<td>ON SCHEDULE (yes / no)</td>
<td>CONTRACT PRICE</td>
<td>% NOT COMPLETE</td>
<td>$ VALUE OF WORK NOT COMPLETE (col. 5 x col. 6)</td>
<td>NO. OF YEARS REMAINING (see note below)</td>
<td>ANNUALIZED VALUE OF INCOMPLETE WORK (col. 7 ÷ col. 8) (divided by)</td>
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</table>

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.

<table>
<thead>
<tr>
<th>PROJECT TITLE</th>
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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 is to cover the period from the date your most recent annual Certificate of Eligibility was issued (not extended) to the date of the bid. Include all details [project name(s) and location(s), names of all parties involved, relevant dates, etc.]. IF YOU HAVE ANY DOUBT AS TO WHETHER TO ANSWER “YES” IT IS BETTER TO BE OVER INCLUSIVE AND TO PROVIDE A DETAILED EXPLANATION.

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
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<tr>
<td>1.</td>
<td>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?</td>
<td></td>
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<tr>
<td>2.</td>
<td>Has your firm failed or refused either to perform or complete any of its work under any contract prior to substantial completion?</td>
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<tr>
<td>3.</td>
<td>Has your firm failed or refused to complete any punch list work under any contract?</td>
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<tr>
<td>4.</td>
<td>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?</td>
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<td>Has your surety taken over or been asked to complete any of your work under any contract?</td>
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<td>6.</td>
<td>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?</td>
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<td>7.</td>
<td>Has your surety made payment to a materials supplier or other party under your payment bond on any contract?</td>
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<td>8.</td>
<td>Has any subcontractor filed a demand for direct payment with an awarding authority for a public project on any of your contracts?</td>
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<td>9.</td>
<td>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?</td>
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<td>10.</td>
<td>Have there been any deaths of an employee or others occurring in connection with any of your projects?</td>
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<tr>
<td>11.</td>
<td>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?</td>
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</tbody>
</table>
PART 4 - Legal or Administrative Proceedings; Compliance with Laws

Please answer the following questions. Information is to cover all judicial and administrative proceedings involving bidder’s firm, which were instituted or concluded (adversely or otherwise) from the date your most recent annual Certificate of Eligibility was issued (not extended) to the date of the bid.

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.). IF YOU HAVE ANY DOUBT AS TO WHETHER TO ANSWER “YES” IT IS BETTER TO BE OVER INCLUSIVE AND TO PROVIDE A DETAILED EXPLANATION.

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
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</thead>
<tbody>
<tr>
<td>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?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>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?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>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?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>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?</td>
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</tbody>
</table>
### PART 4 - Legal or Administrative Proceedings; Compliance with Laws (continued)

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>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?</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>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?</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>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?</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>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?</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>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?</td>
<td>☐</td>
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</tr>
<tr>
<td>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 <a href="http://www.osha.gov">www.osha.gov</a></td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>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?</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>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?</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>13. Are there any other issues that you are aware which may affect your firm’s responsibility and integrity as a building contractor?</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>NAME</th>
<th>TITLE OR FUNCTION</th>
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</table>

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.

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.
SPECIAL NOTICE TO AWARDING AUTHORITY

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

Effective March 30, 2010

Commonwealth of Massachusetts
Division of Capital Asset Management

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. It is not to be used for submitting Prime/General Contract bids.

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.

[Enter Bid Date Here] [Enter Name of Sub-bidder or Contractor]
Bid Date Print Name of Sub-bidder or Trade Contractor

[Project Number] [Enter Business Address]
Project Number (or name if no number) Business Address

[Awarding Authority] [Contractor’s Telephone Number]
Awarding Authority Telephone Number

SIGNATURE⇒

Bidder’s Authorized Representative

Division of Capital Asset Management
INSTRUCTIONS TO SUB-BIDDERS

- This form must be completed and submitted by all Filed Sub-Bidders bidding on projects pursuant to M.G.L. c. 149, §44F and Trade Contractors bidding on projects pursuant to 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 SUB-BIDDER UPDATE STATEMENT IS GROUNDS FOR REJECTING YOUR BID AND FOR DEBARRING YOU FROM ALL PUBLIC CONTRACTING.
- Information is to cover the period from the date your most recent annual Sub-bidder Certificate of Eligibility was issued (not extended) to the date of the bid.
- You must use this official form of Sub-bidder Update Statement. Copies of this form may be obtained from the awarding authority and from the DCAM Web Site: www.mass.gov/cam
- If additional space is needed, please copy the appropriate page of this Sub-bidder Update Statement and attach it as an additional sheet.

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 at the time of certification.

Division of Capital Asset Management
Sub-bidder Update Statement Effective March 30, 2010

- The sub-bidder’s performance on the projected listed in Parts 1 and 2 must be part of your review. Contact the project references.
- AWARDING AUTHORITIES ARE STRONGLY ENCOURAGED TO REVIEW THE SUB-BIDDER’S ENTIRE CERTIFICATION FILE AT THE DIVISION OF CAPITAL ASSET MANAGEMENT. Telephone (617) 727-9320 for an appointment.

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 pursuant to M.G.L. c.149, §44D, provided the sub-bidder promptly corrects those mistakes or omissions upon request of the awarding authority. [810 CMR 8.13(1)].

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 DCAM of any material omissions in a Sub-bidder’s Update Statement. [810 CMR 8.13(2)].
**PART 1 - COMPLETED PROJECTS**

LIST ALL PUBLIC AND PRIVATE PROJECTS OF $20,000 OR MORE THAT YOUR FIRM HAS COMPLETED SINCE THE DATE YOUR CURRENT SUB-BIDDER CERTIFICATE OF ELIGIBILITY WAS ISSUED (NOT EXTENDED). *

<table>
<thead>
<tr>
<th>PROJECT TITLE &amp; LOCATION</th>
<th>WORK CATEGORY</th>
<th>CONTRACT PRICE</th>
<th>START DATE</th>
<th>DATE COMPLETED</th>
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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 Sub-bidder Update Statement.
Provide the following reference information for each completed project listed on the previous page.

<table>
<thead>
<tr>
<th>PROJECT TITLE</th>
<th>COMPANY NAME</th>
<th>CONTACT PERSON</th>
<th>TELEPHONE</th>
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<tbody>
<tr>
<td>OWNER:</td>
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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: _____

Division of Capital Asset Management
Sub-bidder Update Statement Effective March 30, 2010
PART 2 - CURRENTLY HELD CONTRACTS

LIST ALL PUBLIC AND PRIVATE PROJECTS OF $20,000 OR MORE THAT YOUR FIRM HAS UNDER CONTRACT ON THIS DATE REGARDLESS OF WHEN OR WHETHER THE WORK COMMENCED.

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<td>6</td>
<td>7</td>
</tr>
<tr>
<td>PROJECT TITLE &amp; LOCATION</td>
<td>WORK CATEGORY</td>
<td>START AND END DATES (yes / no)</td>
<td>CONTRACT PRICE</td>
<td>% NOT COMPLETE</td>
<td>$ VALUE OF WORK NOT COMPLETE (col. 5 x. col. 6)</td>
<td></td>
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</tbody>
</table>
PROVIDE THE FOLLOWING REFERENCE INFORMATION FOR EACH INCOMPLETE PROJECT LISTED ON THE PREVIOUS PAGE.

<table>
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<th>PROJECT TITLE</th>
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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 is to cover the period from the date your most recent annual Sub-Bidder Certificate of Eligibility was issued (not extended) to the date of the bid. Include all details [project name(s) and location(s), names of all parties involved, relevant dates, etc.]. IF YOU HAVE ANY DOUBT AS TO WHETHER TO ANSWER “YES” IT IS BETTER TO BE OVER INCLUSIVE AND TO PROVIDE A DETAILED EXPLANATION.

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
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<tbody>
<tr>
<td>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?</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>2. Has your firm failed or refused either to perform or complete any of its work under any contract prior to substantial completion?</td>
<td>☐</td>
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<tr>
<td>3. Has your firm failed or refused to complete any punch list work under any contract?</td>
<td>☐</td>
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<tr>
<td>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?</td>
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PART 4 - Legal or Administrative Proceedings; Compliance with Laws

Please answer the following questions. Information is to cover all judicial and administrative proceedings involving bidder’s firm, which were instituted or concluded (adversely or otherwise) from the date your most recent annual Sub-Bidder Certificate of Eligibility was issued (not extended) to the date of the bid.

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 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.). IF YOU HAVE ANY DOUBT AS TO WHETHER TO ANSWER “YES” IT IS BETTER TO BE OVER INCLUSIVE AND TO PROVIDE A DETAILED EXPLANATION.

<table>
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<tr>
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<th>YES</th>
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<tr>
<td>1.</td>
<td>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?</td>
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<td>□</td>
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<td>4.</td>
<td>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?</td>
<td>□</td>
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## PART 4 - Legal or Administrative Proceedings; Compliance with Laws (continued)

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<th>YES</th>
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<td>5.</td>
<td>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?</td>
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<td>6.</td>
<td>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?</td>
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<td>7.</td>
<td>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?</td>
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<td>8.</td>
<td>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?</td>
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<td>9.</td>
<td>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?</td>
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<td>10.</td>
<td>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 <a href="http://www.osha.gov">www.osha.gov</a></td>
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<td>11.</td>
<td>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?</td>
<td>☐</td>
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<td>12.</td>
<td>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?</td>
<td>☐</td>
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<td>13.</td>
<td>Are there any other issues that you are aware which may affect your firm’s responsibility and integrity as a building contractor?</td>
<td>☐</td>
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PART 5 - SUPERVISORY PERSONNEL
List all supervisory personnel who will be assigned to the project if your firm is awarded the contract.
Attach the resume of each person listed below.

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<thead>
<tr>
<th>NAME</th>
<th>TITLE OR FUNCTION</th>
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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 ALONG WITH CERTIFICATION PAGE.

Attach here a copy of the list of completed construction projects which was submitted with your firm’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 Section F – “Completed Projects” (Section G – “Completed Projects” for firms certified based upon their Prime/General Application), and the final page – “Certification Page”, (Section I in the Sub-bidder Application or Section J in Prime/General Application) containing the signature and date that the Completed Projects list (Section F or G) was submitted to the Division of Capital Asset Management.
The following must be attached to or inserted into this Bid:

1. Current Bidder's Certificate of Eligibility issued by the Division of Capital Asset Management and Maintenance showing the Bidder is certified in the category of work specified in the advertisement and the bid documents for this project.

2. Completed current Contractor Update Statement (Form CQ3). NOTE: All information and the documents called for in the update statement must be supplied. All information provided must be complete and accurate. A defect or omission in the Update Statement may result in the rejection of the Bid. Part 5 MUST list the NAMES of all supervisory personnel for this project.

3. Bid deposit meeting the requirements of Section 5.13 and 5.14 of the Instructions to Bidders.
FORM FOR GENERAL BID

To the Awarding Authority:

A. The undersigned proposes to furnish all labor and materials required for

UMA No. 17-22 Project No. 16-1010221

Project Name: Webster ADA Rooms

in ________________________, Massachusetts, in accordance with the accompanying plans and specifications prepared by ____________________________ (name of architect or engineer) for the contract price specified below, subject to additions and deductions according to the terms of the specifications.

B. This bid includes addenda numbered (list all addenda) ________________________.

C. The proposed contract price is

________________________________________

total bid in words)

dollars ($__________________________).

For Alternate No. 1: Add $________ Subtract $________
For Alternate No. 2: Add $________ Subtract $________
For Alternate No. 3: Add $________ Subtract $________
For Alternate No. 4: Add $________ Subtract $________
For Alternate No. 5: Add $________ Subtract $________

Name of General Bidder ________________________________________
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.

______________________________________________________________ dollars ($_______)

(total bid in words)

**Item 2. Sub-bids as follows:**

| Section # | Subtrade | Name of Sub-Bidder | Amount | Bonds required, indicated by "Yes" or "No"
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52
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 it is selected as general contractor, it 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 it is selected as general contractor, it 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 it 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 it will comply fully with all laws and regulations applicable to awards made subject to section forty-four A of Chapter 149 of the General Laws.

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.

The undersigned further certifies under penalties of perjury that the undersigned is not debarred from doing public construction work under any law, rule or regulation of the federal government.

The undersigned hereby declares that the undersigned has carefully examined the Advertisement, Instructions to Bidders, Owner - Contractor Agreement, General Conditions of the Contract, Special Conditions (if any), Plans and Specifications, all other Contract Documents, and also the Site upon which the proposed work is to be performed. The undersigned further declares that in regard to the conditions affecting the work to be done and the labor and materials needed, this proposal is based solely on the undersigned's own investigation and research and not in reliance upon any representation of any employee, officer or agent of the Commonwealth.
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;
   -- we are the only persons interested in this proposal;
   -- that it is made without any connection with any other person making any bid for the same work and without directly or indirectly influencing or attempting to influence any other person to bid or to refrain from bidding or to influence the amount of the bid of any other person or corporation;
   -- that no person acting for, or employed by, the Commonwealth of Massachusetts is directly or indirectly interested in this proposal, or in any contract which be made under it, or in expected profits to arise therefrom.

As used above the word "person" shall mean natural person, joint venture, partnership, corporation or other business or legal entity.

The undersigned certifies that it shall comply with the provisions of the Equal Employment Opportunity, Non-Discrimination, and Affirmative Action Program set forth in Article XII of the General Conditions of the Contract.

Should the Contract Documents require submission of special data to accompany the bid, the Awarding Authority reserves the right to rule the bidder's failure to submit such data an informality and to receive said data subsequently within a reasonable time as set by the Awarding Authority.

Date ______________________, 20__.

______________________________
( Name of General Bidder)

By ________________________________
( Print Name/Title of Person Signing Bid)

______________________________
(Signature)

______________________________
(Business Address)

______________________________
(City and State)

______________________________
(Telephone Number)  (Facsimile Number)
The following information is furnished by the Bidder for the information of the University of Massachusetts Amherst.

Is Bidder a corporation? _____ If so, incorporated in what state?________________________

President______________________________________________________________

Secretary or Clerk_______________________________________________________

Treasurer_______________________________________________________________

If Bidder is a foreign corporation, is it registered to do business in Massachusetts?_____

If Bidder is a foreign corporation and is selected, Bidder is required under M.G.L. c. 30, s. 39L to obtain from the Massachusetts Secretary of State, One Ashburton Place, 17th floor, a certificate stating that the corporation is registered to do business in Massachusetts, and to furnish said certificate to the awarding authority prior to the award.

Is Bidder a general partnership or joint venture? _____ If so, name each partner or venturer______________________________________________________________

Is Bidder a limited partnership? _________________________________

Is Bidder registered in Massachusetts? ____ If so, name each general partner ________

For each general partner or venturer that is a corporation, provide the following information (use additional sheets if necessary):

Name of corporation ______________________________________________________

State of incorporation_______________________________________________________

President_______________________________________________________________

Secretary or Clerk_______________________________________________________
Treasurer

Name of corporation

State of incorporation

President

Secretary or Clerk

Treasurer

Is Bidder an individual?

Residence Address

Name under which Bidder does business

Business Address

If selected Bidder is an individual doing business under a different name then Bidder must furnish evidence of any required DBA filing.

University of Massachusetts Amherst
Facilities Planning
Physical Plant Building
360 Campus Center Way
Amherst, MA 01003-9248
Telephone: (413) 545-1383
UNIVERSITY OF MASSACHUSETTS AMHERST
FORM FOR SUB-BID

M.G.L. c. 149, s. 44F as amended

The following must be attached to or inserted into this Sub-Bid or Trade Bid:

1. Current Sub-Bidder Certificate of Eligibility issued by the Division of Capital Asset Management and Maintenance showing the Sub-Bidder or Trade Contractor is certified in the category of work for which this Sub-Bid is submitted.

2. Completed Sub-Bidder Update Statement. NOTE: All information and the documents called for in the update statement must be supplied. All information provided must be complete and accurate. A defect or omission in the Update Statement may result in the rejection of the Bid. Part 5 MUST list the NAMES of all supervisory personnel for this project.

3. Bid deposit meeting the requirements of Section 5.13 and 5.14 of the Instructions to Bidders.
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 ______________________________ for

(name of architect or engineer)

_________________________  _________________________________
(project number)               (project name)

in _________________________________, Massachusetts, for the Contract sum of

(city/town)

_________________________ dollars

($_________________________).

For Alternate No. 1: Add $________________ Subtract $________________

For Alternate No. 2: Add $________________ Subtract $________________

For Alternate No. 3: Add $________________ Subtract $________________

For Alternate No. 4: Add $________________ Subtract $________________

For Alternate No. 5: Add $________________ Subtract $________________

B. This sub-bid includes addenda numbered (list all addenda) _________________

Name of Sub-bidder _________________________________
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 it is selected as a sub-bidder, it will, within five 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 such general bidder, who shall pay the premiums therefore, or if prequalification is required pursuant to section 44D3/4, 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:

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<th>NAME</th>
<th>CLASS OF WORK</th>
<th>BID PRICE</th>
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(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 describe Plans, Specifications, including all general conditions stated therein, and addenda, and to assume toward the general Contractor all the obligations and responsibilities that the general Contractor, by those documents, assumes toward the Commonwealth.

H. The undersigned offers the following information as evidence of its qualifications to perform the work as bid upon according to all the requirements of the Plans and specification:

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 Designer on which you served as a subcontractor for work of similar character as required for the above named building.

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<th>Building</th>
<th>Designer</th>
<th>General Contractor</th>
<th>Amount of Contract</th>
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4. Bank reference _______________________________________________________

I. The undersigned hereby certifies that it 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 it will comply fully with all laws and regulations applicable to awards of subcontracts subject to section forty-four F of Chapter 149 of the General Laws.

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 penalties 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 Sub-Bidder)

By: ________________________________

____________________________________
(Title and Name of Person Signing Bid)

____________________________________
(Business Address)

____________________________________
(Business Telephone No.)
BID PACKAGE

PART II

OWNER - CONTRACTOR AGREEMENT

Owner - Contractor Agreement

Exhibit A: Additional Insurance Requirements, if any.

Exhibit B: Forms Used During Contract Award and Execution:

- Payment Bond
- Performance Bond
- Schedule for Participation by Minority/Women Business Enterprises
- Letter of Intent
- Certificate of Corporate Vote
- Certificate of Joint Venture
- Certificate of Compliance with State Tax Laws
- Form of Subcontract

Document ID: __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __

Contractor’s DCAM Certification Number: __ __ __ __

Contractor’s Vendor Code Number: __ __ __ __ __ __ __ __ __ __ __ __
UNIVERSITY OF MASSACHUSETTS AMHERST

STANDARD VERTICAL CONSTRUCTION CONTRACT
For Projects Over $25,000 Subject to M.G.L. 149, s. 44A -F

OWNER - CONTRACTOR AGREEMENT

Awarding Authority: ____________________________________________________________
Department Code: __ __ __

This agreement ("Contract") is made as of the ___ day of ________, 20___, by and between the Commonwealth of Massachusetts acting by and through the Awarding Authority identified above with a principal place of business at
__________________________________________________________,
and__________________________________________________________, a
______________ with a principal place of business at
__________________________________________________________,
__________________________________________________________, hereinafter called the "Contractor".

Terms used in this Owner - Contractor Agreement which are defined in the General Conditions of the Contract shall have the meanings designated therein.

The Awarding Authority and the Contractor agree as follows:
Article 1. Scope of Work. The Work under this Contract is defined as all work required by the Contract Documents for the construction of ____________________________.

UMA Number ________________________

Project Number ________________________ in accordance with and as described in the Plans and Specifications dated __________, ______, prepared by ________________________________ (“Designer”), as modified by Addenda Nos. __________________________ dated __________, ______.

Article 2. Time for Completion. The Contractor shall commence the Work under this Contract on the date specified in the written "Notice to Proceed," and shall, within __________ days after such date, bring the Work to Substantial Completion and to the point at which a Certificate of Agency Use and Occupancy may be issued, and shall bring the Work to Final Acceptance within 30 days after the date specified for Substantial Completion.

Article 3. Contract Price. The Awarding Authority shall pay the Contractor, in current funds, for the performance of the Work, subject to additions and deductions by Approved Change Order(s), the Contract Price of ____________________________ dollars ($ ________________). The Unit Prices, if any, approved by the Awarding Authority are those included in the Contractor's General Bid. The following Alternates have been accepted and their costs are included in the Contract Price:

Alternate No(s): ____________________________

Article 4. Approved Subcontractors. The filed Subcontractors listed in the Contractor's General Bid submitted by the Contractor have been approved for the performance of the specified portions of the Work subject to the Commonwealth's verification that they have complied with state corporation and partnership registration laws. No other filed Subcontractors and no non-filed Subcontractors shall be used for these or any other portions of the Work without the prior written approval of the Awarding Authority.

Article 5. Certifications. Pursuant to M.G.L. c. 62(c), s.49A, the individual signing this Contract on behalf of the Contractor hereby certifies, under the penalties of perjury, that to the best of his or her knowledge and belief the Contractor has complied with any and all applicable state and federal tax laws. The individual signing this Contract on behalf of the Contractor further certifies under penalties of perjury that the Contractor is not presently debarred from doing public construction work in the Commonwealth under the provisions of M.G.L. c. 29, s. 29F, or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation promulgated thereunder and is not presently debarred from doing public construction work by any agency of the United States.
**Article 6. The Contract Documents:** The following documents from the Contract, are incorporated by reference herein, and are referred to as the "Contract Documents:"

- The Instructions to Bidders
- The General Bid submitted by the Contractor
- This Owner – Contractor Agreement, including Exhibit A, if any.
- The General Conditions of the Contract
  - The Supplementary General Conditions [Note: the term “Supplementary General Conditions" may also refer to Division 1 of the Specifications.]
- The Plans and Specifications, including Addenda identified in Article 1 above
- All Approved Change Orders issued after execution of this Owner - Contractor Agreement

**Article 7. Minority Business Enterprise and Women Business Enterprise Participation Goals and Minority/Women Workforce Utilization Percentages:** The applicable goals, if any, for minority business enterprise and woman business enterprise participation established for this Contract are as follows:

The combined participation goal for Minority/Women Business Enterprise for this Contract is ________%.

The applicable minority workforce utilization percentage, if any is ________.

The applicable women workforce utilization percentage, if any is ________.

The MBE/WBE participation goal must include a reasonable representation of both MBE and WBE firms that meet or exceeds the combined goal. MBE/WBE participation plans that consist solely of either a MBE or WBE representing 100% of the overall combined goals will not be considered reasonable or responsive. Firms submitting MBE/WBE participation plans which do not provide reasonable participation by both MBE/WBE firms shall be provided an opportunity to revise and resubmit their plans within the time frame set by the awarding authority; however, no price adjustments shall be permitted as a result of the revised plan. Firms failing to submit an MBE/WBE participation plan deemed reasonable, and accepted by the awarding authority, shall not be awarded the contract.

**Article 8. Liquidated Damages.** For the purposes of Article VI of the General Conditions of the Contract, liquidated damages for delay shall be as follows:

$1,000.00 per day

**Article 9. Additional Insurance Provisions.** The insurance requirements set forth in Article XIV of the General Conditions of the Contract are supplemented by the provisions, if any, appearing in Exhibit A attached hereto and incorporated herein.

In witness whereof, the parties hereto have caused this instrument to be executed in triplicate under seal as of the date set forth above.
CONTRACTOR:

By: ______________________________________________

Name: ______________________________________________

Title: ______________________________________________

Date: ______________________________________________

AWARDING AUTHORITY:

By executing this Agreement, the undersigned authorized signatory of the Awarding Authority, who incurs no personal liability by reason of the execution hereof or anything herein contained, hereby certifies under penalties of perjury that this Contract is executed in accordance with a prior approval of the University of Massachusetts Amherst and further certifies under the penalties of perjury that all the applicable provisions of M.G.L. c. 149, s. 44J, have been complied with.

Application of Executive Orders: This agreement is funded by state appropriation; and, accordingly, the University of Massachusetts is using the State Standard Contract terms and conditions for the purposes of this agreement. Chapter 75 of the Massachusetts General Laws, empowers the Board of Trustees of the University of Massachusetts with the authority to govern and manage its affairs without supervision or subject to the control of any other entity of the Commonwealth unless specifically set forth in the Massachusetts General Laws. Therefore the provisions of the State Executive Orders included in this agreement are not applicable to the University of Massachusetts.

All Contracts

By: ______________________________________________

Name: ______________________________________________

Title: _______Vice Chancellor for Administration & Finance____

Date: ______________________________________________
EXHIBIT A
Additional Insurance Provisions

(Insert provision specifying deductible amounts if any)
Exhibit B

Forms Used During Contract Award and Execution

Payment Bond

Performance Bond

Certificate of Corporate Vote

Certificate of Joint Venture

Certificate of Compliance with State Tax Laws

Form for Subcontract
PAYMENT BOND

Know all men by these presents, that

as principal, and  

as surety, are held and firmly bound unto the University of Massachusetts Amherst in the sum of  

in lawful money of the United States of America, to be paid to the University of Massachusetts Amherst, 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 University of Massachusetts Amherst ("Awarding Authority")

Bearing date of ________________, 20___, for construction of  

UMA Number ________________  

Project Name ________________

Now the condition of this obligation is such that if the principal 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 the foregoing to include any other purpose or items set out in, and to be subject to, provisions of Massachusetts General Laws Chapter 30, section 39A, and Chapter 149 section 29, as amended, then this obligation shall become null and void; otherwise it shall remain in full force and virtue.

In witness whereof we hereunto set our hand and seals this __________ day of  

__________________________, 20___.  

_________________________ (Seal)  

_________________________ (Seal)  

(Print Name of General Contractor)  

(Print Name of Surety)

By _____________________________  

(Signature – Title)  

(Signature – Title)  

Surety Address _____________________________  

_________________________
PERFORMANCE BOND

Know all men by these presents, that

as principal, and ________________________________________________________________

as surety, are held and firmly bound unto the University of Massachusetts Amherst in the sum of

___________________________________________________________

in lawful money of the United States of America, to be paid to the University of Massachusetts Amherst, 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 University of Massachusetts Amherst (“Awarding Authority”)

bearing date of ____________________________, 20____, for construction of

UMA Number ________________________________________________________________

Project Name ________________________________________________________________

Now the condition of this obligation is such that if the principal shall well and truly keep and perform all the undertakings, covenants, agreements, terms and conditions of said Contract and any extensions thereof that may be granted by the University of Massachusetts Amherst, with or without notice to the surety, and during the life of 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 Contractor, or is terminated by the University of Massachusetts Amherst under the provisions of said Contract, said surety shall, if requested in writing by the University of Massachusetts Amherst, take such action is necessary to complete the Contract.

In witness whereof we hereunto set our hand and seals this _____________ day of

__________________________________________, 20__.
_________________________ (Seal)  ___________________________ (Seal)
(Print Name of General Contractor)  (Print Name of Surety)

By ___________________________  ___________________________
(Signature – Title)  (Signature – Title)

Surety Address ___________________________

_________________________

Countersigned Mass. Resident Agent By: ___________________________
Agent’s Address: ___________________________
Telephone Number: ___________________________
SCHEDULE FOR PARTICIPATION
BY MINORITY/WOMEN BUSINESS ENTERPRISES
UNIVERSITY OF MASSACHUSETTS AMHERST

UMA Number 17-22 Project Location

Project Name

This form must be submitted by the General Contractor within five (5) working days of the opening of the General Bids. A Letter of Intent and SOMWBA certification letter for each M/WBE must be submitted with this Schedule of M/WBE participation.

BIDDER CERTIFICATION:

The undersigned General Contractor firm agrees that it will subcontract with the following listed firms for the work described and for the dollar amounts listed below. For purposes of this commitment, the MBE and WBE designation means that a business has been certified by SOMWBA as either a MBE, WBE or M/WBE. The General Contractor must indicate the MBE/WBE firms it intends to utilize on the project as follows (attach additional sheets if necessary):

<table>
<thead>
<tr>
<th>Company Name &amp; Address</th>
<th>MBE or WBE</th>
<th>Describe MBE/WBE Scopes of Work</th>
<th>Total Dollar Value of Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
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<tr>
<td>2.</td>
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<td>3.</td>
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<td>5.</td>
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<tr>
<td>6.</td>
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<tr>
<td>7.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
MBE Goal: $_______________  Total Dollar Value of MBE Commitment: $_______________

WBE Goal: $_______________  Total Dollar Value of WBE Commitment: $_______________

The undersigned hereby certifies that he/she has read the terms and conditions of the contract with regard to MBE/WBE participation and is authorized to bind the General Contractor to the commitment set forth above.

Name of General Contractor ____________________________________________

Business Address _____________________________________________________

Name (print) _________________________________________________________

Title ________________________________________________________________

Authorized Signature _________________________________________________

Telephone No. __________________ Fax No. _____________________________

Date _____________________________
LETTER OF INTENT
MINORITY/WOMEN BUSINESS ENTERPRISES PARTICIPATION
UNIVERSITY OF MASSACHUSETTS AMHERST

(To be completed by MBE/WBE, and submitted by the General Bidder within five (5) working days of the opening of General Bids or by Filed Sub-bidder with its bid.)

UMA Number ________________________________ Indicate SOMWBA Certification:

17-22 ________________________________ ☐ MBE

Project Name ________________________________ ☐ WBE

Project Location ________________________________ ☐ M/WBE

To ____________________________________________

Name of General Bidder/Sub-bidder

1. This firm intends to perform work in connection with the above project.

2. This firm is currently certified by SOMWBA to perform the work identified below, and has not changed its minority/women ownership, control, or management without notifying SOMWBA within thirty (30) days of such a change.

3. This firm understands that if the General Bidder/Sub-bidder referenced above is awarded the contract, the Bidder intends to enter into an agreement with this firm to perform the activity described below for the prices indicated. This firm also understands that the above-referenced firm, as General Bidder/Sub-bidder, will make substitutions only as allowed by Article XIII of the Contract.

4. This firm understands that under the terms of Article XIII of the contract, only work actually performed by an MBE/WBE will be credited toward MBE/WBE participation goals, and this firm cannot assign or subcontract out any of its work without prior written approval of the DCAM Compliance Office, and that any such assignment or subcontracting will not be credited toward MBE/WBE participation goals.
### MBE/WBE PARTICIPATION

<table>
<thead>
<tr>
<th>Section/Item Number (if applicable)</th>
<th>Describe MBE/WBE Scopes of Work (clarify “Labor Only”, “Material Only” or “Labor and Material”)</th>
<th>If Supplier, Indicate Total Value of Supplies (10% of total counts toward Participation)</th>
<th>Dollar Value of Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Dollar Value:**

$______________________________

Name of MBE/WBE Firm__________________________________________________________

Authorized Signature__________________________________________________________

Business Address______________________________________________________________

Print Name______________________________________________________________

__________________________________________________________

Title________________________________________________________

Telephone No________________________ Fax No.__________________________ Date______________________________

Letter of Intent – Revised 10/01
CERTIFICATE OF CORPORATE VOTE

________________________, 20_____

I hereby certify that I am the __________ clerk, ________________, assistant clerk, of
_______________________________ (the “Corporation”) and that at a
(Name of Corporation)
duly authorized meeting of the Board of Directors of the Corporation held on
________________________ in ________________ a which a quorum
(Date) (Location)
was present and voting it was voted to authorize ______________________________
(Name)
_______________________________ of the Corporation to execute
(Officer Title)
and deliver on behalf of the Corporation the following contract and to act as principal to execute bonds
in connection therewith, which contract and bonds were presented to and made a part of the records of
said meeting:

UMA Number ________________

Project Title: ________________________________

I further certify that ________________________________ is duly qualified and acting
(Name of Corporate Officer)
_______________________________ of the Corporation and that said vote
(Officer Title)
has not been repealed, rescinded or amended.

________________________

Name

________________________

Date

(CORPORATE SEAL)

SUBSCRIBED AND SWORN TO THIS _____DAY OF _________, 20______ BEFORE ME

________________________

Notary Public

My Commission Expires: __________________
CERTIFICATE OF JOINT VENTURE  
(INCLUDING SIGNATURE AUTHORITY)

This certificate is being given in connection with the execution by

_________________________________________ (the “Joint Venture”) of the following construction contract with

the University of Massachusetts Amherst:


In connection with the execution of the contract (the “Contract”) the parties to the Joint Venture represent and warrant as follows:

1. Exhibit A attached hereto is a true and complete copy of the Joint Venture Agreement between

   the parties dated _________________. Said Joint Venture Agreement is in full force and effect

   and has not been modified, amended, revoked, or terminated.

2. The principal place of business of the Joint Venture is as follows:

   ____________________________________________________________

   ____________________________________________________________

3. The Management Committee of the Joint Venture described in

   Section______________________ of the Joint Venture Agreement continues to

   consist of __________________________________________________

   ____________________________________________________________

   who together have the power to bind the Joint Venture and the parties thereto.

4. The Management Committee of the Joint Venture hereby appoints __________________________

   __________________________________________________________ as an authorized representative of the Joint Venture who

   shall have the power, individually, to execute any and all documents in connection with the

   Contract and whose signature shall be binding upon the Joint Venture. The Management

   Committee may modify or revoke such appointment, and may appoint additional authorized

   representative(s), only with the consent of the Director of Facilities Planning, University of

   Massachusetts Amherst and only by a written document executed by the members of the

   Management Committee.

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5. No changes in the Management Committee of the Joint Venture shall be effective without the written consent of the Director of Facilities Planning, University of Massachusetts Amherst.
6. No amendments to the Joint Venture Agreement shall be effective without the written consent of the Director of Facilities Planning, University of Massachusetts Amherst.
7. By executing this certificate__________________________

__________________________

__________________________

acknowledge that they are jointly and severally liable to the University of Massachusetts Amherst for all obligations of the Joint Venture.

This certificate is executed under seal as of the dates set forth opposite the last signature below:

__________________________, a Massachusetts joint venture

By:__________________________, a Massachusetts corporation having a principal place of business at __________________________

__________________________, its general partner

By: __________________________

Its: __________________________

Hereunto duly authorized

Date: _______________________

By:__________________________, a Massachusetts corporation having a principal place of business at __________________________

__________________________, its general partner

By: __________________________

Its: __________________________

Hereunto duly authorized

Date: _______________________

(Note: This certificate may have to be modified depending upon the terms of the joint venture agreement.)
CERTIFICATE OF COMPLIANCE WITH STATE LAWS AND WITH UNEMPLOYMENT COMPENSATION CONTRIBUTION REQUIREMENTS

Pursuant to M.G.L., c. 62C, s. 49A and M.G.L., c. 151A, s. 19A,

I, ____________________________________________ authorized signatory for
____________________________________________ whose principal place of business is at
____________________________________________

do herby certify under penalties of perjury that __________________________ has filed all
state tax returns and paid all taxes as required by law and has complied with all state laws pertaining to
contributions to the unemployment compensation fund and to payments in lieu of contributions.

The Business Organization Social Security Number or Federal Identification Number is
____________________________________________

Signed under the penalties of perjury the _____________ day of _____________, 20____.

Signature: ______________________________________

Name: __________________________________________

Title: ___________________________________________
CERTIFICATE OF COMPLIANCE WITH EMPLOYMENT ELIGIBILITY VERIFICATION REQUIREMENTS (I-9 CERTIFICATE)

Applicable to all UMA Construction Projects
To Be Executed by GC/CMGC/All Subcontractors

Company Name: ________________________________________________________________

I, ____________________________________________________________ authorized signatory for
( Print Name)

Company whose principal place of business is at
______________________________________________________________

(Address)

do hereby certify under penalties of perjury that Company shall comply with Federal Department of
Homeland Security Requirements in hiring any and all “Employees” to be employed in the Project who
are required to be listed in the certified payroll reports for the Project. Such compliance shall include,
but not be limited to the faithful completion of the Federal Department of Homeland Security Form I-9
process by company for each of its Employees. Company shall require each of its subcontractors to
execute and provide to Company a Certificate of Compliance with Employment Eligibility Verification
Requirements (I-9 Certificate) with the execution of each subcontract, and Company shall forward a
copy of each such I-9 Certificate to the General Contractor for filing with the University of Massachusetts
Amherst. In addition, Company is aware that the weekly workforce report form contained in the
contract documents, which must be submitted by the Company on a weekly basis, contains a statement
that the Form I-9 process was faithfully completed for all employees listed on the weekly certified
payroll report. Company therefore acknowledges that the Company and all of its subcontractors will be
required to certify that the Form I-9 process was faithfully completed for all Employees listed on each
certified payroll report when submitted.

By the signature of the Contractor’s Authorized Signatory below, the contractor certifies under the
pains and 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 the contract without engaging in unlawful
discrimination; and that the Contractor shall not knowingly or recklessly alter, falsify, or accept altered
or falsified documents from any such worker. The Contractor understands and agrees that breach of
any of these terms during the period of a contract 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.

UMA Project Number: ___________________________ Project Number: ___________________________

Project Title: _________________________________________________________________________

The Company Social Security No. or Federal Identification No. is: ___________________________

Signed under pains and penalties of perjury the __________ day of ____________, 20____

Signature: __________________________________________________________________________

Name and Title: ________________________________________________________________________
THIS AGREEMENT made this ____________ day of ___________ 20__, by and between

________________________________________________________________________________________

a corporation organized and existing under the law of __________________________

a partnership consisting of ________________________________________________

an individual doing business as _____________________________________________

hereinafter called the “Contractor” and _______________________________________

________________________________________________________________________________________

a corporation organized and existing under the law of __________________________

a partnership consisting of ________________________________________________

an individual doing business as _____________________________________________

hereinafter called the “Subcontractor”.

WITNESSETH that the Contractor and the Subcontractor for the considerations hereafter named, agree as follows:

1. The Subcontractor agrees to furnish all labor and materials required for the completion of all work specified in Section No. ______________________________

of the Specifications for ______________________________________________________

(Name of Sub-trade)

and the Plans referred to therein and addenda No. ______, ______, ______, and ________ for the __________________________

________________________________________________________________________________________

(complete title of the project and project no. taken from the title page of the Specifications)
all as prepared by ____________________________

(Name of Architect or Engineer)

for the sum of ____________________________ ($__________)

and the Contractor agrees to pay the Subcontractor said sum for said work. This price includes the following alternates (and other items set forth in the sub-bid):

Alternate No(s) __________, __________, __________, __________

__________________________________________

(a) The Subcontractor agrees to be bound to the Contractor by the terms of the hereinbefore described Plans, Specifications (including all general conditions stated herein) and addenda No. __________, and __________, and __________, and to assume to the Contractor all the obligations and responsibilities that the Contractor by those documents assumes to the ____________ hereinafter called the “Awarding Authority”, except to the extent that provisions contained herein are by their terms or by law applicable only to the Contractor.

(b) The contractor agrees to be bound to the Subcontractor by the terms of the hereinbefore described documents and to assume to the Subcontractor all the obligations and responsibilities that the Awarding Authority by the terms of the hereinbefore described documents assumes to the Contractor, except to the extent that provisions contained therein are by their terms or by law applicable only to the Awarding Authority.

2. The Contractor agrees to begin, prosecute and complete the entire work specified by the Awarding Authority in an orderly manner so that the Subcontractor will be able to begin, prosecute and complete the work described in this subcontract; and, in consideration thereof, upon notice from the contractor, either oral or in writing, the Subcontractor agrees to begin, prosecute and complete the work described in this Subcontract in an orderly manner and with due consideration to the date or time specified by the Awarding Authority for the completion of the entire work.

3. The Subcontractor agrees to furnish to the contractor with a reasonable time after the execution of this subcontract, evidence of workers’ compensation insurance as required by law and evidence of public liability and property damage insurance of the type and in limits required to be furnished to the Awarding Authority by the Contractor.

4. The Contractor agrees that no claim for services rendered or materials furnished by the Contractor to the Subcontractor shall be valid unless written notice thereof is given by the Contractor to the Subcontractor during the first ten (10) days of the calendar month following that in which the claim originated.

5. This agreement is contingent upon the execution of a general Contract between the Contractor and the Awarding Authority for the complete work.
IN WITNESS WHEREOF, the parties hereto have executed this agreement the day and year first above-written.

SEAL ATTEST

________________________________________  ________________________________

(Name of Subcontractor)

By: ______________________________

SEAL ATTEST

________________________________________  ________________________________

(Name of Contractor)

By: ______________________________

________________________________________

(City and State)
BID PACKAGE

PART III

GENERAL CONDITIONS OF THE CONTRACT

General Conditions of the Contract
Appendix A: -- Equal Employment Opportunity, Non-Discrimination and Affirmative Action Program
Appendix B: -- Goals for Participation by Minority Business Enterprises and Women Business Enterprises
Appendix C: -- Commonly Used Forms
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  Daily Time and Material Report for Change Orders
  Notice of Intent
  Request and Agreement for a Change in the Plans, Specifications and/or Contract (UMA Form 5)
  Instructions Regarding Change Orders and Contract Modifications (DCAM Form 13)
  Contractor's Weekly Workforce Report
  Minorities/Women in Contractor's Weekly Workforce Report
  Weekly Payroll Report Form and Statement of Compliance
  Quarterly Projected Workforce Table
  Certification of Payment by Contractor to MBE/WBE and Instructions
  Certificate of Completion by Minority/Women Business Enterprise
  Form for Transfer of Title (Work Not Incorporated, UMA Form 16)
  Certificate of Agency Use and Occupancy – E-1
  Certificate of Final Inspection, Release and Acceptance – E-2
  Form ST-5C

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Request and Agreement for a Change in the Plans,
Specifications and/or Contract (DCAM Form 5)
Notice of Intent
Contractor’s Weekly Workforce Report
Minorities/Women in Contractor’s Weekly Workforce Report
Weekly Payroll Report Form and Statement of Compliance
Quarterly Projected Workforce Table
Certification of Payment by Contractor to MBE/WBE and Instructions
Certificate of Completion by Minority/Women Business Enterprise
Form for Transfer of Title (Work Not Incorporated, DCAM Form 16)
Certificate of Agency Use and Occupancy -E-1
Certificate of Final Inspection, Release and Acceptance - E-2
ARTICLE I: DEFINITION OF TERMS

The following words shall have the following meanings as used in this Contract:

**Advertisement:** The Advertisement or Notice Inviting Bids or Proposals for the Work identified in Article 6 of the Owner - Contractor Agreement.

**Approval:** (or Approved): An approval in writing signed by the authorized signatory of the Awarding Authority.

**Architect:** The architect identified as the Designer in Article 1 of the *Owner - Contractor Agreement.*

**As directed (As permitted, as required, as determined or words of like effect):** The direction, permission, requirement or determination of the Designer or the Awarding Authority. Similarly, approved, acceptable, satisfactory or words of like import shall mean approved by or acceptable or satisfactory to the Designer, except as may be otherwise determined by the Awarding Authority.

**Awarding Authority:** The public agency awarding and administering this Contract identified as the Awarding Authority in the Owner - Contractor Agreement. Where the Awarding Authority is an agency of the Commonwealth, references to the Awarding Authority shall also include the Commonwealth and its agencies.

**Building Code:** All applicable rules and regulations to which the Awarding Authority is subject and which are contained or referenced in the code authorized by M.G.L. c. 143, s. 93 et seq., including all amendments thereto.

**Certificate of Agency Use and Occupancy:** A certificate signed by the Designer and the Awarding Authority pursuant to the requirements of Article VI of these General Conditions of the Contract, indicating that the Awarding Authority has determined that (1) the Work has been completed in accordance with the Contract Documents, except for Punch List items, (2) certificates of inspection, testing and/or approval (including a certificate of occupancy under the Building Code), operating permits for any mechanical apparatus which may be required to permit full use and occupancy of the Work by its intended users (which in a Subcontractor’s case may include the Contractor) have been delivered to the Awarding Authority, (3) any applicable written warranties, operating instructions and related materials have been delivered to the Awarding Authority, and (4) the Work may be used for its intended purpose without substantial inconvenience or interference.

**Change Order:** (1) A written order not requiring the consent of the Contractor, signed by the Project Manager and designated as a Change Order, directing the Contractor to make changes in the Work within the general scope of the Contract, or (2) any written or oral order from the Project Manager that causes any change in the Work, provided that the Contractor has given the Awarding Authority written notice stating the date, circumstances, and source of the order and that the Contractor regards the order as a Change Order.

**Contract:** The Contract formed by the Contract Documents as defined in Article 6 of the Owner - Contractor Agreement.

**Contract Documents:** The documents listed in Article 6 of the Owner - Contractor Agreement.
**Contract Modification:** Any alteration of the Contract Documents accomplished by a written agreement properly executed by the parties to this Contract.

**Contract Price:** The Contract Price stated in Article 3 of the Owner - Contractor Agreement which is the total sum owed to the Contractor for all of the Work.

**Days:** Represents calendar days, excluding weekend and holidays, unless otherwise specified.

**DCAM:** The Division of Capital Asset Management and Maintenance of the Commonwealth of Massachusetts.

**Designer:** The architect or engineer identified as the Designer in Article 1 of the Owner - Contractor Agreement, subject to the provisions of Article III, Section 1 of these General Conditions of the Contract.

**N/A**

**Dispute Review Board:** A panel of three experienced impartial reviewers organized and agreed upon by the Owner and Contractor. The Board members are provided with plans and specifications, become familiar with project procedures and participants and meet on the job site regularly to encourage the resolution of disputes at the job level and renders non-binding recommendations on the resolution of the dispute.

**Engineer:** The Designer, except that the term "Resident Engineer" shall have the meaning otherwise specified herein.

**Drawings:** The Drawings are the graphic and pictorial portions of the Contract Documents, wherever located and whenever issued, showing the design, location and dimensions of the Work, generally including Plans, elevations, sections, details, schedules, and diagrams.

**Final Acceptance:** The written determination by the Designer and by the Awarding Authority that the Work has been 100% completed, except for the Contractor's indemnification obligations, warranty obligations, obligations to continue to maintain insurance coverage for the time periods provided in the Contract Documents, and any other obligations which are intended to survive Final Acceptance and/or the termination of the Contract.

**General Bid:** The completed bid form submitted by the Contractor in accordance with the requirements of M.G.L. c. 149.

**Laws:** All applicable statutes, regulations, ordinances, codes, laws, orders, decrees, approvals, certificates and requirements of governmental and quasi-governmental authorities.

**Neutral:** An impartial third party not having an interest in the Owner, the Designer, the Contractor or the Project.

**Notice to Proceed:** The written notice provided by the Awarding Authority to the Contractor which authorizes the Contractor to commence the Work as of a date specified therein, from which date the time of completion specified in Article 2 of the Owner - Contractor Agreement is measured.

**Or equal (or words of like import):** Equal in the opinion of the Awarding Authority determined pursuant to the provisions of M.G.L. c.30, s. 39M and the provisions of these General Conditions of the Contract.
Owner: The University of Massachusetts Amherst, or other instrumentality that will own the Work, including but not limited to the following: UMBA and the Commonwealth.

Plan(s): Drawing(s).

Product Data: Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor or its Subcontractors and suppliers to illustrate materials or equipment for some portion of the Work. Product data also include any such information or instructions produced by the manufacturer or distributor of such materials or equipment and made readily available by said manufacturer or distributor.

Progress Schedule: The progress schedule Approved by the Designer and the Awarding Authority in accordance with Article VI of these General Conditions of the Contract.

Project: The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner or by separate contractors.

Project Manager: The Awarding Authority’s representative assigned to the Project.

James Morrissey 413-577-2298

Punch List: A list of items determined by the Awarding Authority to be minor incomplete or unsatisfactory work items that do not materially impair the usefulness of the Work for its intended purpose.

Resident Engineer: The on-Site representative of the Awarding Authority.

Samples: Samples are physical examples that illustrate materials, equipment, or workmanship and establish standards by which the Work will be judged.

Schedule of Values: The schedule Approved by the Awarding Authority pursuant to Article VIII of these General Conditions of the Contract which allocates the Contract Price to the various portions of the Work and is used as a basis for payments to the Contractor.

Shop Drawings: Drawings, diagrams, details, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate a portion of the Work.

Site: The land and, if any, building(s) or space within any such building(s) on which or in which the Contractor is to perform the Work.

Specifications: The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, construction systems, standards, and workmanship for the Work and performance of related services.

Subcontractor: Person or entity with whom the Contractor contracts in order to perform the Work, except as otherwise specifically provided or required herein or by Law.

Substantial Completion: For work subject to M.G.L. c. 30 s. 39K, "substantial completion" shall occur when (1) the Contractor fully completes the Work or substantially completes the Work so that the value of the Work remaining to be done is, in the estimate of the Awarding Authority, less than one percent of the original contract price, or (2) the Contractor substantially completes the work and the Awarding Authority takes possession for occupancy, whichever
occurs first. For work subject to M.G.L. c. 30 s. 39G "substantial completion" shall mean either that the work required by the Contract has been fully completed, completed except for work having a Contract Price of less than one percent of the then adjusted total Contract Price, or substantially all of the Work has been completed and opened to public use except for minor incomplete or unsatisfactory work items that do not materially impair the usefulness of the Work.

**Superintendent:** The licensed construction supervisor who is an employee of the Contractor designated to be in full-time attendance at the Site throughout the prosecution and progress of the Work and who shall have complete authority to act for the Contractor.

**User Agency:** The department, county, commission, board, agency or other instrumentality of the Commonwealth of Massachusetts or political subdivision thereof which operates or which will operate the facility at which the Work is undertaken or which comprises the completed Work.

**Work:** The Work defined in Article 1 of the Owner - Contractor Agreement, Article II, Section 2 of these General Conditions of the Contract and otherwise in the Contract Documents.

**Working Hours:** 7:00 a.m. to 5:00 p.m., but not more than eight hours per day, Monday through Friday, unless otherwise specified by applicable Laws.

All terms that this Contract defines may be used with or without initial capital letters. Other terms, abbreviations and references are defined as they appear herein. Words and abbreviations that are not defined in the Contract Documents but which have recognized technical or trade meanings are used in accordance with those meanings. For additional definitions of terms, abbreviations and references refer to the Supplementary General Conditions, or Specifications.

**ARTICLE II: EXECUTION OF THE CONTRACT, SCOPE OF WORK, INTERPRETATION OF CONTRACT DOCUMENTS**

1. **Execution.**
   The execution of the Owner – Contractor Agreement by the Contractor is a representation that the Contractor has visited the Site, has become familiar with local conditions under which the Work is to be performed and has correlated personal observations with requirements of the Contract Documents.

2. **Scope of Work.**
   The Work consists of the Work identified in the Contract Documents. The Work comprises the completed construction required by the Contract Documents and includes all labor, tools, materials, supplies, equipment, permits, approvals, paperwork, calculations, submittals, and certificates necessary to develop, construct and complete the Work in accordance with all Laws, and all construction and other services required to be supervised, overseen, performed or furnished by Contractor or that the Contract Documents require the Contractor to cause to be
supervised, overseen, performed or furnished. The Contractor shall provide and perform for the Contract Price all of the duties and obligations set forth in the Contract Documents.

3. **Interpretation.**
   A. The Plans and Specifications and other Contract Documents are to be considered together and are intended to be mutually complementary, so that any work shown on the Plans though not specified in the Specifications, and any work specified in the Specifications though not shown on the Plans, is to be executed by the Contractor as a part of this Contract.
   B. All things that in the opinion of the Designer may be reasonably inferred from the Plans, Specifications and other Contract Documents are to be executed by the Contractor. The Designer shall determine whether the detail Plans conform to the general Plans and Contract Documents, except as may be otherwise determined by the Awarding Authority.
   C. The tables of contents, titles, headings and marginal notes or sub-scripts contained herein are solely to facilitate references, are not intended to be construed as provisions of the Contract, and in no way affect the interpretation of the provisions to which they refer.
   D. Where reference is made in the Contract Documents to publications, standards, or codes issued by associations or societies, such reference shall be interpreted to mean the current edition of such publications, standards, or codes, including revisions in effect on the date of the Advertisement, notwithstanding any reference to a particular date. The foregoing sentence shall not apply to the dates, if any, specified with respect to insurance policy endorsement forms.
   E. In case of any conflict among the Contract Documents, unless the context clearly otherwise requires, the Contract Documents shall be construed according to the following priorities:
      First Priority: Contract Modifications
      Second Priority: Owner - Contractor Agreement
      Third Priority: General Conditions of the Contract
      Fourth Priority: Drawings and Specifications – the most stringent shall apply

4. **Distribution of Work.**
The distribution of the Work is intended to be described under the appropriate trades and, except for filed sub-bid work, may be redistributed, except as directed herein, provided that such redistribution shall cause no controversy among the trades and no delay in the progress of the Work.

5. **Contract Price.**
The Contract Price constitutes full compensation to the Contractor for everything to be performed and furnished in connection with the Work and for all damages arising out of the performance of the Work and/or the action of the elements, and constitutes the maximum compensation regardless of any difficulty incurred by the Contractor in connection with the Work or in consequence of any suspension or discontinuance of the Work.
ARTICLE III: CONTROL OF WORK / ADMINISTRATION OF THE CONTRACT

1. **Designer.**
Notwithstanding anything to the contrary expressed or implied in this Contract, any of the powers, rights, and duties of the Designer may be exercised by the Awarding Authority, provided that the Awarding Authority shall be under no obligation to do so. The Awarding Authority may rely on the Designer for the performance and exercise of its rights and obligations hereunder and shall be presumed to so rely on the Designer in the absence of an explicit written assumption by the Awarding Authority of any such rights and obligations, except that any Approval required to be obtained from the Awarding Authority hereunder shall not be valid without the signature of the Awarding Authority. The Awarding Authority may explicitly overrule in writing any action, determination or decision of the Designer should the Awarding Authority choose to do so, except to the extent that the same would violate applicable law. Subject to the foregoing, the Designer shall be responsible for the general administration of the Contract and shall perform the duties and exercise the rights herein conferred on the Designer. Except as otherwise specifically provided herein, the Designer shall decide all questions which may arise as to the conduct, quantity, quality, equality, acceptability, fitness, and rate of progress of the several kinds of work and materials to be performed and furnished under this Contract, and shall decide all questions which may arise as to the interpretation of the Plans and Specifications and as to the fulfillment of this Contract on the part of the Contractor. In the case of the death, resignation, inability or refusal of the Designer to act, or the termination of his or her or its employment, the Awarding Authority may appoint another person to act as Designer for the purposes of this Contract. The Awarding Authority shall give written notice to the Contractor of any such appointment.

2. **Right of Access to Work.**
The Awarding Authority, the User Agency and the Designer (and persons designated by them) may for any purpose enter upon the Work, the Site, and premises used by the Contractor, and the Contractor shall provide safe facilities therefore. Other contractors of the Awarding Authority may also enter upon the same for the purposes which may be required by their contracts or work. Any differences or conflicts which may arise between the Contractor and other contractors of the Awarding Authority with respect to their work shall be initially resolved by the Designer.

3. **Inspection No Waiver.**
No inspection by the Awarding Authority or the Designer or employees or agents of either of them, and no order, measurement, certificate, approval, payment order, payment, acceptance or any other action or inaction of any of them, shall operate as a waiver by the Awarding Authority of any provision of this Contract.
ARTICLE IV: GENERAL PERFORMANCE OBLIGATIONS OF THE CONTRACTOR

The Contractor shall complete for the Contract Price all of the Work in a proper, thorough, and workmanlike manner in accordance with the Contract Documents. Without limiting the foregoing and without limiting the Contractor's obligations under any other provision of the Contract Documents, the Contractor shall for the Contract Price perform the following general obligations:

1. **Review of Contract Documents and Field Conditions.**
   A. Before commencing the Work, the Contractor shall carefully study the Contract Documents and carefully compare all Specifications, Plans, Drawings, figures, dimensions, lines, marks, scales, directions of the Designer, and any other information provided by the Awarding Authority and shall at once report to the Designer any questions, errors, inconsistencies, or omissions.
   B. Before commencing the Work, the Contractor shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to the Contractor with the Contract Documents and shall at once report to the Designer any questions, errors, inconsistencies, or omissions.

2. **Supervision and Construction Procedures; Coordination; Cutting, and Patching.**
   A. The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and shall have control over, construction means, methods, techniques, sequences and procedures, and shall be responsible for coordinating all portions of the Work under the Contract.
   B. The Contractor shall be responsible for the proper fitting of all Work and the coordination of the operations of all trades, Subcontractors, and material men engaged upon the Work. The Contractor shall guarantee to each of its Subcontractors all dimensions which they may require for the fitting of their work to all surrounding work.
   C. All necessary cutting, coring, drilling, grouting, and patching required to fit together the several parts of the Work shall be done by the Contractor, except as may be specifically noted otherwise under any particular filed sub-bid section of the Specifications.
   D. The Contractor shall be responsible to the Awarding Authority for the acts and omissions of the Contractor's employees, agents and Subcontractors, and their agents and respective contractors employees, and other persons performing portions of the Work or supplying materials therefore.
   E. The Contractor shall be responsible for the inspection of portions of the Work already performed under this Contract to determine that such portions are in proper condition to receive subsequent Work.
   F. The Contractor shall employ a registered land surveyor to perform any engineering required for establishing grades, lines, levels, dimensions, layouts, and reference points for the trades. The Contractor shall be responsible for maintaining benchmarks and other survey marks and shall replace any benchmarks or survey marks that may have become disturbed or destroyed. The Contractor shall verify the materials shown on the Drawings before laying out the Work and shall be responsible for any error resulting from its failure to exercise this precaution.
G. Unless otherwise required by the Supplementary General Conditions or the Plans and Specifications, or directed in writing by the Designer, Work shall be performed during regular Working Hours. However, if the Contractor desires to carry on the Work outside of regular Working Hours or on Saturdays, Sundays, or Massachusetts or federal holidays then the Contractor shall allow ample time to allow satisfactory arrangements to be made for inspecting Work in progress and shall bear the costs of such inspection. The Awarding Authority shall bill the Contractor directly for such costs.

H. Work performed outside of regular Working Hours without the consent or knowledge of the Designer and/or the Awarding Authority shall be subject to additional inspection and testing as directed by the Designer. The cost of this inspection and testing shall be borne by the Contractor whether the Work is found to be acceptable or not. The Awarding Authority at its election shall be entitled either to issue a credit Change Order to cover such cost or to withhold such cost from any further payments due the Contractor and/or to receive a payment from the Contractor of the amount of such cost.

3. Superintendent.

A. The Contractor shall employ a Superintendent whose appointment shall be subject to the Approval of the Awarding Authority. The Superintendent shall be in attendance at the Site full-time during the performance of the Work. The Superintendent shall represent the Contractor. Communications given to and from the Superintendent shall be deemed given to and from the Contractor. Important communications shall be confirmed in writing. Other communications shall be similarly confirmed upon written request in each case. The Superintendent shall attend each job meeting. The Superintendent shall be responsible for coordinating all of the Work of the Contractor and the Subcontractors.

B. The Superintendent shall be a competent employee regularly employed by the Contractor. The Superintendent shall be licensed in accordance with the Building Code and shall have satisfactorily performed similar duties on previous construction projects similar in type, complexity and scale to the Project. The Superintendent’s resume shall be submitted to the Awarding Authority prior to commencement of construction together with such other information as the Awarding Authority may reasonably require in order to determine whether or not to Approve of his or her appointment. Any change in the Superintendent shall require the prior consent of the Awarding Authority. The Contractor shall establish an emergency telephone line by which the Awarding Authority, the Designer, or their respective agents may contact the Superintendent during non-working hours.

4. Labor.

A. The Contractor shall employ only competent workers. The Contractor shall enforce strict discipline and good order among the Contractor’s employees and other persons carrying out the Work. The Contractor shall certify and insure 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 the Contractor and each of its subcontractors and others working on the Project shall furnish documentation of successful completion of said course by employees working with the first certified payroll report for each employee. The
Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them. Whenever the Designer shall notify the Contractor in writing that any worker is, in the Designer's opinion, incompetent, unfaithful, disorderly, or otherwise unsatisfactory, such employee shall be discharged from the Work and shall not again be employed on the Project except with the consent of the Designer.

B. The Contractor shall employ a sufficient number of workers to carry on the Work with all proper speed in accordance with Laws, the requirements of the Contract Documents, and the Progress Schedule.

C. The Contractor shall procure materials from such sources and shall manage its own forces and the forces of its Subcontractors and any sub-subcontractors in such a manner as will result in harmonious labor relations on the Project Site. If union and nonunion workers are employed to perform any part of the Work, the Contractor shall establish and maintain separate entrances to the Site for the use of union and nonunion workers. The Contractor shall cause persons to be employed in the Work who will work in harmony with others so employed. Should the Work be stopped or materially delayed in the Awarding Authority’s reasonable judgment due to a labor dispute, the Awarding Authority shall have the right to require the Contractor to employ substitutes acceptable to the Awarding Authority.

A. The Contractor at its sole cost shall take out and pay for all approvals, permits, certificates and licenses required by Laws, pay all charges and fees, and pay for (or cause the appropriate Subcontractor to pay for) all utilities required for the proper execution of the Work.

B. The Contractor shall comply with all Laws and shall give all notices required thereby.

C. Except as otherwise specified in this Contract, it is not the Contractor's responsibility to ascertain that the Contract Documents are in accordance with applicable Laws. However, if the Contractor observes that portions of the Contract Documents are at variance with the requirements of Laws, the Contractor shall promptly notify the Designer and Awarding Authority in writing, and necessary changes shall be accomplished by an appropriate Contract Modification.

D. If the Contractor performs Work knowing it to be contrary to Laws without giving such notice to the Designer and Awarding Authority, the Contractor shall bear full responsibility for such Work and all costs attributable thereto, including, without limitation, corrections to the Work.

6. Lines, Marks etc.
The Contractor shall furnish batter boards and stakes and shall cause to be placed and maintained thereon so as to be easily read, such lines, marks and directions relating to the Work as the Designer shall from time to time direct. The Designer shall establish base lines and benchmarks on the Drawings for the locations of the Work but all other lines and grades shall be determined by the Contractor.
7. **Excavation.**
The Contractor shall prevent by sheeting and shoring or bracing, if necessary, any caving or bulging of the sides of any excavation made by the Contractor, leaving sheeting and shoring in place, or if any is removed, filling solid the spaces left thereby.

8. **Dewatering/Hoisting/Staging.**
The Contractor shall provide pumping, drainage, and disposal of all water and other flows so that no puddle, nuisance, or damage will be caused by water or flooding. The Contractor shall provide all hoisting equipment and machinery required for the proper execution of the Work. The Contractor shall provide all exterior and interior staging required to be over eight feet in height, except as may be otherwise provided in the Contract Documents.

9. **Corrections to the Work; Inspection No Bar to Subsequent Corrections.**
The Designer's inspection of the Work shall not relieve the Contractor of its responsibilities to fulfill the Contract obligations. Defective work may be rejected by the Designer whether or not such work and/or materials have been previously overlooked or misjudged by the Designer and accepted for payment. If the Work or any part thereof shall be found defective at any time before the Final Acceptance of the whole Work, the Contractor shall forthwith cease the performance of any defective work in progress and, whether or not such work is still in progress, shall forthwith correct such defect in a manner satisfactory to the Designer. If any material brought upon the Site for use in the Work, or selected for the same, shall be rejected by the Designer as unsuitable or not in conformity with the Contract Documents, or as damaged by casualty or deteriorated due to improper storage at the Site or to any other factor, the Contractor shall forthwith remove such materials from the Site. The Contractor shall pay for the cost of making good all work or property of other contractors or of the Owner destroyed or damaged by such removal or replacement; repair any injury, defect, omission or mistake in the Work as soon as it is discovered; finish and immediately make good any defect, omission or mistake in the Work; and complete and leave the Work in perfect condition.

10. **Sanitary Facilities.**
Except as otherwise specified in the Supplementary General Conditions or Specifications, the Contractor shall provide and maintain sanitary facilities for all persons employed on the Work, beginning with the first worker at the Site. Said facilities shall meet the following requirements unless otherwise specified in the Supplementary General Conditions or Specifications.

   A. There shall be no fewer facilities than the number required by applicable Laws;
   B. Facilities shall be kept in a clean sanitary condition at all times and shall be adequately screened to be inaccessible to flies.

(**Note:** If existing sanitary facilities at the Site are to be used by the Contractor, this requirement will be modified accordingly in the Supplementary General Conditions or Specifications.)
11. **Contract Documents and Samples at the Site.**
A reasonable number of sets of Contract Documents, as defined by the Awarding Authority, will be furnished to the Contractor by the Awarding Authority immediately after signing of the Contract, one of which shall be maintained at the Site for reference by authorized representatives of the Awarding Authority. The Contractor shall maintain at the Site for the use and information of the Awarding Authority one record copy of the Drawings, Specifications, Addenda, Change Orders, Approved Shop Drawings, Product Data, Samples, updated Progress Schedule, and all other submittals, all in good order and marked currently to record changes and selections made during construction. These shall be available to the Designer and the Awarding Authority and shall be delivered to the Designer for submittal to the Awarding Authority upon completion of the Work.

12. **Telephones.**
The Contractor shall provide and maintain separate individual telephone service and pay for all calls relating to the Work. Service and equipment shall meet the requirements, if any, of the Supplementary General Conditions and Specifications and shall include provisions for incoming and outgoing calls: (1) in the Contractor's field office for the use of its authorized agents and (2) in the Resident Engineer's office for the use of the Designer and authorized agents of the Owner.
13. **Health, Safety, and Accident Prevention**

A. In performing the Work, 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 U.S. Secretary of Labor by regulation;

   (2) Protect the lives, health, and safety of other persons; and

   (3) Prevent damage to property, materials, supplies, and equipment.

B. For these purposes, the Contractor shall:

   (1) Comply with 84 Stat. 1590, the "Occupational Safety and Health Act of 1970" (OSHA) and with regulations and standards issued by the U.S. Secretary of Labor at 29 CFR Part 1926; and

   (2) Include the terms of this Section 14 in every subcontract so that such terms will be binding on each subcontractor.

   (3) Designate by notice to the Awarding Authority a responsible member of its organization at the Site whose duties shall include ensuring safety, implementation of Contractor’s Safety Plan referenced below and preventing accidents.

C. The Contractor shall maintain an accurate record of exposure data on all accidents incident to the Work 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. Without limiting the foregoing, the Contractor shall submit to the Awarding Authority without delay verbal and written reports of all accidents involving bodily injury or property damage arising in connection with the Work.

D. In any emergency affecting the safety of persons or property the Contractor shall immediately act in the exercise of reasonable judgment to prevent threatened damage, injury, or loss. The Contractor shall immediately notify the Awarding Authority of such emergency.

E. The Contractor shall be responsible for its Subcontractors’ compliance with the provisions of this Section 14.

F. Before commencing any portion of the Work the Contractor shall submit a written Project-specific plan for implementing this Section 14. The plan shall include an analysis of the significant hazards to life, limb and property inherent in the performance of the Work and a plan for controlling these hazards.

G. Without limiting the foregoing provisions of this Section 14, the Contractor shall comply with all health and safety Laws applicable to the Work. Without limitation,

   (1) If the Contractor uses, stores or encounters toxic or hazardous substances it shall comply with M.G.L. c. 111F, s. 2, the "Right to Know" law and regulations promulgated by the Department of Public Health, 105 CMR 670, the Department of Environmental Protection, 310 CMR 33, and the Department of Labor and Workforce Development, 441 CMR 21; and shall post a Workplace Notice obtainable from the Department of Labor and Workforce Development.

   (2) The Contractor shall comply with the Federal Resource Conservation and Recovery Act, the Federal Comprehensive Environmental Response, Compensation and Liability Act, M.G.L. c. 21C, M.G. L. c. 21E, and any other Laws affecting toxic or
hazardous materials, solid, special or hazardous waste (collectively "Hazardous Materials Laws"). Should the Contractor discover unforeseen materials subject to Hazardous Materials Laws at the Site, the Contractor shall immediately comply with any and all requirements for dealing with such materials and notify all required governmental authorities and the Awarding Authority of such discovery.

(3) The Contractor shall be responsible for the location of all utilities in connection with the Work. Without limiting the foregoing, the Contractor shall comply with Dig-Safe Laws. Dig-Safe is the Utility Underground Plant Damage Prevention System, 331 Montvale Road, Woburn, MA, 01801, 1-888-344-7233. The Contractor shall notify Dig-Safe of contemplated excavation, demolition, or explosive work in public or private ways, and in any utility company right of way or easement, by calling 811 or online at http://www.digsafe.com.

(4) The Contractor shall comply with M.G.L. c. 149, s. 129A, relative to shoring and bracing of trenches.

H. Without limiting the Contractor’s responsibilities described above, the Contractor shall take all reasonable precautions for the safety of, and the prevention of injury or damage to (1) all agents and employees and contractors on the Work and all other persons who may be affected thereby including the general public, (2) all the Work and all materials and equipment to be incorporated therein, whether in storage on or off the Site, under the care custody or control of the Contractor or any of its Subcontractors or any contractors directly or indirectly contracting through any of them, and (3) other property at the Site or adjacent thereto, including but not limited to trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of the Work. The Contractor shall promptly remedy all damage or loss to any such property caused in whole or in part by the Contractor, any Subcontractor, or anyone directly or indirectly contracted or employed by any of them or by anyone for whose acts any of them may be liable. Without limiting the foregoing, the Contractor shall:

(1) post and maintain adequate danger signs and other warnings against hazards;

(2) promulgate safety regulations and give appropriate notices to the Awarding Authority and users of adjacent utilities and property;

(3) insure the adequate strength and safety of all scaffolding, staging and hoisting equipment, temporary shoring, bracing and tying;

(4) protect adjoining private or public property;

(5) provide barricades, temporary fences, and covered walkways required by prudent construction practices, Laws and/or the Contract Documents;

(6) furnish approved hard hats and other personal protective equipment, furnish approved first aid supplies, furnish the name of the first aid attendant, and maintain a posted list of emergency facilities;

(7) provide proper means of access to property where the existing access is cut off by the Contractor;

(8) maintain from the beginning of any darkness or twilight through the whole of every night sufficient lights on or near any obstruction so as to guard and protect travelers from injury from such obstruction;

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(9) maintain adequate security at the Site so as not to expose the Work and surrounding property to vandalism or malicious mischief;

(10) provide adequate fire protection procedures during the use of cutting torches, welding equipment, plumbers' torches and other flame and spark producing apparatus;

(11) take prompt action to correct any dangerous or hazardous conditions.

I. The Contractor shall not use or store explosives in the performance of the Work unless the Contractor first obtains the Awarding Authority's prior written specific Approval. If the Awarding Authority Approves the use or storage of explosives during the performance of the Work, the Contractor shall first comply with all Laws and obtain all permits, approvals, and certificates required in connection with the same and shall exercise best efforts, including but not limited to the employment and supervision of properly qualified personnel, to prevent damage, injuries, and accidents involving said explosives.

J. The Contractor shall not permit cutting or welding in or immediately adjacent to existing property of the Owner, Awarding Authority or of anyone else without the Awarding Authority's prior Approval in each instance.


A. The Contractor shall not permit the accumulation of interior or exterior debris. The Contractor shall keep the Work area clean at all times. Without limitation, garbage shall be removed daily.

B. The Contractor shall properly classify and remove debris and waste from the Site and transport and dispose of it, all in accordance with Laws, employing a qualified and properly licensed transporter, at any landfill, disposal or recycling facility licensed under applicable Laws, including without limitation, hazardous materials laws. The Contractor shall make all arrangements and give and obtain all notices, communications, documentation, permits, certificates, and approvals necessary for said disposal from the owner or officials in charge of such landfills, disposal or recycling facilities. The Contractor shall bear all fees and costs in connection with such classification, removal, transportation, disposal and storage. The Contractor shall not permit any storage of debris or waste except in accordance with Laws.

C. The Contractor shall not permit any open fire on the Site.

D. Chemical Waste: Chemical waste shall be stored in corrosion resistant containers, removed from the Site, and disposed of not less frequently than monthly unless more frequently required by Laws, including without limitation hazardous materials laws, or by the Supplementary General Conditions or Specifications. Disposal of chemical waste shall be performed in accordance with requirements of the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (DEP). Fueling and lubricating of vehicles and equipment shall be conducted in a manner that affords the maximum protection against spills and evaporation. Lubricants shall be disposed of in accordance with procedures meeting all applicable Laws. The Contractor shall immediately notify the Designer of any hazardous materials release large enough to require reporting under applicable Laws. The Contractor shall be responsible for immediately cleaning up in accordance with Laws any oil or hazardous materials releases resulting from its operations. Any costs incurred in cleaning up any such releases shall be borne by the Contractor.
15. Weather Protection (M.G.L. c. 149, s. 44G and 44F(1)).
The Contractor shall furnish and install "weather protection," which means temporary protection of that Work adversely affected by moisture, wind and cold. Weather protection shall be achieved by covering, enclosing and/or heating working areas such that a minimum temperature of 40 degrees Fahrenheit is maintained at the working surface during the months of November through March in order to permit construction to be carried on during such period in accordance with the Progress Schedule. After the building or portion thereof is completely enclosed by either permanent construction or substantial temporary materials having a resistance comparable to the specified permanent construction, the Contractor shall provide heat therein of not less than 55 degrees F. nor more than 75 degrees F. The foregoing provisions do not supersede any specific requirements for methods of construction, curing of materials and the like. Such weather protection shall be consistent with the Progress Schedule, shall permit the continuous progress of the Work necessary to maintain an orderly and efficient sequence of construction operations, shall include one thermometer for every 2,000 square feet of floor space or fraction thereof, shall be subject to the Approval of the Awarding Authority, and shall meet such additional requirements as may be set forth in the Supplementary General Conditions or the Specifications.

16. Furnishings and Equipment.
When, in the opinion of the Designer, any portion of the Work is in a reasonable condition to receive fittings, furniture, or other property of the Owner not covered by this Contract, the Contractor shall allow the Awarding Authority to bring such fittings, furniture, and/or other property into such portions of the Work and shall provide all reasonable facilities and protection thereof. No such occupancy shall be construed as interfering with the provisions relating to time of completion, or as constituting an acceptance of the whole or any part of the Work. Any furniture or fittings so installed shall be placed in the Work at the risk of the Awarding Authority except that the Contractor shall be liable for damages or losses to such furniture or fittings to the extent such damages or losses arise in whole or in part from the negligence or intentional misconduct of Contractor, Subcontractors, their agents and/or employees, or anyone for whose acts Contractor is responsible.

17. Form for Sub-contract.
The Contractor when subcontracting with sub-bidders filed pursuant to M.G.L. c. 149, s.44F shall use the form for sub-Contract in M.G.L. c. 149, s. 44F(4) (c). The Contractor shall not interpret paragraph 3 of the statutory form of Subcontract to require such sub-bidders to provide insurance with limits higher than the limits that are required by Article XIV of these General Conditions of the Contract assuming that the term “Contractor” refers to the sub-bidder and that the term “Contract Price” refers to the sub-bidder’s price stated in paragraph 1 of the statutory form of Subcontract.

18. Sales Tax Exemption and Other Taxes.
All building materials and supplies as well as the rental charges for construction vehicles, equipment and machinery rented exclusively for use on the Site, or while being used exclusively for the transportation of materials for the Work are entitled to an exemption from sales taxes under M.G.L. c. 64H, s. 6(f). The Contractor shall take all action required to obtain the benefit of
such sales tax exemption under the University of Massachusetts Amherst Form ST-5C Contractor’s Sales Tax Exemption, Purchase Certificate, E 043-167-352. The Contractor shall bear the cost of any sales taxes that Contractor incurs in connection with the Work and the Awarding Authority shall not reimburse the Contractor for any such taxes. A copy of the Form ST-5C is provided with this contract.

19. Final Cleaning.
At the completion of the Work, the Contractor shall remove all waste materials, rubbish, tools, equipment, machinery and surplus materials, and professionally clean all sight-exposed surfaces so that the Work is clean and ready for occupancy. Subsequent to installation of User Agency furniture, telephones, and equipment, the Contractor shall provide such additional cleaning as may be necessary to remove any soil resulting from installation of such furniture, telephones and equipment.

Subject to such additional requirements as may be provided in the Supplementary General Conditions or Specifications, the Contractor shall compile 3 complete and identical binders of operating and maintenance data for the entire Work. The Contractor shall submit record maintenance data to the Designer for approval, shall submit approved maintenance data to the Awarding Authority, and shall instruct and train the User Agency’s personnel in proper inspection and maintenance procedures.
21. **Closeout Procedures.**
The Contractor shall take all actions and submit all items required for the issuance of the Certificate of Agency Use and Occupancy and Final Acceptance as specified in the Contract Documents.

22. **Risk of Loss.**
The Contractor shall bear all risk of loss to the Work during the term of the Contract except for any portion of the Work as to which the Certificate of Agency Use and Occupancy has been issued pursuant to Article VI of these General Conditions of the Contract. Nothing herein shall limit the Contractor's responsibilities under Article IX or XV of these General Conditions of the Contract.

23. **LEED Requirements**
Contractor understands that, pursuant to Executive Order No. 484, all new construction and renovation projects over 20,000 square feet must, at a minimum, meet a Massachusetts LEED Plus building standard, and that smaller projects must meet the minimum energy performance standards for advanced buildings established by the Commonwealth of Massachusetts Sustainable Design Roundtable. Furthermore, Contractor understands that the Massachusetts LEED silver standard or a higher LEED standard applies to all projects overseen by the University of Massachusetts Amherst, as well as all projects built on state land for use by state agencies. Contractor must document compliance with this executive order and Project LEED certification standards as described in the project specifications.

**ARTICLE V: MATERIALS AND EQUIPMENT**

1. **Materials Generally.**
   A. Unless otherwise specifically provided in the Contract Documents, the Contractor shall provide and pay for materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.
   B. Materials and equipment to be installed as part of the Work (both or either of which are hereinafter referred to as "materials") shall be new, unused, of recent manufacture, assembled, and used in accordance with the best construction practices. The Contractor shall inform himself as to, and shall comply with, the provisions of M.G.L. c. 7, s. 23A, as amended, and shall abide by the same and all applicable rules, regulations and orders made thereunder in relation to the purchase of supplies and materials in the execution of the Work, including the provisions of M.G.L. c.7, s. 22, paragraph 17 which provides that there be "a preference in the purchase of supplies and materials, other considerations being equal, in favor, first, of supplies and materials manufactured and sold within the Commonwealth, and, second, of supplies and materials manufactured and sold elsewhere within the United States."
2. Shop Drawings, Product Data, and Samples.

A. The Contractor shall furnish to the Designer all samples of the materials to be used in the execution of the Work as required by the Contract Documents. The Contractor shall furnish to the Designer in a timely manner all coordination Drawings, shop details, Shop Drawings, and setting diagrams which may be necessary for acquiring and installing materials. These shall be reviewed as required by the Designer. A minimum of six (6) copies shall be submitted for final approval, one of which shall be returned to the Contractor, one to the Resident Engineer, one to the Awarding Authority and one filed with the Designer. The inspection and approval by the Designer of Shop Drawings, etc. shall be general and shall in no way relieve the Contractor from responsibility for proper fitting, coordinating, construction, and construction sequencing. The Contractor shall furnish to the Designer such information and vouchers relative to the Work, the materials therefore, and the persons employed thereon, as the Designer shall from time to time request.

B. Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. The purpose of their submission is to demonstrate for those portions of the Work for which submittals are required the way the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents.

C. The Contractor shall review, approve, and submit to the Designer, Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Awarding Authority or of separate contractors. Submittals made by the Contractor which are not required by the Contract Documents or which do not comply with the Contract Documents may be returned without action. The Contractor's attention is directed to the provisions of Section 4 of this Article V and to the Specifications.

D. The Contractor shall prepare and keep current for the Designer's approval a schedule of submittals which is coordinated with the Progress Schedule and allows the Designer reasonable time to review submittals.

E. The Contractor shall perform no portion of the Work requiring submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Designer. Such Work shall be in accordance with Approved submittals.

F. By submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents that the Contractor has determined and verified materials, field measurements, and field construction criteria related thereto and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

G. The Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Designer's approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Designer in writing of such deviation at the time of submittal and the Awarding Authority has given explicit written approval to the specific deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals by the Designer's or the Awarding Authority's actions.
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H. The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Designer on previous submittals.

I. Informational submittals upon which the Designer is not expected to take responsive action may be so identified in the Contract Documents.

J. When professional certification of performance criteria of materials, systems or equipment is required by the Contract Documents, such certification must be stamped by a registered Massachusetts professional in the discipline required. The Designer shall be entitled to rely upon the accuracy and completeness of such calculations and certifications.

K. Materials furnished or used or employed under the Contract must be equal in quality to the samples furnished and be satisfactory to the Designer.

3. Tests.

A. Any material to be used in the Work may be tested or inspected at any time by the Designer with the prior Approval of the Awarding Authority and may be rejected if it fails to comply with specified tests. The Awarding Authority shall pay for all testing of specified material. If the Contractor requests permission to use a material that was not specified, then the Contractor shall pay for such testing. The cost of testing of materials that fail the testing criteria shall be borne by the Contractor.

B. The Contractor shall notify the Designer and the Awarding Authority of the proposed sources of materials in time to permit all required testing and inspection before the material is needed for incorporation into the Work. The Contractor shall have no claim arising from Contractor's failure to designate the proposed source or to order the material in time for adequate testing and inspection. Necessary arrangements shall be made to permit the Designer to make factory, shop or other inspection of materials or equipment ordered for the Work in process of manufacture or fabrication, or in storage elsewhere than the Site.

4. "Or Equal" Submissions.

A. Where products or materials are prescribed by manufacturer name, trade name, or catalog reference, the words "or Approved equal" shall be understood to follow. An item shall be considered equal to the item so named or described if in the opinion of the Awarding Authority (a) it is at least equal in quality, durability, appearance, strength and design, (b) it performs at least equally the function imposed in the general design for the Work, and (c) it conforms substantially, even with deviations, to the detailed requirements for the items as indicated by the Specifications. Any structural or mechanical changes made necessary to accommodate products or materials substituted as an "or equal" shall be at the expense of the Contractor. "Approved equal" shall mean an item with respect to which the Awarding Authority shall have issued a written statement to the Contractor to the effect that the item is, in the Awarding Authority's opinion, equal within the meaning of this paragraph to that prescribed in the Contract Documents.

B. The Contractor shall be responsible for providing the Designer with any information and test results that the Designer reasonably requires to determine whether or not a material is equal to a material named or described in the Contract Documents.
C. Whenever the Contractor submits a material for approval as a substitute for a material named or described in the Contract Documents, such submission shall be made at least one hundred twenty (120) days prior to the date the materials will be used in the Work. In no event shall the Contractor maintain a claim for delays based upon the Designer’s review of such substituted materials if the Contractor has failed to comply with the one hundred twenty (120) day submission requirement.

D. The Contractor shall save the written calculations, pricing information, and other data that the Contractor used to calculate the General Bid (the "Bid Pricing Materials") for at least six years after the Awarding Authority makes Final Payment under this Contract. No increase in the Contract Price shall be allowed for any material later found to have been improperly rejected as not being equal unless the Contractor can show persuasive evidence that the rejection increased the Contractor’s costs over those provided for in the Bid Pricing Materials, net of all savings the Contractor obtained by substituting other "or-equal" items. Without limiting the foregoing, if the Awarding Authority rejects a proposed substitution on the basis that the item is not equal and if after the Contractor complies with the appeal procedures required by law, DCAM regulation, and by the Contract Documents, the appropriate authority finds that the proposed substitution was equal, the Contract Price may be increased only to the extent that (1) the item that the Contract Documents specifically require costs more than the item later approved as equal, (2) the Bid Pricing Materials prove that the Contractor calculated its bid using the cost of the item later found as equal, (3) any increase is reduced by any cost that the Contractor would have incurred for structural or mechanical changes necessary to accommodate the substitute item, (4) the Contractor shall not be entitled to any adjustment for overhead and profit, (5) any increase must exceed the aggregate amount that the Contractor saved using products or materials that the Awarding Authority approved as equal under this Contract. In calculating the Contractor’s aggregate saving under the preceding clause (5), the Contractor shall provide the Awarding Authority with the Bid Pricing Materials and a calculation based on the Bid Pricing Materials that compare the price (stated in the Bid Pricing Materials) of each item replaced with an "or equal" item, with the cost of the approved equal item, specifically describes all costs that Contractor would have incurred making structural or mechanical changes to include within the Work the item later found to have been improperly rejected and copies of all plans, specifications, shop Drawings, and other design documents that the Awarding Authority deems necessary or desirable.

5. Delivery and Storage of Materials; Inspection.

A. Materials and equipment shall be progressively delivered to the Site so that there will be neither delay in the progress of the Work nor an undue accumulation of materials that are not to be used within a reasonable time and so that their security, quality, and fitness of the materials for the Work is preserved.

B. Materials stored off Site shall be insured and stored at the expense of the Contractor so as to guarantee the preservation of their security, quality and fitness for the Work. Without derogating from the Contractor’s responsibilities in the previous sentence, when necessary to avoid deterioration or damage, material (on or off Site) shall be placed on wooden platforms or other hard clean surfaces and not on the ground and shall be properly protected.
C. Expenses for inspection of material by the Designer and/or the Awarding Authority personnel including travel, quarters, and subsistence shall be borne by the Contractor requesting the inspection of material stored outside the Commonwealth of Massachusetts as part of the Contract Price. The policy of the Awarding Authority precludes the payment for material stored outside the boundaries of Massachusetts except in extremely limited circumstances with the express written consent of the Awarding Authority. If the Contractor requests an inspection of material stored outside the Commonwealth of Massachusetts, the Awarding Authority will initially pay for all expenses of inspecting the material incurred by the Designer and/or Awarding Authority’s personnel including travel, quarters, and subsistence. The Awarding Authority will then give Contractor an invoice for those costs and the Contractor shall submit a credit Change Order for the amount of those expenses.

D. Stored materials either at the Site or at some other location agreed upon in writing shall be so located as to facilitate prompt inspection and even though approved before storage, may again be inspected prior to their use in the Work.

E. All storage sites shall be restored to their original condition by the Contractor at the Contractor’s expense.

F. The Contractor shall take charge of and be liable for any loss of or injury to the materials for his use delivered to or in the vicinity of the place where the Work is being done, whether furnished by the Owner or otherwise; the Contractor shall notify the Designer as soon as any such materials are so delivered, allow them to be examined by the Designer, and furnish workers to assist therewith.

6. Defective, Damaged, or Deteriorated Materials and Rejection Thereof.

The Designer may reject materials if the Designer reasonably determines that such materials do not conform to the Contract Documents in any manner, including but not limited to materials that have become damaged or deteriorated from improper storage whether or not such materials have previously been accepted. The Contractor at its own expense shall remove rejected materials from the Work. No rejected material, the defects of which have been subsequently corrected, shall be used except with the written permission of the Designer. Should the Contractor fail to remove rejected material within a reasonable time, the Designer and/or Awarding Authority may, in addition to any other available remedies, remove and/or replace the rejected material, and to deduct the cost of such removal and/or replacement from any moneys due or to become due the Contractor. No extra time shall be allowed for completion of Work by reason of such rejection. The inspection of the Work shall not relieve the Contractor of any of its obligations herein prescribed, and any defective Work shall be corrected. Work not conforming to the Contract Documents may be rejected notwithstanding that such Work and materials have been previously overlooked or misjudged by the Designer and accepted for payment. If the Work or any part thereof shall be found defective at any time before Final Acceptance of the whole Work, the Contractor shall forthwith make good such defect in a manner satisfactory to the Designer. Nothing in the Contract shall be construed as vesting in the Contractor any property rights in the materials used after they have been attached or affixed to the Work or the Site; but all such materials shall upon being so attached or affixed become a property of the Owner.
ARTICLE VI: PROSECUTION AND PROGRESS

1. **Beginning, Progress Schedule, and Completion of Work.**
   A. The Contract time shall commence upon the date specified in the Notice to Proceed. The Contractor shall begin Work at the Site within ten days of said date unless otherwise ordered in writing by the Awarding Authority.
   B. Within ten days after the Work has commenced, the Contractor shall submit to the Designer and to the Awarding Authority, a progress schedule, detailed and computer generated for the term of the Contract as required by the Contract Documents, showing in detail his proposed progress for the construction of the various parts of the Work and the proposed times for receiving required materials. Upon Approval by the Awarding Authority, said schedule shall constitute the Progress Schedule. The Contractor shall at the end of each month, or more often if required, furnish to the Designer and to the Awarding Authority a schedule meeting the requirements of the Specifications showing the actual progress of the parts of the Work in comparison with the Progress Schedule.
   C. Time is of the essence of this Contract. The Work shall be completed within the time specified in Article 2 of the Owner - Contractor Agreement. Should the Contractor require additional time to complete the Work, the Contractor shall document the reasons therefore and submit a written request for an extension of time within 20 days of the occurrence of the event alleged to be the cause of the delay, as provided in this Article and in Article VII of these General Conditions of the Contract. Failure to submit said written request within the time required by the preceding sentence shall preclude the Contractor from subsequently claiming any time extension due to said delay.
   D. If, in the opinion of the Designer or the Awarding Authority, the Contractor fails to comply with the Progress Schedule, the Awarding Authority may give the Contractor a notice specifying the time limits and performance standards that the Contractor is failing to meet whereupon (1) the Contractor shall, if the notice requires, discontinue all or any portion of the Work (which discontinuance shall neither terminate the Contract nor give the Contractor any claim for an increase in the Contract Price, damages, or an extension of any completion deadlines); or (2) at Contractor’s sole cost increase the work force, equipment and plant, or any of them, employed on the whole or any part of the Work, to the extent required by such notice, and employ the same from day to day until the completion of the Work or such part thereof, or until the failure regarding the rate of progress, in the opinion of the Designer or the Awarding Authority, shall have been sufficiently corrected.
   E. If, in the opinion of the Awarding Authority, the Contractor fails to comply with the Progress Schedule, and whether or not the Awarding Authority shall have given the Contractor a notice described in D above, the Awarding Authority may (but shall not be required to) give the Contractor notice of such failure and five days to cure the same. Unless the Contractor shall within that five days take all necessary steps to do so (including, if the Awarding Authority requires, increasing its forces, equipment and plant) and continue to do so until in the opinion of the Awarding Authority the failure is corrected, the Awarding Authority may at the Contractor’s expense and without terminating this Contract take exclusive or joint possession of all or a portion of the Site and employ and direct the labors of existing or such additional forces, equipment and plant as may in the Designer’s or Awarding Authority’s opinion be necessary to
insure the completion of the Work or such part thereof within the time specified in the Contract Documents or at the earliest possible date thereafter. The Awarding Authority may exercise its rights under this Article at any time and from time to time without waiving any of its rights under this Contract, at law or in equity, including, without limitation, the right to deem this Contract terminated or to order the Contractor to discontinue the Work at any time thereafter. The Contractor shall continue to perform the remaining Work under this Contract even if the Awarding Authority elects to have another contractor perform a portion of the Work under this Article.

F. The Awarding Authority shall deduct the cost of any actions the Awarding Authority takes under this Article from any amount then due or which might have become due to the Contractor under this Contract had the Contractor performed as required. On demand, the Contractor shall pay the Awarding Authority any amount by which the cost of completing all or any portion of the Work exceeds the amount attributable to that Work under the Contract Documents. The Awarding Authority's sole goal will be to complete the Work that it elects to complete within the time limits stated in the Contract or at the earliest possible date thereafter. Consequently, the Awarding Authority shall have no obligation to obtain competitive bids or the lowest cost for completing the Work or any part thereof. The Awarding Authority's election to complete all or part of the Work shall not release the Contractor from any liability for failure to complete the Work as the Contract Documents require, and shall not entitle the Contractor to a claim for an increase in the Contract Price or an extension of the time for completing the Work. If the cost that the Awarding Authority incurs in completing all or any portion of the Work is less than the amount that the Contract Documents attribute to that Work, the Awarding Authority will pay or credit the difference to the Contractor, less any other costs and expenses that the Awarding Authority incurs, including the cost of supervision, and the Designer’’s and attorneys' fees and costs.

2. Failure to Complete Work on Time - Liquidated Damages.

A. If liquidated damages are specified in the Owner - Contractor Agreement, the Awarding Authority has determined that its damages as a result of Contractor's failure to complete the Work to the point at which it qualifies for the issuance of a Certificate of Agency Use and Occupancy will be difficult or impracticable to ascertain. Accordingly, if the Work is not completed to such a point by the date specified in this Contract, the Contractor shall pay to the Awarding Authority the sum designated as liquidated damages in the Contract for each and every calendar day that the Contractor is in default in completing the Work to such point. Such moneys shall be paid as liquidated damages, not as a penalty, to cover losses and expenses to the Awarding Authority and/or the User Agency resulting solely from the fact that the Work is not completed on time.

B. Similarly, if the Contract states that by a specified date a designated portion of the Work shall be prosecuted to the point at which it qualifies for the issuance of a Certificate of Agency Use and Occupancy, and if such portion has not been prosecuted to such point by said date, the Contractor shall pay to the Awarding Authority the sum designated in the Contract for each calendar day that the Contractor is in default in completing such portion of the Work to such point. Such moneys shall also be paid as liquidated damages not as a penalty, to cover
losses and expenses to the Owner resulting solely from the fact that the Work is not completed on time.

C. The Awarding Authority may recover such liquidated damages by deducting the amount thereof from any moneys due or that might become due the Contractor, and if such moneys shall be insufficient to cover the liquidated damages, then the Contractor or the Surety shall pay to the Awarding Authority the amount due.

D. Permitting the Contractor to continue and finish the Work or any portion of it after the time fixed in the Contract for its completion shall not be deemed as a waiver of any of the Owner's rights hereunder, at law or in equity.

E. Liquidated damages or a portion thereof may be waived by the Awarding Authority if the Contractor submits evidence satisfactory to the Awarding Authority that the delay was caused solely by conditions beyond the control of the Contractor and that the Awarding Authority has not suffered any damages as a result of said delay.

F. Failure by the Awarding Authority to specify a sum as liquidated damages in the Owner - Contractor Agreement, or the insertion of "N/A" or "none" in the space provided therein for liquidated damages, shall not be deemed a waiver of the Awarding Authority's right to recover actual damages arising from the Contractor's failure to complete the Work on time.

G. During the period when the Awarding Authority is assessing any cost associated with the failure to meet the substantial completion end date, the University of Massachusetts Amherst may create a Unilateral Change Order for an extension of dates to allow for any contractual obligations it has in association with this UMA project. This Unilateral Change Order should not in any way be construed by the contractor to be an extension to the actual contract substantial completion date.

3. Delays; Statutory Provisions (M.G.L. c. 30, s. 390).

A. Notwithstanding any provision of this Contract to the contrary, except as otherwise provided by law as set forth in paragraph B below, the Contractor shall not be entitled to increase the Contract Price or to receive damages on account of any hindrances or delays, avoidable or unavoidable; but if any delay is caused in the opinion of the Designer by the Awarding Authority, the Contractor shall be entitled to an extension of time. The length of the extension shall be sufficient in the opinion of the Designer for the Contractor to complete the Work. Although no delay shall increase the Contract Price, the Awarding Authority may require that any change in the date by which the Contractor must complete all or any part of the Work be processed on a standard Change Order form.

B. If a suspension, delay, interruption or failure to act of the Awarding Authority increases the cost of performance to any Subcontractor, that Subcontractor shall have the same rights against the Contractor with respect to such increase as the Contractor shall have against the Awarding Authority by virtue of (a) and (b) of M.G.L. c. 30, s. 390 set forth below, but nothing in provisions (a) and (b) shall alter any other rights which the Contractor or the subcontractor may have against each other. As used in the statutory language of (a) and (b) below, "contract" means this Contract, "general contractor" means the Contractor and "awarding authority" means the Awarding Authority:

"(a) The awarding authority may order the general contractor in writing to suspend, delay, or interrupt all or any part of the work for such period of time as it may determine to be
appropriate for the convenience of the awarding authority; provided, however, that if there is a
suspension, delay or interruption for fifteen days or more or due to a failure of the awarding
authority to act within the time specified in this contract, the awarding authority shall make an
adjustment in the contract price for any increase in the cost of performance of this contract but
shall not include any profit to the general contractor on such increase; and provided further,
that the awarding authority shall not make any adjustment in the contract price under this
provision for any suspension, delay, interruption or failure to act to the extent that such is due to
any cause for which this contract provides for an equitable adjustment of the contract price
under any other contract provisions.

(b) The general contractor must submit the amount of a claim under provision (a) to
the awarding authority in writing as soon as practicable after the end of the suspension, delay,
interruption or failure to act and, in any event, not later than the date of final payment under
this contract and except for costs due to a suspension order, the awarding authority shall not
approve any costs in the claim incurred more than twenty days before the general contractor
notified the awarding authority in writing of the act or failure to act involved in the claim."

4. Use and Occupancy Prior to Final Acceptance.
   A. The Contractor agrees to the use and occupancy of the Project or any portion thereof
      before Final Acceptance of the Work by the Awarding Authority.
   B. The Awarding Authority and the User Agency will cooperate with the Contractor with
      respect to the completion of the Work by taking such reasonable steps as may be possible to
      avoid interference with the Contractor’s Work provided that they do not interfere with the
      proper functioning of the facility.
   C. The Contractor shall not be responsible for wear and tear or damage resulting solely
      from temporary occupancy.
   D. Use and occupancy of any part of the Work prior to Final Acceptance by the Awarding
      Authority shall not relieve the Contractor from maintaining the required payment and
      performance bonds and insurance (to the extent that insurance is required to be maintained
      after Substantial Completion) required by this Contract.

   A. When the Work, or portion thereof which the Awarding Authority agrees to accept
      separately has reached the state of Substantial Completion as shown on Approved payment
      request, the Contractor shall develop, with the participation of the Designer and the Awarding
      Authority, the Punch List identifying those items of unfinished or unacceptable Work that
      remain to be performed or corrected under the Contract.
   B. Before the Work shall be deemed completed to the point where it is ready for the
      issuance of a Certificate of Agency Use and Occupancy, the Contractor shall:
      (1) Provide Contractor’s proposed Punch List containing a statement of the reason
          for each item listed thereon;
      (2) Advise the Awarding Authority of proposed changes in insurance in accordance
          with the provisions of this Contract, and provide to the Awarding Authority evidence
          of Contractor’s Completed Operations insurance coverage to the extent required by
          the Contract Documents;
(3) Execute and submit a notarized warranty on a form provided by the Awarding Authority meeting the requirements of Article IX of these General Conditions of the Contract, to commence upon the date of the issuance of the Certificate of Agency Use and Occupancy for the Work or the designated portion thereof, unless otherwise provided in the Certificate of Agency Use and Occupancy;

(4) Submit signed special warranties and warranties of longer than one year as required by the Contract Documents;

(5) Submit signed maintenance agreements for all portions of the Work specified to receive maintenance after the issuance of the Certificate of Agency Use and Occupancy;

(6) Submit all preliminary record Drawings the Awarding Authority and Designer written acknowledgements from appropriate User and documents and framed data in the forms required by the Contract Documents;

(7) Complete all items required to be completed by the Department of Public Safety and obtain a Certificate of Occupancy from the Department of Public Safety (or, if the Awarding Authority is a municipality, the building department having jurisdiction) and similar releases which permit the User Agency and the Awarding Authority full and unrestricted use of the areas claimed to be ready for occupancy;

(8) Deliver specified maintenance stocks of materials, required spare parts, and all special tools furnished by manufacturers to persons designated by the Awarding Authority and obtain written receipts for same;

(9) Make final changes of lock cylinders or cores and advise the Awarding Authority of the change of project security responsibility;

(10) Complete start-up of systems and instruct User Agency personnel on proper operation and routine maintenance of all systems and equipment; obtain and submit to Agency personnel that start-up and instruction have been completed;

(11) Remove all remaining temporary facilities that are no longer needed, surplus materials, and debris; (the Contractor shall not remove construction offices and trailers without the prior Approval of the Awarding Authority);

(12) Submit final utility meter readings and similar information and advise the User Agency and the Awarding Authority of the change of responsibility for utility charges and payments upon the issuance of the Certificate of Agency Use and Occupancy;

(13) Complete final clean-up of all Work, restoration of damaged finishes, and replacement of all damaged and broken glass not listed on the Contractor's Punch List.

(14) Complete such other items as may be called for in the Supplementary General Conditions, if any, or in the Specifications.

C. After completing the items specified in subsection A above, the Contractor shall make a written request for the Designer’s inspection for a Certificate of Agency Use and Occupancy in accordance with the Contract Documents. The Designer shall review the submittals and the Work and shall either 1) have a state building official sign a Certificate of Agency Use and Occupancy or 2) notify the Contractor of incomplete and/or incorrect Work that must be completed and corrected prior to the issuance of the Certificate of Agency Use and Occupancy. The Designer shall notify the Contractor of any additions to the Punch List. In connection with
the execution of the Certificate of Agency Use and Occupancy the Designer shall assign dollar values to each item on the Punch List. Failure to include any incomplete or defective item on the Punch List shall not relieve the Contractor of the obligation to complete all Work in accordance with the Contract Documents.


A. Prerequisites for Final Acceptance. After the issuance of a Certificate of Agency Use and Occupancy for the entire Work, and after the Contractor has completed all of the Work required by this Contract, including Change Orders and Punch List Items, the Contractor shall submit the following completed items to the Awarding Authority together with such additional items as may be specified in the Contract Documents:

1. A completed Final Application for Payment showing a final accounting of all changes in the Work, on the form provided by the Awarding Authority.
2. Certification and satisfactory evidence that all taxes, fees, and similar obligations have been paid.
3. Consent of the Surety to Final Payment executed by applicable bonding companies.
4. Certified copy of the Punch List stating that the Contractor has completed or corrected every item listed.
5. Evidence of Contractor's continuing Completed Operations Insurance coverage to the extent required by the Contract Documents.
6. All final record Drawings and documents in the forms specified by the Contract Documents.
7. A notarized certification that all purchases made under the tax exemption certificate were legitimate and entitled to exemption.
8. Written certifications from the Department of Public Safety (or if the Awarding Authority is a municipality, the building department having jurisdiction) and the Designer to the effect that: a) the Work has been inspected for compliance with the Contract Documents and has satisfied the Department of Public Safety; b) all equipment and systems included in the Work have been tested in the presence of the Designer and are operational and satisfactory; c) the Work is completed and ready for final inspection.
9. Such other items as may be required by the Contract Documents.

B. Reinspection; Final Acceptance. After notification from the Contractor that all remaining contract exceptions, omissions and in completions have been completed (with the exception of Contractor's continuing warranty, insurance, indemnification, and such other obligations as are intended by the terms of the Contract Documents to extend beyond the date of Final Acceptance), the Awarding Authority and the Designer shall inspect the Work to verify the completion of the same. If the Work is satisfactory, the Awarding Authority shall prepare a Certificate of Final Acceptance or shall notify Contractor of items which remain to be completed prior to Final Acceptance.
7. One-Year Warranty Repair List and Inspection.
Approximately 30 days prior to the expiration of the comprehensive one-year warranty period, the Contractor shall schedule an appointment with the Awarding Authority for a re-inspection of the Work with the Awarding Authority, and shall thereafter inspect the work at the time scheduled. Based on this inspection and on prior inspections, the Awarding Authority shall issue a "Warranty Repair List" of items to be corrected by the Contractor. The Contractor shall make the repairs and/or replacements listed within 30 days of the issuance of the Warranty Repair List unless otherwise agreed by the Awarding Authority in writing.

ARTICLE VII: CHANGES IN THE WORK

   A. No changes in the Work shall be made in absence of a Change Order defined in Article I of these General Conditions of the Contract, directing the Contractor to perform such changes. A request for a change in the provisions of this Contract may be submitted to the Awarding Authority by the Contractor, Designer, Project Manager, Resident Engineer or User Agency. The request must be made in writing and in accordance with the provisions of this Contract, Laws, and the procedures of the Awarding Authority.
   B. A Change Order may be issued by the Awarding Authority for changes in the Work within the scope of the Contract, including but not limited to, changes in: (1) the Plans and Specifications; (2) the method or manner of performance of the Work; (3) the Owner-furnished facilities, equipment, materials, services or Site; (4) the schedule for performance of the Work.
   C. The Contractor shall immediately perform any Change Order work that is ordered by the Awarding Authority.
   D. Whenever a Change Order is issued and said Change Order will cause a change in the Contractor’s cost, the Contractor or the Awarding Authority may request an equitable adjustment in the Contract Price. A request for such an adjustment shall be in writing and shall be submitted by the party making such claim to the other party before commencement of the pertinent work or within 10 days, thereafter.
   E. The Awarding Authority and the Contractor shall negotiate in good faith an agreement on an equitable adjustment in the Contract Price, and/or time if appropriate, before commencement of the pertinent work or as soon thereafter as is possible. In the absence of an agreement for an equitable adjustment, the Awarding Authority shall unilaterally determine the costs attributable to the change and provide the Contractor with a written notice to that effect. The Contractor may appeal the decision of the Awarding Authority within thirty days of receipt of said notice, to the chief executive official of the Awarding Authority or his designee, and the Contractor shall have the right to such further appeal as is provided in M.G.L. c.30, s. 39Q set forth in Section 4.D of this Article VII. However, if the Contractor shall exercise its rights to appeal the decision of the Awarding Authority as aforesaid, the Contractor shall be required to engage in the mandatory mediation procedures set forth in Section 5 of this Article VII.
   F. During the negotiation of an equitable adjustment in the Contract Price, the Contractor shall, if requested, provide the Awarding Authority with all cost and pricing data used by him in computing the amount of the equitable adjustment, and the Contractor shall certify that the
pricing data used was accurate, complete and current. If the Awarding Authority subsequently determines that the data submitted by the Contractor was incomplete, incorrect or not current, the Awarding Authority may exclude such data from consideration under the equitable adjustment request.


A. Equitable adjustments in the Contract Price shall be determined according to one of the following methods, or a combination thereof, as determined by the Awarding Authority: (1) fixed price basis, provided that the fixed price shall be inclusive of items (a) through (e) below and shall be computed in accordance with those provisions; (2) estimated lump sum basis to be adjusted in accordance with Contract unit prices or other agreed upon unit prices provided that the unit prices shall be inclusive of all costs related to such equitable adjustment; (3) time and materials basis to be subsequently adjusted on the basis of actual costs (but subject to a predetermined "not to exceed limit") calculated as follows:

(a) the direct cost (or credit) for labor at the minimum wage rates established for this Contract pursuant to M.G.L. c. 149, s 26-27H, and the direct cost for material and use of equipment;

(b) plus (or minus) the cost of Workmen’s Compensation Insurance, Liability Insurance, Federal Social Security and Massachusetts Unemployment Compensation, or as an alternative the Contractor may elect to use a flat 30% of the total labor rate computed in accordance with subparagraph (a) above;

(c) plus an allowance equal to 20% of the amount of (a) above for overhead, superintendence and profit; (In the case of Item 1 work, which is the work of the Contractor and all his non-filed Subcontractors, said 20% allowance shall be paid to the Contractor and said non-filed Subcontractors shall agree upon the distribution of this amount as a matter of contract between them. In the case of Item 2 work, which is work performed by a Subcontractor filed pursuant to M.G.L. c. 149, s. 44F, said 20% allowance shall be paid to the filed Subcontractor, it being understood that this provision does not apply to other Subcontractors including sub-Subcontractors listed under paragraph E of the form for sub-Bid);

(d) plus, for work performed by a Subcontractor filed pursuant to M.G.L. c. 149, s. 44F, an additional allowance equal to 7% of the sum of (a) through (c) above as full compensation to the Contractor for processing forms and assuming full responsibility for the faithful performance of such work by said filed Subcontractor(s);

(e) plus (or minus) the actual direct additional premium costs and expenses incurred as a result of collective bargaining agreements or other agreements between organized labor and employers, and plus (or minus) the actual direct premium cost of payment and performance bonds required of Contractor and filed Subcontractors for this Contract.

B. If the net change is an addition to the Contract Price, it shall include the Contractor’s overhead, superintendence and profit. On any change that involves a net credit, no allowance for overhead, superintendence and profits shall be included. For any change that does not include labor performed or materials installed in the project, there will be no markup for the Contractor’s overhead, superintendence, and profit, even though there may be a net increase.
in the Contract Price. Charges for small tools known as “tools of the trade” are not to be computed in the amount of any change in the Contract Price.

C. Statutory Contract adjustments made under the provisions of M.G.L. c. 149, s.44F shall not be considered Change Orders and shall not entitle the Contractor to any adjustments for overhead, profit, and superintendence, although the Awarding Authority may require that such Contract adjustments be processed on standard Change Order and equitable adjustment forms.

The Contractor agrees to perform all Work as directed by the Awarding Authority, and if the Project Manager determines that certain Work that the Contractor believes to be or to warrant a Change Order under this Article does not represent a change in the Work, the Contractor shall perform said Work. The Contractor shall be deemed to have concurred with the Project Manager’s determination as aforesaid unless the Contractor shall perform Work under protest in compliance with the following sub-paragraphs (1) and (2) below:

(1) If the Contractor claims compensation for a change in the Work that is not deemed by the Project Manager to be a change or to warrant additional compensation as claimed by the Contractor, the Contractor shall on or before the first working day following the commencement of any such work or the sustaining of any such damage submit to the Designer, Resident Engineer and the Awarding Authority a written statement of the nature of such work or claim. The Contractor shall not be entitled to additional compensation for any work performed or damage sustained for which written notice is not given within the time limit specified in the preceding sentence, even though similar in character to work or damage with respect to which notice is timely given.

(2) On or before the second working day after the commencement of such work or the sustaining of such damage, and daily thereafter, the Contractor shall file to the extent possible with the Resident Engineer, the Designer, and the Awarding Authority, itemized statements of the details and costs of such work performed or damage sustained. The Contractor shall use the DCAM Daily Time and Materials Report found in DCAM Form 13 to record all labor and material used. If the Contractor shall fail to make such statements to the extent possible, then the Contractor shall not be entitled to additional compensation for any such work or damages.


A. Criminal Penalties: The Contractor’s attention is directed to M.G.L. c. 30, s. 39I which provides criminal penalties for unauthorized deviations from the Plans and Specifications, and to M.G.L. c. 30, s. 39J and M.G.L. c. 7, s. 42E-42I. The Contractor’s attention is also directed to M.G.L. 266, s. 67B which provides criminal penalties for false claims by Contractor under this Contract:

"Whoever makes or presents to any employee, department, agency or public instrumentality of the commonwealth, or of any political subdivision thereof, any claim upon or against any department, agency, or public instrumentality of the commonwealth, or any political subdivision thereof, knowing such claim to be false, fictitious, or fraudulent, shall be punished by a fine of not more than ten thousand dollars or by imprisonment in the state prison for not
more than five years, or in the house of correction for not more than two and one-half years, or both."

B. Differing Site Conditions (M.G.L. c. 30, s. 39N): "If, during the progress of the work, the contractor or the awarding authority discovers that the actual subsurface or latent physical conditions encountered at the Site differ substantially or materially from those shown on the plans or indicated in the contract documents either the contractor or the contracting authority may request an equitable adjustment in the contract price of the contract applying to work affected by the differing Site conditions. A request for such an adjustment shall be in writing and shall be delivered by the party making such claim to the other party as soon as possible after such conditions are discovered. Upon receipt of such a claim from a contractor, or upon its own initiative, the contracting authority shall make an investigation of such physical conditions, and, if they differ substantially or materially from those shown on the plans or indicated in the contract documents or from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the plans and contract documents and are of such a nature as to cause an increase or decrease in the cost of performance of the work or a change in the construction methods required for the performance of the work which results in an increase or decrease in the cost of the work, the contracting authority shall make an equitable adjustment in the contract price and the contract shall be modified in writing accordingly."

C. Timely Decision By Awarding Authority (M.G.L. c. 30, s. 39P): "Every contract subject to section thirty-nine M of this chapter or section forty-four A of chapter one hundred forty-nine which requires the awarding authority, any official, its architect or engineer to make a decision on interpretation of the specifications, approval of equipment, material or any other approval, or progress of the work, shall require that the decision be made promptly and, in any event, no later than thirty days after the written submission for decision; but if such decision requires extended investigation and study, the awarding authority, the official, architect or engineer shall, within thirty days after the receipt of the submission, give the party making the submission written notice of the reasons why the decision cannot be made within the thirty day period and the date by which the decision will be made."

D. Change Order / Contract Interpretation Appeal Procedure (M.G.L. c. 30, s. 39Q): The following provisions apply to every contract awarded by any state agency as defined by M.G.L. c. 7, s. 39A for the construction, reconstruction, alteration, remodeling, repair or demolition of any capital facility as defined by the aforesaid section 39A:

"(a) Disputes regarding changes in and interpretations of the terms or scope of the contract and denials of or failures to act upon claims for payment for extra work or materials shall be resolved according to the following procedures, which shall constitute the exclusive method for resolving such disputes. Written notice of the matter in dispute shall be submitted promptly by the claimant to the chief executive official of the state agency which awarded the contract or his designee. No person or business entity having a contract with a state agency shall delay, suspend, or curtail performance under that contract as a result of any dispute subject to this section. Any disputed order, decision or action by the agency or its authorized representative shall be fully performed or complied with pending resolution of the dispute."
“(b) Within thirty days of submission of the dispute to the chief executive official of the state agency or his designee, he shall issue a written decision stating the reasons therefore, and shall notify the parties of their right of appeal under this section. If the official or his designee is unable to issue a decision within thirty days, he shall notify the parties to the dispute in writing of the reasons why a decision cannot be issued within thirty days and of the date by which the decision shall issue. Failure to issue a decision within the thirty-day period or within the additional time period specified in such written notice shall be deemed to constitute a denial of the claim and shall authorize resort to the appeal procedure described below. The decision of the chief executive official or his/her designee shall be final and conclusive unless an appeal is taken as provided below.

“(c) Within twenty-one calendar days of the receipt of a written decision or of the failure to issue a decision as stated in the preceding subparagraph, any aggrieved party may file a notice of claim for an adjudicatory hearing with the division of hearing officers or the aggrieved party may file an action directly in a court of competent jurisdiction and shall serve copies thereof upon all other parties in the form and manner prescribed by the rules governing the conduct of adjudicatory proceedings of the division of hearing officers. In the event an aggrieved party exercises his option to file an action directly in court as provided in the previous sentence, the twenty-one day period shall not apply to such filing and the period of filing such action shall be the same period otherwise applicable for filing a civil action in superior court. The appeal shall be referred to a hearing officer experienced in construction law and shall be prosecuted in accordance with the formal rules of procedure for the conduct of adjudicatory hearings of the division of hearing officers, except as provided below. The hearing officer shall issue a final decision as expeditiously as possible, but in no event more than one hundred and twenty calendar days after conclusion of the adjudicatory hearing, unless the decision is delayed by a request for extension of time for filing post-hearing briefs or other submissions assented to by all parties. Whenever, because an extension of time has been granted, the hearing officer is unable to issue a decision within one hundred and twenty days, s/he shall notify all parties of the reasons for the delay and the date when the decision will issue. Failure to issue a decision within the one hundred and twenty-day period or within the additional period specified in such written notice shall give the petitioner the right to pursue any legal remedies available to him without further delay.

“(d) When the amount in dispute is less than ten thousand dollars, a contractor who is party to the dispute may elect to submit the appeal to a hearing officer experienced in construction law for expedited hearing in accordance with the informal rules of practice and procedure of the division of hearing officers. An expedited hearing under this subparagraph shall be available at the sole option of the contractor. The hearing officer shall issue a decision no later than sixty days following the conclusion of any hearing conducted pursuant to this subparagraph. The hearing officer’s decision shall be final and conclusive, and shall not be set aside except in cases of fraud.”

5. **Mandatory Mediation.**

In the case of every dispute where the dollar amount in dispute (or the estimated dollar value of the extension of time in dispute) is $50,000 or more and the Contractor appeals the decision of the chief executive officer of the Awarding Authority or his designee described in Section 4.B above, the Awarding Authority and the Contractor shall engage in good faith in a non-binding
mediation process, which process shall be concluded within sixty days from the date that the Contractor files an appeal from said decision as provided in Section 4.B above. In the case of such disputes where the dollar amount in dispute (or the estimated dollar value of the extension of time in dispute) is $500,000 or more, the parties shall, if the mediation process fails, submit the dispute to a third-party Neutral or Dispute Review Board which shall within sixty days render a non-binding advisory opinion. Unless the parties have previously agreed in writing to a process for submitting disputes to mediation or a Dispute Review Board, the Awarding Authority shall determine in its reasonable discretion the procedures to be followed and shall give the Contractor notice of the same in writing within 7 days of the date that the Awarding Authority receives notice of the Contractor's appeal from the decision of the chief executive officer of the Awarding Authority or his designee. The cost of the services of any mediator selected by one party to this Contract shall be borne by the party making the selection. The cost of the services of any mediator selected jointly by the parties to this Contract or jointly by mediators selected by the parties to this Contract shall be borne equally by the Contractor and the Awarding Authority.

ARTICLE VIII: PAYMENT PROVISIONS

1. **Schedule of Values.**
   Before the first application for payment the Contractor shall submit to the Designer and the Awarding Authority a schedule of values allocated to various portions of the Work in sufficient detail to reflect the various major components of each trade (with filed Subcontractors as well as MBE/WBE noted), including quantities when requested, aggregating the total Contract Price and divided so as to facilitate payments for work under each section of the Specifications. The schedule shall be prepared in such form and supported by such data to substantiate its accuracy as the Designer or the Awarding Authority may require. Each item in the schedule shall include its proper share of overhead and profit. When Approved by the Designer and the Awarding Authority, it shall constitute the Schedule of Values and shall be used only as a basis for the Contractor's requests for payments.

2. **Payment Liabilities of Contractor.**
   A. The Contractor shall pay to the Owner all expenses, losses and damages, as determined by the Awarding Authority or the Designer, incurred in consequence of any default, defect, omission or mistake of the Contractor or his employees or Subcontractors or the making good thereof.
   B. If the Work (or a portion thereof) is not completed to Substantial Completion and the Contractor has not satisfied the requirements for the issuance of a Certificate of Agency Use and Occupancy by the date specified in Article 2 of the Owner - Contractor Agreement, the Contractor shall pay to the Owner liquidated damages as provided in Article VI, Section 2 of these General Conditions of the Contract.
3. Retention of Moneys by Awarding Authority.

A. The Awarding Authority may keep any moneys which would otherwise be payable at any time hereunder, and apply the same, or so much as may be necessary therefore, to (1) the Owner’s expenditures for the Contractor’s account, (2) to secure the Awarding Authority’s remedies against the Contractor for the Contractor’s breach of its obligations under this Contract or the breach of any person performing any part of the Work and (3) the payment of any expenses, losses or damages incurred by the Awarding Authority or any agency of the Commonwealth as a result of the failure of the Contractor to perform its obligations hereunder. The Awarding Authority may retain, until all claims are settled, such moneys as the Awarding Authority estimates to be the fair value of the Awarding Authority’s claims against the Contractor, and of all claims for labor performed or furnished and for materials used or employed in or in connection with the Work and for the rental of vehicles, appliances and equipment employed and for the employment of substitute contractors and labor in connection with the Work filed in accordance with M.G.L. c. 30, s. 39A and s. 39F. The Awarding Authority may make such settlements and apply thereto any moneys retained under this Contract.

B. The Contractor shall each week examine all claims so filed, and if the same are in any respect incorrect or do not correctly show the amount due from the Contractor to the claimant for such labor and materials, the Contractor shall forthwith file with the Awarding Authority a separate written statement of all inaccuracies in each claim and of the correct amount due from the Contractor to each claimant therefore, and shall immediately file a statement of all payments thereafter made to such claimants. Each such statement shall be sworn to and contain a detailed breakdown required by M.G.L. c. 30 s. 39F(d) and (e). Unless such statements are so filed by the Contractor the amount shown by the claims filed shall at the option of the Awarding Authority be conclusively deemed to be the accurate amount due from the Contractor therefore in all accounting with the Awarding Authority. If the moneys retained under this Contract are insufficient to pay the sums found by the Awarding Authority to be due under the claims for labor and materials filed as aforesaid, the Awarding Authority may, at its discretion, pay the same, and the Contractor shall repay to the Awarding Authority all sums paid out. The Awarding Authority may also at its discretion use any moneys retained, due or to become due under this Contract, for the purpose of paying for both labor and materials used or employed in the Work for which claims have not been filed with the Awarding Authority.

C. No moneys retained under the provisions of this Article shall be held to be statutory security for the payment of claims filed in accordance with the provisions of M.G.L. c. 149, s. 29, as amended, for which security is provided by bond.

4. Applications for Payment.

A. The Contractor shall, once in each month for the preceding months, on the day of the month corresponding to the day of the month specified in the Notice to Proceed referenced in Article 2 of the Owner - Contractor Agreement, on forms provided and in the manner prescribed by the Awarding Authority, submit to the Awarding Authority a statement showing the total amount of Work done to the time of such estimate and the value thereof as approved by the Resident Engineer and the Designer. It shall be the sole responsibility of the Contractor to deliver or cause to be delivered to the Resident Engineer (the "designee" as
provided by M.G.L. c. 30, s. 39K), said periodic estimate in proper form, approved as provided above and arithmetically correct. All periodic estimates shall contain such certifications and other evidence supporting the Contractor’s right to payment as the Awarding Authority may require, including without limitation, lien waivers and other evidence, on such forms as the Awarding Authority may require, establishing that title to the equipment or materials is unencumbered and has been transferred to the Owner. If there is no Resident Engineer assigned to the Contract, the Designer shall be the designee. If there is neither a Resident Engineer nor a Designer the designee shall be a person designated by the Awarding Authority at the project field office or alternatively the home office of the Awarding Authority. The Contractor shall include in such periodic estimate only such materials as are incorporated in the Work, except as provided in paragraph C below. The Awarding Authority shall retain five percent of such estimated value as part security for the completion of the Work and shall pay to the Contractor while carrying on the Work the balance not retained as aforesaid, subject to the Approval of the Awarding Authority after deducting therefrom all previous payments and all sums to be kept under the provisions of this Contract.

B. Each periodic estimate shall constitute the Contractor’s representation that (1) the payment then requested to be disbursed has been incurred by the Contractor on account of the Work and is justly due to Subcontractors or, to the Contractor in the case of other Work performed by the Contractor on account thereof, (2) the materials, supplies and equipment for which Application for Payment is being submitted have been installed or incorporated into the Work or have been stored at the Site or at such off Site storage locations as the Awarding Authority shall have Approved, (3) the materials, supplies and equipment are insured in accordance with the provisions of this Contract, (4) the materials, supplies and equipment are owned by the Owner and are not subject to any liens or encumbrances, (5) the Work which is the subject of such periodic estimate has been performed in accordance with the Contract Documents and (6) that all due and payable bills with respect to the Work have been paid to date or shall be paid from the proceeds of such periodic estimate. The Contractor’s attention is directed to the criminal penalties for false claims referenced in paragraph A above.

C. The Contractor may include in a periodic estimate the value of materials or equipment delivered at the Site (or at some location agreed to in writing) only upon delivery to the Awarding Authority of: (1) an acceptable transfer of title on the form provided by the Awarding Authority; (2) written certification by the Contractor (or applicable subcontractor) on the form provided by the Awarding Authority that the Contractor (or the Subcontractor which executed the transfer of title) is the lawful owner and that the materials or equipment are free from all encumbrances, accompanied by receipted invoices or other acceptable proof of prior payment for such materials; (3) a stored materials insurance binder that covers the materials for which payment is requested, that names the Owner as an insured party should the stored materials be subjected to any casualty, loss, or theft prior to their inclusion in the Work. The material(s) or equipment must, in the judgment of the Designer (1) meet the requirements of the Contract, including prior shop drawing, product data, and sample approval, (2) be ready for use, and (3) be properly stored by the Contractor and be adequately protected until incorporated into the Work. See also Article V.5.C of these General Conditions of the Contract concerning the cost of inspections.

D. The Awarding Authority may make changes in any periodic estimate submitted by the Contractor in accordance with M.G.L. c.30, s. 39K (see below) and the payment due shall be
computed in accordance with the changes so made. The provisions of said section 39K shall
govern payments on which the Awarding Authority has made changes.

E. No certificate for payment and no progress payment shall constitute acceptance of Work
that is not in accordance with the Contract Documents.

F. The Contractor and all Subcontractors furnishing labor on this Contract agree to furnish
certified payroll reports, at no additional expense to the Awarding Authority. The Awarding
Authority may at all reasonable times audit such reports.

5. Periodic Payments (M.G. L. c. 30, s. 39K).
The Awarding Authority shall make payment to the Contractor in accordance with M.G.L. c. 30, s.
39K, which provides as follows:

“Within fifteen days (30 days in the case of the commonwealth, including local housing
authorities) after receipt from the contractor, at the place designated by the awarding
authority if such a place is so designated, of a periodic estimate requesting payment of the
amount due for the preceding month, the awarding authority will make a periodic payment
to the contractor for the work performed during the preceding month and for the materials
not incorporated in the work but delivered and suitably stored at the site (or at some
location agreed upon in writing) to which the contractor has title or to which a
subcontractor has title and has authorized the contractor to transfer title to the awarding
authority upon certification by the contractor that he is the lawful owner and that the
materials are free from all encumbrances, but less (1) a retention based on its estimate of
the fair value of its claims against the contractor and less (2) a retention for direct
payments to subcontractors based on demands for same in accordance with the provisions
of section thirty-nine F, and less (3) a retention not exceeding five percent of the approved
amount of the periodic payment. After the receipt of a periodic estimate requesting final
payment and within sixty-five days after (a) the contractor fully completes the work or
substantially completes the work so that the value of the work remaining to be done is, in
the estimate of the awarding authority, less than one percent of the original contract price,
or (b) the contractor substantially completes the work and the awarding authority takes
possession for occupancy, whichever occurs first, the awarding authority shall pay the
contractor the entire balance due on the Contract less (1) a retention based on its estimate
of the fair value of its claims against the contractor and of the cost of completing the
incomplete and unsatisfactory items of work and less (2) a retention for direct payments to
subcontractors based on demands for same in accordance with the provisions of section
thirty-nine F, or based on the record of payments by the contractor to the subcontractors
under this contract if such record of payment indicates that the contractor has not paid
subcontractors as provided in section thirty-nine F. If the awarding authority fails to make
payment as herein provided, there shall be added to each such payment daily interest at
the rate of three percentage points above the rediscounata rate charged by the Federal
Reserve Bank of Boston commencing on the first day after said payment is due and
continuing until the payment is delivered or mailed to the contractor; provided, that no
interest shall be due, in any event, on the amount due on a periodic estimate for final
payment until fifteen days(twenty-four days in the case of the commonwealth) after receipt
of such periodic estimate from the contractor, at the place designated by the awarding
authority if such a place is so designated. The contractor agrees to pay to each subcontractor a portion of any such interest paid in accordance with the amount due each subcontractor.

The awarding authority may make changes in any periodic estimate submitted by the contractor and the payment due on said periodic estimate shall be computed in accordance with the change so made, but such changes or any requirement for a corrected periodic estimate shall not affect the due date for the periodic payment or the date for the commencement of interest charges on the amount of the periodic payment computed in accordance with the changes made, as provided herein; provided, that the awarding authority may, within seven days after receipt, return to the contractor for correction, any periodic estimate which is not in the required form or which contains computations not arithmetically correct and, in that event, the date of receipt of such periodic estimate shall be the date of receipt of the corrected periodic estimate in proper form and with arithmetically correct computations. The date of receipt of a periodic estimate received on a Saturday shall be the first working day thereafter. The provisions of section thirty-nine G shall not apply to any contract for the construction, reconstruction, alteration, remodeling, repair or demolition of any public building to which this section applies.

All periodic estimates shall be submitted to the awarding authority, or to its designee as set forth in writing to the contractor, and the date of receipt by the awarding authority or its designee shall be marked on the estimate. All periodic estimates shall contain a separate item for each filed subtrade and each sub-subtrade listed in sub-bid form as required by specifications and column listing the amount paid to each filed subcontractor as of the date of the periodic estimate is filed. The person making payment for the awarding authority shall add the daily interest provided for herein to each payment for each day beyond the due date of receipt marked on the estimate.

A certificate of the architect to the effect that the contractor has fully or substantially completed the work shall, subject to the provisions of section thirty-nine J, be conclusive for the purposes of this section.

Notwithstanding the provisions of this section, at any time after the value of the work remaining to be done is, in the estimation of the awarding authority, less than 1 per cent of the adjusted contract price, or the awarding authority has determined that the contractor has substantially completed the work and the awarding authority has taken possession for occupancy, the awarding authority may send to the general contractor by certified mail, return receipt requested, a complete and final list of all incomplete and unsatisfactory work items, including, for each item on the list, a good faith estimate of the fair and reasonable cost of completing such item. The general contractor shall then complete all such work items within 30 days of receipt of such list or before the contract completion date, whichever is later. If the general contractor fails to complete all incomplete and unsatisfactory work items within 45 days after receipt of such items furnished by the awarding authority or before the contract completion date, whichever is later, subsequent to an additional 14 days’ written notice to the general contractor by certified mail, return
receipt requested, the awarding authority may terminate the contract and complete the incomplete and unsatisfactory work items and charge the cost of same to the general contractor and such termination shall be without prejudice to any other rights or remedies the awarding authority may have under the contract. The awarding authority shall note any such termination in the evaluation form to be filed by the awarding authority pursuant to the provisions of section 44D of chapter 149."

6. **Payment of Subcontractors (M.G.L. c. 30, s. 39F).**

The Contractor shall make payments to Subcontractors in accordance with M.G.L c.30, s. 39F which is quoted in this section below. For the purposes of this Contract, the word "forthwith" appearing in paragraph (1)(a) of the quoted provision shall be deemed to mean "within five (5) business days."

"1(a) Forthwith after the general contractor receives payment on account of a periodic estimate, the general Contractor shall pay to each subcontractor the amount paid for the labor performed and the materials furnished by that subcontractor, less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the general contractor.

(b) Not later than the sixty-fifth day after each subcontractor substantially completes his work in accordance with the Plans and Specifications, the entire balance due under the subcontract less amounts retained by the awarding authority as the estimated cost of completing the incomplete and unsatisfactory items of work, shall be due the subcontractor; and the awarding authority shall pay that amount to the general contractor. The general contractor shall forthwith pay to the subcontractor the full amount received from the awarding authority less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the general contractor.

(c) Each payment made by the awarding authority to the general contractor pursuant to subparagraphs (a) and (b) of this paragraph for the labor performed and the materials furnished by a subcontractor shall be made to the general contractor for the account of that subcontractor; and the awarding authority shall take reasonable steps to compel the general contractor to make each such payment to each such subcontractor. If the awarding authority has received a demand for direct payment from a subcontractor for any amount which has already been included in a payment to the general contractor or which is to be included in a payment to the general contractor for payment to the subcontractor as provided in subparagraphs (1) and (2) the awarding authority shall act upon the demand as provided in this section.

(d) If, within seventy days after the subcontractor has substantially completed the subcontract work, the subcontractor has not received from the general contractor the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor, less any amount retained by the awarding authority as the estimated cost of completing the incomplete and unsatisfactory items of work, the subcontractor may demand direct payment of that balance from the awarding authority. The demand shall be by a sworn statement delivered to or sent by certified mail to the awarding authority, and a copy shall be delivered to or sent by certified mail to the general contractor at the same time. The reply shall contain a detailed breakdown of the balance due under the subcontract and also a statement of
the status of completion of the subcontract work. Any demand made after substantial completion of the subcontract work shall be valid even if delivered or mailed prior to the seventieth day after the subcontractor has substantially completed the subcontract work. Within ten days after the subcontractor has delivered or so mailed the demand to the awarding authority and delivered or so mailed a copy to the general contractor, the general contractor may reply to the demand. The reply shall be by a sworn statement to or sent by certified mail to the awarding authority and a copy shall be delivered to or sent by certified mail to the subcontractor at the same time. The reply shall contain a detailed breakdown of the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor and of the amount due for each claim made by the general contractor against the subcontractor.

(e) Within fifteen days after receipt of the demand by the awarding authority, but in no event prior to the seventieth day after substantial completion of the subcontract work, the awarding authority shall make direct payment to the subcontractor of the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor, less any amount (i) retained by the awarding authority as the estimated cost of completing the incomplete or unsatisfactory items of work, (ii) specified in any court proceedings barring such payment, or (iii) disputed by the general contractor in the sworn reply; provided that the awarding authority shall not deduct from a direct payment any amount as provided in part (iii) if the reply is not sworn to, or for which the sworn reply does not contain the detailed breakdown required by subparagraph (d). The awarding authority shall make further direct payments to the subcontractor forthwith after the removal of the basis for deduction from direct payments made as provided in parts (i) and (ii) of this subparagraph.

(f) The awarding authority shall forthwith deposit the amount deducted from a direct payment as provided in part (iii) of subparagraph (5) in an interest-bearing joint account in the names of the general contractor and the subcontractor in a bank in Massachusetts selected by the awarding authority or agreed upon by the general contractor and the subcontractor and shall notify the general contractor and the subcontractor of the date of the deposit and the bank receiving the deposit. The bank shall pay the amount in the account, including accrued interest, as provided in an agreement between the general contractor and the subcontractor or as determined by decree of a court of competent jurisdiction.

(g) All direct payments and all deductions from demands for direct payments deposited in an interest bearing account or accounts in a bank pursuant to subparagraph (6) shall be made out of amounts payable to the general contractor at the time of receipt of a demand for direct payment from a subcontractor and out of amounts which later become payable to the General contractor and in the order of receipt of such demands from subcontractors. All direct payments shall discharge the obligation of the awarding authority to the general contractor to the extent of such payment.

(h) The awarding authority shall deduct from payments to a General contractor amounts which, together with the deposits in interest bearing accounts pursuant to subparagraph (6) are sufficient to satisfy all unpaid balances of demands for direct payment received from subcontractors. All such amounts shall be earmarked for such direct payments, and the subcontractors shall have a right in such deductions prior to any claims against such amounts by creditors of the general contractor.
(i) If the subcontractor does not receive payment as provided in subparagraph (1) or if the
general contractor does not submit a periodic estimate for the value of the labor or materials
performed or furnished by the subcontractor and the subcontractor does not receive payment
for same when due less the deductions provided for in subparagraph (1), the subcontractor may
demand direct payment by following the procedure in subparagraph (4) and the general
contractor may file a sworn reply as provided in that same subparagraph. A demand made after
the first day of the month following that for which the subcontractor performed or furnished the
labor and materials for which the subcontractor seeks payment shall be valid even if delivered
or mailed prior to the time payment was due on a periodic estimate from the general
contractor. Thereafter the awarding authority shall proceed as provided in subparagraph (e), (f),
(g) and (h).

(2) Any assignment by a subcontractor of the rights under this section to a surety company
furnishing a bond under the provisions of section twenty-nine of chapter one hundred forty-nine
shall be invalid. The assignment and subrogation rights of the surety to amounts included in a
demand for direct payment which are in the possession of the awarding authority or which are
on deposit pursuant to subparagraph (6) shall be subordinate to the rights of all subcontractors
who are entitled to be paid under this section and who have not been paid in full.

(3) "Subcontractor" as used in this section (l) for contracts awarded as provided in sections
forty-four A to forty-four L, inclusive, of chapter one hundred forty-nine shall mean a person
who files a sub-bid and received a subcontract as a result of that filed sub-bid or who is
approved by the awarding authority in writing as a person performing labor or both performing
labor and furnishing materials pursuant to a contract with the general contractor, (ii) for
contracts awarded as provided in paragraph (1) of section thirty-nine M of chapter thirty shall
mean a person approved by the awarding authority in writing as a person performing labor or
both performing labor and furnishing materials pursuant to a contract with the general
contractor, and (iii) for contracts with the commonwealth not awarded as provided in sections
forty-four A to forty-four L, inclusive, of chapter one hundred forty-nine shall also mean a person
contracting with the general contractor to supply materials used or employed in a public works
project for a price in excess of five thousand dollars.

(4) A general contractor or a subcontractor shall enforce a claim to any portion of the
amount of a demand for direct payment deposit as provided in subparagraph (6) by a petition in
equity in the superior court against the other and the bank shall not be a necessary party. A
subcontractor shall enforce a claim for direct payment or a right to require a deposit as provided
in subparagraph (6) by a petition in equity in the superior court against the awarding authority
and the general contractor shall not be a necessary party. Upon motion of any party the court
shall advance for speedy trial any petition filed as provided in this paragraph. Sections fifty-nine
and fifty-nine B of chapter two hundred thirty-one shall apply to such petitions. The court shall
enter an interlocutory decree upon which execution shall issue for any part of a claim found due
pursuant to sections fifty-nine and fifty-nine B and, upon motion of any party, shall advance for
speedy trial the petition to collect the remainder of the claim. Any party aggrieved by such
interlocutory decree shall have the right to appeal therefrom as from a final decree. The court
shall not consolidate for trial the petition of any subcontractor with the petition of one or more
subcontractors or the same general Contract unless the court finds that a substantial portion of
the evidence of the same events during the course of construction (other than the fact that the
claims sought to be consolidated arise under the same general contract) is applicable to the
petitions sought to be consolidated and that such consolidation will prevent unnecessary duplication of evidence. A decree in any such proceeding shall not include interest on the disputed amount deposited in excess of the interest earned for the period of any such deposit. No person except a subcontractor filing a demand for direct payment for which no funds due the general contractor are available for direct payment shall have a right to file a petition in court of equity against the awarding authority claiming a demand for direct payment is premature and such subcontractor must file the petition before the awarding authority has made a direct payment to the subcontractor and has made a deposit of the disputed portion as provided in part (iii) of subparagraph (5) and in subparagraph (6).

(5) In any petition to collect any claim for which a subcontractor has filed a demand for direct payment the court shall, upon motion of the general contractor, reduce by the amount of any deposit of a disputed amount by the awarding authority as provided in part (iii) of subparagraph (5) and in subparagraph (6) any amount held under a trustee writ or pursuant to a restraining order or injunction.”

7. Contracts for Public Works Governed by M.G.L. c. 30, s. 39G:

The following statutory provision applies only to contracts for public works governed by M.G.L. c. 30, s. 39G: “Upon substantial completion of the work required by a contract with the commonwealth, or any agency or political subdivision thereof, for the construction, reconstruction, alteration, remodeling, repair or improvement of public ways, including bridges and other highway structures, sewers and, water mains, airports and other public works, the contractor shall present in writing to the awarding authority its certification that the work has been substantially completed. Within twenty-one days thereafter, the awarding authority shall present to the contractor either a written declaration that the work has been substantially completed or an itemized list of incomplete or unsatisfactory work items required by the contract sufficient to demonstrate that the work has not been substantially completed. The awarding authority may include with such list a notice setting forth a reasonable time, which shall not in any event be prior to the contract completion date, within which the contractor must achieve substantial completion of the work. In the event that the awarding authority fails to respond, by presentation of a written declaration or itemized list as aforesaid, to the contractor’s certification within the twenty-one day period, the contractor’s certification shall take effect as the awarding authority’s declaration that the work has been substantially completed.

Within sixty-five days after the effective date of a declaration of a substantial completion, the awarding authority shall prepare and forthwith send to the contractor for acceptance a substantial completion estimate for the quantity and price of the work done and all but one percent retainage on that work, including quantity, price and all but one percent retainage for the undisputed part of each work item and extra work item in dispute but excluding the disputed part thereof, less the estimated cost of completing all incomplete and unsatisfactory work items and less the total periodic payments made to date for the work. The awarding authority also shall deduct from the substantial completion estimate an amount equal to the sum of all demands for direct payments filed by subcontractors and not yet paid to subcontractors or deposit d in joint accounts pursuant to section thirty-nine F, but no contract subject to said section thirty-nine F shall contain any other provision authorizing the awarding authority to deduct any amount by virtue of claims asserted against the Contract by subcontractors, material suppliers or others.

If the awarding authority fails to prepare and send to the contractor any substantial completion estimate required by this section on or before the date herein above set forth, the awarding authority shall pay to the contractor interest on the amount which would have been due to the

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contractor pursuant to such substantial completion estimate at the rate of three percentage points above the rediscount rate then charged by the Federal Reserve Bank of Boston from such date to the date on which the awarding authority sends that substantial completion estimate to the contractor for acceptance or to the date of payment therefor, whichever occurs first. The awarding authority shall include the amount of such interest in the substantial completion estimate.

Within fifteen days after the effective date of the declaration of substantial completion, the awarding authority shall send to the contractor by certified mail, return receipt requested, a complete list of all incomplete or unsatisfactory work items, and, unless delayed by causes beyond his control, the contractor shall complete all such work items within forty-five days after the receipt of such list or before the then contract completion date, whichever is later. If the contractor fails to complete such work within such time, the awarding authority may, subsequent to seven days’ written notice to the contractor by certified mail, return receipt requested, terminate the contract and complete the incomplete or unsatisfactory work items and charge the cost of same to the contractor.

Within thirty days after receipt by the awarding authority of a notice from the contractor stating that all of the work required by the contract has been completed, the awarding authority shall prepare and forthwith send to the contractor for acceptance a final estimate for the quantity and price of the work done and all retainage on that work less all payments made to date, unless the awarding authority’s inspection shows that work items required by the contract remain incomplete or unsatisfactory, or that documentation required by the contract has not been completed. If the awarding authority fails to prepare and send to the contractor the final estimate within thirty days after receipt of notice of completion, the awarding authority shall pay to the contractor interest on the amount which would have been due to the contractor pursuant to such final estimate at the rate hereinabove provided from the thirtieth day after such completion until the date on which the awarding authority sends the final estimate to the contractor for acceptance or the date of payment therefore, whichever occurs first, provided that the awarding authority’s inspection shows that no work items required by the contract remain incomplete or unsatisfactory. Interest shall not be paid hereunder on amounts for which interest is required to be paid in connection with the substantial completion estimate as hereinabove provided. The awarding authority shall include the amount of the interest required to be paid hereunder in the final estimate.

The awarding authority shall pay the amount due pursuant to any substantial completion or final estimate within thirty-five days after receipt of written acceptance for such estimate from the contractor and shall pay interest on the amount due pursuant to such estimate at the rate hereinabove provided from that thirty-fifth day to the date of payment. Within 15 days, 30 days in the case of the commonwealth, after receipt from the contractor, at the place designated by the awarding authority, if such place is designated, of a periodic estimate requesting payment of the amount due for the preceding periodic estimate period, the awarding authority shall make a periodic payment to the contractor for the work performed during the preceding periodic estimate period and for the materials not incorporated in the work but delivered and suitably stored at the site, or at some location agreed upon in writing, to which the contractor
has title or to which a subcontractor has title and has authorized the contractor to transfer title
to the awarding authority, upon certification by the contractor that he is the lawful owner and
that the materials are free from all encumbrances. The awarding authority shall include with
each such payment interest on the amount due pursuant to such periodic estimate at the rate
herein above provided from the due date. In the case of periodic payments, the contracting
authority may deduct from its payment a retention based on its estimate of the fair value of its
claims against the contractor, a retention for direct payments to subcontractors based on
demands for same in accordance with the provisions of section thirty-nine F, and a retention to
secure satisfactory performance of the contractual work not exceeding five per cent of the
approved amount of any periodic payment, and the same right to retention shall apply to
bonded subcontractors entitled to direct payment under section thirty-nine F of chapter thirty;
provided, that a five per cent value of all items that are planted in the ground shall be deducted
from the periodic payments until final acceptance.

No periodic, substantial completion or final estimate or acceptance or payment thereof shall bar a
contractor from reserving all rights to dispute the quantity and amount of, or the failure of the awarding
authority to approve a quantity and amount of all or part of any work item or extra work item.

Substantial completion, for the purposes of this section, shall mean either that the work required by the
contract has been completed except for work having a contract price of less than one percent of the then
adjusted total contract price, or substantially all of the work has been completed and opened to public
use except for minor incomplete or unsatisfactory work items that do not materially impair the
usefulness of the work required by the contract”

8. **Final Payment; Release of Claims by Contractor.**
Upon Final Acceptance of the Work the Contractor shall be entitled to payment of the balance
of the Contract Price. Final payment shall be as provided in this Article above and in accordance
with any process set forth in the *Supplementary General Conditions*. The Contractor agrees to
execute a Certificate of Final Inspection, Release (with Contractor’s own exceptions listed
thereon) and Acceptance as a condition precedent to Final Payment. The acceptance by the
Contractor of the Final Payment made as aforesaid, or the execution of the Certificate of Final
Acceptance by the Contractor, shall constitute a release of the Owner, the Awarding Authority,
the Designer, and every member and agent of any of them, from all claims of and liability to the
Contractor for anything done or furnished for or relating to the Work, or for any act or neglect
of the Owner, the Designer, or of any person relating to or affecting the Work, except the claim
against the Owner or the Designer for the remainder, if any there be, of the amounts set forth
by the Contractor in the Certificate of Final Inspection, Release and Acceptance. Final
Acceptance shall not relieve Contractor of the requirements of Articles IX, XIV, and XV of these
General Conditions of the Contract, or of other provisions of this Contract, to the extent that
the same are intended to survive Final Acceptance.

**ARTICLE IX. GUARANTEES AND WARRANTIES**
1. **General Warranty.**
   If at any time during the period of one (1) year from the date of the issuance of the Certificate of Agency Use and Occupancy by the Awarding Authority or the date of Final Acceptance, whichever occurs first, any part of such Work shall in the reasonable opinion of the Awarding Authority be defective or require replacing or repairing, or damage to other property of the Owner is caused by any defect in the Work, the Awarding Authority shall notify the Contractor in writing to make the required repairs or replacements and repair such damage. If the Contractor shall neglect to commence such repairs or replacements to the satisfaction of the Awarding Authority within ten (10) days from the date of the giving of such notice, then the Awarding Authority may employ other persons to make the same. The Contractor agrees, upon demand, to pay to the Awarding Authority all amounts which it expends for such repairs, replacements, and/or damages. During this one-year guarantee period any corrective work shall be performed under all the applicable terms of this Contract, and if Change Orders are issued in accordance with the terms of this Contract, the Contractor shall be entitled to compensation for special insurance, as required. This one-year guarantee shall not limit any express guaranty or warranty provided elsewhere in the Contract.

2. **Special Guarantees and Warranties.**
   A. The Contractor's obligation to correct Work as set forth in paragraph 1 above is in addition to, and not in substitution of, such guarantees or warranties as may be required in the various sections of the Specifications.
   B. Guarantees and warranties required in the various sections of the Specifications must be delivered to the Designer before final payment to the Contractor may be made, or in the case of guarantees and warranties which originate with a subcontractor’s section of the Work, before final payment for the amount of that subtrade or for the phase of Work to which the guarantee or warranty relates.
   C. The failure to deliver a required guarantee or warranty shall constitute a failure to fully complete the Work in accordance with the Contract Documents.

**ARTICLE X: MISCELLANEOUS LEGAL REQUIREMENTS.**

1. **Contractor to be Informed.**
   The Contractor shall inform itself of all existing and future Laws in any manner affecting those engaged or employed in the Work, or the materials used or employed in the Work, or in any way affecting the conduct of the Work, and of all orders and decrees of bodies or tribunals having any applicable jurisdiction or authority over the Work.

2. **Compliance with all Laws.**
   The Contractor shall cause all persons employed in the performance of the Work to comply with, all existing and future Laws, including but not limited to those set forth below:
   A. **Corporate Disclosures.** The Contractor, if a foreign corporation, shall comply with M.G.L. c. 181, s. 3 and s. 5, and M.G.L. c. 30, s.39L.
A **Employment Eligibility Verification.** The Contractor shall comply with Federal Department of Homeland Security Requirements in hiring any and all “Employees” to be employed in the Project who are required to be listed in the certified payroll reports for the Project. Such compliance shall include, but not be limited to the faithful completion of the Federal Department of Homeland Security Form I-9 process by the Contractor for each of its Employees. The Contractor shall execute a Certificate of Compliance with Employment Eligibility Verification Requirements (I-9 Certificate) with the execution of its Contract. The Contractor shall require each of its subcontractors and sub subcontractors to execute and provide to Contractor an I-9 Certificate with the execution of each subcontract, and Contractor shall immediately provide a copy to Awarding Authority. Contractor acknowledges that the weekly workforce report form contained in the contract documents, which must be submitted by the Contractor on a weekly basis, contains a statement that the Form I-9 process was faithfully completed for all employees listed on the weekly certified payroll report. By the signature of the Contractor’s Authorized Signatory on the I-9 Certificate, the Contractor certifies under the pains and 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 the contract without engaging in unlawful discrimination; and that the Contractor shall not knowingly or recklessly alter, falsify, or accept altered or falsified documents from any such worker. The Contractor understands and agrees that breach of any of these terms during the period of a contract 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.

B. **Veterans Preference.** In the employment of mechanics and apprentices, teamsters, chauffeurs, and laborers in the performance of Work in the Commonwealth, preference shall first be given to citizens of the Commonwealth who have been residents of the Commonwealth for at least six months at the commencement of their employment and who are veterans as defined M.G.L. c. 4, s. 7 (34), and who are qualified to perform the work to which the employment relates; and secondly, to citizens of the Commonwealth generally who have been residents of the Commonwealth for at least six months at the commencement of their employment, and if they cannot be obtained in sufficient numbers, then to citizens of the United States.

C. **Prevailing Wages.** The Contractor shall comply with M.G.L. c. 149, s. 26-7H. The prevailing wage schedule is found in Exhibit A to the Instructions to Bidders, listing the prevailing minimum wage rates that must be paid to all workers employed in the Work. The Awarding Authority is not responsible for any errors, omissions, or misprints in the said schedule. Such Schedule shall continue to be the minimum rate wages payable to workers employed in the Work throughout the term of this Contract, subject to the exceptions provided in M.G.L c.149, s. 27 yearly review of wage rates. The Contractor shall not have any claim for extra compensation from the Owner if the actual wages paid to workers employed in the Work exceeds the rates listed on the schedule or as otherwise provided by law. The Contractor shall cause a copy of said Schedule to be kept in a conspicuous place at the Site during the term of the Contract. If reserve police officers are employed by the Contractor, they shall be paid the prevailing wage of regular police officers. (See M.G.L c.149, s. 34B).

D. **Payroll Records and Statement of Compliance.** The Contractor shall comply and shall cause its Subcontractors to comply with Massachusetts General Law c. 149, s. 27B, which requires that a true and accurate record be kept of all persons employed on the a project for
which the prevailing wage rates have been provided. The Contractor and all Subcontractors shall keep these records and preserve them for a period of three years from the date of completion of the Contract. Such records shall be open to inspection by any authorized representative of the Owner at any reasonable time, and as often as may be necessary. The Contractor shall, and shall cause its subcontractors to, submit weekly copies of their weekly payroll records to the Awarding Authority. In addition, the Contractor and each Subcontractor shall furnish to the Executive Department of Labor within fifteen days after completion of its portion of the Work a signed statement in the form required by the Awarding Authority.

E. **Vehicle operators.** If the Director of the Department of Labor and Workforce Development has established a Schedule of wage rates to be paid to the operators of trucks, vehicles or equipment for the Work, the Contractor shall be obligated to pay such operators at least the minimum wage rate contained on such Schedule. (See M.G.L. c.149, s. 26-27H).

F. **Eight-Hour Day.** The Contractor shall comply with M.G.L. c. 149, s. 30, 34 and 34A which provide that no laborer, workman, mechanic, foreman or inspector working within the Commonwealth in the employ of the Contractor, subcontractor or other person doing or contracting to do the whole or part of the Work shall be required or permitted to work more than eight hours in any one day or more than forty-eight hours in any one week, or more than six days in any one week, except in cases of extraordinary emergency.

G. **Timely Payment of Wages.** The Contractor shall comply with, and shall cause its Subcontractors to comply with M.G.L. c. 149, s. 148 which requires the weekly or biweekly payment of employees within six days of the end of the pay period during which wages were earned if employed for five or six days of a calendar week, and within other periods of time under certain circumstances as set forth therein.

H. **Lodging, etc.** The Contractor shall comply with, and shall cause its Subcontractors to comply with, M.G.L. c. 149, s. 25 which provides that every employee under this Contract shall lodge, board and trade where and with whom he elects, and neither the Contractor nor his agents or employees shall, either directly or indirectly, require as a condition of the employment of any person that the employee shall lodge, board or trade at a particular place or with a particular person.

I. **Truck Rates.** The use by the Contractor of trucks or other motor vehicles hired from either common or contract motor carriers in the course of performance of this Contract is subject to such minimum rates and charges, and rules and regulations as may from time to time be promulgated by the Department of Public Utilities of the Commonwealth of Massachusetts or other agency of the State of Federal government which may be authorized by law to set rates or otherwise regulate the use of such vehicles. The Contractor expressly assumes the risk of any additional expense, inclusive of fuel charges for use of common or contract motor carrier and trucks owned that may arise by reason of any change in such minimum rates and charges, and rules and regulations, and shall be entitled to no additional compensation or reimbursement by reason thereof.

J. **Anti-Boycott Covenant (Executive Order #130).** The Contractor warrants, represents and agrees that during the time this Contract is in effect, neither it nor any affiliated company, as hereafter defined, participates in or cooperates with an international boycott, as defined in Section 999(b)(3) and (4) of the Internal Revenue Code of 1954, as amended, or engages in conduct declared to be unlawful by M.G.L. c. 151E, s. 2. If there shall be a breach in the
warranty, representation or agreement contained in this paragraph, then without limiting such other rights as it may have the Awarding Authority shall be entitled to rescind this contract. As used herein, an affiliated company shall be any business entity of which at least 51% of the ownership interests are directly or indirectly owned by the Contractor or by a person or persons or business entity or entities directly or indirectly owning at least 51% of the Ownership interests of the Contractor; or which directly or indirectly owns at least 51% of the Ownership interests of the Contractor.

K. Contractor's Agreements with Suppliers--Anti-Boycott Provisions.

(1) The Contractor shall not purchase or rent any materials, equipment, machinery, vehicles, or supplies for or in connection with the Work from any person or entity who does not sign, under pains and penalties of perjury, a certificate that recites: "The undersigned warrants, represents and agrees that during the time its agreement with {insert contractor's name} is in effect for materials, supplies or equipment to be used in connection with the {insert the name of the Awarding Authority} Project No. {insert project number}, neither the undersigned or any affiliated company, as hereafter defined, participates in or cooperates with an international boycott, as defined in Section 999(b)(3) and (4) of the Internal Revenue Code of 1954, as amended, or engages in conduct declared to be unlawful by Section 2 of Chapter 151E of the Massachusetts General Laws. As used herein, an affiliated company shall be any business entity of which at least 51% of the ownership interests are directly or indirectly owned by the undersigned or by a person or persons or business entity or entities directly or indirectly owning at least 51% of the ownership interests of the undersigned; or which directly or indirectly owns at least 51% of the ownership interests of the undersigned."

(2) The Awarding Authority shall not be obligated to pay the Contractor for the cost of any materials, supplies, or equipment purchased or rented from any individual or entity from whom the Contractor has not previously obtained and delivered to the Awarding Authority the certificate that the previous paragraph requires. The Contractor will immediately terminate its contract with any supplier who breaches the warranty, representation and agreement contained in the previous paragraph.

(3) The Contractor shall include in the Contractor's agreement with any person or entity from whom the Contractor intends to purchase or rent any materials, equipment, machinery, vehicles or supplies for or in connection with the Work, (a) a notice that this Contract obligates the Contractor to terminate the supply contract upon discovery of such breach of the sworn certificate delivered under subparagraph (1) and such termination shall be without liability to the Contractor or the Awarding Authority and (b) a provision which states: "The Governor or his designee, the secretary of administration and finance, and the state auditor or his designee shall have the right at reasonable times and upon reasonable notice to examine the books, records and other compilations of the undersigned vendor which pertain to the performance and requirements of this agreement to provide materials of any nature to the undersigned contractor in connection with State Project No. (insert project number)."

L. Access to Contractor's Records (Executive Order #195). The Governor or his designee, the secretary of administration and finance, and the state auditor or his designee shall have the right at reasonable times and upon reasonable notice to examine the books, records and other
compilations of data of the Contractor which pertain to the performance and requirements of this Contract.

M. Northern Ireland - M.G.L. c. 7 § 22C. Pursuant to G.L. c. 7 s. 22C for state agencies, state authorities, the House of Representatives or the state Senate, the Contractor certifies that it does not employ ten or more employees in an office or other facility in Northern Ireland and if the Contractor employs ten or more employees in an office or other facility located in Northern Ireland the Contractor certifies that it does not discriminate in employment, compensation, or the terms, conditions and privileges of employment on account of religious or political belief; and it promotes religious tolerance within the work place, and the eradication of any manifestations of religious and other illegal discrimination; and the Contractor is not engaged in the manufacture, distribution or sale of firearms, munitions, including rubber or plastic bullets, tear gas, armored vehicles or military aircraft for use or deployment in any activity in Northern Ireland.

ARTICLE XI: CONTRACTOR'S ACCOUNTING METHOD REQUIREMENTS (M.G.L. c. 30, s. 39R)

1. Definitions.
The words defined herein shall have the meaning stated below whenever they appear in this Article XI:

— "Contractor" means any person, corporation, partnership, joint venture, sole proprietorship, or other entity awarded a Contract pursuant to M.G.L. c. 30, s. 39M, M.G.L. c. 149, s. 44A-J, and M.G.L. c. 7, s. 30B-P.

— "Contract" means any Contract awarded or executed pursuant to M.G.L. c. 30, s. 39M, M.G.L. c. 149, s.44A-J, and M.G.L. c. 7, s. 30B-P, which is for an amount or estimated amount greater than one hundred thousand dollars.

— "Independent Certified Public Account" means a person duly registered in good standing and entitled to practice as a certified public accountant under the laws of the place of his/her residence or principal office and who is in fact independent. In determining whether an accountant is independent with respect to any particular person, appropriate consideration should be given to all relationships between the accountant and that person or any affiliate thereof. Determination of an accountant's independence shall not be confined to the relationships existing in connection with the filing of reports with the awarding authority.

— "Records" means books of original entry, accounts, checks, bank statements and all other banking documents, correspondence, memoranda, invoices, computer printouts, tapes, discs, papers and other documents or transcribed information of any type, whether expressed in ordinary or machine language.

— "Audit", when used in regard to financial statements, means an examination of records by an independent certified public accountant in accordance with generally accepted accounting principles and auditing standards for the purpose of expressing a certified opinion thereon, or, in the alternative, a qualified opinion or a declination to express an opinion for stated reasons or other person or persons primarily responsible for the financial and operational policies and practices of the Contractor.
Accounting terms, unless otherwise defined herein, shall have a meaning in accordance with generally accepted accounting principles and auditing standards.

2. Record Keeping.
   A. The Contractor shall make, and keep for at least six years after final payment, books, records, and accounts that in reasonable detail accurately and fairly reflect the transactions and dispositions of the Contractor.
   B. Until the expiration of six years after final payment, the Inspector General, DCAM, and the Awarding Authority shall have the right to examine any books, documents, papers or records of the Contractor and Subcontractors that directly pertain to, and involve transactions relating to the Contractor and Subcontractors.
   C. The Contractor shall describe any change in the method of maintaining records or recording transactions which materially affects any statements filed with the Awarding Authority including the date of the change and reasons therefore, and shall accompany said description with a letter from the Contractor’s independent certified public accountant approving or otherwise commenting on the changes.
   D. The Contractor represents that it has, prior to the execution of the Contract, filed a statement of management on internal accounting controls as set forth in Section 3 below.
   E. The Contractor represents that it has, prior to the execution of the Contract, filed an audited financial statement for the most recent completed fiscal year as set forth in section 4 below and will continue to file such statement annually during the term of the Contract.

   A. The Contractor shall file with the Awarding Authority a statement of management as to whether the system of internal accounting controls of the Contractor and its subsidiaries reasonably assures that:
      (1) transactions are executed in accordance with management's general and specific authorization;
      (2) transactions are recorded as necessary to: (a) to permit preparation of financial statements in conformity with generally accepted accounting principles, and (b) to maintain accountability for assets;
      (3) access to assets is permitted only in accordance with management's general or specific authorization; and
      (4) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action was taken with respect to any difference.
   B. The Contractor shall file with the Awarding Authority a statement prepared and signed by an independent certified public accountant, stating that the accountant has examined the statement of management on internal accounting controls, and expressing an opinion as to:
      (1) whether the representations of management in response to subparagraph 3 above are consistent with the results of management's evaluation of the system of internal accounting controls; and
(2) whether such representations of management are reasonable with respect to transactions and assets in amounts which would be material when measured in relation to the applicant's financial statement.

   A. Every Contractor awarded a contract shall annually file with DCAM during the term of the Contract a financial statement prepared by an independent certified public accountant on the basis of an audit by such accountant. The final statement filed shall include the date of final payment. All statements shall be accompanied by an accountant's report.
   B. The office of Inspector General and DCAM shall have the right to enforce the provisions of this Article. A Contractor's failure to satisfy any of the requirements of this section may be grounds for debarment pursuant to M.G.L. c. 149, s. 44C.

The Contractor shall save the written calculations, pricing information, and other data that the Contractor used to calculate the bid that induced the Awarding Authority to enter into this Contract (the "Bid Pricing Materials") for at least six years after the Awarding Authority makes final payment under this Contract.
ARTICLE XII: EQUAL EMPLOYMENT OPPORTUNITY, NON-DISCRIMINATION AND AFFIRMATIVE ACTION PROGRAM.

This Contract includes the provisions of the Awarding Authority's "Equal Employment Opportunity, Non-Discrimination, and Affirmative Action Program" attached as Appendix A to these General Conditions of the Contract and incorporated herein by reference.

ARTICLE XIII: GOALS FOR PARTICIPATION BY MINORITY BUSINESS ENTERPRISES AND WOMEN BUSINESS ENTERPRISES

This Contract includes the provisions of the Awarding Authority's program relating to Goals for Participation by Minority Business Enterprises and Women Business Enterprises attached as Appendix B to these General Conditions of the Contract and incorporated herein by reference.

ARTICLE XIV: INSURANCE REQUIREMENTS

1. Insurance Generally.
   A. The Contractor shall take out and maintain the insurance coverage listed in this Article with respect to the operations as well as the completed operations of this Contract. This insurance shall be provided at the Contractor's expense and shall be in full force and effect for the full term of the Contract or for such longer period as this Article requires.
   B. All policies shall be written on an occurrence basis and be issued by companies authorized to write that type of insurance under the laws of the Commonwealth and rated in Best's Insurance Guide (or any successor thereto or replacement thereof) as having a general policy holder rating of "A" or better and a financial rating of at least "9" or otherwise acceptable to the Awarding Authority.
   C. Contractor shall submit three original certificates of insurance, acceptable to the Awarding Authority, simultaneously with the execution of this Contract. Certificates shall show the Awarding Authority and the Owner as an additional insured as to all policies of liability insurance and shall state that Contractor has paid all premiums and that none of the coverage shall be cancelled, terminated, or materially modified unless and until 30 days prior notice is given in writing to the Awarding Authority. The awarding authority is the University of Massachusetts, and the owner is the University of Massachusetts Amherst or other instrumentality that will own the work including but not limited to the following: UMB and the Commonwealth. Contractor shall submit updated certificates prior to the expiration of any of the policies referenced in the certificates so that the Awarding Authority shall at all times possess certificates indicating current coverage. Certificates shall indicate that the contractual liability coverage, and Contractor's Protective Liability coverage is in force. Certificates shall include specific acknowledgment that the following coverage are included in the policies:
      - Contractual liability
      - Contractor’s protective
      - Owner as additional insured by form CG2010 (11/85 ed.) to the general liability
      - Owner as additional insured to automobile liability, umbrella liability, and pollution liability
      - General Liability is endorsed with CG2404, Waiver of Subrogation, in favor of the Owner

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— Builder’s Risk or Installation Floater includes Owner, Contractor and subcontractors of any tier as named insured. Builder’s Risk or Installation floater is on an All Risk basis including earthquake and flood.

D. The Contractor shall file one certified copy of all policies with the Awarding Authority within sixty days after Contract award. If the Awarding Authority or the Owner is damaged by the Contractor's failure to maintain such insurance and to comply with the terms of this Article, then the Contractor shall be responsible for all costs and damages to the Owner attributable thereto.

E. Termination, cancellation, or material modification of any insurance required by this Contract, whether by the insurer or the insured, shall not be valid unless written notice thereof is given to the Awarding Authority at least thirty days prior to the effective date thereof, which shall be expressed in said notice.

2. Contractor’s Commercial General Liability.
   A. The Contractor shall provide the following minimum general liability coverage with respect to the operations performed by Contractor and any employee, subcontractor, or supplier, unless a higher coverage is specified in Exhibit A to the Owner - Contractor Agreement, in which case the Contractor shall provide the additional coverage:
      - Bodily Injury & $1,000,000 each occurrence
      - Property Damage $2,000,000 general aggregate, per project
      - Products & Completed Operations $1,000,000 annual aggregate
      - Personal & Advertising Injury $1,000,000 each occurrence
      - Medical Expenses $10,000

   B. This policy shall include coverage relating to explosion, collapse, and underground property damage.

   C. This policy shall include contractual liability coverage.

   D. The completed operations coverage shall be maintained for a period of three (3) years after Substantial Completion.

   E. If the Work includes work to be performed within 50 feet of a railroad, any exclusion for liability assumed under contract for work within 50 feet of a railroad shall be deleted.

   F. This policy shall include endorsement CG2010 (10/85 edition), Owner as Additional Insured and CG2404 (11/85 edition) Waiver of Subrogation in Favor of Owner.

   A. The Contractor shall provide the following minimum coverage with respect to the operations of any employee, including coverage for owned, non-owned, and hired vehicles, unless a higher coverage is specified in Exhibit A to the Owner - Contractor Agreement, in which case the Contractor shall provide the additional coverage:
      - Combined Single Limit $1,000,000

   B. The policy shall include a CA9948 Pollution Endorsement and shall name the Owner as an Additional Insured.
4. **Pollution Liability.**
The Contractor shall provide coverage for bodily injury and property damage resulting from liability arising out of pollution related exposures such as asbestos abatement, lead paint abatement, tank removal, removal of contaminated soil, etc. The Awarding Authority and the Owner shall be named as an additional insured and coverage must be on an occurrence basis. The amount of coverage shall be $1,000,000 per occurrence and $3,000,000 in the aggregate unless a higher amount is specified in Exhibit A to the Owner - Contractor Agreement, in which case the Contractor shall provide the additional coverage.

5. **Worker’s Compensation.**
   A. The Contractor shall provide the following coverage in accordance with M.G.L. c.149 §34A and c.152 as amended, unless a higher coverage is specified in Exhibit B to the Owner - Contractor Agreement, in which case the Contractor shall provide the higher coverage:
      - **Worker's Compensation** Provide Statutory Minimum
      - **Part One** $500,000 each accident
      - **Employer's Liability** $500,000 disease per employee
      - **Part Two** $500,000 disease policy aggregate
   B. If specified in Exhibit A to the Owner - Contractor Agreement the policy must be endorsed to cover United States Longshoremen & Harborworkers Act (USLHW), Maritime Liability for $1,000,000/$1,000,000, or Federal Employer’s Liability Act liability.

6. **Builder's Risk/ Installation Floater/Stored Materials.**
   A. The Contractor shall provide coverage against loss or damage on all Work included in this Contract in an amount equal to the Contract Price. Such coverage shall be written on an all risks basis or equivalent form and shall include, without limitation, insurance against perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood (if the project is not in an "A" or a "V" flood Zone), windstorm, false work, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's and Contractor's services and expenses required as a result of such insured loss. This policy and/or installation floater shall indicate if Stored Materials coverage is provided as required below.
   B. When Work will be completed on existing buildings owned by the Owner, the Contractor shall provide an installation floater, in the full amount of the Contract Price. Such coverage shall be written on an all risks basis or equivalent form and shall include, without limitation, insurance against perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood (if the project is not in an "A" or a "V" flood Zone), windstorm, false work, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's and Contractor's services and expenses required as a result of such insured loss. This policy and/or installation floater shall indicate if Stored Materials coverage is provided as required below.
C. The Contractor shall maintain insurance on delivered and/or stored material designated to be incorporated in the Work against fire, theft or other hazards. Any loss or damage of whatever nature to such material while stored at some approved off Site location shall be forthwith replaced by the Contractor at no expense to the Awarding Authority.

D. The policy or policies shall specifically state that they are for the benefit of and payable to the Awarding Authority, Owner, the Contractor, and all persons furnishing labor or labor and materials for the Contract Work, as their interests may appear. The policy or policies shall list the Awarding Authority, Owner, the Contractor, and Subcontractors of any tier as named insured.

E. Coverage shall include any costs for work performed by the Designer or any consultant as the result of a loss experienced during the term of this Contract.

F. Coverage shall include temporary occupancy and waiver of subrogation and shall waive all rights of recovery by subrogation against the University of Massachusetts Building Authority, the University, and the Commonwealth of Massachusetts.

7. Umbrella Coverage.
The Contractor shall provide Umbrella Coverage in form at least as broad as primary coverage required by Sections 2, 3 and 5 of this Article in the following amount unless a higher amount is specified in Exhibit A to the Owner - Contractor Agreement, in which case the Contractor shall provide the higher amount:

<table>
<thead>
<tr>
<th>Contract Price</th>
<th>Umbrella Coverage</th>
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<tbody>
<tr>
<td>Under $1,000,000</td>
<td>$2,000,000</td>
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<td>$1,000,000 -- $5,000,000</td>
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<tr>
<td>$10,000,001 and over</td>
<td>$25,000,000</td>
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8. Additional types of Insurance.
The Contractor shall provide such other types of insurance as may be required by Exhibit A to the Owner - Contractor Agreement.

ARTICLE XV: INDEMNIFICATION

1. Generally.
To the fullest extent permitted by law, the Contractor shall indemnify, defend (with counsel subject to the supervision of the Attorney General of the Commonwealth of Massachusetts as required by M.G.L. c. 12, s. 3) and hold harmless the Owner, Awarding Authority and Designer and their officers, agents, divisions, agencies, employees, representatives, successors and assigns from and against all claims, damages, losses and expenses, including but not limited to court costs and attorneys’ fees, arising out of or resulting from the performance of the Work, including but not limited to those arising or resulting from:

- labor performed or furnished and/or materials used or employed in the performance of the Work;
- violations by Contractor, any Subcontractor, or by any person directly or indirectly employed or used by any of them in the performance of the Work or anyone for whose acts any of them may be liable (Contractor, subcontractor and all such persons herein collectively
called "Contractor's Personnel") of any Laws;
— violations of any provision of this Contract by any of Contractor's Personnel;
— injuries to any persons or damage to any property in connection with the Work;
— any act, omission, or neglect of Contractor's Personnel.

The Contractor shall be obligated as provided above, regardless of whether or not such claims, damages, losses and/or expenses, are caused in whole or in part by the actions or inactions of a party indemnified hereunder. In any and all claims by Contractor's Personnel against parties indemnified hereunder, the Contractor's indemnification obligation set forth above shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any subcontractor under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts. Such obligation shall not be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnity which would otherwise exist as to any party or person described in this Article XV.

2. Designer's Actions.
The obligations of the Contractor under Section 1 above shall not extend to the liability of the Designer, its agents or employees, arising out of (i) the preparation or approval of maps, drawings, opinions, reports, surveys Change Orders, designs or specifications, or (ii) the giving of or the failure to give directions or instructions by the Designer, its agents to employees provided such giving or failure to give is the primary cause of the injury or damage.

The provisions of this Article XV are intended to survive Final Acceptance and/or any termination of this Contract.

ARTICLE XVI: PERFORMANCE AND PAYMENT BONDS

1. Contractor Bonds.
   A. The Contractor shall provide performance and payment (labor and materials) bonds in the form provided by the Awarding Authority, executed by a surety licensed by the Commonwealth of Massachusetts Division of Insurance. Each such bond shall be in the amount of the Contract Price.
   B. If at any time prior to final payment to the Contractor, the Surety:
      — is adjudged bankrupt or has made a general assignment for the benefit of its creditors;
      — has liquidated all assets and/or has made a general assignment for the benefit of its creditors;
      — is placed in receivership;
      — otherwise petitions a state or federal court for protection from its creditors; or
      — allows its license to do business in Massachusetts to lapse or be revoked;
then the Contractor shall, within 21 days of any such action listed above, provide the Awarding Authority with new performance and payment bonds as described in Paragraph A above. Such bonds shall be provided solely at the Contractor's expense.

2. **Subcontractor Bonds.**
   A. If the Contractor provided in its General Bid that any or all filed subcontractors shall provide the Contractor with payment and performance bonds for the full amount of their respective Subcontracts, then the costs for said bonds shall be the responsibility of the Contractor.
   B. If the Contractor provided in its General Bid that filed Subcontractors shall provide bonds, and subsequently waives the requirement, the Contractor shall give the Awarding Authority a written certification that the Contractor understands that if the filed Subcontractor defaults or is terminated, the Contractor shall have full responsibility for all costs and expenses related to said default or termination but shall be entitled to a credit adjustment to the Contract Price in an amount equal to the bond premium Contractor would have paid had Contractor required the filed Subcontractor to provide such bonds.

**ARTICLE XVII: TERMINATION OF CONTRACT**

1. **Termination for Cause.**
   A. The Awarding Authority may without prejudice to any other right or remedy deem this Contract terminated for cause if any of the following defaults shall occur and not be cured within three (3) days after the giving of notice thereof by the Awarding Authority to the Contractor and any surety that has given bonds in connection with this Contract:
      (1) The Contractor has filed a petition, or a petition has been filed against the Contractor with its consent, under any federal or state law concerning bankruptcy, reorganization, insolvency or relief from creditors, or if such a petition is filed against the Contractor without its consent and is not dismissed within sixty (60) days; or if the Contractor is generally not paying its debts as they become due; or if the Contractor becomes insolvent; or if the Contractor consents to the appointment of a receiver, trustee, liquidate, custodian or the like of the Contractor or of all or any substantial portion of its assets and such appointment or possession is not terminated within sixty (60) days; or if the Contractor makes an assignment for the benefit of creditors;
      (2) The Contractor refuses or fails, except in cases for which extension of time is provided under this Contract's express terms, to supply enough properly skilled workers or proper materials to perform its obligations under this Contract, or the Designer has determined that the rate of progress required for the timely completion of the Work is not being met;
      (3) The Contractor fails to make prompt payment to Subcontractors or for materials, equipment, or labor;
      (4) All or a part of the Work has been abandoned;
      (5) The Contractor has sublet or assigned all or any portion of the Work, the Contract, or claims thereunder, without the prior written consent of the Owner, except as expressly permitted in this Contract;
(6) The Contractor has failed to comply with Laws;
(7) The Contractor fails to maintain, or provide to the Awarding Authority evidence of
the insurance or bonds required by this Contract, or
(8) The Contractor has failed to prosecute the Work or any portion thereof to the
standards required under this Contract or has otherwise breached any material provision
of this Contract.

B. The Awarding Authority shall give the Contractor and any surety notice of such
termination for cause, but the giving of notice of such termination shall not be a condition
precedent or subsequent to the termination’s effectiveness. In the event of such termination,
and without limiting any other available remedies, the Awarding Authority may, at its option:

(1) hold the Contractor and its sureties liable in damages for a breach of Contract;
(2) notify the Contractor to discontinue all work, or any part thereof, and the Contractor
shall discontinue all work, or any part thereof, as the Owner may designate;
(3) complete the Work, or any part thereof, and charge the expense of completing the
Work or part thereof, to the Contractor;
(4) require the surety or sureties to complete the Work and perform all of the
Contractor’s obligations under this Contract.

If the Awarding Authority elects to complete all or any portion of the Work as specified in (3)
above, it may take possession of all materials, equipment, tools, machinery, implements at or
near the Site owned by the Contractor and finish the Work at the Contractor’s expense by
whatever means the Awarding Authority may deem expedient; and the Contractor shall
cooperate at its expense in the orderly transfer of the same to a new contractor or to the
Awarding Authority as directed by the Awarding Authority. In such case the Awarding Authority
shall not make any further payments to the Contractor until the Work is completely finished. The
Owner shall not be liable for any depreciation, loss or damage to said materials, machinery,
implements or tools during said use and the Contractor shall be solely responsible for their
removal from the Site after the Owner has no further use for them. Unless so removed within
fifteen days after notice to the Contractor to do so, they may be sold at public auction, after
publication of notice thereof at least twice in any newspaper published in the county where the
Work is being performed, and the proceeds credited to the Contractor’s account; or they may,
at the option of the Awarding Authority, be stored at the Contractor’s expense subject to a lien
for the storage charges.

C. Damages and expenses incurred under paragraph B above shall include, but not be limited
to, costs for the Designer’s extra services and Project Representative services required, in the
opinion of the Awarding Authority, to successfully inspect and administer the construction
contract through final completion of the Work.

D. Expenses charged under paragraph B above may be deducted and paid by the Awarding
Authority out of any money then due or to become due to the Contractor under this Contract.

E. All sums damages, and expenses incurred by the Owner to complete the Work shall be
charged to the Contractor. In case the damages and expenses charged are less than the sum that
would have been payable under this Contract if the same had been completed by the Contractor,
the Contractor shall be entitled to receive the difference. In case such expenses shall exceed the
said sum, the Contractor shall pay the amount of the excess to the Owner.
2. Termination For Convenience.
   A. The Awarding Authority may terminate this Contract for convenience even though the Contractor is not in default by giving notice to the Contractor specifying in said notice the date of termination.
   B. In case of such termination without cause, the Contractor shall be paid:
      (1) all sums due and owing under this Contract through the date of termination, including any retainage withheld to the date of termination, less any amount which the Awarding Authority determines is necessary to correct or complete the Work performed to the date of termination; plus
      (2) a reasonable sum to cover the expenses which Contractor would not have incurred but for the early termination of the Contract, such as demobilization of the work force, restocking charges, termination fees payable to Subcontractors.
   C. The payment provided in paragraph B above shall be considered to fully compensate the Contractor for all claims and expenses and those of any consultants, Subcontractors, and suppliers, directly or indirectly attributable to the termination, including any claims for lost profits.

3. Contractor’s Duties Upon Termination For Convenience.
   Upon termination of this Contract for convenience as provided in Section 2 of this Article, the Contractor shall: (1) stop the Work; (2) stop placing orders and Subcontracts in connection with this Contract; (3) cancel all existing orders and Subcontracts; (4) surrender the Site to the Awarding Authority in a safe condition; (5) transfer to the Awarding Authority all materials, supplies, work in process, appliances, facilities, equipment and machinery of this Contract, and all plans, Drawings, specifications and other information and documents used in connection with this Contract.

ARTICLE XVIII: MISCELLANEOUS PROVISIONS

1. No Assignment by Contractor.
   The Contractor shall not assign by power of attorney or otherwise, or sublet or subcontract, the Work or any part thereof, without the previous written consent of the Awarding Authority and shall not, either legally or equitably, assign any of the moneys payable under this Contract, or Contractor’s claims hereunder, unless with the like consent of the Awarding Authority, whether said assignment is made before, at the time of, or after the execution of the Contract. The Contractor shall remain responsible for satisfactory performance of all Work sublet or assigned. Consent of the Awarding Authority shall not be deemed to constitute a representation or waiver of any right hereunder by the Awarding Authority as to the qualifications or the responsibility of the Contractor or Subcontractor(s).

2. Non-Appropriation.
   If the Awarding Authority is unable to obtain an appropriation of funds sufficient to discharge its obligations under this Agreement for any fiscal year during the term of this Agreement, the Awarding Authority shall not be obligated to make any further payments, and this Agreement
may be terminated immediately by either the Awarding Authority or the Contractor, provided that the Awarding Authority shall make payment to the Contractor for obligations incurred during the period for which funding was included in an annual or supplemental appropriation. Delay by the General Court in enacting an annual or supplemental appropriation bill shall not be grounds for termination of this Agreement pursuant to this Section, unless such annual or supplemental appropriation bill as enacted and signed by the Governor contains insufficient funding for obligations pursuant to this Agreement.

3. **Claims by Others Not Valid.**
No person other than the Contractor shall acquire any interest in this Contract or claim against the Awarding Authority or Owner hereunder, and no claim by any other person shall be valid except as provided in M.G.L. c. 30, s. 39F of the General Laws.

4. **No Personal Liability of Public Officials.**
No public official, employee, or agent of the Awarding Authority or Owner shall have any personal liability for the obligations of the Awarding Authority or Owner set forth in this Contract.

5. **Severability.**
The provisions of this Contract are severable, and if any of these provisions shall be held unconstitutional or unenforceable by any court of competent jurisdiction, the decision of such court shall not affect or impair any of the other provisions of this Contract.

6. **Choice of Laws.**
This Contract shall be governed by the laws of the Commonwealth of Massachusetts for all purposes, without regard to its laws on choice of law. All proceedings under this Contract or related to the Project shall be brought in the courts of the Commonwealth of Massachusetts.

7. **Standard Forms.**
Unless directed otherwise in writing by the Awarding Authority, Contractor shall use the standard forms in use by the Awarding Authority and/or Division of Capital Asset Management and Maintenance appearing in Appendix C to these General Conditions of the Contract.

8. **No Waiver of Subsequent Breach.**
No waiver of any breach or obligation of this Contract shall constitute a waiver of any other or subsequent breach or obligation.

9. **Remedies Cumulative.**
All remedies of the Awarding Authority provided in this Contract shall be construed as cumulative and may be exercised simultaneously or in any order as determined by the Awarding Authority in its sole discretion. The Awarding Authority shall also be entitled as of right to specific performance and equitable relief including the right to an injunction against any breach of any of the provisions of this Contract.

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Notice to the Contractor shall be deemed given when hand delivered to the Contractor's temporary field office at or near the Site, or when deposited in the U.S. mail addressed to the Contractor at the Contractor's address specified in the Owner - Contractor Agreement, or when delivered by courier to either location. Unless otherwise specified in writing by the Awarding Authority, notices and deliveries to the Awarding Authority shall be effective only when delivered to the Awarding Authority at the address specified in the Owner - Contractor Agreement and date-stamped at the reception desk or for which a receipt has been signed by the agent or employee designated by the Awarding Authority to receive official notices.
APPENDIX A to General Conditions of the Contract

The following provisions form Article XII of the General Conditions of the Contract where the University of Massachusetts Amherst is the Awarding Authority.

EQUAL EMPLOYMENT OPPORTUNITY, NON-DiscriminATIon AND AFFIRMATIVE ACTION PROGRAM.

1. Compliance Generally.
For purpose of this Article, "minority" refers to Asians, Blacks, Western Hemisphere Hispanics, Native Americans, and Cape Verdians; "Commission" refers to the Massachusetts Commission Against Discrimination. During the performance of this Contract, the Contractor and all of its Subcontractors (hereinafter collectively referred to as the Contractor) shall comply with all applicable equal employment opportunity, non-discrimination and affirmative action requirements, including but not limited to the following:


   A. The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religious creed, national origin, age, handicap, sexual orientation, 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. The Contractor shall comply with the provisions of M.G.L. c. 151B and all other applicable anti-discrimination and equal opportunity laws.

   B. The Contractor shall comply with the provisions of Executive Order 478, entitled Order Regarding Nondiscrimination, Diversity, Equal Opportunity and Affirmative Action, which prohibits unlawful discrimination based on race, color, age, gender, ethnicity, sexual orientation, religion, creed, ancestry, national origin, disability, veteran’s status (including Vietnam-era veterans), or background. Executive Order 478 is herein incorporated by reference and made a part of this Contract.

   Pursuant to Executive Order 478 the Contractor and any subcontractors may not engage in discriminatory employment practices; and the Contractor must certify that it is in compliance with all applicable federal and state laws, rules, and regulations governing fair labor and employment practices; and commit to purchasing supplies and services from certified minority or women-owned businesses, small businesses, or businesses owned by socially or economically disadvantaged persons or persons with disabilities. These provisions shall be enforced through the contracting agency, the Operational Services Division, and/or the Massachusetts Commission Against Discrimination. Any breach shall be regarded as a material breach of Contract that may subject Contractor to appropriate sanctions. The Contractor shall comply with the provisions of Executive Order No. 246 entitled Revoking and Superseding Executive Orders Numbers 143 and 150, with respect to affirmative action programs for handicapped individuals, which is herein incorporated by reference and made a part of this Contract.
C. In connection with the performance of the Work, 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, sexual orientation, 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, sexual orientation, or sex. A purpose of this provision is to ensure to the fullest extent possible an adequate supply of skilled tradesmen for future public construction projects.

D. If the Contractor shall use any subcontractor on any work performed under this Contract, the Contractor shall take affirmative steps to negotiate with qualified minority and women subcontractors. These affirmative steps shall cover both pre-bid and post-bid periods. It shall include notification to the State Office of Minority and Women Business Assistance or its designee, while bids are in preparation, of all products, work or services for which the Contractor intends to negotiate bids. In all solicitations either by competitive bidding or negotiation made by the Contractor either for work to be performed under a subcontract or for the procurement of materials or equipment, each potential subcontractor or supplier shall be notified in writing by the Contractor of the Contractor's obligations under this Contract relative to non-discrimination and affirmative action.

E. As part of its obligation of remedial action under this Article, the Contractor shall maintain on this project not less than the percent ratio set forth in the Owner - Contractor Agreement of minority employee worker hours to total worker hours in each job category including but not limited to bricklayers, carpenters, cement masons, electricians, ironworkers, operating engineers, and those "classes of work" enumerated in M.G. L. c. 149, s. 44F.

F. In the hiring of minority journeypersons, apprentices, trainees and advanced trainees, the Contractor shall rely on referrals from a multi-employer affirmative action program approved by the Commission, traditional referral methods utilized by the construction industry, and referrals from agencies, not more than three in number at any one time, designated by the Liaison Committee or the Awarding Authority.

3. Liaison Committee, Reports and Records.

A. At the option of the Awarding Authority, there may be established for the term of this Contract a body to be known as the Liaison Committee. The Liaison Committee shall be composed of one representative each from the Awarding Authority, the Commission and such other representatives as may be designated by the Commission in conjunction with the Awarding Authority. The Contractor (or his agent, if any, designated by him as the on-Site equal employment opportunity officer) shall recognize the Liaison Committee as an affirmative action body, and shall establish a continuing working relationship with the Liaison Committee, consulting with the Liaison Committee on all matters related to minority recruitment, referral, employment and training.

B. The Contractor shall prepare projected staffing tables on a quarterly basis. These shall be broken down into projections, by week, of workers required in each trade. Copies shall be
furnished one week in advance of the commencement of the period covered, and also when updated, to the Awarding Authority and Liaison Committee. The Contractor shall prepare weekly reports in a form approved by the Awarding Authority of hours worked in each trade by each employee, identified as minority or non-minority. Copies of these shall be provided at the end of each such week to the Awarding Authority and to the Liaison Committee.

C. Records of employment referral orders, prepared by the Contractor, shall be made available to the Awarding Authority and to the Liaison Committee on request.

D. A designee of the Awarding Authority and a designee of the Liaison Committee shall each have right to access to the Site.

E. The Contractor shall comply with the provisions of M.G.L. c. 151B as amended, of the Massachusetts General Laws, both of which are herein incorporated by reference and made a part of this Contract.

F. The Contractor shall provide all information and reports required by the Awarding Authority or the Commission on forms and in accordance with instructions issued by either of them and will permit access to its facilities and any books, records, accounts and other sources of information which may be determined by the Awarding Authority or the Commission to affect the employment of personnel. This provision shall apply only to information pertinent to the Owner's supplementary affirmative action Contract requirements. 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 Awarding Authority or the Commission as appropriate and shall set forth what efforts he has made to obtain the information.


A. Whenever the Awarding Authority, the Commission, or the Liaison Committee believes the Contractor or any Subcontractor may not be operating in compliance with the terms of this Article, the Commission shall directly, or through its designated agent, conduct an appropriate investigation, and may confer with the parties, to determine if such Contractor is operating in compliance with the terms of this Article. If the Commission or its agent finds the Contractor or any Subcontractor not in compliance, it may make a preliminary report on non-compliance, and notify such Contractor in writing of such steps as will in the judgment of the Commission or its agent bring such Contractor into compliance. In the event that such Contractor fails or refuses to fully perform such steps, the Commission may make a final report of non-compliance, and recommend to the Awarding Authority the imposition of one or more of the sanctions listed below. If, however, the Commission believes the Contractor or any Subcontractor has taken or is taking every possible measure to achieve compliance, it shall not make a final report of non-compliance. Within fourteen days of the receipt of the recommendations of the Commission, the Awarding Authority shall move to impose one or more of the following sanctions, as it may deem appropriate to attain full and effective enforcement:

(1) The recovery by the Awarding Authority from the Contractor of 1/100 of 1% of the Contract award price or $1,000 whichever sum is greater, in the nature of liquidated damages or, if a Subcontractor is in non-compliance, the recovery by the Awarding Authority from the Contractor, to be assessed by the Contractor as a back charge against the subcontractor, of 1/10 of 1% of the sub-Contract Price, or $400 whichever
sum is greater, in the nature of liquidated damages, for each week that such party fails
or refuses to comply;
(2) The suspension of any payment or part thereof due under the Contract until such
time as the Contractor or any subcontractor is able to demonstrate his compliance with
the terms of the Contract;
(3) The termination, or cancellation, of the Contract, in whole or in part, unless the
Contractor or any Subcontractor is able to demonstrate, as approved by the Awarding
Authority, within a specified time his compliance with the terms of the contract;
(4) The denial to the Contractor or any subcontractor of the right to participate in any
future contracts awarded by the Awarding Authority for a period of up to three years.

B. If at any time after the imposition of one or more of the above sanctions a Contractor is
able to demonstrate that it is in compliance with this Article, the Contractor may request the
Awarding Authority, in consultation with the Commission, to suspend the sanctions
conditionally, pending a final determination by the Commission as to whether the Contractor
is in compliance. Upon final determination of the Commission, the Awarding Authority, based
on the recommendation of the Commission, shall either lift the sanctions or impose them
again.

C. Sanctions recommended by the Commission and enumerated under Section 4 above
shall not be imposed by the Awarding Authority except after an adjudicatory proceeding, as
that term is used M.G.L. c. 30A, has been conducted. No investigation by the Commission or
its agent shall be initiated without prior notice to the Contractor.

D. Notwithstanding the provisions of 4A-4C above, if the Awarding Authority determines
after investigation that the Contractor or any Subcontractor is not in compliance with the terms
of this Article, it may suspend any payment or portion thereof due under the Contract until the
contractor demonstrates to the satisfaction of the Awarding Authority compliance with the
terms of this Article. This temporary suspension of payments by the Awarding Authority is
separate from the sanctions set forth in Section 4A-4C of this Article above, which are
determined by MCAD and recommend to the Awarding Authority. Payment may be suspended
only after the Contractor and any other interested party shall have been given the opportunity
to present evidence in support of its position at an informal hearing held by the Awarding
Authority, and the Awarding Authority has concluded upon review of all the evidence that such
penalty is justified. Payment shall not be suspended if the Awarding Authority finds that the
Contractor made its best efforts to comply with this Article, or that some other justifiable
reason exists for waiving the provisions of this Article in whole or in part.
APPENDIX B to General Conditions of the Contract

The following provisions form Article XIII of the General Conditions of the Contract where the University of Massachusetts Amherst is the Awarding Authority.

GOALS FOR PARTICIPATION BY MINORITY BUSINESS ENTERPRISES AND WOMEN BUSINESS ENTERPRISES (EXECUTIVE ORDER 390, M.G.L. c. 7, s. 40N)

1. Goals.
   A. The goals for minority business enterprise and woman business enterprise participation established for this Contract are as set forth in the Owner - Contractor Agreement.
   B. The Contractor and all Subcontractors, sub-subcontractors, and materials suppliers shall comply with all of the terms and conditions of this Article, which include the provisions pertaining to M/WBE participation set forth in the Owner - Contractor Agreement in order to meet the M/WBE participation goals established for this Contract.

2. M/WBE Participation Credit.
   A. If the Contractor is itself an MBE or WBE, M/WBE participation credit shall be given in an amount equal to the entire Contract Price. If the Contractor is not an MBE or WBE, then M/WBE participation credit will be given for the value of the Work that is actually performed by each MBE or WBE subcontractor or sub-subcontractor.
   B. If the Contractor is a joint venture with one or more M/WBE joint ventures’, M/WBE participation credit shall be given to the joint venture as follows:
      (1) If the joint venture is certified by SOMBWA as an MBE or WBE, M/WBE participation credit shall be given in an amount equal to the entire Contract Price.
      (2) If the joint venture is not certified as an MBE or WBE by SOMWBA, M/WBE participation credit shall be given to the joint venture for the value of the Work that is performed by the M/WBE joint ventures’, and for the value of the Work that is actually performed by each MBE or WBE subcontractor or sub-subcontractor.
   C. If an M/WBE supplies but does not install equipment or materials, M/WBE participation credit shall be given only if the M/WBE supplier is regularly engaged in sales of equipment or supplies to the construction industry from an established place of business. M/WBE participation credit shall be given the full amount of the purchase order only if the M/WBE supplier manufactures the goods or substantially alters them before resale. In all other cases, M/WBE participation credit shall be given for 10% of the purchase order.
   D. MBE participation credit shall be given for the work performed by MBEs only, and WBE participation credit shall be given for the work performed by WBEs only. MBE participation may not be substituted for WBE participation, nor may WBE participation be substituted for MBE participation.
3. **Establishing M/WBE Status.**
   
   A. A minority owned business shall be considered an MBE only if it has been certified as a minority business enterprise by the State Office of Minority and Women Business Assistance ("SOMWBA").
   
   B. A woman owned business shall be considered a WBE only if it has been certified as a woman business enterprise by SOMWBA.
   
   C. Certification as a disadvantaged business enterprise ("DBE"), certification as an M/WBE by any agency other than SOMWBA, or submission of an application to SOMWBA for certification as an M/WBE shall not confer M/WBE status on a firm for the purposes of this Contract.

4. **Subcontracts With M/WBEs.**

   Within thirty (30) days after the award of this Contract, the Contractor shall (i) execute a subcontract with each M/WBE Subcontractor which has executed a Letter of Intent Approved by the Awarding Authority, (ii) cause its Subcontractors to execute a sub-subcontract with each M/WBE sub-subcontractor, and (iii) furnish the Awarding Authority with a signed copy of each such subcontract and sub-subcontract.

5. **Performance of Contract Work by M/WBEs.**

   A. The Contractor shall not perform with its own organization or subcontract or assign to any other firm work designated to be performed by any W/MBE in the Letters of Intent or Schedule of M/WBE Participation without the prior Approval of the Awarding Authority, nor shall any M/WBE assign or subcontract to any other firm, or permit any other firm to perform any of its M/WBE Work without the prior Approval of the Awarding Authority. Any such unapproved assignment, subcontracting, sub-subcontracting, or performances of M/WBE Work by others shall be a change in the M/WBE Work for the purposes of this Contract. The Awarding Authority WILL NOT APPLY TO THE M/WBE PARTICIPATION GOAL(S) ANY SUMS ATTRIBUTABLE TO SUCH UNAPPROVED ASSIGNMENTS, SUB-CONTRACTS, SUB-SUBCONTRACTS, OR PERFORMANCE OF M/WBE WORK BY OTHERS.

   B. The Contractor shall be responsible for monitoring the performance of M/WBE Work to ensure that each scheduled M/WBE performs its own M/WBE Work with its own workforce.

   C. The Contractor and each M/WBE shall provide the Awarding Authority with all information and documentation that the Awarding Authority determines is necessary to ascertain whether or not an M/WBE has performed its own M/WBE Work. At the discretion of the Awarding Authority, failure to submit such documentation to the Awarding Authority shall establish conclusively for the purpose of giving M/WBE participation credit under this Contract that such M/WBE did not perform such work.

6. **Notification of Changes in M/WBE Work.**

   A. If at any time during the performance of the Contract the Contractor determines or has reason to believe that a scheduled M/WMBE is unable or unwilling to perform its M/WBE Work, or that there has been or will be a change in any M/WMBE Work, or that the Contractor will be unable to meet the M/WBE participation goal(s) for this Contract for any reason, the
Contractor shall immediately notify the Awarding Authority Contract Compliance Office in writing of such circumstances.

B. Any notice of a change in M/WBE Work pursuant to subparagraph “A” above shall include a revised Schedule of M/WBE Participation, and additional or amended Letters of Intent and subcontracts, as the case may be.

7. **Actions Required If There is a Reduction in M/WBE Participation.**

A. In the event there is a change or reduction in any M/WBE Work which will result in the Contractor failing to meet the M/WBE participation goal(s) for this Contract, other than a reduction in M/WBE Work resulting from a Change Order initiated by the Awarding Authority, then the Contractor shall immediately undertake a diligent, good faith effort to make up the shortfall in M/WBE participation as follows:

1. The Contractor shall identify all items of the Work remaining to be performed under the Contract that may be made available for subcontracting to W/MBEs. The Contractor shall send a list of such items of work to the Awarding Authority, together with a list of the remaining items of the Work that was not made available to M/WBEs and the reason for not making such work available for subcontracting to M/WBEs.

2. The Contractor shall send written notices soliciting proposals to perform the items of the Work that may be made available for subcontracting to W/MBEs to all W/MBEs qualified to perform such work. The Contractor shall advise the Awarding Authority of (i) each W/MBE solicited, and (ii) each W/MBE listed in the SOMWBA directory under the applicable trade category who was not solicited and the reasons therefor. The Contractor shall also advise the Awarding Authority of the dates notices were mailed and provide a copy of the written notice(s) sent.

3. The Contractor shall make reasonable efforts to follow up the written notices sent to M/WBEs with telephone calls or personal visits in order to determine with certainty whether the M/WBEs were interested in performing the work. Phone logs or other documentation must be submitted to the Awarding Authority evidencing this effort.

4. The Contractor shall make reasonable efforts to assist M/WBEs that need assistance in obtaining insurance, bonds, or lines of credit in order to perform work under the Contract, and shall provide the Awarding Authority with evidence that such efforts were made.

5. The Contractor shall provide the Awarding Authority with a statement of the response received from each M/WBE solicited, including the reason for rejecting any M/WBE who submitted a proposal.

6. The Contractor shall take any additional measures reasonably requested by the Awarding Authority to meet the M/WBE participation goal(s) established for this Contract, including, without limitation, placing advertisements in appropriate media and trade association publications announcing the Contractor's interest in obtaining proposals from M/WBEs, and/or sending written notification to M/WBE economic development assistance agencies, trade groups and other organizations notifying them of the project and of the work available to be subcontracted by the Contractor to M/WBEs.
B. If the Contractor is unable to meet the M/WBE participation goals for this Contract after complying fully with each of the requirements of paragraph “A” above, and the Contractor is otherwise in full compliance with the terms of this Article, the Awarding Authority may reduce the M/WBE participation goals for this Contract to the extent that such goals cannot be achieved.

8. Suspension of Payment and/or Performance for Noncompliance.

A. If at any time during the performance of this Contract, the Awarding Authority determines or has reason to believe that (1) there has been a change or reduction in any M/WBE Work which will result in the Contractor failing to meet the M/WBE participation goal(s) for this Contract, other than a reduction in M/WBE Work resulting from a change in the Contract work ordered by the Awarding Authority, and (2) the Contractor has failed to comply fully with all of the terms and conditions of paragraphs 1 through 7 above, the Awarding Authority may:
   
   (1) suspend payment to the Contractor of an amount equal to the value of the work which was to have been performed by an M/WBE pursuant to the Contractor’s Schedule of M/WBE Participation but which was not so performed, in order to ensure that sufficient Contract funds will be available if liquidated damages are assessed pursuant to paragraph 9, and/or
   
   (2) suspend the Contractor’s performance of this Contract in whole or in part.

B. The Awarding Authority shall give the Contractor prompt written notice of any action taken pursuant to paragraph A above and shall give the Contractor and any other interested party, including any M/WBEs, an opportunity to present evidence to the Awarding Authority that the Contractor is in compliance with the requirements of this Article, or that there is some justifiable reason for waiving the requirements of this Article in whole or in part. The Awarding Authority may invite SOMWBA and the Massachusetts Commission Against Discrimination to participate in any proceedings undertaken pursuant to this paragraph.

C. Upon a showing that the Contractor is in full compliance with the requirements of this Article, or that the Contractor has met or will meet the M/WBE participation goals for this Contract, the Awarding Authority shall release any funds withheld pursuant to clause A(1) above, and lift any suspension of the Contractor’s performance under clause A(2) above.

9. Liquidated Damages; Termination.

A. If payment by the Awarding Authority or performance by the Contractor is suspended by the Awarding Authority as provided in paragraph 8 above, the Awarding Authority shall have the following rights and remedies if the Contractor thereafter fails to take all action necessary to bring the Contractor into full compliance with the requirements of this Article, or if full compliance is no longer possible because the default of the Contractor is no longer susceptible to cure, if the Contractor fails to take such other action as may be required by the Awarding Authority to meet the M/WBE participation goals set forth in this Contract:
   
   (1) the Awarding Authority may terminate this Contract, and/or
   
   (2) the Awarding Authority may retain from final payment to the Contractor, as liquidated damages, an amount equal to the difference between (x) the total of the M/WBE participation goals set forth in this Contract, and (y) the amount of M/WBE
participation credit earned by the Contractor for M/WBE Work performed under this Contract as determined by the Awarding Authority, the parties agreeing that the damages for failure to meet the M/WBE participation goals are difficult to determine and that the foregoing amount to be retained by the Awarding Authority represents the parties’ best estimate of such damages. Any liquidated damages will be assessed separately for MBE and WBE participation.

B. Before exercising its rights and remedies hereunder, the Awarding Authority may, but the Awarding Authority shall not be obligated to, give the Contractor and any other interested party another opportunity to present evidence to the Awarding Authority that the Contractor is in compliance with the requirements of this Article or that there is some justifiable reason for waiving the requirements of this Article in whole or in part. The Awarding Authority may invite SOMWBA and the Massachusetts Commission Against Discrimination to participate in any proceedings undertaken hereunder.

10. Reporting Requirements.
The Contractor shall submit to the Awarding Authority all information or documentation that is necessary in the judgment of the Awarding Authority to ascertain whether or not the Contractor has complied with any of the provisions of this Article.

11. Awarding Authority’s Right to Waive Provisions of this Article in Whole or In Part.
The Awarding Authority reserves the right to waive any provision or requirement of this Article if the Awarding Authority determines that such waiver is justified and in the public interest. No such waiver shall be effective unless in writing and signed by a representative of the Awarding Authority’s Compliance/Procurement Office or the office of its General Counsel. No other action or inaction by the Awarding Authority shall be construed as a waiver of any provision of this Article.
APPENDIX C to the General Conditions of the Contract

INDEX OF COMMONLY-USED FORMS

(Forms used during bidding are located in Attachment B to the Instructions to Bidders)

- Procedure for Payment to Contractors
- Daily Time and Material Report for Change Orders
- Notice of Intent
- Request and Agreement for a Change in the Plans,
  Specifications and/or Contract (UMA Form 5)
- Instructions Regarding Change Orders and Contract Modifications (UMA Form 13)
- Contractor's Weekly Workforce Report
- Minorities/Women in Contractor's Weekly Workforce Report
- Weekly Payroll Report Form and Statement of Compliance
- Quarterly Projected Workforce Table
- Certification of Payment by Contractor to MBE/WBE and Instructions
- Certificate of Completion by Minority/Women Business Enterprise
- Form for Transfer of Title (Work Not Incorporated, UMA Form 16)
- Certificate of Agency Use and Occupancy -E-1
- Certificate of Final Inspection, Release and Acceptance - E-2
- Form ST-5C
THE COMMONWEALTH OF MASSACHUSETTS
THE UNIVERSITY OF MASSACHUSETTS AMHERST
FACILITIES PLANNING
Physical Plant Building, 360 Campus Center Way, Amherst, MA 01003

PROCEDURE FOR PAYMENTS TO CONTRACTORS

I. APPLICATION AND DISTRIBUTION
This bulletin is effective on all construction projects Chapter 149 and Chapter 30 subject to the control of the University of Massachusetts Amherst Facilities Planning hereinafter referred to as the “Division”, as provided by Chapter 7 G.L. Section 39A through 43G as amended.

This form is available to all General Contractors: Sub-contractors, Designers, Resident Engineers, and on request to any party of interest.

This form constitutes a method of contractual procedure noted in the General Conditions of the Contract and is not a rule or regulation as defined by the STATE ADMINISTRATIVE PROCEDURE ACT, M.G.L. c. 30a, S. 5.

No deviation from the procedure set forth in this form may be made without the express authorization of the University of Massachusetts Amherst (“UMASS”).

II. STATUTORY REFERENCES, DEFINITIONS, ETC. M.G.L. c. 30, s. 39K
Non-Building Contracts; University of Massachusetts Amherst Standard Vertical Construction Contract as amended. All General Contractors, Sub-Contractors, Designers, and Resident Engineers, University of Massachusetts Amherst Project Managers should thoroughly familiarize themselves with said contract.

III. PREPARATION AND PROCESSING OR PERIODIC PAYMENT
Periodic payment requests shall be submitted monthly, for the preceding month, corresponding to the date of the contract. Submission in this manner staggers the receipt of invoices in the University of Massachusetts Amherst office and expedites processing contractor payments. All invoices must include:

1. The Contractor’s Name
2. The UMA Contract Number
3. The UMA Project Number
4. The Project Name
5. The Purchase Order Number
6. Must clearly state that the invoice/requisition is exactly that, not a statement
7. Invoice Number or Requisition Number
8. Invoice Date
9. Period for which the work was completed
10. Schedule of Values
11. Approved Original Signatures
12. Notary
The General Contractor and his sub-contractors, the Designer and the Resident Engineer(s) and University of Massachusetts Amherst Project Manager(s) shall approve prior to the date of submission for each periodic payment request as to the percentage value of work completed.

All questions as to the value of the work performed and as to payment for materials not incorporated into the work should be resolved in advance of the submission of the formal request for periodic payment. It is suggested that a job meeting/conference is the most effective way of resolving any questions of matters of dispute. The General Contractor shall submit to the Resident Engineer (or in the absence of a Resident Engineer, the University of Massachusetts Amherst – Project Manager (PM)) for the Resident Engineer’s approval, well in advance of the submission of the first periodic estimate, a breakdown of the various items of work corresponding to the sections of the specification making up the lump sum for item 1, Work of the General Contractor; and each section under Item 2, Sub-bids, of the contract. In addition, the General Contractor; and each sub-contractor shall furnish the Resident Engineer with two (2) copies of any necessary sub-breakdowns of each section and such other detailed information as required by the Resident Engineer to evaluate properly the percentage of the work performed. The Resident Engineer shall submit one copy to the Division, as approved by the Resident Engineer upon request.

The General Contractor shall prepare its formal request for periodic payment on the standard AIA form G702-1992, Application and Certificate for payment or other periodic payment form approved by the Awarding Authority.

The General Contractor shall prepare sufficient copies of the request for periodic payment for submission to the University of Massachusetts Amherst Project Manager. To be distributed by the Awarding Authority as follows:

Original: University of Massachusetts Amherst Accounts Payable
Copy 1: Facilities Planning
Copy 2: University of Massachusetts Amherst Project Manager
Copy 3: Designer
Copy 4: Resident Engineer
Copy 5: Contractor
Copy 6,7: Required on Federally Aided projects only

IV. CERTIFICATION
The General Contractor shall sign all copies of the invoice/requisition and present same to the University of Massachusetts Amherst Project Manager certifying the value of the work performed. In the event of any dispute as to the formal request for periodic payment, the Resident Engineer and/or the Designer shall in the absence of their certification on the AIA form attach to each copy a qualified certification and a recommendation as to the dollar value of the item or items in dispute to be retained by Awarding Authority in accordance with Chapter 30, Section 39K. In the signatory space write “See attached Letter”. Neither the Resident Engineer nor the Designer shall alter the AIA Form submitted with the formal request for payment in any manner. If the Division concurs with the Engineer and/or Designer’s recommendation, adjustment(s) shall be made to the AIA form by the Division. Attention of the General Contractor is directed to the statement to the effect that payments to all sub-contractors have been made in accordance with the provision of M.G.L. c. 30, s39F which statement must be signed under penalty of perjury on each copy by the General Contractor.
V. PROCESSING FOR PERIODIC PAYMENTS
It shall be the sole responsibility of the General Contractor to choose the delivery of the request for periodic payment in proper form and arithmetically correct to the Resident Engineer (the designee provided in M.G.L., c. 30, s 39K). In the event there is no Resident Engineer assigned to the contract the Designer shall be the designee. If there be neither a Resident Engineer nor a Designer, the designee shall be the University of Massachusetts Amherst Project Manager or alternatively the home office of the Division of Facilities Planning, University of Massachusetts Amherst, Physical Plant Building, 360 Campus Center Way, Amherst, MA 01003. Payment shall be due and payable within thirty (30) days after receipt by the designee. Request for periodic payment not in the required form containing arithmetical computations which are not correct will within seven (7) days be returned to the contractor and the prescribed period for payment shall commence upon the date which the corrected periodic estimate is received at the University of Massachusetts Amherst, Division of Facilities Planning. Attention is directed to the provision of M.G.L. c. 30, s. 39K which provides that the awarding authority may make changes in any periodic estimate submitted by the contractor.

VI. INQUIRY AS TO PERIODIC REQUESTS FOR PAYMENT – PAYMENT FLOW
All inquiries as to the value of the work performed, certified and due to the General Contractor, its Sub-Contractors and suppliers shall be directed to the Resident Engineer or University of Massachusetts Amherst Project Manager.

This invoice is public information and shall be requested via Public Records Requests to the business office of the Division.

VII. SPECIAL INSTRUCTION TO EMPLOYEES, PROJECT MANAGERS, RESIDENT ENGINEERS & DESIGNERS
The Resident Engineer, Project Managers and the Designer shall give their immediate attention to the certification of requests for periodic payments to contractors and under no circumstances are these requests to be delayed. The Resident Engineer, Project Managers and the Designer shall rigidly adhere to the instructions contained in this Bulletin and immediately expedite certification in order that the period payment requests may be delivered by the Contractor to Facilities Planning without delay. The Resident Engineer, Project Managers and the Designer shall process the payment expeditiously.
DAILY TIME AND MATERIAL REPORT FOR ALL CHANGE ORDER WORK OR WORK DONE UNDER PROTEST

UMA Project Number: __________ Project Number: ____________ Date: ____________

Project Title: __________________________

Contractor: ____________________________ Change Order No.: ________________

Or work under protest: ________________

Sheet _____ of ________________

Was any contract work performed today other than Change Order concerned (Y/N)? ________________

If Yes, list on Daily Progress Report.

Labor – Change Order or Alleged Extra Work Done Under Protest

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Submitted by Superintendent:__________________________________________________________

Subcontractors:________________________________________________________________________
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_____________________________________________________________________________________
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Resident Engineer/University of Massachusetts Project Manager (note any discrepancy in above Report):
_____________________________________________________________________________________  
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________  

Resident Engineer/ University of Massachusetts Project Manager ________________________________

The signature of the Resident Engineer/Project Manager is for verification of labor listed above and does not 
constitute acknowledgement that such labor is for extra work or that additional monies are due for such work.

1. Materials Used (Describe fully)
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

2. Misc. Equipment, Etc. (Describe fully)
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

Submitted by Superintendent:__________________________________________________________________________

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Subcontractors:

Resident Engineer/University of Massachusetts Amherst Project Manager (note any discrepancy in above Report):

Resident Engineer/ University of Massachusetts Amherst Project Manager ____________________________

The signature of the Resident Engineer/Project Manager is for verification of materials listed above and does not constitute acknowledgement that such material is for extra work or that additional monies are due for such work.

Send one copy with Daily Report Each Day

Other copy to accompany Green Sheets to Designer when Change Order is completed
University of Massachusetts Amherst, Facilities Planning

Contract Modification/Authorization to Proceed

(For Change Authorization in the Contract Plans and/or Specifications)

Date: ______________________

UMA Number: _____________________ Project Number: _____________________

Project Name: __________________________________________________________

Contractor: _____________________ Contract Start Date: ___________ Contract Award: $______________

NOI Request No. _____________ Change Order No: _____________ Requestor: _____________________

Nature of Request:

G.C. PCO No. ________________

Date:

Reason for Request:

Designer’s CCR No. ____________

Date:

This change in work is to be performed according to ARTICLE VII of the General Conditions of the Contract. Change Orders will be in accordance with the contract and Form 13:

_____ Predetermined “LUMP SUM” total: $________________.00
______ (if checked) Additional Verification Backup Data Must Be Provided with Formal Change Order, See Attached

______ Lump Sum “NOT TO EXCEED”: $___________.00

(Maximum price based on contract unit prices or negotiated agreed unit prices)

______ “TIME AND MATERIALS” Not to Exceed: $___________.00

(Computed in accordance with Article VII of the General conditions)

Resident Engineer Date

Project Manager Date

Director Date

APPROVAL OF THIS NOTICE OF INTENT DOES NOT ADDRESS REQUESTS FOR ADDITIONAL TIME, EXTENSIONS OF CONTRACT TIME WILL BE ADDRESSED UPON SUBMITTAL OF THE OFFICAL CHANGE ORDER. RECEIPT OF THIS REQUEST TO BE ACKNOWLEDGED IN WRITING TO UNIVERSITY OF MASSACHUSETTS AMHERST, FACILITIES PLANNING.

CERTIFICATION OF SUFFICIENT FUNDS BY: _________________________ SPEED CODE: ________

COPY: Project Manager, Resident Engineer,
DIVISION OF CAPITAL ASSET MANAGEMENT
DCAM CHANGE REQUEST NO. __________
THE COMMONWEALTH OF MASSACHUSETTS EXECUTIVE OFFICE FOR ADMINISTRATION & FINANCE
REQUEST AND AGREEMENT FOR A CHANGE IN THE PLANS AND/OR SPECIFICATIONS AND/OR CONTRACT
All signatures are affixed under the penalties of perjury.

Project No. __________________________ Contract No. __________ Title __________________________

Location ______________________________

I. REQUEST
(a) Requested by __________________________ of __________________________
(b) Requestor’s description of change

II. GENERAL CONTRACTOR’S PROPOSAL REQUEST NO. __________________________
For all costs involved in this change including extensions of time herein requested the undersigned general contractor proposes to perform
the work described above in accordance with the provisions of Article VII of the contract and certifies that the attached cost data is
accurate, complete and current and mathematically correct.

Payment shall be made on the basis of:
(a) Predetermined lump sum total of (add) (deduct) $ __________________________
(b) Lump Sum not to exceed (add) (deduct) $ __________________________
(max price based on contract unit prices or negotiated agreed unit prices)
(c) Time and Materials Basis not to exceed (add) (deduct) $ __________________________
(Computed in accordance with Article VII of the contract) (Require authorization of Commissioner)
Place X beside selected proposal method and strike out either (add) or (deduct) whichever does not apply. Attach detailed estimates and break-
down for above in accordance with change order instructions. A claim for work performed under protest shall be submitted per (c) above.

An extension of contract time of __________ calendar days is requested.

Contractor __________________________ by __________________________

Firm Name __________________________

Authorized Signature __________________________ Date __________________________

III. APPROVAL RECOMMENDED BY:
The Designer and the Resident Engineer must attach their respective letters of recommendation with responses to questions listed in Form 13,
change order instructions. Adverse or altered recommendation must be delineated on the letters.

<table>
<thead>
<tr>
<th>Resident Engineer</th>
<th>Date</th>
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<tbody>
<tr>
<td>Project Engineer</td>
<td>Date</td>
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<td>Project Manager</td>
<td>Date</td>
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<tr>
<td>Deputy Director</td>
<td>Date</td>
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</tbody>
</table>

IV. APPROVED BY THE OFFICE
(a) Operating Agency Letter (attached) _______ (not req’d) _______
(b) For the amount requested/or corrected to $ __________________________
(Extended as requested/or corrected to ______ Calendar Days.
(d) This change is in the best interest of the Commonwealth and constitutes an
 equitable adjustment to the contract in compliance with Art. VII of the contract.

Authorized Signature __________________________
Upon signature by the Office, this request becomes a formal change order for
Immediate distribution.

Contract Completion Date

Authorized Signature __________________________ Date __________________________
Extended to _______ Date __________________________
If applicable to Phase _______ Date __________________________
of Contract
Office Change Order Approval # __________________________

DCAM FORM #5
4/10/02

OFFICE COPY _____ COMPTROLLER _____ PROJECT ENGINEER _____ DESIGNER _____
SECTION 1. STATUTORY AND CONTRACTUAL PROVISIONS

1.01. This instruction form supplements Article VII of the University of Massachusetts Amherst General Conditions of the Contract but is not intended to supersede or modify any of the provisions contained therein. It is available for general distribution and is applicable to all projects under the jurisdiction of the University of Massachusetts Amherst.

The Statutory authorities for a change in the plans, specifications and/or contract are provided in Mass. G.L. Chapter 7, Section 42E-421 and in Massachusetts G.L. Chapter 30, section 39, 39J, 39N, 39P, 39Q (Refer to Article VII of the General Conditions of the Contract). All parties must keep themselves informed of any amendments affecting said statutes.

NO CHANGES (ADDITIONS, SUBSTITUTIONS OR ELIMINATIONS) IN THE PLANS, SPECIFICATIONS OR CONTRACT SHALL BE COMMENCED UNTIL RECEIPT BY THE CONTRACTOR OF: (a) AN APPROVED BY THE UNIVERSITY OF MASSACHUSETTS AMHERST PURCHASE ORDER.

All requests for changes increasing the contract price must be submitted on the UMA Form 5, prior to the final acceptance of the project. The Contractor waives all rights against the University of Massachusetts Amherst if it fails to comply with this requirement. The University of Massachusetts Amherst shall be under no obligation to process a request for change after final acceptance of the project.

The term “request for change” is used throughout these procedures and applies to every request to revise the contract requirements.

The request for change must be made in writing, and in accordance with the provisions of the Contract, the General laws, rules, regulations and other procedures of the University of Massachusetts Amherst.
1.02. GENERAL, PURPOSE
The purpose of these procedures is to properly authorize necessary changes, provide satisfactory documentation supporting the nature and cost of each change, and all the change order work to be accomplished in a timely and efficient manner.

It is the intention of the University of Massachusetts Amherst and the applicable statutory provision that whenever possible the parties should agree upon an equitable adjustment in the contract price before commencement of the pertinent work.

All parties shall negotiate in a professional manner and agree upon the particulars associated with the change in the work, thereby facilitating an approved change order.

It is the responsibility of the Contractor to substantiate clearly the costs associated with all changes.

If the Contractor refuses to provide the project manager, within ten (10) days of proposed requests for change, cost estimates for a proposed change in the work, the project manager may unilaterally determine the reasonable cost for the change, and the Contractor must proceed with the work based upon the project manager’s established cost.

SECTION 2. SUBMISSION AND DISPOSITION OF THE UNIVERSITY OF MASSACHUSETTS AMHERST NOTICE OF INTENT (“NOI”)

2.01 AUTHORIZED REQUESTORS:
   a) General Contractor, including Sub-Contractor
   b) Designer
   c) University of Massachusetts Amherst Project Manager, Assistant Directors or Director of Facilities Planning

2.02 THE REQUESTOR SHALL:
   a) Initially discuss the proposed request for change with all interested parties.
   b) If the Designer or the University of Massachusetts Amherst is the requestor, forward to the contractor a written request for proposal.
   c) If the Contractor is the requestor see Section 2.03, below.

2.03 THE CONTRACTOR SHALL:
   If the Contractor is the requestor or if it receives a request for change it shall:
   a) Submit a written request for a Notice of Intent (NOI) indicating the proposed change in the work and the proposed method of compensation, as set forth in Article VII of the General Conditions of the Contract and in Section II of the UMA Form 5. The written request shall include a cost breakdown with the requested change as outlined in Article VII of the General Conditions of the Contract. The breakdown of all filed sub-contractors shall be separated from the General Contractor’s breakdown and both are required to be on properly identifiable letterhead stationary and signed showing (a) quantities and costs utilizing unit pricing, (b) the classification and hours of labor, fringe benefits and the complete breakdown showing unit cost of material and equipment, and (c) any other allowable costs as set forth in Article VII. See also Section 5, below.
b) The written request for NOI and accompanying documentation shall be addressed to the Division of Facilities Planning and sent to the Project Manager. One copy shall be addressed to the Designer, and one to the Resident Engineer (if applicable).

c) Each written request for an NOI must include all costs associated with the request for change.

d) The General Contractor shall review all cost breakdowns being submitted by its suppliers and subcontractors and check them to insure the information being submitted is accurate and mathematically correct.

2.04 THE RESIDENT ENGINEER/UNIVERSITY OF MASSACHUSETTS PM (IF NO RESIDENT ENGINEER) SHALL:

a) Note the receipt of written request for NOI in the record of NOIs/Change Orders, diary, and daily report.

b) Inform the Designer, the Project Manager (if applicable) and the Project Engineer of the request for NOI.

c) Review both quantities and prices of labor and materials and recommend corrections of changes. Check to make sure the required breakdowns are attached from all subcontractors on properly identifiable letterhead.

d) If any request is inaccurate, incomplete, contains insufficient credits due to the University of Massachusetts Amherst or is otherwise unacceptable, the Resident Engineer shall note the return of a request for an NOI in the record of NOIs/Change Orders, diary, daily report and return the request to the Contractor with a dated cover letter detailing the reasons for return.

2.05 THE DESIGNER SHALL:

Immediately evaluate the requested change and the Contractor’s request for an NOI and proposal and transmit the Designer’s recommendation and those of the Resident Engineer by written memorandum or telephone, if the situation warrants, to the University of Massachusetts Project Manager or Project Engineer.

2.05.1 THE UNIVERSITY OF MASSACHUSETTS AMHERST PROJECT MANAGER (PM) SHALL

If the University of Massachusetts Amherst PM agrees with the request for change and the Contractor’s proposal it shall promptly issue and NOI using the University of Massachusetts NOI form and forward the NOI to the Contractor, with copies to the Designer and the Resident Engineer. It is mandatory that, upon receipt of said NOI, the Contractor proceed with the order of work.

If the University of Massachusetts Amherst PM does not agree with the request for change or the Contractor’s proposal it shall notify the requestor and all other parties in writing.
SECTION 3. SUBMISSION AND DISPOSITION OF UNIVERSITY OF MASSACHUSETTS AMHERST FORM 5
(UMA FORM 5)

3.01 THE CONTRACTOR SHALL:

a) Complete applicable portions of Section I of Form 5 (one (1) original green sheet unless otherwise instructed by the Awarding Authority).

b) If there is sufficient room in the space provided under section I (b) of the Form 5, attach to the form a statement giving reasons for, location of, and a general description of the proposed change including a reference to the plans and specifications, if possible.

c) Submit proposed method of compensation, as set forth in Article VII of the General Conditions of the Contract and in Section II of the Form 5. Submit a cost breakdown with the requested change as outlined in Article VII of the General conditions of the Contract. The breakdown of all filed sub-contractors shall be separated from the General Contractor’s breakdown and both are required to be on properly identifiable letterhead stationary, and signed showing (a) quantities and costs utilizing unit pricing, (b) the classification and hours of labor, fringe benefits and the complete breakdown showing unit cost of material and equipment, and (c) any other allowable costs as set forth in Article VII. See also Section 5, below. Upon completion of the work, changes initially authorized by the NOI on a “(c) Time and Materials basis” must be adjusted by the University of Massachusetts Daily Time and Material Report Forms.

d) If additional time is requested, furnish an explanation with breakdown. Extensions of time shall not be granted on a retroactive basis because of changes.

e) Each change must be all-inclusive as to all costs and all time extensions.

f) The General Contractor shall review all cost breakdowns being submitted by its suppliers and subcontractors and check them to insure the information being submitted is accurate and mathematically correct.

g) Deliver one (1) Form 5, complete in accordance with these procedures to the University of Massachusetts Project Manager.

3.02 THE RESIDENT ENGINEER/UNIVERSITY OF MASSACHUSETTS PM (IF NO RESIDENT ENGINEER) SHALL:

a) Note the receipt of Form 5 in the record of NOIs/Change Orders, diary, and daily report.

b) Inform the Designer, the University of Massachusetts Project Manager (if applicable) and the Project Engineer of the receipt of Form 5.

c) Review the Form 5, accompanying backup documentation and other relevant materials and determine whether the requested change is or is not covered under the contract.

d) Review both quantities and prices of labor and materials and recommend corrections or changes. Check to make sure the required breakdowns are attached from all subcontractors on properly identifiable letterhead.

e) If any request is inaccurate, incomplete, contains insufficient credits due to the University of Massachusetts or is otherwise unacceptable, the Resident Engineer shall note the return of the Form 5 in the record of NOIs/Change Orders, diary, daily report and return the Form 5 to the General Contractor for correction, unsigned by the Resident Engineer, and detail the reasons for returning the Form 5.

f) Maintain accurate records indicating particulars involving additional work, credit due, substitutions, delays, work stoppage, and other conditions associated with any potential or actual request for a change, NOI or Change Order.
g) If the Resident Engineer recommends approval of the Form 5, the Resident Engineer shall sign Section III of the Form 5 and attach a written statement addressing each of the eight (8) questions listed in the following section, Section 3.03.

h) If the Resident Engineer does not recommend approval of the request, he or she shall attach a detailed letter setting forth the reasons for disapproval. Forward the four (4) originals of Form 5 and two (2) copies, without the Resident Engineer’s signature on the form, along with the letter detailing the reason for disapproval to the Designer.

3.03 THE DESIGNER SHALL:

a) Review the Form 5, accompanying backup documentation and other relevant materials and determine whether the requested change is or is not covered under the contract.

b) If the Designer recommends approval of the Form 5, complete applicable portion of Section III of Form 5 and attach its letter of recommendation which must include responses to each of the following:

   1) If such change request involves any substitution or elimination of materials, fixtures or equipment, state the reasons why such components were included in the first instance and the reason for substitution or elimination, and if the change request is of any other nature, the reasons for such change, giving justification therefore. The designer shall state why all changes are necessary.

   2) If the change involves additional work, state why work was not covered by the plans and specifications. Plan and specification references shall be stated.

   3) Review the contract documents and determine if all applicable credits due the Commonwealth/University of Massachusetts Amherst are included and if salvageable.

   4) A statement of concurrence that the description of the work in Section 1 (h) of Form 5 is accurate.

   5) The Designer has examined the Contractor’s Proposal and finds the cost to be reasonable and mathematically correct. Indicate which quantities and/or costs appear unreasonable or excessive.

   6) If applicable make a recommendation on the Contractor’s request for additional time.

   7) If the work was performed under protest, pertinent correspondence shall be attached to the original Form 5.

   8) References to date and amount of any NOI(s) or any previously approved not-to-exceed Form 5(s) issued, applicable to the change.

c) If recommending approval, forward the four (4) original green sheets plus the (2) copies of the Form 5, all with original signatures to the University of Massachusetts Amherst along with the Designer’s recommendation.

d) If the Designer disapproves the request, the Designer shall within seven (7) calendar days attach a detailed letter setting forth its reasons for disapproval. Forward the four (4) originals of Form 5 and two (2) copies without the Designer’s signature on the form along with its letter detailing its reason for disapproval to the University of Massachusetts Amherst.

3.04 UNIVERSITY OF MASSACHUSETTS AMHERST PM SHALL:
a) Notify all parties if funds are insufficient to cover the change and return to the Contractor, through the Resident Engineer (if applicable), any request that is incomplete without proper details or recommendations.

b) The Form 5 shall be logged and given a change request number. The numbering will be in numerical sequence.

c) If the Form 5 is approved, the University of Massachusetts Amherst PM shall issue a Purchase Order to the General Contractor.

d) If the University of Massachusetts PM disapproves the request, it shall notify the Contractor, the Resident Engineer and the Designer in writing. In such an event the Contractor may within 30 days from receipt of notice, appeal such action to the Director of Facilities Planning (see G.L. chapter 7, section 42G). Failure to appeal within 30 days shall preclude any further claim of the Contractor for a contract adjustment. The Director of Facilities Planning shall be considered the chief executive officer referred to in G.L. Chapter 30, Section 39Q (1) (a).

e) Further change order appeal proceedings shall be governed by the provisions of G.L. Chapter, section 39Q, and by the terms of the Contract including Article VII, Section 5 relating to mandatory mediation procedures.

SECTION 4. AUTHORITY TO APPROVE REQUESTS FOR CHANGE

4.01 THE DIRECTOR OF FACILITIES PLANNING’S APPROVAL SHALL BE REQUIRED WHENEVER

   a) The cumulative cost of previously approved NOIs and approved Form 5s exceeds five percent of the original contract award price; or

   b) The estimate for the work on the NOI or Form 5 exceeds $5,000.

4.02 WITH THE PRIOR WRITTEN APPROVAL OF THEIR ASSISTANT DIRECTOR FOR FACILITIES PLANNING, THE UNIVERSITY OF MASSACHUSETTS AMHERST PM SHALL APPROVE CHANGE ORDERS FOR THE UNIVERSITY OF MASSACHUSETTS AMHERST WHEN:

   a) The cumulative cost of previously approved NOIs and approved Form 5s is less than five percent of the original contract award price; or

   b) The estimate for the NOI or Form 5 is less than $5,000.

SECTION 5. MISCELLANEOUS DIRECTIONF FOR COMPUTING COSTS FOR CHANGES IN WORK

5.01 SHIPPING, STORAGE AND HANDLING COSTS AND MATERIALS AND EQUIPMENT INVOLVED IN A CHANGE IN WORK MAY BE INCLUDED IN THE COSTS FOR CHANGE, IF ITEMIZED AND ACCOMPANYED BY COPIES OF PAID INVOICES.


5.03 MAJOR ITEMS OF EQUIPMENT, SPECIALIZED TOOLS, AND ORDINARY MATERIALS AND EQUIPMENT USED OR CONSUMED ON THE CHANGE ORDER WORK, WHETHER RENTED OR
OWNED BY THE CONTRACTOR, ME BE INCLUDED IN THE COST OF THE CHANGE PROVIDED CURRENT RENTAL RATES AND MATERIAL COSTS, SUPPORTED BY PAID INVOICES, ARE SUBMITTED AS BACKUP TO THE CHANGE WHEN ITEMIZED.

5.04 THE UNIVERSITY OF MASSACHUSETTS PM MAY APPROVE LUMP SUM CHANGE ORDER REQUESTS ON CHANGES COSTING $1,000 OR LESS, WITHOUT REQUIRING THE CONTRACTOR TO PROVIDES A BREAKDOWN FOR THE COSTS INCURRED ON THE CHANGE. THE UNIVERSITY OF MASSACHUSETTS PM RESERVES THE RIGHT TO REQUIRE COST BREAKDOWN AND INVOICES FROM THE CONTRACTOR ON ALL CHANGES. BREAKDOWNS ARE REQUIRED FOR ALL UNIT PRICE CHANGES (COST PER ITEM) AND TIME AND MATERIAL CHANGE ORDERS REGARDLESS OF THE COST.

5.05 CONTRACTORS SHALL MEET THE FOLLOWING GUIDELINES WHEN SUBMITTING COST BREAKDOWNS FOR LABOR:

a) The Contractor must designate the name of trade, and the number of hours times the base journeyman rate. The foreman rate should only used and pro-rated as provided for in the union rules.

b) Insurance and payroll taxes shall be identified as a percentage, applied to the total labor rate. The University of Massachusetts allows 30% to be used for insurance and taxes. Any increase in this percentage must be supported by a written breakdown of all insurance and taxes applied to each particular trade. No overhead and profit is allowed on insurance and taxes. (see General Conditions, Article VII, section 2).

c) Hourly benefit amounts such as health, welfare, and pensions must be identified separately.

d) When overtime work is involved, insurance charges and benefits are based on straight time only.

e) If travel is involved, it should be submitted as provided by the union regulations, this, in most cases, is based on mileage. No overhead and profit will be paid on travel.

f) Whenever a subcontractor is involved, a complete and separate breakdown must be submitted by the subcontractor for its portion of work. Non filed subcontractors should not include overhead and profit on their breakdown.

g) All breakdowns should be legible, submitted on letterhead and signed by an authorized representative of the Contractor. This applies to all Subcontractors and General Contractors.

h) Credits should always include a bond reduction.

5.06 GENERAL CONTRACTOR’S BOND PREMIUM SHALL BE INCLUDED AT THE FOLLOWING RATES. IF A CONTRACTOR’S BOND RATE DIFFERS FROM THIS LIST VERIFICATION FROM THE BOND CARRIER MUST BE SUBMITTED SHOWING THE ACTUAL RATE.

<table>
<thead>
<tr>
<th>Contract Price</th>
<th>Rates per Thousand</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Contracts up to $500,000</td>
<td>$14.40</td>
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<tr>
<td>b) $500,000 to $2,500,000</td>
<td>$ 8.70</td>
</tr>
<tr>
<td>c) $2,500,000 to $5,000,000</td>
<td>$ 6.90</td>
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<tr>
<td>d) $5,000,000 to $7,000,000</td>
<td>$ 6.30</td>
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<tr>
<td>e) $7,500,000 and up</td>
<td>$ 5.76</td>
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</table>

5.08 IF A CONTRACTOR DESIRES TO BE COMPENSATED AS AUTHORIZED WORK PROGRESSES, IT SHALL, AFTER RECEIPT OF AN NOI, IMMEDIATELY SUBMIT A UMA FORM 5 AS OUTLINED IN PARAGRAPH 3.01.
CONTRACTOR’S WEEKLY WORKFORCE REPORT

UNIVERSITY OF MASSACHUSETTS AMHERST

UMA No. __________________ Project Number __________________

Project Name ________________________________

Project Location ____________________________________

__________________________________

Name of General Contractor __________________________

__________________________________

Minority Goal % __________

Name of Contractor Filing Report _________________________

Address ________________________________ Women Goal % __________

Week Ending ________________ Report No. ________________ Date Work

Began ________________

NOTE: Min. = Minority  Wom. = Women  □ Check here if this is a final report  Date
work completed ________________
<table>
<thead>
<tr>
<th>Job Category</th>
<th>Number of Employees</th>
<th>Number of Employees Who Are</th>
<th>Total Weekly Workforce Hours</th>
<th>Total Weekly Workforce Hours</th>
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<td>TOTALS:</td>
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UMA No. ____________  Project Name __________________________________________  General Contractor ____________________

Mail to: University of Massachusetts, Amherst  The undersigned hereby certifies under pains and penalties of perjury that the above
Facilities Planning/Contract Manager  information is true and accurate.
Physical Plant Building  Authorizations Signature __________________________  Date ______________________
360 Campus Center Way  Amherst, MA 01003
Print Name __________________________  Telephone No. __________________
Authorized Signature __________________________  Date ______________________
Amherst, MA 01003

Contractor’s Weekly Workforce Report - Revised 10/01
### MINORITIES/WOMEN IN CONTRACTOR’S WEEKLY WORKFORCE REPORT

THE UNIVERSITY OF MASSACHUSETTS AMHERST

UMA No. ___________________________ Project No. ___________________________

Project Name __________________________________________________________

Name of General Contractor ____________________________________________

Project Location ______________________________________________________

Name of Contractor Filing Report ________________________________________

Address ______________________________________________________________

Week Ending _________________________ Report No. _______________________

<table>
<thead>
<tr>
<th>JOB CATEGORY</th>
<th>NAME OF EMPLOYEE</th>
<th>MINORITY GROUP</th>
<th>GENDER</th>
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In contract Article XII, “Minority” refers to: Asian-Americans, Blacks, Western Hemisphere Hispanics, Native Americans, and Cape Verdeans

Minorities/Women in Contractor’s Weekly Workforce Report - Revised 10/01

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WEEKLY PAYROLL REPORT FORM

THE UNIVERSITY OF MASSACHUSETTS AMHERST

UMA Project No.______________ Project No. ____________________________
Project Name ______________________________________________________
Project Location _________________________________________________
Name of General Contractor _________________________________________
[ ] Check here if this is a final report
Name of Contractor Filing Report ______________________________________
Address ___________________________________________________________
Week Ending ___________________________ Report No. __________ Date Work
Began ___________________________ Date work completed _______________

<table>
<thead>
<tr>
<th>Employee Name &amp; Address</th>
<th>Work Classification</th>
<th>Hours Worked</th>
<th>(A) Total Hours</th>
<th>(B) Hourly Base Wage</th>
<th>Employer Contributions</th>
<th>(F) [B+C+D+E] Hourly Total Wage (prev. wage)</th>
<th>(G) [A*F] Weekly Total Amount</th>
</tr>
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<tr>
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NOTE: Every contractor and subcontractor is required to submit a copy of their weekly payroll records to University of Massachusetts Amherst. **Handwritten payroll records will not be accepted. An excel format Weekly payroll report form can be found on the Procurement website:**

http://www.umass.edu/procurement/constructionprojects.htm

The undersigned states under the pains & penalties of perjury that the above provided and attached information is a true and accurate record of each person employed on the project and the hours worked and wages paid to each such employee, including payments to the referenced benefits. M.G.L. c. 149 §27B.

Authorized signature _______________________________________
Print Name_________________________________________ Print Title_____________________________________

Mail to: University of Massachusetts Amherst
         Procurement Manager/Administrative Services
         Physical Plant Building
         360 Campus Center Way
         Amherst, MA 01003
Awarding Authority: University of Massachusetts Amherst  
Contract Number: UMA17-22  
City/Town: AMHERST  
Description of Work: Webster ADA Rooms / Works  
Job Location: UMASS Amherst

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

- This wage schedule applies only to the specific project referenced at the top of this page and uniquely identified by the "Wage Request Number" on all pages of this schedule.
- An Awarding Authority must request an updated wage schedule from the Department of Labor Standards ("DLS") if it has not opened bids or selected a contractor within 90 days of the date of issuance of the wage schedule. For CM AT RISK projects (bid pursuant to G.L. c.149A), the earlier of: (a) the execution date of the GMP Amendment, or (b) the bid for the first construction scope of work must be within 90-days of the wage schedule issuance date.
- The wage schedule shall be incorporated in any advertisement or call for bids for the project as required by M.G.L. c. 149, § 27. The wage schedule shall be made a part of the contract awarded for the project. The wage schedule must be posted in a conspicuous place at the work site for the life of the project in accordance with M.G.L. c. 149 § 27. The wages listed on the wage schedule must be paid to employees performing construction work on the project whether they are employed by the prime contractor, a filed sub-bidder, or any sub-contractor.
- All apprentices working on the project are required to be registered with the Massachusetts Department of Labor Standards, Division of Apprentice Standards (DLS/DAS). Apprentice must keep his/her apprentice identification card on his/her person during all work hours on the project. An apprentice registered with DAS may be paid the lower apprentice wage rate at the applicable step as provided on the prevailing wage schedule. Any apprentice not registered with DLS/DAS regardless of whether or not they are registered with any other federal, state, local, or private agency must be paid the journeyworker's rate for the trade.
- The wage rates will remain in effect for the duration of the project, except in the case of multi-year public construction projects. For construction projects lasting longer than one year, awarding authorities must request an updated wage schedule. Awarding authorities are required to request these updates no later than two weeks before the anniversary of the date the contract was executed by the awarding authority and the general contractor. For multi-year CM AT RISK projects, awarding authority must request an annual update no later than two weeks before the anniversary date, determined as the earlier of: (a) the execution date of the GMP Amendment, or (b) the execution date of the first amendment to permit procurement of construction services. Contractors are required to obtain the wage schedules from awarding authorities, and to pay no less than these rates to covered workers. The annual update requirement is not applicable to 27F “rental of equipment” contracts.
- Every contractor or subcontractor which performs construction work on the project is required to submit weekly payroll reports and a Statement of Compliance directly to the awarding authority by mail or email and keep them on file for three years. Each weekly payroll report must contain: the employee’s name, address, occupational classification, hours worked, and wages paid. Do not submit weekly payroll reports to DLS. A sample of a payroll reporting form may be obtained at http://www.mass.gov/dols/pw.
- Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at (617) 626-6953.
- Employees not receiving the prevailing wage rate set forth on the wage schedule may report the violation to the Fair Labor Division of the office of the Attorney General at (617) 727-3465.
- Failure of a contractor or subcontractor to pay the prevailing wage rates listed on the wage schedule to all employees who perform construction work on the project is a violation of the law and subjects the contractor or subcontractor to civil and...
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For apprentice rates see *Apprentice- OPERATING ENGINEERS*
### BATC/CEMENT PLANT - ON SITE

**OPERATING ENGINEERS LOCAL 98**

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<thead>
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### BLOCK PAVER, RAMMER / CURB SETTER

**LABORERS - ZONE 3 (BUILDING & SITE)**

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### BLOCK PAVER, RAMMER / CURB SETTER (HEAVY & HIGHWAY)

**LABORERS - ZONE 3 (HEAVY & HIGHWAY)**

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### BOILER MAKER

**BOILERMAKERS LOCAL 29**

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### Apprentice - BOILERMAKER - Local 29

**Effective Date - 01/01/2017**

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**Notes:**

Apprentice to Journeyworker Ratio: 1:5

### BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)

**BRICKLAYERS LOCAL 3 (SPRINGFIELD/PITTSFIELD)**

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**Issue Date:** 02/17/2017

**Wage Request Number:** 20170217-001

**Page 3 of 30**
### Apprentice -  BRICK/PLASTER/CEMENT MASON - Local 3 Springfield/Pittsfield

**Effective Date:** 09/05/2016

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**Notes:**

Apprentice to Journeyworker Ratio: 1:5

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

For apprentice rates see "Apprentice- LABORER"

For apprentice rates see "Apprentice- LABORER"

For apprentice rates see "Apprentice- LABORER"

For apprentice rates see "Apprentice- LABORER"

For apprentice rates see "Apprentice- LABORER"

For apprentice rates see "Apprentice- LABORER"

For apprentice rates see "Apprentice- LABORER"

**BULLDOZER/POWER SHOVEL/TREE SHREDDER /CLAM SHELL OPERATING ENGINEERS LOCAL 98**

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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

**CAISSON & UNDERPINNING BOTTOM MAN LABORERS - FOUNDATION AND MARINE**

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For apprentice rates see "Apprentice- LABORER"

**CAISSON & UNDERPINNING LABORER LABORERS - FOUNDATION AND MARINE**

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For apprentice rates see "Apprentice- LABORER"

**CAISSON & UNDERPINNING TOP MAN LABORERS - FOUNDATION AND MARINE**

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For apprentice rates see "Apprentice- LABORER"

**CARBIDE CORE DRILL OPERATOR LABORERS - ZONE 3 (BUILDING & SITE)**

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For apprentice rates see "Apprentice- LABORER"

**CARPENTER CARPENTERS LOCAL 108 - HAMPDEN HAMPSHIRE FRANKLIN**

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Notes:
** 1: 1-5/2: 6-8/3:9-11/Steps: 6 mos (600 hrs)/rates by step

Apprentice to Journeyworker Ratio:**

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**Notes:**
- Steps 3,4 are 500 hrs. All other steps are 1,000 hrs.
- Apprentice to Journeyworker Ratio: 1:3

**CHAIN SAW OPERATOR**

**LABORERS - ZONE 3 (BUILDING & SITE)**

12/05/2016 $29.83 $7.60 $12.50 $0.00 $51.37

For apprentice rates see "Apprentice- LABORER"

**COMPRESSOR OPERATOR**

**OPERATING ENGINEERS LOCAL 98**

12/01/2016 $33.15 $10.58 $12.38 $0.00 $56.11
06/01/2017 $33.76 $10.58 $12.65 $0.00 $56.99
12/01/2017 $34.36 $10.58 $12.92 $0.00 $57.86
06/01/2018 $34.97 $10.58 $13.19 $0.00 $58.74
12/01/2018 $35.57 $10.58 $13.46 $0.00 $59.61
06/01/2019 $36.08 $10.58 $13.73 $0.00 $60.39
12/01/2019 $36.68 $10.58 $14.00 $0.00 $61.26

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

**CRANE OPERATOR**

**OPERATING ENGINEERS LOCAL 98**

12/01/2016 $37.18 $10.58 $12.38 $0.00 $60.14
06/01/2017 $37.79 $10.58 $12.65 $0.00 $61.02
12/01/2017 $38.39 $10.58 $12.92 $0.00 $61.89
06/01/2018 $39.00 $10.58 $13.19 $0.00 $62.77
12/01/2018 $39.60 $10.58 $13.46 $0.00 $63.64
06/01/2019 $40.11 $10.58 $13.73 $0.00 $64.42
12/01/2019 $40.71 $10.58 $14.00 $0.00 $65.29

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

**DELEADER (BRIDGE)**

**PAINTERS LOCAL 35 - ZONE 3**

01/01/2017 $51.41 $7.85 $16.10 $0.00 $75.36
## PAINTER Local 35 - BRIDGES/TANKS
### Apprentice

#### Effective Date
01/01/2017

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#### Notes:
Steps are 750 hrs.

#### Apprentice to Journeyworker Ratio: 1:1

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**DEMO: ADZEMAN**

LABORERS - ZONE 3 (BUILDING & SITE)

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For apprentice rates see "Apprentice- LABORER"

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**DEMO: BACKHOE/LOADER/HAMMER OPERATOR**

LABORERS - ZONE 3 (BUILDING & SITE)

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For apprentice rates see "Apprentice- LABORER"

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**DEMO: BURNERS**

LABORERS - ZONE 3 (BUILDING & SITE)

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For apprentice rates see "Apprentice- LABORER"
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For apprentice rates see "Apprentice- LABORER"

| DEMO: JACKHAMMER OPERATOR            | 12/01/2016     | $37.25    | $7.60  | $14.15  | $0.00                     | $59.00     |
| LABORERS - ZONE 3 (BUILDING & SITE)  | 06/01/2017     | $38.25    | $7.60  | $14.15  | $0.00                     | $60.00     |
|                                      | 12/01/2017     | $39.10    | $7.60  | $14.15  | $0.00                     | $60.85     |
|                                      | 06/01/2018     | $40.05    | $7.60  | $14.15  | $0.00                     | $61.80     |
|                                      | 12/01/2018     | $41.00    | $7.60  | $14.15  | $0.00                     | $62.75     |
|                                      | 06/01/2019     | $42.00    | $7.60  | $14.15  | $0.00                     | $63.75     |
|                                      | 12/01/2019     | $43.00    | $7.60  | $14.15  | $0.00                     | $64.75     |

For apprentice rates see "Apprentice- LABORER"

| DEMO: WRECKING LABORER               | 12/01/2016     | $36.50    | $7.60  | $14.15  | $0.00                     | $58.25     |
| LABORERS - ZONE 3 (BUILDING & SITE)  | 06/01/2017     | $37.50    | $7.60  | $14.15  | $0.00                     | $59.25     |
|                                      | 12/01/2017     | $38.35    | $7.60  | $14.15  | $0.00                     | $60.10     |
|                                      | 06/01/2018     | $39.30    | $7.60  | $14.15  | $0.00                     | $61.05     |
|                                      | 12/01/2018     | $40.25    | $7.60  | $14.15  | $0.00                     | $62.00     |
|                                      | 06/01/2019     | $41.25    | $7.60  | $14.15  | $0.00                     | $63.00     |
|                                      | 12/01/2019     | $42.25    | $7.60  | $14.15  | $0.00                     | $64.00     |

For apprentice rates see "Apprentice- LABORER"

| DIVER                                | 08/01/2015     | $60.34    | $9.80  | $18.17  | $0.00                     | $88.31     |
| PILE DRIVER LOCAL 56 (ZONE 3)        |               |           |        |         |                           |            |

For apprentice rates see "Apprentice- PILE DRIVER"

| DIVER TENDER                         | 08/01/2015     | $43.10    | $9.80  | $18.17  | $0.00                     | $71.07     |
| PILE DRIVER LOCAL 56 (ZONE 3)        |               |           |        |         |                           |            |

For apprentice rates see "Apprentice- PILE DRIVER"

| DIVER TENDER (EFFLUENT)              | 08/01/2015     | $64.65    | $9.80  | $18.17  | $0.00                     | $92.62     |
| PILE DRIVER LOCAL 56 (ZONE 3)        |               |           |        |         |                           |            |

For apprentice rates see "Apprentice- PILE DRIVER"

| DIVER/SLURRY (EFFLUENT)              | 08/01/2015     | $90.51    | $9.80  | $18.17  | $0.00                     | $118.48    |
| PILE DRIVER LOCAL 56 (ZONE 3)        |               |           |        |         |                           |            |

For apprentice rates see "Apprentice- PILE DRIVER"

| ELECTRICIAN (Including Core Drilling) | 01/01/2017     | $39.51    | $9.35  | $10.84  | $0.00                     | $59.70     |
| ELECTRICIANS LOCAL 7                 |               |           |        |         |                           |            |
### Apprentice - ELECTRICIAN - Local 7

**Effective Date:** 01/01/2017

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<th>Step</th>
<th>percent</th>
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<th>Pension</th>
<th>Supplemental Unemployment</th>
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**Notes:**
- Pre-5/31/11 Begins at Step 3 $39.72/4$41.75/$46.38/$48.60
- Steps 1-2 are 1000 hrs; Steps 3-6 are 1500 hrs.

### ELEVATOR CONSTRUCTOR - Local 41

**Effective Date:** 01/01/2017

<table>
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<th>Step</th>
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**Notes:**
- Steps 1-2 are 6 mos.; Steps 3-5 are 1 year

### ELEVATOR CONSTRUCTOR HELPER - Local 41

**Effective Date:** 01/01/2017

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**Notes:**
- For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"

### FENCE & GUARD RAIL ERECTOR (HEAVY & HIGHWAY)

**Effective Date:** 12/01/2016

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<th>Step</th>
<th>percent</th>
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**Notes:**
- For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

### FIELD ENG.INST./ROD-BLDG,SITE,HVY/HWY

**Effective Date:** 06/01/1999

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<th>Step</th>
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**Notes:**
- For apprentice rates see "Apprentice- ELECTRICIAN"
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### Apprentice - OPERATING ENGINEERS - Local 98 Class 3

**Effective Date:** 12/01/2016

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**Effective Date:** 06/01/2017

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**Notes:**

Steps 1-2 are 1000 hrs.; Steps 3-4 are 2000 hrs.

**Apprentice to Journeyworker Ratio: 1:6**

### FLAGGER & SIGNALER (HEAVY & HIGHWAY)

**LABORERS - ZONE 3 (HEAVY & HIGHWAY)**

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

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<th>Effective Date</th>
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### FLOORCOVERER

**FLOORCOVERERS LOCAL 2168 ZONE III**

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**Effective Date:** 03/01/2016

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**Notes:**
Steps are 750 hrs.

### FORK LIFT

**Fork Lift Operating Engineers Local 98**

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For apprentice rates see "Apprentice- Operating Engineers".

### GENERATORS/LIGHTING PLANTS

**Operating Engineers Local 98**

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For apprentice rates see "Apprentice- Operating Engineers".

### GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS)

**Glaziers Local 1333**

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Notes:

Apprentice to Journeyworker Ratio: 1:3

GRADER/TRENCHING MACHINE/DERRICK
OPERATING ENGINEERS LOCAL 98

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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

HVAC (DUCTWORK)
SHEETMETAL WORKERS LOCAL 63

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For apprentice rates see "Apprentice- SHEET METAL WORKER"

HVAC (ELECTRICAL CONTROLS)
ELECTRICIANS LOCAL 7

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For apprentice rates see "Apprentice- ELECTRICIAN"

HVAC (TESTING AND BALANCING - AIR)
SHEETMETAL WORKERS LOCAL 63

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For apprentice rates see "Apprentice- SHEET METAL WORKER"

HVAC (TESTING AND BALANCING -WATER)
PLUMBERS & PIPEFITTERS LOCAL 104

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For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"

HVAC MECHANIC
PLUMBERS & PIPEFITTERS LOCAL 104

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**Notes:**
Steps are 1 year

**Apprentice to Journeyworker Ratio:** 1:4

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<td>Pension</td>
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<td>Total Rate</td>
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| Effective Date - 03/16/2017 | | | | | | |
| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
| 1 | 60 | $19.43 | $7.80 | $19.60 | $0.00 | $46.83 |
| 2 | 70 | $22.67 | $7.80 | $19.60 | $0.00 | $50.07 |
| 3 | 75 | $24.29 | $7.80 | $19.60 | $0.00 | $51.69 |
| 4 | 80 | $25.91 | $7.80 | $19.60 | $0.00 | $53.31 |
| 5 | 85 | $27.53 | $7.80 | $19.60 | $0.00 | $54.93 |
| 6 | 90 | $29.15 | $7.80 | $19.60 | $0.00 | $56.55 |

Notes: Structural 1:6; Ornamental 1:4

Apprentice to Journeyworker Ratio: 1:5

JACKHAMMER & PAVING BREAKER OPERATOR
LABORERS - ZONE 3 (BUILDING & SITE)
12/05/2016 $29.83 $7.60 $12.50 $0.00 $49.93

LABORER
LABORERS - ZONE 3 (BUILDING & SITE)
12/05/2016 $29.58 $7.60 $12.50 $0.00 $49.68

Apprentice - LABORER - Zone 3 Building & Site
Effective Date - 12/05/2016
Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
| 1 | 60 | $17.75 | $7.60 | $12.50 | $0.00 | $37.85 |
| 2 | 70 | $20.71 | $7.60 | $12.50 | $0.00 | $40.81 |
| 3 | 80 | $23.66 | $7.60 | $12.50 | $0.00 | $43.76 |
| 4 | 90 | $26.62 | $7.60 | $12.50 | $0.00 | $46.72 |

Notes: Apprentice to Journeyworker Ratio: 1:5

LABORER (HEAVY & HIGHWAY)
LABORERS - ZONE 3 (HEAVY & HIGHWAY)
12/01/2016 $29.50 $7.60 $10.62 $0.00 $47.72
### Classification:

**LABORER (Heavy & Highway) - Zone 3**

**Effective Date:** 12/01/2016

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**Notes:**

- **Apprentice to Journeyworker Ratio:** 1:5

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For apprentice rates see "Apprentice- LABORER"

*LABORER: CARPENTER TENDER*  
LABORERS - ZONE 3 (BUILDING & SITE)  
12/05/2016 $29.58 $7.60 $12.50 $0.00 $49.68

*LABORER: CEMENT FINISHER TENDER*  
LABORERS - ZONE 3 (BUILDING & SITE)  
12/05/2016 $29.83 $7.60 $12.50 $0.00 $49.93

*LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER*  
LABORERS - ZONE 3 (BUILDING & SITE)  
12/05/2015 $29.68 $7.60 $12.50 $0.00 $49.78

*LABORER: MASON TENDER*  
LABORERS - ZONE 3 (BUILDING & SITE)  
12/05/2016 $30.58 $7.60 $12.50 $0.00 $50.68

*LABORER: MASON TENDER (HEAVY & HIGHWAY)*  
LABORERS - ZONE 3 (HEAVY & HIGHWAY)  
12/01/2016 $29.75 $7.60 $10.62 $0.00 $47.97

*LABORER: MULTI-TRADE TENDER*  
LABORERS - ZONE 3 (BUILDING & SITE)  
12/05/2016 $29.58 $7.60 $12.50 $0.00 $49.68

*LABORER: TREE REMOVER*  
LABORERS - ZONE 3 (BUILDING & SITE)  
12/05/2016 $29.58 $7.60 $12.50 $0.00 $49.68

This classification applies to all tree work associated with the removal of standing trees, and trimming and removal of branches and limbs when the work is not done for a utility company for the purpose of operation, maintenance or repair of utility company equipment. For apprentice rates see "Apprentice- LABORER"

*LASER BEAM OPERATOR*  
LABORERS - ZONE 3 (BUILDING & SITE)  
12/05/2016 $29.83 $7.60 $12.50 $0.00 $49.93

*LASER BEAM OPERATOR (HEAVY & HIGHWAY)*  
LABORERS - ZONE 3 (HEAVY & HIGHWAY)  
12/01/2016 $29.75 $7.60 $10.62 $0.00 $47.97

*MARBLE & TILE FINISHERS*  
BRICKLAYERS LOCAL 3 (SPR/PITF) - MARBLE & TILE  
09/05/2016 $32.67 $10.18 $17.05 $0.00 $59.90

02/27/2017 $32.67 $10.75 $17.05 $0.00 $60.47
### Classification

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**Notes:**

Apprentice to Journeyworker Ratio: 1:5

### MARBLE MASON, TILELAYERS & TERRAZZO MECH

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### Apprentice -  MARBLE-TILE-TERRAZZO MECH - Local 3 Marble/Tile (Spr/Pitt)

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**Notes:**

Apprentice to Journeyworker Ratio: 1:5
### MECH. SWEEPER OPERATOR (ON CONST. SITES)
*OPERATING ENGINEERS LOCAL 98*

<table>
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<tr>
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<th>Base Wage</th>
<th>Health</th>
<th>Pension</th>
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

### MECHANIC/WELDER/BOOM TRUCK
*OPERATING ENGINEERS LOCAL 98*

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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

### MILLWRIGHT (Zone 3)
*MILLWRIGHTS LOCAL 1121 - Zone 3*

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**Apprentice - MILLWRIGHT - Local 1121 Zone 3**

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**Notes:**
- Steps are 2,000 hours

**Apprentice to Journeyworker Ratio:** 1:5

### MORTAR MIXER
*LABORERS - ZONE 3 (BUILDING & SITE)*

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For apprentice rates see "Apprentice- LABORER"
### Classification

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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

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<th>Health</th>
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

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<tr>
<th>Classification</th>
<th>Effective Date</th>
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<th>Health</th>
<th>Pension</th>
<th>Supplemental Unemployment</th>
<th>Total Rate</th>
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<tbody>
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**Apprentice - PAINTER Local 35 - BRIDGES/TANKS**

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<th>Health</th>
<th>Pension</th>
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**Notes:**

- Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

**PAINTER (SPRAY OR SANDBLAST, NEW)**

<table>
<thead>
<tr>
<th>Effective Date</th>
<th>Base Wage</th>
<th>Health</th>
<th>Pension</th>
<th>Supplemental Unemployment</th>
<th>Total Rate</th>
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* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. **PAINTERS LOCAL 35 - ZONE 3**
### Apprentice - PAINTER Local 35 Zone 3 - Spray/Sandblast - New

<table>
<thead>
<tr>
<th>Step</th>
<th>percent</th>
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**Notes:**
- Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:** 1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT)

**Issue Date:** 01/01/2017

### Apprentice - PAINTER Local 35 Zone 3 - Spray/Sandblast - Repaint

<table>
<thead>
<tr>
<th>Step</th>
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</table>

**Notes:**
- Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:** 1:1

PAINTER / TAPER (BRUSH, NEW) *

* If 30% or more of surfaces to be painted are new construction, **NEW** paint rate shall be used. PAINTER LOCAL 35 - ZONE 3

**Issue Date:** 02/17/2017

**Wage Request Number:** 20170217-001
### PAINTER - Local 35 Zone 3 - BRUSH NEW
#### Effective Date: 01/01/2017

<table>
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<th>Supplemental Unemployment</th>
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**Notes:**
- Steps are 750 hrs.
- Apprentice to Journeyworker Ratio: 1:1

### PAINTER / TAPER (BRUSH, REPAINT)  PAINTERS LOCAL 35 - ZONE 3
#### Effective Date: 01/01/2017

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**Notes:**
- Steps are 750 hrs.
- Apprentice to Journeyworker Ratio: 1:1

### PAINTER Local 35 Zone 3 - BRUSH REPAINT
#### Effective Date: 01/01/2017

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**Notes:**
- Steps are 750 hrs.
- Apprentice to Journeyworker Ratio: 1:1

### PAINTER TRAFFIC MARKINGS (HEAVY/HIGHWAY)  LABORERS - ZONE 3 (HEAVY & HIGHWAY)
#### Effective Date: 12/01/2016

|         |         | $29.50               | $7.60  | $10.62  | $0.00                     | $47.72     |

*For apprentice rates see "Apprentice- LABORER (Heavy and Highway)*

### PANEL & PICKUP TRUCKS DRIVER  TEAMSTERS JOINT COUNCIL NO. 10 ZONE B
#### Effective Date: 12/01/2012

|         | $30.28               | $9.07  | $8.00   | $0.00                     | $47.35     |

**Notes:**
- Apprentice to Journeyworker Ratio: 1:1

### PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK)  PILE DRIVER LOCAL 56 (ZONE 3)
#### Effective Date: 08/31/2015

|         | $39.00               | $9.80  | $18.17  | $0.00                     | $66.97     |

*For apprentice rates see "Apprentice- PILE DRIVER"*

### PILE DRIVER  PILE DRIVER LOCAL 56 (ZONE 3)
#### Effective Date: 08/31/2015

|         | $39.00               | $9.80  | $18.17  | $0.00                     | $66.97     |

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**Issue Date:** 02/17/2017  **Wage Request Number:** 20170217-001  **Page 20 of 30**
### Classification

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**Notes:** Apprentice wages shall be no less than the following Steps; (Same as set in Zone 1)

1$50.05/2$54.25/3$58.46/4$60.56/5$62.66/6$62.66/7$66.87/8$66.87

Apprentice to Journeyworker Ratio: 1:3

### PIPELAYER

**LABORERS - ZONE 3 (BUILDING & SITE)**

12/05/2016 | $29.83 | $7.60 | $12.50 | $0.00 | $49.93

For apprentice rates see "Apprentice- LABORER"

### PIPELAYER (HEAVY & HIGHWAY)

**LABORERS - ZONE 3 (HEAVY & HIGHWAY)**

12/01/2016 | $29.75 | $7.60 | $10.62 | $0.00 | $47.97

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

### PLUMBER & PIPEFITTER

**PLUMBERS & PIPEFITTERS LOCAL 104**

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**Issue Date:** 02/17/2017  **Wage Request Number:** 20170217-001  **Page 21 of 30**
### PLUMBER/PIPEFITTER - Local 104

**Effective Date:** 09/17/2016

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**Notes:** **1:1,2:5,3:9,4:12**

**Apprentice to Journeyworker Ratio:**

- **PNEUMATIC CONTROLS (TEMP.)**
  - PLUMBERS & PIPEFITTERS LOCAL 104
    - 09/17/2016: $38.76, $8.45, $15.05, $0.00, $62.26
    - 03/17/2017: $39.26, $8.50, $15.30, $0.00, $63.06
    - 09/17/2017: $40.01, $8.50, $15.30, $0.00, $63.81
    - 03/17/2018: $40.76, $8.50, $15.30, $0.00, $64.56
    - 09/17/2018: $41.51, $8.50, $15.30, $0.00, $65.31
    - 03/17/2019: $42.26, $8.50, $15.30, $0.00, $66.06

For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"

- **PNEUMATIC DRILL/TOOL OPERATOR (HEAVY & HIGHWAY)**
  - LABORERS - ZONE 3 (HEAVY & HIGHWAY)
    - 12/01/2016: $29.75, $7.60, $10.62, $0.00, $47.97

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

- **POWDERMAN & BLASTER**
  - LABORERS - ZONE 3 (BUILDING & SITE)
    - 12/05/2016: $30.58, $7.60, $12.50, $0.00, $50.68

For apprentice rates see "Apprentice- LABORER"
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As of 9/1/09 Carpentry work on wood-frame residential WEATHERIZATION projects shall be paid the RESIDENTIAL WOOD FRAME CARPENTER rate.
### Classification

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**Apprentice - CARPENTER (Residential Wood Frame) - 108 Hampden Hampshire**

**Effective Date - 10/01/2016**

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**Effective Date - 04/01/2017**

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**Notes:**

**Apprentice to Journeyworker Ratio:**

- **1: 1-5, 2: 6-8, 3: 9-11**

**RIDE-ON MOTORIZED BUGGY OPERATOR**  
*LABORERS - ZONE 3 (BUILDING & SITE)*

For apprentice rates see "Apprentice- LABORER"*

- **January 5, 2016**
- **June 5, 2016**
- **December 1, 2016**
- **February 1, 2017**
- **June 1, 2017**
- **December 1, 2017**
- **February 1, 2018**
- **June 1, 2018**
- **December 1, 2018**
- **February 1, 2019**
- **June 1, 2019**
- **December 1, 2019**
- **February 1, 2020**

**ROLLER OPERATOR**  
*OPERATING ENGINEERS LOCAL 98*

For apprentice rates see "Apprentice- OPERATING ENGINEERS"*

- **January 5, 2016**
- **June 5, 2016**
- **December 1, 2016**
- **February 1, 2017**
- **June 1, 2017**
- **December 1, 2017**
- **February 1, 2018**
- **June 1, 2018**
- **December 1, 2018**
- **February 1, 2019**
- **June 1, 2019**
- **December 1, 2019**
- **February 1, 2020**

**ROOFER (Coal tar pitch)**  
*ROOFERS LOCAL 248*

For apprentice rates see "Apprentice- ROOFER"*

- **January 5, 2016**
- **June 5, 2016**
- **December 1, 2016**
- **February 1, 2017**
- **June 1, 2017**
- **December 1, 2017**
- **February 1, 2018**
- **June 1, 2018**
- **December 1, 2018**
- **February 1, 2019**
- **June 1, 2019**
- **December 1, 2019**
- **February 1, 2020**

**ROOFER (Inc.Roof waterproofing &Roofer Damproofing)**  
*ROOFERS LOCAL 248*

For apprentice rates see "Apprentice- ROOFER"*

- **January 5, 2016**
- **June 5, 2016**
- **December 1, 2016**
- **February 1, 2017**
- **June 1, 2017**
- **December 1, 2017**
- **February 1, 2018**
- **June 1, 2018**
- **December 1, 2018**
- **February 1, 2019**
- **June 1, 2019**
- **December 1, 2019**
- **February 1, 2020**
## Classification

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### Notes:
- Steps are 750 hrs.
- Roofer (Tear Off): 1:1; Same as above

### Apprentice to Journeyworker Ratio: 1:3

---

**ROOFER SLATE / TILE / PRECAST CONCRETE
ROOFERS LOCAL 248**

| 10/16/2016 | $32.25 | $9.41 | $13.25 | $0.00 | $54.91 |

**SCRAPER
OPERATING ENGINEERS LOCAL 98**

| 12/01/2016 | $33.15 | $10.58 | $12.38 | $0.00 | $56.11 |
| 06/01/2017 | $33.76 | $10.58 | $12.65 | $0.00 | $56.99 |
| 12/01/2017 | $34.36 | $10.58 | $12.92 | $0.00 | $57.86 |
| 06/01/2018 | $34.97 | $10.58 | $13.19 | $0.00 | $58.74 |
| 12/01/2018 | $35.57 | $10.58 | $13.46 | $0.00 | $59.61 |
| 06/01/2019 | $36.08 | $10.58 | $13.73 | $0.00 | $60.39 |
| 12/01/2019 | $36.68 | $10.58 | $14.00 | $0.00 | $61.26 |

**SELF-POWERED ROLLERS AND COMPACTORS
(TAMPERS)
OPERATING ENGINEERS LOCAL 98**

| 12/01/2016 | $32.54 | $10.58 | $12.38 | $0.00 | $55.50 |
| 06/01/2017 | $33.15 | $10.58 | $12.65 | $0.00 | $56.38 |
| 12/01/2017 | $33.75 | $10.58 | $12.92 | $0.00 | $57.25 |
| 06/01/2018 | $34.36 | $10.58 | $13.19 | $0.00 | $58.13 |
| 12/01/2018 | $34.96 | $10.58 | $13.46 | $0.00 | $59.00 |
| 06/01/2019 | $35.47 | $10.58 | $13.73 | $0.00 | $59.78 |
| 12/01/2019 | $36.07 | $10.58 | $14.00 | $0.00 | $60.65 |

**SELF-PROPELLED POWER BROOM
OPERATING ENGINEERS LOCAL 98**

| 12/01/2016 | $29.92 | $10.58 | $12.38 | $0.00 | $52.88 |
| 06/01/2017 | $30.53 | $10.58 | $12.65 | $0.00 | $53.76 |
| 12/01/2017 | $31.13 | $10.58 | $12.92 | $0.00 | $54.63 |
| 06/01/2018 | $31.74 | $10.58 | $13.19 | $0.00 | $55.51 |
| 12/01/2018 | $32.34 | $10.58 | $13.46 | $0.00 | $56.38 |
| 06/01/2019 | $32.85 | $10.58 | $13.73 | $0.00 | $57.16 |
| 12/01/2019 | $33.45 | $10.58 | $14.00 | $0.00 | $58.03 |

**SHEETMETAL WORKER
SHEETMETAL WORKERS LOCAL 63**

| 01/01/2017 | $32.24 | $10.64 | $15.49 | $1.75 | $60.12 |

---

**Issue Date:** 02/17/2017  **Wage Request Number:** 20170217-001  **Page 25 of 30**
### SHEET METAL WORKER - Local 63

**Effective Date:** 01/01/2017

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**Notes:**

Apprentice to Journeyworker Ratio: 1:3

### SIGN ERECTOR - Local 35 Zone 3

**Effective Date:** 06/01/2013

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**Notes:**

Steps are 4 mos.

Apprentice to Journeyworker Ratio: 1:1

### SPECIALIZED EARTH MOVING EQUIP < 35 TONS

**Effective Date:** 12/01/2016

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### SPECIALIZED EARTH MOVING EQUIP > 35 TONS

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### SPRINKLER FITTER

**SPRINKLER FITTERS LOCAL 669**

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### Apprentice - SPRINKLER FITTER - Local 669

**Effective Date - 01/01/2017**

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**Effective Date - 04/01/2017**

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### Notes:

**Apprentice to Journeyworker Ratio: 1:1**

### TELECOMMUNICATION TECHNICIAN

**ELECTRICIANS LOCAL 7**

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**Issue Date:** 02/17/2017  **Wage Request Number:** 20170217-001  **Page 27 of 30**
### TELECOMMUNICATION TECHNICIAN - Local 7

**Effective Date:** 01/01/2017

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**Notes:**
- Steps are 800 hours
- Apprentice to Journeyworker Ratio: 1:1

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### BRICKLAYERS LOCAL 3 (SPR/PITT) - MARBLE & TILE

**Effective Date:** 09/05/2016

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**Effective Date:** 02/27/2017

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**Notes:**
- Apprentice to Journeyworker Ratio: 1:5

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### TEST BORING DRILLER

**Effective Date:** 12/01/2016

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### TEST BORING DRILLER HELPER

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### TEST BORING LABORER

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### Apprentice - LINEMAN (Outside Electrical) - West Local 42

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### Notes:

**Apprentice to Journeyworker Ratio:** 1:2

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### Additional Apprentice Information:

Minimum wage rates for apprentices employed on public works projects are listed above as a percentage of the pre-determined hourly wage rate established by the Commissioner under the provisions of the M.G.L. c. 149, ss. 26-27D. Apprentice ratios are established by the Division of Apprenticeship Training pursuant to M.G.L. c. 23, ss. 11E-11L. All apprentices must be registered with the Division of Apprenticeship Training in accordance with M.G.L. c. 23, ss. 11E-11L.

All steps are six months (1000 hours.) Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified.

** Multiple ratios are listed in the comment field.

*** APP to JM: 1:1, 2:2, 2:3, 3:4, 4:4, 4:5, 5:4, 5:6, 6:7, 6:8, 6:9, 7:10, 8:10, 8:11, 8:12, 9:13, 10:13, 10:14, etc.

**** APP to JM: 1:1, 1:2, 2:3, 2:4, 3:5, 4:6, 4:7, 5:6, 6:9, 6:10, 7:11, 8:12, 8:13, 9:14, 10:15, 10:16, etc.
WEEKLY PAYROLL RECORDS REPORT
& STATEMENT OF COMPLIANCE

In accordance with Massachusetts General Law c149, section 27B, a true and accurate record must be kept of all persons employed on the public works construction project for which the enclosed rates have been provided. The Weekly Payroll Report Form includes all the information required to be kept by law. Every contractor or subcontractor is required to keep these records and preserve them for a period of three years from the date of completion of the project.

In addition, every contractor and subcontractor is required to submit a copy of their weekly payroll records to the awarding authority. This is required to be done on a weekly basis. Once collected, the awarding authority is also required to preserve those records for three years.

In addition, each such contractor, subcontractor or public body shall furnish to the Executive Office of Labor within fifteen days after completion of its portion of the work a statement, executed by the contractor, subcontractor or public body who supervises the payment of wages, in the following form:
STATEMENT OF COMPLIANCE

Date: _____ / _____ / 20____

I, _______________________________________________________

__________________________________________________________

(Name of signatory party) (Title)

do hereby state:

That I pay or supervise the payment of the persons employed by

__________________________________________________________

on the __________________________________________________

(Contractor, subcontractor or public body) (Building or project)

and that all mechanics and apprentices, teamsters, chauffeurs and laborers employed
on said project have been paid in accordance with wages determined under the
provisions of sections twenty-six and twenty-seven of chapter one hundred and forty
nine of the General Laws.

Signature ______________________________

Title ________________________________
### QUARTERLY PROJECTED WORKFORCE TABLE

UNIVERSITY OF MASSACHUSETTS AMHERST

<table>
<thead>
<tr>
<th>UMA Number</th>
<th>Project No.</th>
<th>Project Name</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Name of Contractor</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Address</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Telephone No</th>
<th>Fax</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Scope of Work</th>
<th>Trades Utilized</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Estimate of Total Hours to Complete Work of Project</th>
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<table>
<thead>
<tr>
<th>Estimate of Total Hours of Work Remaining on Project</th>
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<table>
<thead>
<tr>
<th>Total Contract Dollar Value $</th>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Quarter: Beginning</th>
<th>Ending</th>
</tr>
</thead>
</table>

185
<table>
<thead>
<tr>
<th>Trade Categories</th>
<th>Projected Total Hours By All Personnel</th>
<th>Projected Total of all Minority Hours</th>
<th>Projected Total of all Women Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MONTH-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laborers</td>
<td></td>
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<tr>
<td>Other Trades</td>
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<td>MONTH-</td>
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<td>Laborers</td>
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<td></td>
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<tr>
<td>Other Trades</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Authorized Signature __________________________ Title_________________________ Date____________________

Note: A revised table must be submitted if any changes on projection occur.

Quarterly Projected Workforce Table - Revised 10/01
CERTIFICATE OF PAYMENT
BY CONTRACTOR/DESIGNER TO MINORITY & WOMEN BUSINESS ENTERPRISES
UNIVERSITY OF MASSACHUSETTS AMHERST

TO: University of Massachusetts Amherst
Facilities Planning
360 Campus Center Way
Amherst, MA 01003

RE: UMA No._____________________________  Project No._____________________________
Project Name_____________________________

The undersigned hereby certifies under the pains and penalties of perjury that the contractor/designer named below has made the following payments to the named Minority and Women Business Enterprises for work performed on the above project:

<table>
<thead>
<tr>
<th>MBE/WBE Firm Name</th>
<th>Work Performed</th>
<th>Subcontract Amount</th>
<th>Payments This Quarter</th>
<th>Cumulative Payments</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ MBE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ WBE</td>
<td></td>
<td>$</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| ☐ MBE             |                |                    |                       |                     |
| ☐ WBE             |                | $                  | $                    | $                  |

| ☐ MBE             |                |                    |                       |                     |
| ☐ WBE             |                | $                  | $                    | $                  |

| ☐ MBE             |                |                    |                       |                     |
| ☐ WBE             |                | $                  | $                    | $                  |


187
☐ MBE  ☐ WBE  $  $  $  
☐ MBE  ☐ WBE  $  $  $  
☐ MBE  ☐ WBE  $  $  $  

Date Submitted: __________________________  __________________________

Name of General Contractor or Design Firm

Telephone No.: __________________________  __________________________

Authorized Signature

Fax No.: __________________________

Print Name and Title

* MBE and WBE payment reports are required for each quarter of the fiscal year for each of your University of Massachusetts Amherst projects. Reports are to cover the following three month periods: 1st quarter, July 1st – September 30th; 2nd quarter, October 1st – December 31st; 3rd quarter, January 1st – March 31st; 4th quarter, April 1st – June 30th. Reports must be submitted within 10 business days of your receipt of this form.

NOTICE: Intentionally submitting false information in this document may subject the contractor/designer to criminal prosecution and/or debarment from public contracting.
INSTRUCTIONS FOR COMPLETING CERTIFICATE OF PAYMENT BY CONTRACTOR/DESIGNER TO MINORITY & WOMEN BUSINESS ENTERPRISES

As part of its effort to ensure reliable, up-to-date information concerning the actual payments made to certified MBE and WBE subcontractors on all University of Massachusetts Amherst projects, the Compliance Office has prepared these instructions to assist you in completing the enclosed form. PLEASE READ THESE INSTRUCTIONS CAREFULLY. UNIVERSITY OF MASSACHUSETTS AMHERST WILL RETURN ANY CERTIFICATION OF PAYMENT THAT IS INCOMPLETE OR INACCURATE.

PLEASE NOTE: IF THIS PROJECT IS COMPLETE, ON HOLD, OR YOUR FIRM PREVIOUSLY SUBMITTED A FINAL CERTIFICATION OF M/WBE PAYMENT FOR THIS PROJECT, PLEASE SO INDICATE ON THE FORM AND RETURN IT TO UNIVERSITY OF MASSACHUSETTS AMHERST, FACILITIES PLANNING.

PLEASE INCLUDE THE FOLLOWING INFORMATION IN THE DESIGNATED SECTIONS OF THE FORM:

M/WBE NAME: Include the MBEs and WBEs listed on the project’s approved Schedule For Participation and any additional M/WBEs that worked on the project. Please note that any change in MBE and/or WBE participation used to meet the project M/WBE goals must be pre-approved by the Director of Facilities Planning responsible for this project and a Revised M/WBE Schedule of Participation will be required. Contact the University of Massachusetts Amherst’s Facilities Planning Project Manager immediately if you anticipate or have had any changes in M/WBE participation on this project.

WORK PERFORMED: Include a brief description of the work performed by each subcontractor listed. The description should match the M/WBE Letter of Intent and approved Schedule of Participation. M/WBEs must be SOMWA-certiﬁed in the category of work performed on this project for firms used to meet the project M/WBE goals.

SUBCONTRACT AMOUNT: Include the contract or subcontract amounts listed on the M/WBE Letters of Intent and approved Schedule of Participation. If the value of a MBE/WBE contract or subcontract has decreased or increased for any reason, you must contact the University of Massachusetts Amherst, Facilities Planning Project Manager responsible for this project immediately. If additional M/WBE firms not listed on the Schedule for Participation worked on this project list the amount of their subcontracts.

PAYMENTS THIS QUARTER: Include the amount you paid the M/WBE subcontractor, either directly or indirectly, for work performed on this project during the three month period covered by this Certification of Payment. If the amount paid was zero, please indicate that. Do not include payments from previous periods or estimated future payments in this column. Please note that you may be required to submit copies of cancelled checks to verify the amounts reported for firms used to meet the project’s M/WBE goals.

CUMULATIVE PAYMENTS: Include the total amount you paid the M/WBE subcontractor, either directly or indirectly, for work performed on this project for all quarters to date. This amount should equal all payments made during the period covered by this Certificate of Payment as well as all payments from previous periods. The University of Massachusetts Amherst, Facilities Planning Project Manager will check the total amount reported this quarter against any payments previously reported. To ensure accurate reporting, please review the prior Certifications of Payments you submitted for this project.
Where necessary, correct any earlier mathematical or reporting errors and submit revised Certifications of Payment.

IF YOU HAVE ANY QUESTIONS CONTACT THE UNIVERSITY OF MASSACHUSETTS AMHERST, FACILITIES PLANNING PROJECT MANAGER.

Certification of Payment Revised 10/01
CERTIFICATE OF COMPLETION

BY MINORITY/WOMEN BUSINESS ENTERPRISE
UNIVERSITY OF MASSACHUSETTS AMHERST

UMA Number_____________ Project Number ___________________________
Project Location__________________________________________________

Project Name
_________________________________________________________________

Name of MBE/WBE Firm___________________________
Address_________________________________________________________________

Name of General Contractor_________________________
Address_________________________________________________________________

DESCRIPTION OF WORK (AS SHOWN IN LETTER OF INTENT)

DESCRIPTION OF ACTIVITY
(Note “Labor Only,” “Material Only,”
“Material and Labor,” “Complete”)
__________________________________________________________________
__________________________________________________________________

Original Subcontract Amount
$________________________________________

Adjusted Subcontract Amount (Change Orders, etc.)
$________________________________________

Total Payments Received to Date From Prime Contractor
$________________________________________

Total Amount/Balance Due From Prime Contractor
$________________________________________
If the completed activity is different from that listed on the Letter of Intent, please explain:

______________________________
______________________________
______________________________

(If more space is needed, continue on back of sheet)

The individuals signing below hereby certify under the pains and penalties of perjury that all work listed on the Contract Letter of Intent (or approved changes thereto as explained above) was completed by the MBE/WBE firm on ______________________, 20____ and the above amounts listed for these services are true and accurate.

FOR CONTRACTOR

Authorized Signature________________________
Print Name ________________________________
Title________________________
Date____________ Telephone No.____________

FOR MBE/WBE FIRM

Authorized Signature________________________
Print Name ________________________________
Title________________________
Date____________ Telephone No.____________

NOTE: To be submitted to the University of Massachusetts Amherst within ten (10) days after completion of work by MBE/WBE.

Facilities Planning

Physical Plant Building

360 Campus Center Way

Amherst, MA 01003

Certificate of Completion – Revised 10/01
FORM FOR TRANSFER OF TITLE (UMA FORM 16)

Name of Contractor or Subcontractor having ownership

____________________________________________________

Business Address

____________________________________________________

Date

KNOW ALL MEN BY THESE PRESENTS

That we, _____________________________________________, of __________________________

(City)

in the County of ____________________________________________________ and the Commonwealth of
Massachusetts, in consideration of One Dollar ($1.00) and other good and valuable consideration
paid by the University of Massachusetts Amherst and receipt thereof is hereby acknowledged, do
hereby grant, sell, transfer, and deliver unto the said University of Massachusetts Amherst, clear
title to, and beneficial ownership of, the following goods and chattels, namely:

as per attached bills, belonging to us, now on the job site in ________________________,

(location) Massachusetts, or at __________________ which location has been agreed to in writing.

To have and to hold all and singular the said goods and chattels to the University of
Massachusetts Amherst and to its own use and behoof forever.

And we hereby covenant and represent under pains and penalties of perjury that we are the
lawful owner of the said goods and chattels and that they are free from all liens and
encumbrances. And the undersigned individual executing this document on behalf of the
transferor represents and warrants that he or she is legally authorized to execute this document
on behalf of said transferor.

In Witness whereof we, the said ______________________________ hereunto set

(Contractor or Subcontractor’s Firm Name)

our hand and seal this ___ day of _______________ in the year two thousand and _____.
(Contractor or Subcontractor's Name)
By:  ____________________________________________

Title:  ____________________________________________

hereunto duly authorized

UNIVERSITY OF MASSACHUSETTS AMHERST, ss

Then appeared the said  _____________________________ to me known or proven to be the

_________________________ of  _____________________________ and

acknowledged the foregoing to be his free act and deed and the free act and deed of

_________________________  _____________________________, before me.

________________________________________

Notary Public

My Commission Expires:  __________________________

The General Contractor hereby certifies under penalties of perjury that the goods and chattels

transferred above meet the requirements of the Plans and Specifications and will shortly be

needed for the Work; that the General Contractor can and will adequately protect them in

accordance with the Contract Documents until they are incorporated in the Work; that said goods

and chattels are insured as required by the Contract Documents; that acceptance of these goods

and chattels by the University of Massachusetts Amherst shall not constitute a waiver of any

claim arising out of the construction contract between the parties, nor of any claims for breach of

warranty, express or implied, or otherwise, arising out of this sale; that it is understood that the

University of Massachusetts Amherst reserves the right to give notice of any of the aforesaid

breaches at any time subsequent to said sale when said breach first appears to the University of

Massachusetts Amherst.

In Witness whereof we, the said  _____________________________ hereunto set

 (Contractor's Firm Name)

our hand and seal this ___ day of _____________ in the year two thousand and _____.

__________________________________________  ____________________________

(Contractor's Name)  (Name of Surety Company)

By:  ____________________________________________

(Authorized Signature for Surety)
Title: 

hereunto duly authorized

I hereby certify, under the penalties of perjury, that the articles or services listed have been received and are in keeping with the specifications, or are to be received in accordance with customary trade practices, and are in good order except as otherwise noted. Payment is hereby authorized and is properly chargeable to the designated appropriation.

__________________________________________
(Architect) (Engineer) (Date)

__________________________________________
Resident Engineer/Project Manager (Date)
UNIVERSITY OF MASSACHUSETTS AMHERST
FACILITIES PLANNING
Physical Plant Building, 360 Campus Center Way,
Amherst, MA  01003

E-I CERTIFICATE OF

AGENCY

USE AND

OCCUPANCY

FROM AWARDING AUTHORITY: University of Massachusetts Amherst

TO: General Contractor:

RE: UMA No.
Project No.
Title:
Location:
AUTHORITY: M.G.L. c. 30, s. 39K; Article VI General Conditions of Contract

Pursuant to the authority noted above you are notified that the University of Massachusetts Amherst is satisfied that the portion of the above noted project, as hereinafter enumerated, is ready for Use and/or Occupancy. (Identify portions to be used and/or occupied.)

The University of Massachusetts Amherst, through its undersigned representatives, hereby accepts from the Contractor, subject to Contract stipulations, said portion of the project effective as of Midnight the ________day of _______________20_____. The Contractor is relieved of responsibility for performing further work or supplying further materials, equipment or items, with the exception of the attached. (Append a complete list of all incomplete or unsatisfactory items of contract work which in the opinion of the University of Massachusetts Amherst are attributable to the fault, negligence or oversight of the Contractor, his subcontractor, material suppliers, agents, servants or employees.)

The use of any portion of the project or the occupancy of any building or portion thereof by the University of Massachusetts Amherst shall not constitute a final acceptance of any work not performed in accordance with the Contract, nor relieve the Contractor of liability to perform any work required by the Contract or of liabilities with respect to any warranties, guarantees, indemnifications, insurance, or other items that are required by the Contract to survive the issuance of this certificate.

The undersigned recommend the issuance of this Certificate of Agency Use and Occupancy.

UMass Amherst Project. Manager:

_________________________  __________

By: ___________________________  __________
E-2 FINAL ACCEPTANCE

CERTIFICATE OF FINAL INSPECTION, RELEASE AND ACCEPTANCE

UMA. State Project No. <>; Project No. <>
Title:
Location: <>
Contractor: <>

This is to certify that a complete inspection of the above entitled project was made on <> by the undersigned and the entire work was completed in accordance with the plans and specifications. The undersigned recommends acceptance of the project.

<table>
<thead>
<tr>
<th>Designer</th>
<th>Authorized Signature</th>
<th>Title</th>
<th>Date</th>
</tr>
</thead>
</table>

CERTIFICATE OF RELEASE

The undersigned hereby certifies that all work has been completed in accordance with the Plans, Specifications and Contract Documents and that all Change Orders have been supported pursuant to Articles VII and VIII of the General Conditions of the Contract.

2. Contract Award Price: $<> Adjusted Contract Price: $<>
   Authorized Additions: $<> Paid to Date: $<>
   Authorized Deductions $<> Balance Due: $<>

3. The undersigned further certifies that in addition to the amount set forth above, there are outstanding and unsettled the following the Change Orders as submitted according to UMass Form 13.

   Request No. <> Date: <> Amount: $<>
   Request No. <> Date: <> Amount: $<>
   Request No. <> Date: <> Amount: $<>

4. Subject to satisfactory disposition of Change Orders listed in Item 3 above, the undersigned releases the University of Massachusetts Amherst from all further claims for wages or payments to subcontractors or suppliers except:
   (list on attached sheet).

   by: ________________________________
   Contractor
   Authorized Signature: ________________________________

   The above entitled project is accepted as of ________________________________
   Date

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Form ST-5C
Contractor's Sales Tax Exempt Purchase Certificate

Part A. To be completed by governmental body, agency or IRC Section 501(c)(3) certified exempt organization

Exempt number                                      Contract number

E 043 - 167 - 352

Name of exempt organization

University of Massachusetts

Authorizing signature

[Signature]

Date

[Date]

Director of Procurement

Part B. To be completed by purchasing contractor or subcontractor claiming exemption under MGL Ch. 64H, sec. 6(d), (e), (f) or (tt)

Purchaser [ ] contractor  [ ] subcontractor

Address

Date

Vendor registration number (if applicable)

Contract/subcontract number  Contract/subcontract date  Estimated date of completion

Part C. To be completed by purchasing contractor or subcontractor claiming exemption. See instructions. I claim the exemption corresponding to the box checked below, and certify as follows (check appropriate box below):

1. [□] Exemption under MGL Ch. 64H, sec. 6(d) or (e): Contractor as Agent of Exempt Entity. I certify that the purchaser is a contractor or subcontractor engaged in the performance of a contract for the above described contract and that the purchaser is acting as an agent of one of the entities described below (check appropriate box) in purchasing tangible personal property (other than building materials and supplies described in MGL Ch. 64H, sec. 6(f)):

   [□] Governmental body or agency described in MGL Ch. 64H, sec. 6(d) (local public school, city/town government, state agency, etc.). Attach Form ST-2, Certificate of Exemption. If Form ST-2 is not available, enter agency's exemption number.

   [□] Tax exempt organization (under IRC Section 501(c)(3)) as described in MGL Ch. 64H, sec. 6(e) (parochial school, Scout troop, PTO, etc.). Attach Form ST-2, Certificate of Exemption. If Form ST-2 is not available, enter agency's exemption number.

To the best of my knowledge and belief, the quantities of tangible personal property noted on the reverse side are exempt from the sales/use tax under the provisions of MGL Ch. 64 H, sec. 6(f) or (e) as they are purchased by a purchaser acting as an agent for either a Massachusetts governmental body or for a tax-exempt organization under IRC section 501(c)(3).

2. [□] Exemption under MGL Ch. 64H, sec. 6(f): Building Materials and Supplies. I certify that the purchaser is a contractor or subcontractor engaged in the performance of a contract for the construction, reconstruction, alteration, remodeling or repair of a building or structure for a governmental body or agency or for a certified IRC Section 501(c)(3) exempt organization or other project described in MGL Ch. 64H, sec. 6(f). To the best of my knowledge and belief, the described quantities of building materials and supplies noted on the reverse side are exempt from sales/use tax under the provisions of MGL Ch. 64 H, sec. 6(f), and the described quantities of these materials and supplies are being purchased for use exclusively in the above contract.

3. [□] Exemption under MGL Ch. 64H, sec. 6(tt): Consulting/Operating Contractor as Agent of Governmental Entity. I certify that the purchaser is a consulting or operating contractor or subcontractor as defined in MGL Ch. 64H, sec. 6(tt) and that the purchaser is authorized and acting as an agent of, and providing "qualified services," as defined in MGL Ch. 64H, sec. 6(tt), to a governmental body or agency described in MGL Ch. 64H, sec. 6(d). Attach Form ST-2. If Form ST-2 is not available, enter agency's exemption number. To the best of my knowledge and belief, the quantities of tangible personal property noted on the reverse side are exempt from the sales/use tax under the provisions of MGL Ch. 64 H, sec. 6(tt). The purchaser has been authorized under the above contract by a governmental body.

Regardless of the exemption claimed, I will maintain adequate records to show the disposition of all property purchased under this certificate. I understand that I am fully liable for the payment of any sales/use tax due in the event that the property purchased under this certificate is used in a non-exempt manner.

Signed under the penalties of perjury.

Signature

Title

Location and description of project and description of kind and quantity of property or receipts/invoices must be attached or noted on the back of this form. This form is approved by the Commissioner of Revenue and may be reproduced.
BID PACKAGE

PART IV

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**LIST OF DRAWINGS**

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<th>Title Sheet</th>
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<td></td>
<td>Demolition Plan</td>
</tr>
<tr>
<td>A-2</td>
<td></td>
<td>Room layout Plan, Elevations</td>
</tr>
<tr>
<td>A-3</td>
<td></td>
<td>Elevations, Section &amp; Details</td>
</tr>
<tr>
<td>A-4</td>
<td></td>
<td>Wall Types, Schedule, Details &amp; Notes</td>
</tr>
<tr>
<td>P-1</td>
<td></td>
<td>Plumbing /Demolition Plan and Notes</td>
</tr>
<tr>
<td>P-2</td>
<td></td>
<td>Plumbing New Plan and Details</td>
</tr>
</tbody>
</table>
DIVISION 01 GENERAL REQUIREMENTS

SECTION 011000

SUMMARY

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. Equality of material, article, assembly or system other than those named or described in this Section shall be determined in accordance with the provisions of Article V of the CONTRACT AND GENERAL CONDITIONS.

1.2 REQUIREMENTS INCLUDED

A. Work under this Contract.
B. Examination of Site and Documents.
C. Contract Method.
D. Work Sequence.
E. Supervision of Work.
F. General Contractor's Use of Premises.
G. Coordination.
H. Field Engineering.
I. Reference Standards.
J. Preconstruction Conference.
K. Project Meetings.
L. Permits, Inspection, and Testing Required by Governing Authorities.
M. Cutting, Coring, Patching, Unless Otherwise Indicated.
N. Debris Removal.
O. Field Measurements.
P. Emergency Procedures.
Q. Safety Regulations.
R. OSHA Safety and Health Course Documentation.
S. Damage Responsibility.
T. Owner Furnished Products.
U. Owner Occupancy.
V. Asbestos and Hazardous Materials Discovery.
W. Special Requirements.
X. List of Drawings.
1.3 WORK UNDER THIS CONTRACT

A. The work to be done under this contract consists of executing and completing all work required for UMA 16-17 Brown & Cashin Replace Flooring and Doors, University of Massachusetts, Amherst

1. General Information

a. The project consists of renovating the existing resident’s apartment room 234 to create two ADA bathrooms, a Student Lounge and refurbish a Student Room. The work shall be constructed so as to meet all requirements of the Massachusetts State Building Code, current edition, in addition to all other applicable codes and regulations. The buildings site is bounded by Eastman Lane and the adjacent dormitories; in an area known as the Sylvan Residential Area.

B. The scope of work, without limiting the generality thereof, includes all labor, materials, equipment and services required to perform the work described fully in the Drawings and Specifications and includes, but is not limited to the following major work:

1. Construction including, but not limited to:
   a. Masonry and concrete work.
   b. Painting existing surfaces.
   c. Replacing existing doors
   d. New hardware
   e. Gypsum board
   f. Acoustic ceilings
   g. Tile work
   h. Plumbing
   i. Electrical

C. Reference to Drawings: The work to be done under this Contract is shown on the Drawings listed at the end of this Section.

D. The General Contractor will provide a schedule for completion of the project to the Owner within the required construction period.

1.4 EXAMINATION OF SITE AND DOCUMENTS

A. A pre-bid conference will be held at the job site on the date and at the time indicated in the Invitation to Bid.

B. Bidders shall ONLY visit the site during the pre-bid conference, at the time specified in the advertisement and the bid documents.

C. The bidders are expected to examine and to be thoroughly familiar with all contract documents and with the conditions under which the work is to be carried out. UMA will not be responsible for errors, omissions, and/or charges for extra work arising from the General Contractors or Subcontractors failure to familiarize themselves with the con-
tract documents. The General Contractor and Subcontractor acknowledge that they are familiar with the conditions and requirements of the contract documents where they require, in any part of the work a given result to be produced, and that the contract documents are adequate and will produce the required results. Contact: The designer will be present at the pre bid conference. This will be the only time available for viewing the site. Any questions subsequent to the submission of the bid shall be directed to Peter Royer by e-mail procurement@admin.umass.edu. No questions from bidders will be accepted within 5 days of the Bid opening. Questions will be answered in the form of an addendum which will be posted to the Procurement website: http://www.umass.edu/procurement/constructionprojects.htm. Any information provided by other than the designated contact person identified above should be disregarded in the preparation of Bids.

1.5 CONTRACT METHOD

A. Work under this contract shall be lump sum price, for the scopes of work as described in these specifications and shown on the Drawings.

1.6 WORK SEQUENCE

A. The Work will be conducted in the following sequence

B. Start date is set by the execution of the Construction Contract. On site work shall begin on 10 May 2017, completion date is 8:00 AM, 1 August 2017 and is subject to liquidated damages.

C. 1. Any project cost, additional man hours, equipment cost or additional work days beyond the normal work day/week needed to meet the above schedule shall be included in the bid submitted. Meeting the schedule is a condition of the bid and no additional cost will be approved for meeting the scheduled completion date.
   a. Work hours beyond the normal day or week require approval from the UMass project manager.

2. The Contractor and any Sub-contractors will have access to the upper or lower floor by use of the elevator. The entire cab must have protection on all the walls, floor and be maintained at all time.

1.7 SUPERVISION OF WORK

A. The General Contractor shall be held directly responsible for the correct installation of all work performed under this Contract. The General Contractor must make good repair, without expense to the Commonwealth, of any part of the new work, or existing work to remain, which may become inoperative on account of leaving the work unprotected or unsupervised during construction of the system or which may break or
give out in any manner by reason of poor workmanship, defective materials or any lack of space to allow for expansion and contraction of the work during the General Contractor's warranty period, from the date of final acceptance of the work by the University of Massachusetts Amherst (UMA)

B. The General Contractor shall furnish a competent Massachusetts licensed superintendent satisfactory to the UMA Project Manager and to the Designer. The licensed superintendent shall supervise all work under this contract and who shall remain on duty at the site throughout the Contract period while work is in progress.

1. Submit the name and resume of the superintendent for approval to the UMA Project Manager. Include experience with projects of equal size and complexity.

2. Superintendent must be on site (full time) at ALL TIMES when any worker is on site.

1.8 GENERAL CONTRACTOR’S USE OF PREMISES

A. Use of the Site: Limit use of the premises to work in areas inside the building. Coordinate work of all Subcontractors required outside storage. Confine operations to areas within contract limits. Do not disturb portions of the site.

1. Owner Occupancy: Owner will occupancy the 1st floor offices and the Resident Apartment, the adjacent buildings will be used by the public.

2. Driveways and Entrances: Keep driveways and entrances serving the premises clear and available to the Owner, the Owner’s employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials. Schedule all deliveries and demolition materials to enter and exit through the lower level.

3. Areas outside the Immediate Work Area: The Contractor is responsible for clean-up of all debris, dirt and sediment resulting from the construction work.

B. Schedule and perform work to afford minimum of interruption to normal and continuous operation of utility systems. The General Contractor shall submit to UMA and the Designer for approval, proposed schedule for performing work.

C. The General Contractor shall schedule as per Section 015000 - Temporary Facilities and Controls, the shutting down or interrupting any utilities, services or facilities which may affect the operation of the building outside the area of work or other buildings, services or facilities of the UMA.

D. Coordinate with UMA and the Designer, work in connection with adjacent driveways, walks, or other facilities which would prevent access thereto or interrupt, restrict, or otherwise infringe upon the Operating Agency’s use thereof.

E. The General Contractor shall be aware of the sensitivity of the neighborhood organizations to noise, dust, debris, vibration, and site maintenance and take appropriate precautions to avoid conflict.
F. Damage to existing work, if caused by the General Contractor’s operations under this Contract, shall be repaired at the General Contractor’s expense.

1. An existing conditions survey shall be conducted, with the Designer, the UMA Project Manager, and UMA representatives, at which existing conditions will be videotaped by the General Contractor. A copy of the videotape will be provided to the UMA Project Manager.

G. The General Contractor can gain access to the premises during the hours specified below. In addition the General Contractor and his personnel will limit themselves only within the working premises during working hours. If work needs to be scheduled during times other than those listed below, General Contractor shall inform the UMA Project Manager one week prior to work.

1. Deliveries: 7:00 AM to 6:00 PM. General Contractor or Sub-contractor shall be on site to receive materials
2. General Access: 7:00 AM to 6:00 PM during the regular work week

H. Confine operations at the site to areas permitted by:

1. Laws
2. Ordinances
3. Permits
4. Contract Documents
5. Owner’s Regulations

I. If required by UMA or the UMA Project Manager, workers will be required to wear identifying name badges. In secure areas, submit names of workers for clearing by the UMA Project Manager.

J. General Contractor shall supervise the use of the site related to construction and be responsible for correcting any damage identified by the UMA Project Manager to the UMA Project Manager’s satisfaction.

1. An existing conditions survey shall be conducted, with the Designer, The UMA Project Manager, and UMA representatives, at which existing conditions will be videotaped by the General Contractor. A copy of the videotape will be provided to the UMA Project Manager.

K. All available existing utilities adjacent to the construction site will be available for use during construction unless indicated otherwise. Temporary connections to these utilities, all metering, transformers, removal, usage, and their associated costs will be the responsibility of the appropriate Subcontractor.

L. The General Contractor shall verify that Subcontractors have visited the site and included all costs associated with the location of the project, and any restriction or limitations the location of the project may pose.

M. The Subcontractors shall at all times conduct their operations in a courteous, professional manner while on the project or in the vicinity of the project. Harassment, offensive language or behavior will not be permitted on the site.
N. The University of Massachusetts, Amherst can neither accept nor assume responsibility for the security of the Contractor's material or equipment which is lost, stolen or vandalized. The Contractor is advised to exert caution in placement and storage of his equipment and material.

O. Parking: Parking spaces on Campus are very limited and the University will not provide designated parking lot spaces near the construction site for the Contractor’s use. There is NO parking at the site. The Contractor shall contact Parking Services (545-0065) to determine the location of the nearest available parking spaces. The Contractor will be required to pay all fees for parking. The Contractor shall state his/her parking and staging area requirements during the Pre-construction Meeting. The area(s) for materials storage will then be agreed to between the Contractor and the UMA Project Manager. The limits of material storage will be delineated by the Contractor with construction fencing and enforced throughout the Contract. Refer to Section 015000 - Temporary Facilities and Controls for additional requirements.

P. Areas not to be used for storage include the areas under the “drip line” of trees, planting beds, and sidewalks. Install temporary fencing around the drip line of trees and protect vegetation from construction damage. Restoration of the delineated parking and storage area shall be as described in Section 017700 – Contract Closeout. Trailers or storage piles shall not be located over utility lines or their access points.

Q. Radios, tape players, “boom boxes”, or other audio entertainment equipment, including personal entertainment devices, shall not be allowed on the project site.

R. The University of Massachusetts prohibits tobacco use everywhere on campus, inside buildings and throughout the grounds. This policy applies to everyone and anyone on campus, including students, staff, faculty, contractors, and visitors. For the purpose of this policy, ‘tobacco’ refers to any and all tobacco products, whether inhaled or ingested, as well as electronic cigarettes.
   1. The use of tobacco will be prohibited in all buildings and vehicles, regardless of location.
   2. The use of tobacco will also be prohibited on all University grounds and in any outdoor area controlled by the University. This includes all University land, parking lots and parking ramps, athletic fields, tennis courts, and recreational areas.
   3. The use of tobacco is prohibited inside any vehicle located on University grounds.
   4. When any person enters the grounds of the University, any smoking material shall be extinguished and disposed of in an appropriate receptacle at the perimeter of the grounds of the University.

S. The Contractor shall not allow the use of intoxicating beverages or non-prescription controlled substance drugs upon or about the work site.

T. The Contractor shall provide and maintain in good serviceable condition at all times, warning signs and non-combustible barriers, forms and fire resistive tarps or plastic, each of which shall be approved by the University, shall be suitable for the purpose, and shall be installed adjacent to each work area, for complete enclosure and/or isolation of all excavations, wells, pits, manholes, shafts, overhead areas, etc., which are associated with the work under the contract. Barriers shall be a secure fence,
guardrail, cover, or similar assembly designed and erected to provide protection for concrete, protection from the weather, and to prevent accidental access. Barrier tape and/or sawhorses shall not be used as a means of such access protection.

1.9 COORDINATION

A. The General Contractor shall be responsible for the proper fitting of all the work and for the coordination of the operations of all Subcontractors or material and persons engaged upon the work. The General Contractor shall do, or cause his agents to do, all cutting, fitting, adjusting, and repair necessary in order to make the several parts of the work come together properly.

1. Examine Contract Documents in advance of start of construction and identify in writing questions, irregularities or interference to the UMA Project manager in writing. Failure to identify and address such issues in advance becomes the sole responsibility of the General Contractor. A conflict that would cause the reduction of the normal ceiling height of any occupied space is considered to be interference.

B. Execute the work in an orderly and careful manner with due regard to the occupants of the facility, the public, the employees, and the normal function of the facility.

C. The work sequence shall follow planning and schedule established by the General Contractor as approved by the Designer and the UMA Project Manager. The work upon the site of the project shall commence promptly and be executed with full simultaneous progress. Work operations which require the interruption of utilities, service, and access shall be scheduled so as to involve minimum disruption and inconvenience, and to be expedited so as to insure minimum duration of any periods of disruption or inconvenience.

D. The General Contractor shall review the tolerances established in the specifications for each type of work and as established by Subcontractor organizations. The General Contractor shall coordinate the various Subcontractors and resolve any conflicts that may exist between Subcontractor tolerances without additional cost to UMA. The General Contractor shall provide any chipping, leveling, shoring or surveys to ensure that the various materials align as detailed by the Designer and as necessary for smooth transitions not noticeable in the finished work.

1.10 FIELD ENGINEERING

A. NA.

1.11 REFERENCE STANDARDS

A. For products specified by association or trade standards, comply with requirements for the standard, except where more rigid requirements are specified or are required by codes. Refer to Section 014200 - REFERENCES.
B. Where reference is made in the Contractual Documents to Publications and Standards issued by Associations or Societies, the intent shall be understood to specify the current edition of such Publications or Standards (including tentative revision) in effect on the date of the contract advertisement notwithstanding any reference to a particular date.

1.12 PRE-CONSTRUCTION CONFERENCE

A. In accordance with Article V of the CONTRACT AND GENERAL CONDITIONS, a pre-construction conference to review the work will be conducted by the UMA Project Manager.

B. Representatives of the following shall be required to attend this conference:

1. UMA
2. Designer
3. General Contractor
4. All Subcontractors
5. Applicable Municipal Agencies

C. The General Contractor shall have a responsible representative at the pre-construction conference to be called by the UMA Project Manager following the award of the contract, as well as representatives of field or office forces and major Subcontractors. All such representatives shall have authority to act for their respective firms. The pre-construction conference is to be held within five days of Notice to Proceed, or as otherwise determined by UMA.

D. Contact List: The Contractor shall provide to the Designer and UMA Project Manager a list containing the following:

1. Contractor’s name, address, office and cell phone number, fax number, e-mail address and after hours emergency phone number.
2. Contractor’s Superintendent name email address and cell phone number.
3. Each Sub-Contractor’s name, email address, address, office and cell phone number, fax number and description of the products or services they will provide to the project.

E. Agenda: Discuss items of significance that affect progress, including the following:

1. Tentative construction schedule.
2. Phasing.
3. Critical work sequencing.
4. Designation of responsible personnel. The Contractor shall identify a contractor safety representative to interface with the University Construction Safety Officer (CSO). This person may also fill other roles within the contractor’s project area e.g. project manager, superintendent, foreman, etc.
5. Procedures for processing field decisions and Change Orders.
6. Procedures for processing Applications for Payment.
8. Submittal procedures.
9. Preparation of Record Documents.
10. Use of the premises.
11. Safety. The UMA CSO will attend the pre-construction meeting for the purpose of orienting the contractor to policies specific to the University, discuss the contractor's site specific safety plan, as well as to emphasize recognized safety practices expected on campus. The Contractor Safety Representative is responsible to ensuring this information is disseminated to all contractor/subcontractor employees. If the UMA CSO is unable to attend, the UMA CSO may send a designee to cover this portion of the meeting or the UMA CSO and UMA Project Manager will schedule a separate time when this review may be completed.

12. Responsibility for temporary facilities and controls.
14. Office, work, and storage areas.
15. Equipment deliveries and priorities.
16. First aid.
18. Progress cleaning.
19. Working hours.
20. Emergency phone numbers.
21. Payment procedures and Schedule of Values.
22. Material deliveries.

F. Reporting: Minutes of the meeting shall be prepared by the Designer or designated representative and shall be distributed to each party present. The General Contractor shall be responsible for distributing the minutes to all Filed-Sub Contractor.

1.13 PROJECT MEETINGS

A. Project meetings shall be held on a weekly basis and as required subject to the discretion of the UMA Project Manager.

B. Attendees: In addition to the U.M.A. Project Manager and Designer, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.

C. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
   1. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
   2. Review present and future needs of each entity present, including the following:
      a. Interface requirements.
      b. Sequence of operations.
      c. Status of submittals.
d. Deliveries.
e. Off-site fabrication.
f. Access.
g. Site utilization.
h. Temporary facilities and controls.
i. Manpower.
j. Hazards and risks.
k. Progress cleaning.
l. Quality and work standards.
m. Change Orders.
n. Documentation of information for payment requests.

D. As a prerequisite for monthly payments, ordering schedules, shop drawing submitted schedules, and coordination meeting schedules shall be prepared and maintained by the General Contractor and shall be revised and updated on a weekly basis, and a copy shall be submitted to the UMA Project Manager and Designer.

E. In order to expedite construction progress on this project, the General Contractor shall order all materials immediately after the approval of shop drawings and shall obtain a fixed date of delivery to the project site for all materials ordered which shall not impede or otherwise interfere with construction progress. The General Contractor shall present a list and written proof of all materials and equipment ordered (through purchase orders). Such list shall be presented at the meetings and shall be weekly updated.

F. Scheduling shall be discussed with all concerned parties, and methods shall be presented by the General Contractor, which shall reflect construction completion not being deferred or foreshortened. Identify critical long-lead items and other special scheduling requirements. The project schedule is to include time for submission of shop drawing submittals, time for review, and allowance for resubmittal and review.

G. Project meetings shall be chaired by the Designer.

H. Minutes of the project meetings shall be prepared by the Designer and shall be distributed to all present. The Designer’s meeting minutes shall be the only official meeting record. Minutes shall enumerate each topic item, and each topic shall be updated at each progress meeting. Actions to be taken for each topic shall be recorded, along with identification of the party responsible for each action item. Items shall not be removed from the Minutes until all issues with each item have been resolved.

1.14 PERMITS, INSPECTION, AND TESTING REQUIRED BY GOVERNING AUTHORITIES

A. If the Contract Documents, laws, ordinances, rules, regulations or orders of any public authority having any jurisdiction require any portion of the Work to be inspected, tested, or approved, the General Contractor shall give the Designer, the UMA Project Manager or his/her designated representative, and such Authority timely notice (5 business days minimum) of its readiness so the Designer may observe such inspecting, testing, or approval.
B. Prior to the start of construction, the General Contractor shall complete and file an electronic application for each building to the applicable Building Code enforcement authority for a Building Permit(s). Such Permit shall be displayed in a conspicuous location at the project site. The building permit fee shall be paid by the Contractor.

C. Unless otherwise specified under the Sections of the Specifications, the General Contractor shall pay such proper and legal fees to public officers and others as may be necessary for the due and faithful performance of the work and which may arise incidental to the fulfilling of this Contract. As such, all fees, charges, and assessments in connection with the above shall be paid by the General Contractor.

D. The General Contractor shall maintain at the site, for the duration of construction operations, at least one (1) up-to-date copy of all relevant codes and standards listed in the Contract Documents or determined to be applicable to the work. One (1) copy of such codes shall be for the exclusive use of UMA and the Designer and its Consultants, and shall be kept in the General Contractor’s site office.

E. The General Contractor shall furnish and install all information required by the building official and shall secure the general building permit for the work promptly on award of the Contract. The General Contractor shall conform to all conditions and requirements of the permit and code enforcement authority. The General Contractor shall provide names and license numbers of its responsible representatives to complete the application for permit, and shall receive the permit and promptly distribute copies to UMA and the Designer.

F. General Contractor and specialized Subcontractors as applicable shall identify all permits (other than general building permit) required from Authorities having jurisdiction over the Project for the construction and occupancy of the work. The General Contractor shall prepare the necessary applications and submit required plans and documents to obtain such permits in a timely manner, and shall furnish the required information to the Building Official and obtain the required permits as early as practicable after award of the Contract.

1. The General Contractor shall display all permit cards as required by the Authorities, and shall deliver legible photocopies of all permits to UMA’s Project Manager and the Designer promptly upon their receipt.
2. The General Contractor shall arrange for all inspections, testing and approvals required for all permits, and shall notify the Designer and UMA’s Resident Engineer of such inspections at least three (3) business days in advance (longer if so required in the various Sections of the Specifications), so they may arrange to observe.
3. The General Contractor shall comply with all conditions and provide all notices required by all permits.
4. The General Contractor shall perform and/or arrange for and pay all testing and inspections required by the Governing Codes and Authorities, other than those provided by UMA, and shall notify the Designer and UMA’s Resident Engineer of such inspections at least three (3) business days in advance of all such testing or inspection, so they may arrange to observe.
5. Where Inspecting Authorities require corrective work for conformance with applicable Codes and Authorities, the General Contractor shall promptly comply with such requirements, except in cases where such requirements clearly exceed
the requirements of the Contract Documents, in which case the General Contractor shall proceed in accordance with the procedures for modifications or changes in the work established in the Contract Documents, as amended.

G. Prior to the start of construction, the General Contractor shall complete applicable applications, permits, and notifications to the MADEP, such as the Demolition/Construction form BWP AQ-06, and the asbestos notification form ANF-001, and pay the required fees. These forms must be submitted at least 10 working days in advance of any regulated activity on the site. Demolition permits must be submitted for any work involving demolition, new construction and renovation. The University EHS office must be provided copies of any and all notifications.

H. Building permits are required for the installation of office trailers. Trailers must be securely anchored to prevent displacement due to wind.

I. Metal dumpsters of 6 cubic yard aggregate capacity or more, and containing combustible materials, must have a Local Fire Department Permit issued for each location. If the containers are delivered and removed on the same day, no permit is required (527 CMR 34.03).

J. Storage of more than 2500 cubic feet gross volume of combustible or flammable materials in a building will require a permit from the Local Fire Department.

K. Use and storage of more than 10 gal or 42 lbs of Liquefied Propane Gas (LPG) containers on site must be approved by and a permit must be secured through the local Fire Department.

L. Any work involving existing fire protection systems or related equipment (fire alarm, sprinkler, fixed extinguishing system) will require the Contractor to obtain a permit from the local Fire Department. Any work that affects Fire Protection Systems shall require the Contractor to notify the U.M.A. Environmental Health and Safety Department. Any work which disables part or all of a fire protection system for more than 8 hours shall submit impairment plan to the UMA Project Manager, and EH&S.

M. The General Contractor shall be required to keep a copy of the State Building Code (with latest amendments) at the job site at all times.

1.15 CUTTING, CORING, AND PATCHING, UNLESS OTHERWISE INDICATED

A. The General Contractor shall coordinate all cutting, coring, fitting and patching of the work that may be required to make its several parts come together properly and fit it to receive or be received by work of the Subcontractors shown on the Drawings and Specifications.

B. The General Contractor shall coordinate that the work of the Subcontractor is not endangered by any cutting, coring, excavating, or otherwise altering of the work and shall not allow the cutting or altering the work of any Subcontractor except with the written consent of the Designer.
C. Submit a written request to Designer at least three (3) business days in advance of executing any cutting or alteration which affects:

1. Work of UMA or 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.
6. Request shall include:
   a. Identification of the Project.
   b. Description of affected work.
   c. The necessity for cutting, alteration, or excavation.
   d. Effect on work of UMA or any separate General Contractor, or on structural or weatherproof integrity of Project.
   e. Description of proposed work:
   f. Alternatives to cutting and patching.
   g. Cost proposal, when applicable.
   h. Written permission of any separate General Contractor whose work will be affected.
7. Should conditions of Work or the schedule indicate a change of products from original installation, General Contractor shall submit request for substitution.
8. Submit written notice to Designer designating date and time the work will be uncovered a minimum of three business days in advance.

D. Performance:

1. Execute cutting and patching by methods which will prevent damage to other work, and will provide proper surfaces to receive installation of repairs.
   a. 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.
   b. Prior to cutting and structural steel or concrete work, contact Designer and Project Structural Engineer in writing. Do not cut any structural steel and concrete work until approval has been granted by the Designer and the Project Structural Engineer.
2. Employ original installer or fabricator to perform cutting and patching for:
   a. Weather-exposed or moisture-resistant elements.
   b. Sight-exposed finished surfaces.
3. Execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances, and finishes.
4. Restore work which has been cut or removed; install new products matching existing to provide completed Work in accordance with requirements of Contract Documents.
5. Fit work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
6. Patch with seams which are durable and as invisible as possible. Flash and seal all penetration of exterior work. Comply with specified tolerances for the work.
7. Restore exposed finishes of patched areas; and, where necessary extend finish restoration onto retained work adjoining, in a manner which will eliminate evidence of patching.
   a. Where patch occurs in a smooth painted surface, extend final paint coat over the entire unbroken surface containing the patch.

8. Refinish entire surfaces as necessary to provide an even finish to match adjacent finishes:
   a. For continuous surfaces, refinish to nearest intersection.
   b. For an assembly, refinish entire unit.

E. Existing Utilities Services:
   1. Interruptions to critical existing utility services will not be allowed.

1.16 DEBRIS REMOVAL

A. The General Contractor shall coordinate the removal of all demolition and construction waste by the Subcontractor from the job site on a daily basis. Waste shall be segregated for recycling. Debris shall be legally disposed of in a D.E.P. approved disposal site. The site to be used shall be submitted to and approved by the UMA Project Manager prior to the start of construction. All required dumping permits shall be obtained prior to start of construction. General Contractor shall submit receipts from the disposal site(s) as evidence of legal disposal.

B. The General Contractor shall bear responsibility for maintaining the building and site clean and free of debris, leaving all work in clean and proper condition satisfactory to UMA and the Designer. The General Contractor shall ensure that each of the Subcontractors clean up during and immediately upon completion of their work. Clean up includes the following tasks:

1. Remove all rubbish, waste, tools, equipment, appurtenances caused by and used in the execution of work.

C. Prevent the accumulation of debris at the construction site, storage areas, parking areas, and along access roads and haul routes.

D. Provide containers for deposit of debris and schedule periodic collection and disposal of debris.

E. Prohibit overloading of trucks to prevent spillage on access and haul routes.

F. The General Contractor shall be responsible for proper disposal of all construction debris leaving the site.

1.17 FIELD MEASUREMENTS

A. Although care has been taken to ensure their accuracy, the dimensions shown for existing items and structures are not guaranteed. It is the responsibility of the General Contractor to verify these dimensions in the field before fabricating any construction
component. No claims for extra payment due to incorrect dimensions will be considered by the Commonwealth.

1.18 EMERGENCY PROCEDURES

A. The Contractor shall thoroughly familiarize himself (review with U.M.A. Project Manager, E.H. & S., and Public Safety) with U.M.A. Emergency Procedures and inform all subcontractors of same. Note that on campus:

B. Dialing “911” may reach Amherst Police or UMass Police depending on the phone used. Therefore, always identify your location as being as UMass Amherst including the project/building address and/or names of adjacent roads and or buildings.

C. Dialing 5-2121 on a campus phone or 413-545-2121 on an outside phone reaches the UMass Police (General Business). UMass Police can facilitate obtaining necessary services for the emergency.

D. Emergencies: In the event of an emergency on-site, telephone for emergency services (ambulance, fire department or police assistance)

E. Telephone for Emergency Service (See 1.20A above)

F. Call 911 or 545-2121 and inform them if confined space rescue equipment is required or if hazardous material is involved.

G. If live steam, electricity, or other utilities need to be shut off, call the U.M.A. Physical Plant switchboard (545-0600) and ask them to contact the appropriate shop.

H. Make the scene safe.

I. Render First-Aid if possible.

J. Preserve evidence.

K. Call the UMA Project Manager.

L. Call the UMA Project Manager and UMA EH&S (413-545-2682) for any incidents/injuries beyond first aid, including situations that have the potential to cause significant personal injury or damage to UMass property. All spills of hazardous materials regardless of quantity shall be reported to EH&S. The University EHS office is responsible for notifying MADEP if appropriate, and any necessary outside responders, unless the contractor has specified their own responder.

M. Contact the appropriate outside agencies as required by law, including OSHA for fatalities or injuries requiring hospitalization of three or more individuals (by Contractor). All regulatory notifications required for environmental events shall be made by UMA EH&S. Contractors shall report any incident involving a radiographic source to UMA EH&S, the Mass Dept. of Public Health (DPH) and The US Nuclear Regulatory Commission (NRC). Ensure the UMA EHS office is contacted as well for
any of these circumstances.

1.19 SAFETY REGULATIONS

A. This project is subject to compliance with Public Law 91 596 "Occupational Safety and Health Act" latest edition (OSHA 29 CFR 1926), with respect to all rules and regulations pertaining to construction, including Volume 36, numbers 75 and 105, of the Federal Register, as amended, and as published by the U.S. Department of Labor.

B. Submit the name of the General Contractor's safety officer to the UMA Project Manager. Submit copies of safety reports to the UMA Project Manager monthly.

C. Each Contractor/ subcontractor will be responsible to submit a written Safety Program, prior to starting construction, outlining measures they take to cover their operations and protect their employees. Construction Projects will also submit a Site Specific Safety Plan specific to their operations at the University and which address their plan of action for identified and potential environmental, health and safety issues that may arise prior to start of construction. Maintain a written hazard communication program in accordance with OSHA 29CFR 1910.1200. Keep MATERIAL SAFETY DATA SHEETS (MSDS) on site and upon request provide MSDS sheets for materials used in the construction.

C. All accident reports are to be transmitted within 24 hours of occurrence.

D. The Contractor shall immediately notify UMA EH&S if an OSHA, DEP or EPA regulator visits the site.

E. UMA and EH&S personnel shall have the authority to exercise on-site compliance audits on the construction site. Deficiencies discovered during site inspections and visits will be relayed to the contractor's company safety representative and the UMA Project Manager. The contractor will communicate back to the UMA Project Manager and Environmental Health and Safety on the course of corrective action to be taken and the timeline for completion. If during such an audit, in his or her professional opinion, there exists an imminent danger or serious violation of established environment, health and safety standards that could lead to death or serious physical harm, damage to university property or the environment, the University representative has the right to request the immediate halt of such operations.

F. Hazardous Waste Generation: Any work generating Hazardous or so-called Universal Wastes will comply with all requirements of 310 CMR 30.000. The proper storage, use and disposal of any hazardous chemicals or substances brought on site by the Contractor are the responsibility of Contractor. The University will not be responsible for any hazardous materials left on site; the cost to remove these materials will be the Contractor’s responsibility. All hazardous wastes generated as a result of demolition and remodeling shall be contained, collected, segregated, labeled per all applicable federal EPA, Massachusetts DEP, and Federal DOT regulations or other applicable local, state or federal hazardous waste regulations, pending the appropriate disposition. Contractor shall provide for properly packaging hazardous waste, preparing the proper shipping papers, identifying a permitted disposal site, and contacting EH&S at least 24 hours prior to shipment of the waste. EH&S will review
the hazardous waste shipment and sign the paperwork. EH&S must keep the
“Generator” copies of the manifest on file in the EH&S office.

G. The contractor must inform EH&S if they intend to store any type of oil in 55 gallons or
larger quantities so that such storage can be included in the UMass SPCC plan, this
includes oil for equipment, from oil, cutting oil, diesel, gasoline, etc. Spills of any oil
outside to soil, water or ambient air shall be reported to EH&S. Oil is also considered to
be a hazardous waste in the state of MA when it is disposed. All waste oil must be
managed in accordance with the hazardous waste section of this document.

H. Non Destructive Testing: The Contractor shall notify the U.M.A. Project Manager and
the Environmental Health and Safety Department 3 days prior to the use of
radiography or x-ray equipment. The Contractor shall demonstrate safety procedures
acceptable to the University and also provide sufficient personnel to maintain the safety
zone perimeter as required by code. UMA EHS must be contacted to review all
radiography to be performed on campus property before it takes place. In the event of
a failed source, it is the contractor's responsibility to recover a damaged radiography
source, moisture density gauge or other radioactive source used in the construction
industry and to decontaminate any soil, equipment or other university property
contaminated by a failed source.

I. All Hot Works, including cutting, welding, brazing, etc., requires a permit from the UMA
Environmental Health and Safety Dept. (EH&S), located at Draper Hall, (545 2682). A
Hot Works permit is not required for work performed outside (unless it is in a temporary
enclosure such as a tent). Contractor must provide a minimum of one operable fire
extinguisher approved by a recognized testing laboratory and rated for the intended
purpose near each Hot Work operation. At least one employee of the contractor shall
remain on the site for one hour after the hot work has ceased to ensure against the
outbreak of fire.

J. Use of Liquefied Propane Gas (LPG) and containers on site must be approved by and
a permit must be secured through the local Fire Department.
1. Conformance to State Fire Prevention Regulations 527 CMR 6 and National Fire
2. Contractor must provide a minimum of one operable 20 BC rated fire
extinguisher approved by a recognized testing laboratory near each LPG
operation.

K. Use of torches or other flame producing devices for the removal of paint from buildings,
or the application or removal of roofing materials must conform with the State Fire
Marshal's regulations (527 CMR 10.24).
1. Permit must be secured through the local Fire Department and UMA EH&S.
2. An approved and operable fire extinguisher must be kept in the work area
3. At least one (1) workman must remain at the work area for (1) hour after the use
of the torch or flame producing device has ceased.

L. Contractors performing work in buildings that will cause smoke or dust particles to
become airborne must first check for the existence and location of heat or smoke
detectors and other types of fire protection system equipment which may be affected
by the work. UMA EH&S require that smoke detectors be bagged and logged on a
daily basis. Bags must be removed at the end of the day. Notify the U.M.A,
Environmental Health and Safety Fire Prevention officer prior to isolation or deactivation of such equipment.

M. All construction will comply strictly with the Massachusetts State Building Code Article 30 (780 CMR 30): Required fencing, sidewalk sheds, storage of flammables, portable fire extinguishers, fire standpipe operation and rubbish removal will be enforced by Environmental Health & Safety.

N. Confined Space Requirements:
   1. NA

O. Contractors intending to use a device labeled as a CLASS 3 or 4 laser, in the services required under the contract, shall notify the University Representative at least two (2) working days prior to the intended date of use. Utilization of such a device shall meet the Commonwealth of Massachusetts Regulations, under 105 CMR 121.000, entitled RULES AND REGULATIONS RELATIVE TO THE USE OF LASER SYSTEMS, DEVICES OR EQUIPMENT TO CONTROL THE HAZARD OF LASER RAYS OR BEAMS.

1.20 OSHA SAFETY AND HEALTH COURSE DOCUMENTATION

A. OSHA Safety and Health Course Documentation Records: Chapter 306 of the Massachusetts Acts of 2004 requires that everyone employed at the jobsite must complete a minimum 10-hour long course in construction safety and health approved by the U.S. Occupational Safety and Health Administration (OSHA) prior to working at the jobsite. Compliance is required of General Contractors’ and Subcontractors’ on-site employees at all levels whether stationed in the trailer or working in the field. Unless the Massachusetts Attorney General’s office indicates otherwise, this requirement does not apply to home-office employees visiting the site or to suppliers’ employees who are making deliveries.

B. Documentation records shall be initially compiled by the General Contractor and Subcontractors as part of their certified payrolls, and the General Contractor shall create and maintain a copy of the documentation on site at all times. On-site documentation shall be filed in alphabetical order and immediately available to UMA’s Project Manager and OSHA inspectors. Fines imposed for non-compliance shall be promptly paid by the General Contractor at no additional expense to UMA. Delays in the progress of the Work caused by such non-compliance will not be acceptable as the basis for an extension of contract time or change order request.

1.21 DAMAGE RESPONSIBILITY

A. The General Contractor shall repair, at no cost to UMA, any damage to building elements, site appurtenances, landscaping, utilities, etc. caused during demolition operation and work of this Contract.
1.22 OWNER FURNISHED PRODUCTS

A. Products indicated “N.I.C.” (Not in Contract), or “E. O.” (Equipment by Owner), or “O.F.O.I.” (Owner Furnished Owner Installed), or other similar acronyms as defined in the contract documents will be furnished and installed by the Owner. Coordination and provision of service lines for such products shall be included under these Construction Contract Documents, if indicated. Final connections from service lines to equipment will be by the Owner, unless otherwise indicated.

1.23 UMA OCCUPANCY

A. Beneficial Use and Occupancy: Refer to requirements in Section 017700 - CONTRACT CLOSEOUT, Par. 1.6.

B. Use and Occupancy: When the project is Substantially Complete (with all work affecting health, safety, and function totally completed, and with less than one percent (<1%) of the contract value remaining) and ready for Use and Occupancy as determined by the Designer, the UMA Project Manager and the Operating Agency, then the UMA will take control of their building area(s) and be responsible for operating costs and security.

1.24 ASBESTOS AND HAZARDOUS MATERIALS DISCOVERY

A. If unanticipated asbestos-containing materials or other Hazardous Materials not included in Contract are discovered at any time during the course of work, the General Contractor shall cease work in the affected areas only and continue work in other areas, at the same time notify UMA, UMA EH&S and the Designer of such discovery. Do not proceed with work in such affected areas until written instructions are received. If removal is required, payment will be made in accordance with the contract unit prices bid for each respective material. In the absence of unit prices, costs shall be negotiated or otherwise established prior to commencement of removal, in accordance with provisions of the Contract.

B. The UMA Project Manager and UMA EHS will work with the Contractor to initiate removal or encapsulation of the asbestos. An extension of the completion date may be granted equal to the time lost. Proper notification must be made to the MADEP through the ANF-001 form, and the UMA EH&S.

1.25 SPECIAL REQUIREMENTS

A. The General Contractor shall prepare a Health and Safety Plan that addresses protection of employee and public health and safety. The minimum contents of the Plan are specified in Section 013300 – SUBMITTAL REQUIREMENTS.

B. The General Contractor shall be solely responsible for implementing the procedures specified in the Plan.
C. The General Contractor shall make available complete sets of personal protective equipment and clothing to UMA for use during site observations/inspections by UMA and the Designer. These shall be supplied and maintained at no cost to UMA and the Designer, and shall be returned to the General Contractor upon the completion of work, except for disposable protective clothing.

1. The General Contractor shall provide a repository for collection and disposal of health and safety materials. Collection and disposal of contaminated disposable supplies shall be at no additional cost.

1.26 LIST OF DRAWINGS

T-0 Title Sheet
A-1 Demolition Plan
A-2 Room layout Plan, Elevations
A-3 Elevations, Section & Details
A-4 Wall Types, Schedule, Details & Notes
P-1 Plumbing /Demolition Plan and Notes
P-2 Plumbing New Plan and Details

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION
SECTION 013100
PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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.

1.02 SUMMARY

A. This Section includes administrative provisions for coordinating construction operations on the Project including, but not limited to, the following:

1. General project coordination procedures.
2. Administrative and supervisory personnel.
3. Project meetings.
4. Contractor List
5. Punch List Requirements

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Division 1 Section 017700 "Contract Closeout" for coordinating closeout procedures.

1.03 COORDINATION

A. Coordination: The General Contractor shall coordinate construction operations included in various Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.

B. The General Contractor shall be solely responsible for site safety and all construction means, methods, techniques, sequences, and procedures for coordinating all portions of the work under the Contract.

C. The General Contractor shall carefully check his own work and that of the Subcontractors as the work is being performed. Unsatisfactory work shall be corrected immediately.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.

2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

D. When necessary, the Contractor shall prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

E. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's Construction Schedule.
2. Preparation of the Schedule of Values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Change order requests.
7. Project closeout activities.

1.04 COORDINATION DRAWINGS
A. NA.

1.05 ADMINISTRATIVE AND SUPERVISORY PERSONNEL
A. The Contractor shall provide an experienced and responsible licensed project Superintendent. The Superintendent shall be designated by the Contractor as his/her representative and to be in full time attendance at the project site throughout the prosecution and progress of the work.

B. The Contractor shall provide the job Superintendent with a cellular phone, a trailer phone or other means as required allowing for communication with the U.M.A. Project Manager and the U.M.A. Resident Engineer.

C. In addition to the Project Superintendent, provide other administrative and supervisory personnel as required for proper performance of the Work.

1. Include special personnel required for coordination of operations with other subcontractors.

1.06 PROJECT MEETINGS
A. General: Meetings will be held at the Project site, unless otherwise indicated.
1. Attendees: Participants and others involved, and individuals whose presence is required.

2. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned. General Contractor is responsible for distribution to the sub-contractors.

B. Preconstruction Conference: A pre-construction conference shall be scheduled and chaired by the U.M.A. Project Manager before starting construction, the conference shall be held at the Project site or another convenient location. The purpose of the meeting is to review responsibilities and personnel assignments.

1. Attendees: U.M.A. Project Manager, Designer, and their consultants; Contractor and his/her Superintendent; major subcontractors; manufacturers; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.

2. Agenda: Discuss items of significance that affect progress, including the following:
   a) Tentative construction schedule.
   b) Phasing.
   c) Critical work sequencing.
   d) Designation of responsible personnel.
   e) Procedures for processing field decisions and Change Orders.
   f) Procedures for processing Applications for Payment.
   g) Distribution of the Contract Documents.
   h) Submittal procedures.
   i) Preparation of Record Documents.
   j) Use of the premises.
   k) Responsibility for temporary facilities and controls.
   l) Parking and construction limits.
   m) Office, work, and storage areas.
   n) Equipment deliveries and priorities.
   o) First aid.
   p) Security.
   q) Progress cleaning.
   r) Working hours.
   s) Emergency phone numbers.
   t) Payment procedures and Schedule of Values.
   u) Material deliveries.

3. Reporting: Minutes of the meeting shall be prepared by the Designer or designated representative and shall be distributed to each party present. The General Contractor shall be responsible for distributing the minutes to all Sub Contractors.

C. Progress Meetings: Progress meetings shall be held at weekly intervals.

1. Attendees: In addition to the U.M.A. Project Manager and Designer, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these
meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.

2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

   a) Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

   b) Review present and future needs of each entity present, including the following:

      1) Interface requirements.
      2) Sequence of operations.
      3) Status of submittals.
      4) Deliveries.
      5) Off-site fabrication.
      6) Access.
      7) Site utilization.
      8) Temporary facilities and controls.
      9) Manpower.
     10) Hazards and risks.
     11) Progress cleaning.
     12) Quality and work standards.
     13) Change Orders.
     14) Documentation of information for payment requests.

3. Reporting: Project meetings will be chaired by the Designer. Minutes of the project meetings shall be prepared by the Designer or designated representative and shall be distributed to each party present. The General Contractor shall be responsible for distributing the minutes to all Filed-Sub Contractors.

   a) Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

1.07 CONTRACTOR AND SUB-CONTRACTOR LIST:

   A. At the pre-construction meeting the General Contractor shall provide to the Designer and U.M.A. Project Manager a list containing the following:

      1. General Contractors name, address, phone number, fax number, e-mail address and after hours emergency phone number.
2. General Contractors Superintendent name and cell phone number.

3. Each Sub-Contractors name, address, phone number, fax number and description of the products or services they will provide to the project.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100
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 REQUIREMENTS INCLUDED
   A. Procedures and requirements for submission and review of progress schedules and reports.

1.3 RELATED SECTIONS
   A. CONTRACT AND GENERAL CONDITIONS
      1. Failure to complete the Work on time - liquidated damages.
   B. Section 011000 – SUMMARY
      1. Project meetings.
   C. Section 013300 - SUBMITTAL REQUIREMENTS
      1. Project reports.
      2. Schedule of values.
      3. Shop drawings, product data, and samples.
   D. Section 015000 - TEMPORARY FACILITIES AND CONTROLS

1.4 CONSTRUCTION SCHEDULE
   A. General Contractor shall prepare and submit for Designer and UMA’s information, a Progress Schedule for the work of the project. Said schedule will be coordinated with the Designer’s Work Plan to include sequencing of the project work.
B. Schedule shall be updated weekly and submitted at the weekly project meeting for review.

C. Progress Payments to General Contractor
   a. The Construction Schedule shall be an integral part and basic element of the estimate upon which progress payments shall be made. The General Contractor shall be entitled to progress payment only upon approval of estimates as determined from the currently approved updated computer-produced schedule. Payments will be made against activity items shown on the computer-produced schedule and as reflected on UMA approved format payment forms which shall be used. The General Contractor shall produce the Schedule of Values and the Standard Payment forms by following the guidelines of UMA staff. This shall include entering the Net Amount Paid to Subcontractors against the appropriate activities.

   1) **Contract time can only be extended by authorized approved change order.**

   b. Whereas time is of the essence in the performance of work under the contract, each request for change in any contract completion date shall be submitted by the General Contractor to UMA at the time an alleged delay occurs. Failure to notify UMA of any delay as provided in the contract shall preclude the General Contractor from subsequently claiming any damages due to said delay.

   c. For purposes of scheduling, the project will be considered to be Substantially Complete when all work affecting health, safety and function is totally completed, and with less than one [1] percent of the base contract value remaining, and ready for complete Use and Occupancy as determined by the UMA Project Manager, the Operating Agencies (individually or collectively), and the Designer. Then the User Agencies (individually or collectively) will take control of their building area(s) and be responsible for operating costs and security. Final punch lists will be established and monetized at this time.

   1) UMA Certificate of Use and Occupancy must be issued for partial Use and Occupancy, contingent upon conditions set forth by the Building Official having jurisdiction. The Massachusetts Department of Public Safety Occupancy Certificate must be issued by the effective Substantial Completion date.

   2) The General Contractor shall have the number of calendar days stated in the contract, from the date of the UMA Notice to Proceed, to complete all the work before Substantial Completion is achieved. If the General Contractor fails to complete the work within the contract completion time frame so stated, the General Contractor shall be subject to the assessment of liquidated damages.
PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION
DIVISION 01 GENERAL REQUIREMENTS

SECTION 013300

SUBMITTAL REQUIREMENTS

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 apart of this Section of the Specifications.

1.2 REQUIREMENTS INCLUDED

A. Shop drawings, products data, samples, submittal logs (shop drawings and samples, RFI, NOI, PCO, CO and SK drawings), weather protection (if applicable) and schedule of values.

1.3 SHOP DRAWINGS, PRODUCTS DATA, AND SAMPLES

A. General:

1. Review and submit to the Designer and where outlined below to the UMA Project Manager, shop drawings, project data and samples required by Specifications Sections in hard and electronic copies.
2. No submissions made by FAX will be accepted.
3. The General Contractor, within the time frame stated and after the Pre-Construction Meeting, shall prepare and submit for the Designer and the UMA Project Manager's approval, a Schedule of Shop Drawings, Product Data and Samples required to be submitted for the Work. The schedule shall indicate, by Subcontractor, the date by which final approval of each item must be obtained, and shall be revised as required by conditions of the Work, subject to the UMA Project Manager's approval. The Schedule of Shop Drawings, Product Data and Samples shall correspond with the construction schedule so that the submissions relate to the time when the products and/or systems will be required on the site. Neither the Designer nor the UMA Project Manager will approve a schedule that calls for out-of-sequence submittals.

B. Shop Drawings:

1. Original drawings shall be prepared by General Contractor, Subcontractor, Supplier or Distributor, which illustrate some portion of the Work, showing fabrication, layout, setting, or erection of details.
   a. Shop drawings shall be prepared by a qualified detailer.
b. Details shall be identified by reference to sheet and detail numbers indicated on Contract Drawings.

c. Maximum sheet size shall be 30-inch by 42-inch.

d. Submit with the required number of opaque prints specified or electronic media herein.

C. Product Data:

1. Manufacturers' catalog sheets, brochures, diagrams, schedules, performance charts, illustrations, and other standard descriptive data. Provide manufacturer's catalogue sheet, specification for each product and other pertinent data as required under the individual specification.
   a. Modify product data submittals to delete information which is not applicable to the project.
   b. Supplement standard information to provide additional information applicable to the project.
   c. Clearly mark each copy to identify pertinent materials, products, or models.
   d. Show dimensions and clearances required.
   e. Show performance characteristics and capacities.
   f. Show wiring diagrams and controls.

2. All such data shall be specific and identification of material or equipment submitted shall be clearly made in ink. Data of general nature will not be accepted.

3. Product Data shall be accompanied by transmittal notice. The General Contractor's stamp of approval shall appear on the printed information itself.

4. Submit the information listed above in both hard and electronic format.

D. Samples:

1. Physical samples shall illustrate materials, equipment, or workmanship, and shall establish standards by which work is judged. After review and approval, samples may be used in construction of project if not retained for comparison
   a. Office samples of sufficient size and quantity shall clearly illustrate:
      1) Functional characteristics of product or material, with integrally related parts and attachment devices.
      2) Full range of color samples (including standard and premium ranges).
      3) After review and approval by Designer and the UMA Project Manager, samples may be used in construction of project if not retained for comparison.
   b. Field Samples and Mock-ups
      1) Erect at project site at locations acceptable to the Designer and the UMA Project Manager.
      2) Construct each sample of mock-up complete, including work of all Subcontractors required in finished work. Samples shall be incorporated into a larger mock-up with varied products and Subcontractors if required.

2. Unless otherwise specified in the individual Section, the General Contractor shall submit two labeled specimens of each Sample.

3. Samples shall be of adequate size to permit proper evaluation of material. Where variations in color or in other characteristics are to be expected, samples
shall show the maximum range of variation. Materials exceeding the variation of the approved samples will not be approved on the Work.

4. Samples which can be conveniently mailed shall be sent directly to the Designer, accompanied by transmittal notice. On the transmittal notice the General Contractor shall stamp his approval of Samples submitted.

5. All other Samples shall be delivered at the field office of the UMA Resident Engineer with Sample identification tag attached and properly filled in. Transmittal notice of Samples so delivered with the General Contractor's stamp of approval, shall be mailed concurrently to the Designer and the UMA Project Manager to confirm their receipt thereof.

6. If Sample is rejected by the Designer, a new Sample shall be resubmitted in the manner specified herein above. This procedure shall be repeated until the Sample is approved in writing by the Designer.

7. Samples will not be returned unless return is requested at the time of submission. The right is reserved to require submission of Samples whether or not specified in the Specifications, at no additional cost to the Commonwealth.

1.4 GENERAL CONTRACTOR'S RESPONSIBILITIES:

A. Review shop drawings, Product Data and Samples prior to submission. Verify:

1. Field measurements.
2. Field construction criteria.
3. Catalog numbers and similar data.
4. Conformance with Specifications.
5. Integration with adjoining work.
6. Delivery schedule.
7. Is the product an equal to the product specified or a substitution? If either of these occur a comparison sheet must be submitted comparing the proposed product to the product specified.

B. All shop drawings prepared by Subcontractors shall be processed through the General Contractor. The General Contractor shall check all the shop drawings for conformity with the Contract Documents and particularly for field measurements and proper fit with adjoining work prior to submitting same to the Designer for approval. Certification shall appear on each shop drawing stating that the General Contractor has made his/her check. Format and content of the General Contractor’s certification stamp shall be subject to approval by the UMA Project Manager and the Designer and shall include, but not be limited to:

1. The Term "By Others" shall not be used on shop drawings, the General Contractor shall state by who related items are to be furnished and/or installed.
2. The Designer reserves the right to reject and return to the General Contractor, without examination, any shop drawings which have not been previously checked and certified as outlined above, which carry the term "by other" or such vague reference, which are difficult to read, which have arrived by FAX or which in any way are obviously not in conformity with Contract Requirements.
3. Shop drawings shall show materials, design, dimensions, connections and other details necessary to ensure that they accurately interpret the Contract.
Documents and shall also show adjoining work in such detail as required to provide proper connection with same.

4. The Designer will check and approve shop drawings only for conformance with the design concept and for compliance with information given in the Contract Documents. Approval of shop drawings by the Designer will not release the General Contractor from his responsibility for furnishing same of proper dimensions, size quantity and quality to effectively perform the work and carry out the requirements and intent of Contract Documents.

5. Such approval will not relieve the General Contractor from responsibility for errors of any sort in the shop drawings, nor for the proper coordination of any submittal with all other work. If the shop drawings deviate, or are intended to deviate, from the Contract Documents, the General Contractor shall so advise the Designer in writing at the time the shop drawings are submitted, stating the difference in value between the Contract requirements and that denoted by said shop drawings.

6. The General Contractor shall assume full liability for delay attributed to insufficient time for delivery and/or installation of material or performance of the work when approval of pertinent shop drawing is withheld due to the failure of the General Contractor to submit, revise, or resubmit shop drawings in adequate time to allow the Designer and the UMA Project Manager a reasonable time, not to exceed twenty-one (21) calendar days, for normal checking and processing of each submission or resubmission.

C. Coordinate each submittal with requirements of Contract Documents.

D. The General Contractor's responsibility for errors and omissions in submittals is not relieved by the Designer's review and approval of submittals, unless Designer gives tentative written acceptance of specific deviations identified as such by the General Contractor, subject to written concurrence by the UMA Project Manager.

E. Notify the Designer in writing at the time of submission, of deviations in submittals from requirements of Contract Documents or previous submissions.

F. Work that requires submittals shall not commence unless submitted with Designer's stamp and initials or signature indicating review and approval, and UMA Project Manager's initials or signature of concurrence indicate review and approval.

1. No work shall be started in the shop or on the job, or materials delivered to the site, until pertinent shop drawings have been approved by the Designer and the UMA Project Manager.

G. After aforesaid review and approval, distribute copies.

H. Maintain one (2) copies of each approved submittal at the project site. One for the General Contractor and one for the UMA resident.

1.5 SUBMISSION REQUIREMENTS:

A. General: All submittals shall be made to the Designer’s Office. The quantity and make-up of submittals shall be as established by the Designer; however, two (2)
additional copies of all submittals shall be transmitted to the UMA Project Manager at the same time that such submittals are transmitted to the Designer. The Designer will log and distribute submittals for review by his consultant engineers. The General Contractor shall distribute all Civil, Structural, and MEP shop drawings directly to the Designer. All submittals shall be in both hard and electronic copies.

B. Make submittals promptly in accordance with approved schedules, and in such sequence as to cause no delay in the work.

C. Submit number of samples specified in each Section of the Specifications.

D. Submittals shall include:

1. Date and revision dates.
2. Project title and number.
3. The names of:
   a. Designer;
   b. General Contractor;
   c. Subcontractor;
   d. Supplier;
   e. Manufacturer;
   f. Separate detailer when pertinent.
4. Identification of product or material.
5. Location of work and relation to adjacent structure or materials.
6. Field dimensions clearly identified as such.
7. Specification Section number and specific paragraph under which item is specified.
8. Submission number.
9. Applicable standards, such as ASTM number.
10. A blank space, five-inch by four-inch, for the Designer’s stamp.
11. General Contractor’s remarks. Identify exceptions or deviations from Contract Documents and reasons for them.
   a. If shop drawings submitted by the General Contractor indicate a departure from the Contract and the Designer deems it to be minor adjustment in the interest of UMA (subject to concurrence by the General Contractor stating it does not involve a change in Contract Price or extension of time), the Designer may approve the submission, but the approval shall be subject to UMA review and acceptance of the Designer’s recommendation.
   b. The approval of UMA shall be inferred to contain in substance the following: The change is so ordered with the understanding that it does not involve any change in the Contract Price or Time, and that it is subject generally to all contract stipulations and covenants, and is without prejudice to any and all rights of UMA under the Contract.
12. General Contractor’s stamp, initialed or signed certifying review and approval of submittal.
13. Any other items as called for by the Designer, the UMA Project Manager or required by the manufacturers.
14. The Designer reserves the right to ask for shop drawings for any or all items on the project, whether or not requested in individual specification sections, at no additional cost to the Commonwealth.
1.6 RESUBMISSION REQUIREMENTS:

A. Resubmission: Resubmission procedure shall follow the same procedures as the initial submittal with the following exceptions:

B. Shop Drawings:

1. Transmittal shall contain the same information as the first transmittal except that the submission number shall change sequentially. The drawing number/description shall be identical as the first transmittal but the date shall be the revised date for that submission.
2. No new material should be included on the same transmittal for the resubmission.
3. Indicate on drawings any changes which may have been made other than those requested by the Designer.

C. Product Data and Samples:

1. Submit any new data and samples as required from previous submittal.

1.7 THE UMA PROJECT MANAGER'S AND DESIGNER'S REVIEWS AND DISTRIBUTION OF SUBMISSIONS

A. The UMA Project Manager and/or his/her designees will review submittals concurrently with the Designer and his/her consultant engineers. The Designer and the UMA Project Manager shall communicate within the aforesaid review period time frame (21 calendar days). The time frame for the Designer's review will not exceed fourteen (14) calendar days between her/his receipt of submittal and contacting the UMA Project Manager. After the Designer's (and his/her consultant engineers) review, distribution shall be as stated herein.

1. If submittal is 'reviewed - no exceptions taken', or 'reviewed, make corrections noted', the UMA Project Manager shall compose a transmittal indicating the status. The UMA Project Manager will then return one (1) copy of the submittal together with the transmittal to the Designer, and shall retain one (1) copy for her/his records. The Designer shall copy and attach the UMA Project Manager's transmittal to each submittal, stamp the submittals in concurrence with the status agreed to, and transmit back to the General Contractor, with one (1) copy sent directly to the UMA Resident Engineer. The General Contractor shall then distribute said submittals to appropriate Subcontractors, and one (1) copy to the UMA Resident Engineer.

2. If submittal is 'reviewed - revise and resubmit' or 'rejected', the UMA Project Manager shall compose a transmittal indicating the status. The UMA Project Manager will then return one (1) copy of the submittal together with the transmittal to the Designer, and shall retain one (1) copy for her/his records. The Designer shall copy and attach the UMA Project Manager's transmittal to each submittal, stamp the submittals in concurrence with the status agreed to, and transmit back to the General Contractor for resubmission. A copy of the transmittal, indicating that a submittal was disapproved and returned to the General Contractor, will be forwarded from the Designer to the UMA Project
Manager with an additional copy forwarded from the Designer to the UMA Resident Engineer, for their records.

3. If a submittal is ‘reviewed - no exceptions taken’ or reviewed, make corrections noted’ by the Designer, or approved as noted by the Designer, but the UMA Project Manager does not concur, a meeting between the Designer and the UMA Project Manager will immediately be established to resolve the impasse within the overall review period time frame (21 calendar days). The UMA Project Manager will have final authority as to the disposition of the submission. The Designer’s position of approval (or disapproval) must be based on the contractual criteria of design intent, function, structure, and durability. The UMA Project Manager’s contrary position must also be based on these criteria.

4. The combined review period, for the Designer and the UMA Project Manager, will not exceed twenty-one (21) calendar days from the established date of each submission indicated on the Schedule of Shop Drawings, Product Data and Samples, plus the additional time, if any, for distribution by the General Contractor and receipt of submissions by the Designer and UMA Project Manager. The General Contractor is required to anticipate review time, including time for possible rejection and resubmission, in establishing Schedule dates.
   a. The aforementioned time provided the Designer for checking shop drawings is from the date of receipt of shop drawings by the Designer to the mailing date of shop drawings returned to the General Contractor by the Designer.

5. The Designer will process the submission and indicate the appropriate action on the submission and the transmittal. Incomplete or erroneous transmittals will be returned without action.

6. The Designer will fill out transmittal in the following sequence:
   a. Date received from General Contractor.
   b. Date forwarded to UMA Project Manager.
   c. Date received from UMA Project Manager.
   d. Date returned to General Contractor.
   e. Action taken on submission.
   f. Distribution, including number of copies distributed and type of material distributed (i.e., print, brochure or sample, etc.).
   g. Designer’s remarks (note major deviations from the Contract Documents).

B. Designer’s Review Procedure:

1. Stamped REVIEWED, “NO EXCEPTIONS TAKEN”:
   a. No corrections or resubmissions required, fabrication may proceed.

2. Stamped REVIEWED, “MAKE CORRECTIONS NOTED”:
   a. If General Contractor complies with noted corrections, fabrication may proceed. Submit corrected print for final review.
   b. If, for any reason, the General Contractor cannot comply with the noted corrections, fabrication shall not proceed and General Contractor shall resubmit, following procedures outlined in this Section.

3. Stamped REVIEWED, “REVISE AND RESUBMIT” OR “REJECTED”:
   a. General Contractor shall revise and resubmit for review. Fabrication shall not proceed.

C. Manufacturer’s Instruction
1. When required in individual Specification Section, submit manufacturer’s printed instructions for delivery, storage, assembly, installation, start-up, adjusting and finishing, in quantities specified for product data., with two (2) additional copies submitted to the UMA Project Manager and one (1) copy to the UMA Resident Engineer.

D. Certificates of Compliance: Submit certificates of compliance with the associated Shop Drawings, Product Data, and Samples required for the product in quantities specified for certificates of compliance, with two (2) additional copies submitted to the UMA Project Manager and one (1) copy to the UMA Resident Engineer.

E. Field Samples: Provide field samples of finishes at the project as required by individual Specification Section. Install sample complete and finished.

F. Patterns and Colors: Submit accurate color charts and pattern charts to the Designer for review and selection whenever a choice of color or pattern is available in a specified product, unless the exact color and pattern of a product are indicated in the Contract Documents. Color and Pattern charts shall represent the manufacturer’s complete standard offerings, except where Specifications limit the offerings by defining a particular series or product type which is normally limited in color and pattern availability. Color and Pattern charts shall be submitted in quantities specified with two (2) additional copies submitted to the UMA Project Manager and one (1) copy to the UMA Resident Engineer.

1.8 SCHEDULE OF VALUES

A. Prior to the first request for payment, the General Contractor shall submit to the Designer and the UMA Project Manager, a Schedule of Values of the various portions of the Work in sufficient detail to reflect various major components of each Subcontractor, including quantities when requested, aggregating the total contract sum, and divided so as to facilitate payments for work under each Section. The schedule shall be prepared in such form as specified or as the Designer or the UMA Project Manager may approve, and it shall include data to substantiate its accuracy. Each item in the Schedule of Values shall include its proper share of overhead and profit. This schedule, including breakdown and values, requires the approval of the Designer and the UMA Project Manager and shall be used only as a basis for the General Contractor's request for payment.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION
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 that are hereby made a part of this Section of the Specifications.

1.2 SUMMARY

A. Furnishing all labor, materials, and equipment and perform all work required for the prevention of environmental pollution in conformance with applicable laws and regulations, during and as the result of construction operation under this Contract. For the purpose of this Section, environmental pollution is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to man; or degrade the utility of the environment for aesthetic and/or recreational purposes.

B. The control of environmental pollution requires consideration of air, water, and land, and involves management of runoff, dust, noise, and solid waste, as well as other pollutants. Work shall include installing, maintaining, and removing sedimentation and erosion control components within the Limits of Work.

1.3 SECTION INCLUDES

A. Applicable Regulations

B. Notifications

C. Protection of Groundwater

D. Protection of Streams And Wetlands

E. Protection of Land Resources

F. Protection of Air Quality

G. Maintenance of Pollution Control Facilities During Construction

H. Noise Control

I. Diesel Equipment Emission Controls
J. Spill And Discharge Control

1.4 RELATED SECTIONS

A. Section 015000 - TEMPORARY FACILITIES AND CONTROLS:

B. Section 024100 – SELECTIVE DEMOLITION:

1.5 APPLICABLE REGULATIONS

A. The General Contractor shall comply with all applicable Federal, State and local laws and regulations concerning environmental pollution control and abatement.

B. Fines and related costs resulting from failure to provide adequate protection against any environmentally objectionable acts and corrective action to be taken are the obligations of the General Contractor.

1.6 NOTIFICATIONS

A. UMA may notify the General Contractor in writing of any non-compliance with the foregoing provisions or of any environmentally objectionable acts and corrective action to be taken. State or local agencies responsible for verification of certain aspects of the environmental protection requirements may notify the General Contractor in writing, through UMA, of any non-compliance with State or Local requirements. After receipt of such notice from UMA or from the regulatory agency through UMA, the General Contractor shall immediately take corrective action. Such notice, when delivered to the General Contractor or his/her authorized representative at the site of the Work, shall be deemed sufficient for the purpose. If the General Contractor fails or refuses to comply promptly, UMA may issue an order stopping all or part of the Work until satisfactory corrective action has been taken. No part of the time lost due to any such stop orders shall be made the subject of a claim for extension of time or for excess costs or damages by the General Contractor unless it is later determined that the General Contractor was in compliance.

PART 2 - PRODUCTS

2.1 WATER

A. Water used for dust control and equipment washes shall be clean and free of salt, oil, and other injurious materials. The General Contractor shall provide all necessary water.

2.2 ONSITE SPILL KIT

A. The General Contractor shall provide the following minimum equipment to be kept onsite at all times during site work activities for any unexpected spills or discharges:

1. Sand, clean fill and absorbent pillows,
2. Four drums (55 gallon, U.S. DOT 17-E or 17-H),
3. Shovels, and
4. Steam cleaner for decontamination of tools and equipment.

PART 3 - EXECUTION

3.1 PROTECTION OF GROUNDWATER

A. Care shall be taken to prevent, or reduce to a minimum, any discharges to the ground of liquids that may infiltrate to the underlying groundwater or enter on-site waterways. Water that has been used for washing or processing, or that contains oils or sediments that will reduce the quality of the groundwater or waterway shall not be discharged from the Site. Such waters shall be collected and disposed of by the General Contractor in accordance with all applicable Federal, State and local regulations.

3.2 PROTECTION OF STREAMS AND WETLANDS

A. Care shall be taken to prevent, or reduce to a minimum, any damage to any wetland from pollution by debris, sediment, or other material. Manipulation of equipment and/or materials in delineated wetland areas is prohibited. Water that has been used for washing or processing, or that contains oils or sediments that will reduce the quality of the water in downstream waters of the State, shall not be discharged from the Site. Such waters shall be collected and disposed of by the General Contractor in accordance with all applicable Federal, State and local regulations.

3.3 PROTECTION OF LAND RESOURCES

A. Land resources within the project boundaries and outside the limits of permanent work shall be restored to a condition, after completion of remediation activities that will appear to be natural and not detract from the appearance of the project. Confine all construction activities to Limits of Work areas shown on the Drawing.

B. Outside of the Limits of Work as shown on the Drawing, do not deface, injure, or destroy trees or shrubs, nor remove or cut them without prior approval. Snow fence or other approved equal shall be erected at the “fall line” of the tree canopy, and no vehicles or storage will be permitted within, to prevent damage to trees.

C. The locations of storage and other facilities, required in the performance of the Work, shall not be within wetlands or resource areas.

3.4 PROTECTION OF AIR QUALITY

A. Burning – The use of burning at the project site for the disposal of refuse and debris will not be permitted.

B. Dust Control – Maintain all demolition excavations, stockpiles, waste areas, and all other work areas within or without the project boundaries free from dust which could
cause the standards for air pollution to be exceeded (MADEP 310 CMR 7.09-7.10) and which would cause a hazard or nuisance to others.

C. The General Contractor shall provide adequate means for the purpose of preventing dust and odor caused by construction operations throughout the period of the construction contract. If UMA or the Designer indicates that the level of dust or odors is unacceptable, the General Contractor shall employ measures necessary to reduce dust or odors to an acceptable level.

D. The General Contractor shall implement engineering controls (e.g. watering, misting) to control dust whenever required by the Designer or UMA.

3.5 MAINTENANCE OF POLLUTION CONTROL FACILITIES DURING CONSTRUCTION

A. During the life of this Contract, maintain all facilities constructed for pollution, erosion, and sedimentation control as long as the operations creating the particular pollutant area being carried out.

3.6 NOISE CONTROL

A. The General Contractor shall develop and maintain a noise-abatement program and enforce strict discipline over all personnel to keep noise to a minimum. Local noise ordinances shall govern.

B. The General Contractor shall execute construction work by methods and by use of equipment which will reduce excess noise.

C. Equipment shall be equipped with silencers or mufflers designed to operate with the least possible noise in compliance with Federal and State regulations.

D. The General Contractor shall manage vehicular traffic and scheduling to reduce noise.

END OF SECTION
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 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract including, but not limited to, the following:

1. UMA.
2. The Designer (the Architect-of-Record or Engineer-of-Record as applicable).
3. The UMA Project Manager.
4. The UMA Resident Engineer.
5. Owner.
6. The Contractor.

B. "Reviewed": When used to convey Designer's action on Contractor's submittals, applications, and requests, "reviewed" is limited to Designer's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Designer. Other terms including "requested," "authorized," "selected," "approved," "required," and "permitted" have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
H. "Provide": Furnish and install, complete and ready for the intended use.

I. "Project Site": Space available for performing construction activities subject to Owner approval. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents, unless otherwise indicated.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source, and have available on site for reference.

1.4 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale Research's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."

AA Aluminum Association, Inc. (The)
AAMA American Architectural Manufacturers Association
AASHTO American Association of State Highway and Transportation Officials
ABAA Air Barrier Association of America
ACI ACI International (American Concrete Institute)
AGC Associated General Contractors of America (The)
AIA American Institute of Architects (The)
AISC American Institute of Steel Construction
AISI American Iron and Steel Institute
ALSC American Lumber Standard Committee, Incorporated
AMCA Air Movement and Control Association International, Inc.
ANSI American National Standards Institute
APA APA - The Engineered Wood Association
ARMA Asphalt Roofing Manufacturers Association
ASCE American Society of Civil Engineers
ASHRAE American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASME ASME International
(The American Society of Mechanical Engineers International)
SSINA  Specialty Steel Industry of North America
SSPC  SSPC: The Society for Protective Coatings
TCA  Tile Council of America, Inc.
UL  Underwriters Laboratories Inc.
USGBC  U.S. Green Building Council
WCLIB  West Coast Lumber Inspection Bureau
WDMA  Window & Door Manufacturers Association
       (Formerly: NWWDA - National Wood Window and Door Association)
WWPA  Western Wood Products Association

B. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of current edition of Codes in the Commonwealth of Massachusetts.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION
DIVISION 01 GENERAL REQUIREMENTS

TEMPORARY FACILITIES AND CONTROLS

SECTION 015000

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 REQUIREMENTS INCLUDED

A. Temporary Water
B. Weather Protection
C. Heating During Construction
D. Temporary Power
E. Hoisting Equipment and Machinery
F. Staging
G. Maintenance of Access
H. Dust Control
I. Noise Control
J. Indoor Air Quality Management
K. Enclosures
L. Cleaning During Construction
M. Field Offices
N. Sanitary Facilities
O. Telephone Service
P. Site Enclosure Fence
Q. Parking
R. Safety Protection
S. Vehicle and Equipment Protection
T. Shoring
U. Construction Aids
V. Delivery of Materials
W. Shut Down Notice
X. Construction Cores
Y. Barricades, Warning Signs and Lights
Z. Covered Walkways

1.3 TEMPORARY WATER

A. Water will be furnished by the University for work within the building, water for site work will be provided by the General Contractor.

B. Water shall be distributed by means of connections to the permanent service lines that are to be installed at the expense of the Contractor.

C. Any temporary hoses and pipe lines and connections from the permanent service lines necessary for the use of the General Contractor and his Subcontractors shall be installed, protected, and maintained at the expense of the General Contractor.

D. Temporary hoses and temporary pipe lines used for transporting water shall not be run unattended or unprotected across parking areas, parking area entrance, walkways, plazas, or steps. Temporary hoses and temporary pipelines shall not be permitted to be installed along, through or across corridor and occupied rooms or spaces.

E. The General Contractor shall provide an adequate supply of drinking water from approved sources of acceptable quality, satisfactorily cooled, for his employees and those of his Subcontractors.

F. Use of the water may be discontinued by the University if, in the opinion of the UMA Project Manager, it is wastefully used.

1.4 WEATHER PROTECTION

A. NA.
1.5 HEATING DURING CONSTRUCTION

A. NA.

1.6 TEMPORARY POWER

A. The University will provide electrical energy required for temporary light and power. The Contractor is required to provide temporary feeders of sufficient capacity, to provide for the electric light and power requirements of the project while under construction. Use of the electrical energy may be discontinued by the University, if, in the opinion of the U.M.A. Project Manager it is wastefully used. Then, the University will direct the General Contractor to pay for the furnishing and installing, a watt-hour demand meter and associated current transformers and if required, potential transformers to measure energy consumed from the University. The General Contractor shall pay for the energy consumed from the University for the Remainder of the construction period.

B. Any temporary wiring of a special nature, shall be provided and paid for by the contractor requiring it, such as:

1. Special circuits required by electric welders, elevators, lifts or other special equipment requiring high-amperage and/or special voltage service, etc.
2. Exterior lighting circuits for protection against vandalism, public warning lights, lights for advertising, and similar items.

C. The Contractors shall furnish all extension cords, sockets, motors, and accessories required for their work. They shall also pay for all temporary wiring of construction offices and buildings used by them.

D. All temporary wiring installed shall be removed after it has served its purpose. Use copper wire only.

E. All relocations of temporary service to meet construction and/or phasing requirements shall be performed at no additional cost to the University.

1.7 HOISTING EQUIPMENT AND MACHINERY

A. All hoisting equipment and machinery required for the proper and expeditious prosecution and progress of the work shall be furnished, installed, operated and maintained in safe condition by the General Contractor for the use of all Subcontractors’ material and/or equipment delivered to the designated hoisting area except that which is specifically required to be provided by the Subcontractors themselves and is so stated in each appropriately related Section of the Specifications. All costs for hoisting operating services shall be borne by the General Contractor unless specifically accepted in the Contract Documents.

B. A licensed equipment manufacturer’s representative shall be present at all times, to witness the erection and dismantling of all hoisting equipment and machinery, whenever
such equipment is being erected or dismantled. No such work will be performed without the presence of such representative.

1. Hoisting equipment and machinery erection and dismantling shall be performed only by trained, certified and experienced riggers qualified to perform such work.

1.8 STAGING

A. All staging required to be over eight feet in height, shall be furnished and erected by the General Contractor and maintained in safe condition by him without charge to and for the use of all trades as needed by them for proper execution of their work, except where specified to the contrary in any filed sub-bid Section of the Specification.

1. Erection and dismantling of staging shall be performed only by trained, certified, and experienced staging personnel qualified to perform such work.

1.9 MAINTENANCE OF ACCESS

A. The General Contractor shall provide and maintain for the duration of his contract, a means of access to, around and within the site, for vehicular traffic and authorized personnel. This means of access shall be construed to sustain the weight of equipment customarily engaged for use in construction projects of this type and magnitude. The General Contractor shall, without additional compensation from the University, furnish labor and materials as may be required from time to time to maintain this means of access in an acceptable condition as determined by the Designer. Pedestrian access shall provide adequate protection against falling debris, slippage, adequate lighting, warning and directional signs, and protection against construction activities.

1.10 DUST CONTROL

A. The General Contractor shall provide adequate means for the purpose of preventing dust caused by construction operations from creating a hazard, nuisance, and from entering adjacent occupied areas throughout the period of the construction contract.

B. This provision does not supersede any specific requirements for methods of construction or applicable general conditions set forth in the Contract Articles with added regard to performance obligations of the General Contractor.

C. Existing smoke and heat detectors shall be bagged and each day in the work area and removed at the end of each day. The general contractor shall keep a log on site of when a unit is out of service.

D. All dumpsters will have dust cover covering the entire dumpster at all times.

1.11 NOISE CONTROL

A. Work must be scheduled and performed in such a manner as to not interfere with the operations of the University. Construction work that is deemed by the U.M.A. Project
Manager to be excessively noisy will be required to be done during non-normal working hours and at no additional expense to the University.

B. Comply with requirements of authorities having jurisdiction. Develop and maintain a noise-abatement program and enforce strict discipline over all personnel to keep noise to a minimum.

C. Execute construction work by methods and by use of equipment which will reduce excess noise.
   1. Equip air compressors with silencers, and power equipment with mufflers.
   2. Manage vehicular traffic and scheduling to reduce noise.
   3. No heavy equipment may be started or idled before 7:00 A.M.

1.12 INDOOR AIR QUALITY MANAGEMENT

A. Minimize exposure of building occupants, indoor surfaces, and ventilation air distribution systems to environmental tobacco smoke. At a minimum, take the following measures:
   1. Prohibit smoking.
   2. Cover all intake air vents during drilling, cutting and demolition operations. All vents to be uncovered at the end of a work shift.
   3. Gas or diesel driven/operated machinery is prohibited for use within the building.

B. Take special care to prevent accumulation of moisture on materials and within packaging during delivery, storage, and handling to prevent development of mold and mildew inside packaging and on products.

C. Immediately remove from site and properly dispose of materials showing signs of mold and mildew, including materials with moisture stains.

1.13 ENCLOSURES

A. NA

1.14 CLEANING DURING CONSTRUCTION

A. Unless otherwise specified under the various trade Sections of the Specifications, the Contractor shall perform clean-up operations during construction as herein specified.

B. Control accumulation of waste materials and rubbish; periodically dispose of off-site in a legal manner. The Contractor shall bear all costs, including fees resulting from such disposal.

C. Clean exterior/interior areas prior to start of finish work and maintain areas free of dust and other contaminants during finish operations.

D. Maintain project in accordance with all local, Commonwealth of Massachusetts, and Federal Regulatory Requirements.
E. Store volatile wastes in covered metal containers, and remove from premises.

F. Prevent accumulation of wastes which create hazardous conditions.

G. Provide adequate ventilation during use of volatile or noxious substances.

H. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.

   1. Do not burn or bury rubbish and waste materials on site.
   2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
   3. Do not dispose of wastes into streams or waterways.
   4. Identify potential sources of cleaning water runoff and propose abatement procedures.

I. Use only those materials which will not create hazards to health or property and which will not damage surfaces.

J. Use only those cleaning materials and methods recommended by manufacturer of surface materials to be cleaned.

K. Execute cleaning to ensure that the buildings, the sites, and adjacent properties are maintained free from accumulations of waste materials and rubbish and windblown debris, resulting from construction operations.

L. Provide on-site covered containers for collection of waste materials, debris and rubbish.

M. Remove waste materials, debris and rubbish from the site daily and dispose of at legal disposal dump site (DEP approved).

N. Handle material in a controlled manner with as few handlings as possible. Do not drop or throw materials from heights.

O. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not damage surrounding surfaces.

P. All Corridor carpet Ground floor thru 2 shall have the carpet shampooed and vacuum.

1.15 FIELD OFFICE

A. University will provide a location within the building for scheduled project meetings. The contractor shall be given a space in the building if necessary for an office.

1.16 SANITARY FACILITIES

A. The General Contractor and Subcontractors will be allowed to use two existing sanitary facility within the building one women, one mem. The General Contractor shall be responsible for maintaining this facility in a clean condition at the end of each day. Failure to keep the facilities clean will result in revocation of this privilege.
1.17 TELEPHONE SERVICE

A. The Contractor shall provide telephone service at the site as required for his own use. The Contractor shall also provide the job Superintendent with a cellular phone, for direct communication between the Superintendent and the UMA Project Manager and/or the UMA Resident Engineer.

1.18 SITE ENCLOSURE FENCE

A. NA.

1.19 PARKING

A. Parking: There is NO parking allowed on the site. Parking spaces on Campus are very limited and the University will not provide designated parking lot spaces near the construction site for the Contractor’s use. The Contractor shall contact Parking Services (545-0065) to determine the location of the nearest available parking spaces. The Contractor will be required to pay all fees for parking. The Contractor shall state his/her staging area requirements during the Pre-construction Meeting. The area(s) for limited materials storage will then be agreed to between the Contractor and the UMA Project Manager. The limits of material storage will be delineated by the Contractor with construction fencing and enforced throughout the Contract.

B. NO Parking or vehicles allowed on the lawn area at any time.

1.20 SAFETY PROTECTION

A. At no time shall the work be left unattended without proper safety protection and shall not be left unprotected to the weather and accessible to the public. It is the responsibility of the General Contractor to maintain proper safety protection for the public while work is in progress or unattended.

1.21 VEHICLE AND EQUIPMENT PROTECTION

A. All construction activities shall be performed in such a manner so as not to dust, stain or damage any building elements, equipment, vehicles, etc. within general vicinity of the construction work area. Any damage to these items shall be cleaned and repaired at the expense of the General Contractor.

B. All construction vehicles and equipment on site shall be effectively disabled and secured when not in use.

1.22 SHORING
A. Provide all temporary shoring and bracing as required for the proposed work. Comply with all applicable codes and standards.

1.23 CONSTRUCTION AIDS
A. NA.

1.24 DELIVERY OF MATERIALS
A. All Materials shall be delivered to the Contractor’s or Sub-Contractor’s warehouse or may be delivered to the site if the Contractor’s representative is present to receive them.
B. No materials will be received by University personnel; either on site or at the University’s shipping and receiving dock.
C. All materials removed or delivered MUST be through the Lower Level entrance.

1.25 SHUT DOWN NOTICE
A. The Contractor shall notify the U.M.A. Project Manager or Resident Engineer, at least fourteen (14) working days in advance, of the need for University personnel to shut down or modify any utilities or building systems. If, due to University emergencies or staffing shortages, the Physical Plant personnel are unable to provide the required shut down or modifications, the contractor shall reschedule their work at no cost to the University.

1.26 CONSTRUCTION CORES
A. General Contractor shall furnish and install construction cores as per Section 087100

1.27 BARRICADES, WARNING SIGNS AND LIGHTS
A. Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics and warning signs to inform personnel and public of possible hazards. Where appropriate and needed, provide lighting including flashing red and amber lights.

1.28 COVERED WALKWAYS
A. NA

1.29 EXCAVATIONS AND FIELD SURVEY REQUIREMENTS
A. NA

1.2 PROJECT IDENTIFICATION
A. NA
PART 2 – PRODUCTS
Not Used

PART 3 – EXECUTION
Not Used

END OF SECTION
DIVISON 01 GENERAL REQUIREMENTS

PRODUCT REQUIREMENTS

SECTION 016000

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 REQUIREMENTS INCLUDED

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 structures, except as specifically required, or allowed, by the Contract Documents.
E. In the case of an inconsistency between Drawings and the Project Manual, or within either document which is not clarified by addendum, the product of greater quality or greater quantity of work shall be provided in accordance with the Designer's interpretation.

1.3 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.

1.4 MANUFACTURERS' INSTRUCTIONS

A. When work is specified to comply with manufacturers' instructions, submit copies as specified in Section 013300 - SUBMITTAL REQUIREMENTS, distribute copies to persons involved, and maintain one set in field office.
B. Perform work in accordance with details of instructions and specified requirements.
1.5 TRANSPORTATION AND HANDLING

A. Refer to the Contract and General Conditions and Specifications Sections for requirements pertaining to transportation and handling of materials and equipment.

B. Transport products by methods to avoid product damage; deliver in undamaged condition in manufacturers' labeled and unopened containers or packaging, dry.

C. Provide equipment and personnel to handle products by methods to prevent soiling or damage.

D. Promptly inspect shipments to assure that products comply with requirements, that quantities are correct, and products are undamaged.

1.6 STORAGE AND PROTECTION

A. Refer to the Contract and General Conditions and Specifications Sections for requirements pertaining to storage and protection of materials and equipment.

B. Store products in accordance with manufacturers' instructions, with seals and labels intact and legible. Store sensitive products in weather tight enclosures; maintain within temperature and humidity ranges required by manufacturers' instructions.

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 assure that products are undamaged, and are maintained under required conditions.

E. Protect finished materials, with protection acceptable to the UMA Project Manager.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION
DIVISION 01 GENERAL REQUIREMENTS

SECTION 017419

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

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 SUMMARY

A. This Section includes administrative and procedural requirements for recycling and disposing of construction waste.

B. Related Work: The following items are not included in this Section and will be performed under the designated Sections:

1. Section 013543 - ENVIRONMENTAL PROTECTION PROCEDURES:
   a. Environmental-protection measures during construction.

2. Section 024100- SELECTIVE DEMOLITION

3. Section 025000- ASBESTOS REMOVAL AND RELATED WORK

4. The University has first right of refusal of all salvageable/or recycling items or any items of value. The Contractors shall delivery such items to a location on campus.

C. Recycled materials of wire, metals, wood shall be cleaned and delivered to the UMass Recycle site on Tillson Drive.

1.3 DEFINITIONS

A. Construction Waste: Building improvement materials and other solid waste resulting from construction, and/or installation of new materials as part of remodeling, renovation, or repair operations. Construction waste includes packaging.
1. Demolition Waste: Building improvement materials resulting from demolition or selective demolition operations prior to renovations or remodeling.

B. Disposal: Removal off-site of construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

C. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

D. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

E. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.4 PERFORMANCE REQUIREMENTS

A. General: Develop a Waste Management Plan that states as its objective to attain at project completion a recycling rate of 75 percent or more by weight of the total waste generated by the Work.

B. Recycling Requirements:

1. Maximize recycling of non-hazardous construction waste including the following materials:
   a. Site-clearing waste.
   b. Masonry and CMU.
   c. Lumber, wood sheet materials, doors, and wood trim.
   d. Metals.
   e. Roofing.
   f. Insulation.
   g. Glass.
   h. Plastics.
   i. Gypsum board, refer to paragraph below.
   j. Acoustical ceiling panels.
   k. Carpet and pad.
   l. Piping.
   m. Wire and cable.
   n. Electrical conduit.
   o. Packaging: 100 percent of the following uncontaminated packaging materials: Paper, cardboard, boxes, plastic sheet and film, polystyrene packaging, wood crates, plastic pails.

2. Clean Gypsum Board Waste: For new construction and renovation projects involving 20,000 square feet or greater, divert clean (virgin material) gypsum board waste from disposal to recycling and/or reuse outlets.
   a. For new construction and renovation projects involving less than 20,000 square feet, contractors are encouraged to divert clean gypsum board waste from disposal to recycling and/or reuse outlets.
   b. Clean (virgin material) gypsum board is defined as material without any existing attached material, including but not limited to adhesives, mastics, and paints.
1.5 SUBMITTALS

A. Waste Management Plan (WMP): Submit 3 copies of Plan within 30 days of date established for the Notice to Proceed, in a format acceptable to the UMA Project Manager.

B. Waste Management Progress Reports: Concurrent with each Application for Payment, submit three copies of report. The following information shall be included:
   1. Material category.
   2. Generation point of waste.
   3. Total quantity of waste in tons.
   4. Quantity of waste recycled, both estimated and actual in tons.
   5. Total quantity, of waste recovered (recycled) as a percentage of total waste.

C. Waste Management Calculations: Before submitting a request for Substantial Completion, submit three copies of calculated final rates for recycling and disposal as a percentage of total waste generated by the Work.

D. Facility Permitting Information: For landfill and/or incinerator facilities, provide a copy of the facility’s current solid waste management facility permit in accordance with 310 CMR 19.000.

E. Record Keeping for Recycling and Landfill and/or Incinerator Disposal: Documentation to be submitted by the General Contractor shall include the following:
   1. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, and/or receipts.
   2. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, and/or receipts.

F. Facility Permitting Information: For ABC rubble crushing and/or recycling facilities, provide a statement from the facility that references its specific exemption from the solid waste regulations (per 310 CMR 16.05 (3) (e)) or provide a copy of the facility’s current solid waste management facility permit in accordance with 310 CMR 19.000.

G. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.

H. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.

I. LEED Submittals: The Designer shall prepare a Letter in accordance with LEED guidelines, which shall be signed by the General Contractor. The General Contractor shall provide all information required which includes a tabulation of total waste material, quantities diverted, and means by which it is diverted.
1.6 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction, including but not limited to, Massachusetts solid waste regulations contained in 310 CMR 16.00 and 310 CMR 19.000.

1.7 WASTE MANAGEMENT PLAN

A. General: Develop plan consisting of waste identification, and waste reduction, handling, transportation, and recycling/disposal procedures. Include separate sections in plan for recycling and disposal of construction waste. Indicate quantities by weight throughout waste management plan. Recycle materials to be delivered to the UMass.


C. Waste Reduction Program: List each type of waste and whether it will be recycled or disposed in a landfill or incinerator. Include points of waste generation, total quantity by weight of each type of waste, quantity for each means of recovery, and handling and transportation procedures.

1. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.

2. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.

3. Donated Materials: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt. Include names, addresses, and telephone numbers.

4. Sold Materials: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt. Include names, addresses, and telephone numbers.

D. Handling and Transportation Procedures: Include methods that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location(s) on Project site where separated materials will be stockpiled.

E. Waste Management Coordinator: Identify General Contractor employee who will be the Waste Management Coordinator for the project. The Waste Management Coordinator will be responsible for implementing, monitoring, and reporting status of waste management activities.
PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

A. General: Implement Waste Management Plan as approved by the Designer. Provide containers, storage, signage, transportation, and other items as required to implement WMP for the entire duration of the Contract.

B. The General Contractor shall conduct a Waste Management Meeting at the Site. The General Contractor shall review methods and procedures related to waste management including, but not limited to, the following:

1. Distribute approved WMP to everyone concerned within three days of approved submittal return.
2. Clearly identify the Waste Management Coordinator and explain the Coordinator's responsibilities.
3. Review WMP with each subcontractor when they first begin work on-site. Review plan procedures and locations established for recycling and disposal.
4. Review and finalize procedures for material separation and verify availability of containers and bins needed to maintain production.
5. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
6. Provide recycling educational literature for all workers, Subcontractors and suppliers engaged in on-site activities.
7. Provide appropriate recycling signage for containers and workspaces.

C. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walkways, and other adjacent occupied facilities.

1. Designate and label specific areas on Project site necessary for separating materials that are to be recycled, reused, donated, sold, and disposed.
2. Comply with project requirements for controlling dust and dirt, environmental protection, and noise control.

3.2 RECYCLING CONSTRUCTION WASTE, GENERAL

A. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical. For waste, which cannot be separated at Project site, co-mingle only with waste, which is to be separated later at a recycling facility. The General Contractor will address contamination of recycling containers with trash or other contaminants and who will be solely responsible for payment of all fines and penalties.
3.3 RECYCLING CONSTRUCTION WASTE

A. Packaging:

1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
3. Pallets: To the extent feasible, require shippers using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

B. Concrete: Deposit all debris in designated containers to be transported to approved aggregate recycling facility to be crushed and screened for use as satisfactory soil for fill or sub-base.

C. Masonry: Deposit all masonry debris in designated containers to be transported to approved aggregate recycling facility to be crushed and screened for use as satisfactory soil for general fill or satisfactory soil for fill or sub-base. Clean and stack undamaged whole masonry units on wood pallets.

D. Wood Materials:

1. Clean Cut-Offs of Lumber: Deposit into designated clean wood container to be transported to designated recycling facility for use as mulch or bio-fuel.
2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.

E. Metals: Separate metals by material type if practical. Stack salvageable structural steel members according to size, type of member, and length.

F. Acoustic Ceiling Panels: Deposit pulp able mineral fiber panels into designated container protected from weather and prepare for transport, as directed by manufacturer, to appropriate recycling facility to be processed into new acoustic ceiling panels. Separate suspension system, trim, and other metals from panels and sort with other metals.

G. General: Recycle paper and beverage containers used by on-site workers.

3.4 DISPOSAL OF WASTE

A. Except for items or materials to be recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. For solid waste disposal facilities located in the Commonwealth of Massachusetts, dispose of materials only in facilities which currently comply with...
applicable state regulations, including requirements of 310 CMR 16.00 {Site Assignment for Solid Waste Facilities} and 310 CMR 19.000 {Solid Waste Management}, and local bylaws.

B. Burning: Do not burn waste materials.

C. Disposal: Transport waste materials off Owner's property and legally dispose of them.

END OF SECTION
DIVISION 01 GENERAL REQUIREMENTS

SECTION 017700

CONTRACT CLOSEOUT

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 FINAL CLEANING

A. Unless otherwise specified under the various Sections of the Specifications, the General Contractor shall perform final cleaning operations as herein specified prior to final inspection.

B. Maintain project site free from accumulations of waste, debris, and rubbish, caused by operations. At completion of work, remove waste materials, rubbish, tools, equipment, machinery and surplus materials, and clean all sight-exposed surfaces; leave project clean and ready for occupancy.

C. Cleaning shall include all surfaces, interior and exterior in which the General Contractor has had access whether existing or new.

D. Refer to Sections of the Specifications for cleaning of specific products or work.

E. Use only those materials which will not create hazards to health or property and which will not damage surfaces.

F. Use only those cleaning materials and methods that are recommended by the manufacturer of surface material to be cleaned.

G. Employ experienced workmen, or professional cleaners, for final cleaning operations.

H. Remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels, and other foreign materials from sight-exposed interior and exterior surfaces.

I. Repair, patch and touch up marred surfaces to specified finish, to match adjacent surfaces as acceptable to the UMA Project Manager.

J. Polish glossy surfaces to a clear shine and provide wax where necessary.

K. Ventilating Systems: Clean permanent filters and replace disposable filters if units were operated during construction. Units should not be operated without filters at all. Throw away filters should be used when operating units prior to Substantial Completion. Submit report of ventilation system cleanliness including ductwork to the UMA Project Manager.
L. Broom clean exterior paved surfaces and rake clean other surfaces of the grounds.

M. Leave all architectural metals, hardware, and fixtures in undamaged polished conditions.

N. Leave pipe and duct spaces, plenums, furred spaces and the like clean of debris and decaying materials.

O. At the end of the project, General Contractor and each Subcontractor shall remove all his tools, equipment, machinery, and surplus materials from the job site. The General Contractor shall remove all waste materials and rubbish from the project at this time. All temporary structures shall be removed and the project shall be left clean.

P. Subsequent to installation of User Agency furniture, telephones, and equipment, and prior to issue of Certificate of Use and Occupancy, provide additional cleaning to remove any soil resulting from installations of such furniture and equipment. Such additional cleaning may include, but not be limited to dusting of horizontal surfaces, vacuuming, and washing of hard or resilient floor surfaces and re-waxing where required.

1.3 GLASS

A. Replace any and all glass broken or damaged during construction.

B. All glass interior and exterior shall be washed and polished on the First Floor

1.4 LANDSCAPE REPAIRS

A. All lawn areas used for contractor material storage shall have the topsoil removed, the subsoil shall be loosened to 12” below finished grade, the topsoil shall be replaced and amended with a complete, slow release fertilizer, proof rolled and seeded with a restoration seed mix consisting of:

<table>
<thead>
<tr>
<th>Seed Mix</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>PURE SEED</td>
<td>GERM.</td>
</tr>
<tr>
<td>34.72% KENTUCKY BLUE GRASS 85/80</td>
<td>95%</td>
</tr>
<tr>
<td>24.68% CREEPING RED FESCUE</td>
<td>85%</td>
</tr>
<tr>
<td>19.82% OMEGA III PERENNIAL RYE GRASS</td>
<td>95%</td>
</tr>
<tr>
<td>19.78% SATURN PERENNIAL RYEGRASS</td>
<td>95%</td>
</tr>
</tbody>
</table>

B. All lawn areas damaged by pedestrian or vehicular traffic due to the contractor’s operations shall be aerated. Aeration shall consist of 9”-10” deep infraction at areas free of tree roots and at areas within tree drip lines shall be aerated 1”-3” with a tow behind 3- point hitch aerator. If in the opinion of the Campus Landscape Architect, the lawn areas require over-seeding or restoration, the following seed mixture shall be used at a rate to be determined:
C. All lawn (new seeded areas) shall be maintained until full growth of grass, ie fertilization, watering, overseeding as required.

1.5 AS-BUILT DRAWINGS

A. As-built Drawings shall consist of all the Contract Drawings. As-built Drawings shall be kept up-to-date. Information from on-going Work shall be recorded on As-built Drawings within 48 hours of Work being performed.

B. The General Contractor and each Subcontractor shall be required to maintain one set of As-built Drawings, as the work relates to their Sections of the Specifications, at the site.

C. The As-built Drawings shall be stored and maintained in the General Contractor's field office apart from other documents used for construction. The As-built Drawings shall be maintained in a clean, dry, and legible condition and shall not be used for construction purposes.

D. As-built Drawings, as submitted by the General Contractor shall be verified in the field by the Designer or his Consultants. Verification by the Designer shall occur during the construction process and prior to the related work being completed and covered up.

E. The As-built Drawings shall be available at all time for inspection by the UMA Project Manager or Designer. All deficiencies noted shall be promptly corrected.

F. The following information shall be indicated on the As-Built Drawings:

1. Record all changes, including change orders, in the location, size, number and type both horizontally and vertically of all elements of the project which deviate from those indicated on all the Contract Drawings.

2. The tolerance for the actual location of utilities and appurtenances within the building to be marked on the As-built Drawings shall be plus or minus two (2) inches.

3. The location of all internal utilities and appurtenances, concealed by finish materials, including but not limited to pipes, junction boxes, and maintenance devices. The location of these internal utilities, appurtenances, and devices shall be shown by offsets to the column grid lines on the Drawings.

4. Each of the utilities and appurtenances shall be referenced by showing a tag number; area served and functions on the As-built Drawings.
G. At the end of each month and before payment for materials installed, the General Contractor, each Subcontractor, and agents of the Commonwealth shall review As-built Drawings for purpose of payment.

1. If the changes in location of all installed elements are not shown on the As-Built Drawings and verified in the field, then the material shall not be considered as installed and payment will be withheld.

H. Prior to the installation of all finish materials, a review of the As-built Drawings shall be made to confirm that all changes have been recorded. All costs to investigate such conditions shall be borne by the applicable party as determined by the Designer.

I. At the completion of the contract, each Subcontractor shall submit to the General Contractor a complete set of his respective As-built Drawings indicating all changes. After checking the above drawings, the General Contractor shall certify in writing on the title sheet of the drawings that they are complete and correct and shall submit the As-built Drawings to the Designer.

1. As-Built Drawings shall be submitted electronically to the Designer, in a format which can be added to the complete plans as constructed.

J. The Designer shall review the drawings and shall verify by letter to the UMA Project Manager that the work is accurate. The Designer shall incorporate all changes on the original drawings; thus creating Record Drawings. The Designer shall submit to the UMA Project Manager, electronic files in AutoCAD 2000 (or later version) format with two (2) sets of prints to be used for the final inspection of the project. Inaccuracies in As-built Drawings, as determined by the Designer and the UMA Project Manager, may be grounds for postponement of the final inspection or delay the processing of final payment until such inaccuracies are corrected by the General Contractor.

1.6 OPERATING AND MAINTENANCE REQUIREMENTS

A. At least two weeks prior to the time of turning over this contract to the Operating Agency for Use and Occupancy, or Final Acceptance, the General Contractor shall secure and deliver to the Operating Agency via the Designer, three (3) complete, indexed files and three (3) CD or DVD copies, containing approved operating and maintenance manuals, shop drawings, record of paint colors, floor and ceiling materials and other data as follows.

1. Operating manuals and operating instructions for each model and type of equipment in each of the various systems. Include operating instructions for systems integrating several pieces of equipment.

2. Catalog data sheets for each item of mechanical or electrical or equipment actually installed including performance curves, rating data and parts lists.

3. Catalog sheets, maintenance manuals, and approved shop drawings of all mechanical or electrical equipment controls and fixtures with all details clearly indicated, including size of lamps and other maintenance supplies.

4. Operating procedures, including startup, shutdown, seasonal and weekend operations.

5. Description of controls and sequence of operations.
6. Maintenance Data:
   a. Manufacturer's information, including list of spare parts.
   b. Name, address, and telephone number of Installer or supplier.
   c. Maintenance procedures.
   d. Maintenance and service schedules for preventive and routine maintenance.
   e. Maintenance record forms.
   f. Sources of spare parts and maintenance materials.
   g. Copies of maintenance service agreements.
   h. Copies of warranties and bonds.
   i. Name, address and telephone numbers of repair and service companies for each of the systems installed.

7. Names, addresses and telephone numbers of all Subcontractors and suppliers, together with repair and service companies for each of the major systems installed under this contract.

8. Provide a steel cabinet for storage of manuals and operating instructions.

B. Non-Availability of operating and maintenance manuals or inaccuracies therein may be grounds for cancellation and postponement of any scheduled final inspection by the UMA Project Manager until such time as the discrepancy has been corrected.

1.7 DEMONSTRATION AND TRAINING

A. Instruction: Instruct University’s personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
   1. Provide instructors experienced in operation and maintenance procedures.
   2. Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at the start of each season.
   3. Schedule training with Physical Plant personnel with at least fourteen (14) days' advance notice.
   4. Coordinate instructors, including providing notification of dates, times, length of instruction, and course content.

B. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections. For each training module, develop a learning objective and teaching outline. Include instruction for the following:
   1. System design and operational philosophy.
   2. Review of documentation.
   3. Operations.
   4. Adjustments.
   5. Troubleshooting.
   7. Repair.

1.8 CLOSEOUT REQUIREMENTS AND SUBMITTALS

A. Procedural Requirements Prior to Use and Occupancy: Punch List:
1. During the finishing stages of the project, the General Contractor shall make frequent inspections with Subcontractors, the Designer, and the UMA Resident Engineer, so as to progressively check for and correct faulty work.

2. During the course of construction of the project, the General Contractor shall procure and maintain test records and certificates that will be required prior to issuance of the Department of Public Safety (DPS) Certificate of Occupancy and the Division of Capital Asset Management (UMA) Certificate of Agency Use and Occupancy.

3. When the General Contractor determines that he/she is Substantially Complete*, he/she shall prepare for submission to the Designer a list of items to be completed or corrected. The failure to include any items on such list does not alter the responsibility of the General Contractor to complete all work in accordance with contract Documents. The General Contractor’s list shall be accompanied with certificates that will be required as prerequisites for applying for a DPS inspection
   a. *NOTE: Substantially complete means that less than one percent (1%) of all contract work, including change orders, remains to be done, and that none of the remaining work will affect health, safety, or function.

4. Upon receipt of the General Contractor’s list of items to be completed or corrected, the Designer will promptly make a thorough inspection, together with representatives of UMA and the Operating Agency, and prepare a “punch list”, setting forth in accurate detail any items on the General Contractor’s list and additional items that are not acceptable. Concurrently, the General Contractor will arrange for a DPS inspection, Amherst Fire Department, Town of Amherst Electrical and other required inspections through UMA EH &S or as directed by UMA Project Manager.

5. When the punch list has been prepared, and any DPS Inspector comments* have been included, the Designer will arrange a meeting with the General Contractor and Subcontractors, and the UMA Project Manager, to identify and explain all punch list items and answer questions on the Work that must be done before Final Acceptance.
   a. If a DPS inspector (including, but not limited to AABA, boiler, elevator or any other authorized inspector) requires modifications and/or additions that were not included in the construction documents, the Designer should review the applicable code(s) and provide written interpretation to the UMA Project Manager together with his/her recommendations.

6. The General Contractor shall immediately correct all punch list items that affect health, safety or function (as determined by the Designer, completion of which is required before issuance of a UMA Certificate of Agency Use and Occupancy).

7. Upon receipt of the UMA Certificate of Agency Use and Occupancy, and its adjunct monetized punch list, the General Contractor shall cause the completion of all of the other punch list items within the timeframe required by said certificate, but not more than 45 calendar days if the timeframe is not indicated on the said certificate.

8. There is a history of specific items that are essential to the Use and Occupancy, but are frequently overlooked. Some things to watch for are:
   a. Provide properly colored and positioned exit signs.
   b. Properly located emergency lighting fixtures.
   c. Complete or, by agreement, schedule personnel training.
   d. Final cleaning.
e. Perform landscape repairs.

B. Prerequisites for Department of Public Safety (DPS) Certificate of Inspection and/or Certificate of Occupancy: Prior to requesting a Department of Public Safety (DPS) inspection, the General Contractor shall provide (via transmittal to the UMA Resident Engineer) the following “closeout submittals:"
1. Project record documents and as-built marked-up drawings.
2. Approved operating and maintenance (O & M) data.
3. Extended guarantees and warranties.
   a. General Contractor’s General Guarantee shall effectively include:
      1) A written guarantee, for one (1) year from date of Substantial Completion of the project, against defective workmanship, material, installation and equipment for all work of the project. Repair or replacement of defective workmanship, material, installation or equipment that develop within this period shall be accomplished promptly upon notification to the General Contractor, to the satisfaction of the Operating Agency, at no cost.
      2) Replace or repair material or equipment that requires excessive service during the guarantee period.
      3) Guarantee shall include 24-hour service of complete system(s) during guarantee period at no additional cost.
      4) Provide manufacturer’s engineering and technical staff at site promptly to analyze and rectify problems that develop during guarantee period. If problems cannot be rectified promptly, to the satisfaction of the User Agency, advise the Designer in writing; describe efforts to rectify situation and provide analysis of cause of problem.
   b. Manufacturer’s Guarantee or Warranty
      1) In addition to guarantee requirements above, obtain manufacturers’ written installation, equipment, and material warranties for time periods indicated in the various Specification Sections of the Contract Documents. Such manufacturers’ warranties contained within the Specification Sections, together with any other warranties offered in manufacturers’ published data, are to be transferred to the User Agency.
   c. Evidence of compliance with requirements of governing authorities including, without limitations, the following:
      1) Certificate of Inspection, in form of signed permits from the electrical, plumbing, gas, fire department, boiler, and any other required inspectors.
      2) Certification from the local fire department to the effect that all detection, alarm and suppression systems, and other equipment or systems under fire department jurisdiction are approved.

C. Prerequisites for Department of Public Safety (DPS) Certificate of Inspection and/or Certificate of Occupancy: Prior to requesting a Department of Public Safety (DPS) inspection, the Designer shall provide (via transmittal to the UMA Resident Engineer) the following “closeout submittals:“
1. Certification, from the design Registered Professional Engineer, stating that the fire protection systems have been installed in accordance with the approved fire protection construction documents and meet the requirements of 780 CMR 903.1.

2. Certification, from the design Registered Professional Engineer, stating that the emergency lighting and power systems have been installed in accordance with the approved electrical construction documents.

D. Upon completion of the Work for which a permit has been issued, the DPS building official shall conduct a final inspection pursuant to 780 CMR 115.5.

Exclusive of other items that the DPS inspector may impose, there is a history of specific items that are essential for, temporary occupancy. These items include, but are not limited to the following:

g. Evidence of compliance with requirements of governing authorities including, without limitations, the following:
   1) Certificate of Inspection, in form of signed permits from the electrical, fire department, and any other required inspectors.
   2) Certification from the local fire department to the effect that all detection, alarm and suppression systems, and other equipment or systems under fire department jurisdiction are approved.

E. Contractor procure and have ready and available the following approved items (referred to as Closeout Submittals):

1. Operating and maintenance (O & M) manuals and written operating instructions for the various systems.
2. Catalog data sheets for each item of mechanical or electrical equipment actually installed including performance curves, rating data and parts lists.
3. Catalog sheets, maintenance manuals, and approved shop drawings of all electrical equipment controls and fixtures with all details clearly indicated, including size of lamps.
4. Names, addresses, and telephone numbers of repair and service companies for each of the major systems installed under the construction contract.
5. Signed Department of Public Safety (DPS) Certificate of Occupancy per 780 CMR 120.0
7. Designer Affidavit of Compliance.
8. Subcontractor Affidavits that specified equipment and installed items have been seismically braced in accordance with code requirements.
9. Monetized punch list of the remaining Work that must be done before Final Acceptance.
10. As-built documents should be completed (both electronic files and transparencies) and ready to transfer over to the UMA Project Manager. As-built documents shall consist of, but not be limited to, the following:
   a. Drawings (in AutoCAD ver. 2000 or later format)
      1) Contract drawings, for all disciplines, marked-up to clearly indicate as-built conditions.
      2) All clarification and/or changed conditions sketches (SK’s).
   b. Specifications (in .pdf format)
1) All construction specifications.
2) All addenda.

c. Shop drawings, submittals, etc. (scanned format)*
   1) All approved shop drawings, submittals, etc.

11. Approved documents submitted to the UMA or the Designer shall be electronically scanned (including the associated transmittals and, where applicable, the Designer-of-Record’s and UMA’s comments) as a .pdf document. All scanned approved submittals shall be included on a CD.

1.9 GUARANTEES AND WARRANTIES

A. Submit to the Designer all extended guarantees and warranties that have been specified in various, individual Sections of the Specifications. Guarantees shall be assembled by Specification No. and Section in accordance with Specifications Table of Contents.

1. Guarantees and warranties shall be enforceable in the Commonwealth of Massachusetts and subject to interpretation in accordance with the laws of the Commonwealth of Massachusetts.

2. Guarantees and warranties shall begin at the date of Substantial Completion of the Project. Guarantees and warranties which start at the date of shipment from the factory, or from the completion date of an individual portion of the project, are not acceptable.

B. Unless more stringent requirements are otherwise specified, guarantee all work against defects of materials, equipment and workmanship for one year from the date of Substantial Completion or the date of issue of Certificate of Use and Occupancy for the building or portion thereof, whichever occurs first.

C. If, within any guarantee period, repairs or changes are required in connection with guaranteed work, General Contractor shall promptly upon receipt of notice from UMA, and without additional expense to UMA, within ten business days:

1. Place in satisfactory condition in every particular all guaranteed work and correct all defects.

2. Make good all damage to building, site equipment, or contents thereof, including redecoration which, in the opinion of the Designer, results from the use of material, equipment or workmanship which are inferior, defective or not in accord with the terms of the Contract.

D. If General Contractor, after such notice, fails to proceed immediately to comply with terms of guarantee, UMA may correct defects and hold General Contractor liable for all expenses incurred.

E. Promptly after completion of the work, obtain from each Subcontractor where a guarantee is required, a warranty addressed to and in favor of UMA or the User Agency if directed by UMA.

F. Delivery of any warranty required does not relieve the General Contractor from any obligation assumed under other provisions of the Contract.
G. Deliver guarantees and warrantees to the Designer before or with the application for Final Payment.

H. The general warranty set forth in the General Conditions is in addition to, exclusive of, and not in substitution of such guarantees as may be required in the Specifications.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION
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. Equality of material, article, assembly or system other than those named or described in this Section shall be determined in accordance with the provisions of Article III, Paragraph 1 of the CONTRACT AND GENERAL CONDITIONS.

1.2 DESCRIPTION OF THE WORK

A. The Contractor shall provide labor, materials, and equipment to complete the work specified in this Section including, but not limited to, the handling and lawful disposal of Lead Containing Paint. Generally, the management of these materials shall include, but not be limited to:

1. File all necessary notices, obtain all permits and licenses, and pay all governmental taxes, fees, and other costs in connection with the work. Obtain all necessary approvals of all governmental departments having jurisdiction.

2. Perform all sampling and testing required to properly profile the material for waste disposal. This shall also include all testing required by the disposal or recycling facility.

3. All costs for the testing shall be borne by the Contractor.


B. Related Work: The following items are not included in this Section and will be performed under the designated Sections:

1. Section 025000 – ASBESTOS HANDLING AND RELATED WORK

C. The following data table (Table 1) detail analytical results of materials sampled:
TABLE I
LEAD ANALYSIS RESULTS
WEBSTER HOUSE SUITE 234, UNIVERSITY OF MASSACHUSETTS, AMHERST, MASSACHUSETTS

<table>
<thead>
<tr>
<th>Field ID</th>
<th>Description</th>
<th>Location and Substrate</th>
<th>Result (% Weight)</th>
<th>Reporting Limit (RL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WH-01</td>
<td>White paint</td>
<td>Plaster kitchen wall</td>
<td>&lt;RL</td>
<td>0.041</td>
</tr>
<tr>
<td>WH-02</td>
<td>White paint</td>
<td>Block bedroom wall</td>
<td>&lt;RL</td>
<td>0.012</td>
</tr>
<tr>
<td>WH-03</td>
<td>Tan paint</td>
<td>Metal bedroom door frame</td>
<td>&lt;RL</td>
<td>0.026</td>
</tr>
<tr>
<td>WH-04</td>
<td>Green paint</td>
<td>Plaster bathroom wall</td>
<td>0.10</td>
<td>0.024</td>
</tr>
<tr>
<td>WH-05</td>
<td>Tan paint</td>
<td>Metal bathroom door</td>
<td>0.049</td>
<td>0.015</td>
</tr>
</tbody>
</table>

Notes: Total Lead Analysis in Paint Using SW846-7420/3051

1.3 SCHEDULING AND SEQUENCING

A. The proposed Work will be performed in one phase.

B. The Contractor and the Designer shall develop a materials handling schedule for each phase of the work at the Pre-Construction Conference. The Owner may choose to alter the work sequence as they see fit.

C. The Contractor shall update the schedule and submit any schedule changes for review by the Designer and Owner at the weekly construction meetings.

1.4 LOCATION OF WORK

A. Location of work areas, descriptions, estimated types and quantities of materials are detailed in site drawings/plans prepared by the Owner. If additional materials are encountered, the Contractor shall notify Owner immediately.

B. The site drawings/plans identify materials encountered and enumerated during the survey. The quantities are provided for general guidance and may not correspond exactly to the quantity to be handled. The Contractor is responsible to investigate all areas for the presence of all materials. The Contractor shall determine quantities of materials for bidding purposes.

C. Handling, containerizing, packaging, re-handling, hauling and disposal of all items identified are to be included in the lump sum bid item of the Contract.

1.5 REFERENCES

A. The Contractor is advised to thoroughly review the documents referenced in this Section. Strict adherence to the hazardous materials, noise, air and water pollution regulations and requirements is required.

Lead Containing Paint Handling
020800-2-of 9
1. Code of Federal Regulations

a. 29 CFR 1910, “Occupational Safety and Health Standards”
   (General Industry Standards)

b. 29 CFR 1910.20, “Access to Employee Exposure and Medical Records


d. 29 CFR 1910.146 “Permit Required Confined Space”

e. 29 CFR 1910.1025 “Lead”


g. 29 CFR 1926, “Safety and Health Regulations for Construction”
   (Construction Industry Standards)

h. 29 CFR 1926.62, “Lead-Construction”

i. 40 CFR 50, “National Primary and Secondary Ambient Air Quality
   Standards”

   Appendix B, “Test Methods”

k. 40 CFR 117, “Determination of Reportable Quantities for Hazardous
   Substances”

l. 40 CFR 122, “EPA Administered Permit Program: The National
   Pollutant Discharge Elimination System”

m. 40 CFR 172, “Hazardous Waste Transportation”


   Waste”

q. 40 CFR 268, “Land Disposal Restrictions”

r. 40 CFR 300, “National Oil and Hazardous Substances Pollution
   Contingency Plan”

s. 40 CFR 302, “Designation, Reportable Quantities, and Notification”
t. USEPA’s Renovation, Repair and Painting Final Rule (RRP) (40 CFR 745)

2. Occupational Safety and Health Administration OSHA Booklet 3126 “Working with Lead in the Construction Industry”

3. National Institute for Occupational Health and Safety
   a. NIOSH Method 7082, “Lead”

4. American Society for Testing and Materials

5. EPA (Environmental Protection Agency) Publications
   b. EPA Method 3050, “Acid Digestion of Sediments, Sludges, and Soils”

6. Steel Structures Painting Council
   a. SSPC Guide 61 (CON) Guide for Containing Debris Generated During Paint Handling Operations
   b. SSPC Guide 71 (DIS) Guide for the Disposal of Lead Contaminated Surface Preparation Debris

7. Commonwealth of Massachusetts Department of Environmental Protection
   a. 310 CMR 40 Massachusetts Contingency Plan
   b. 310 CMR 30 Hazardous Waste Regulations
   c. 310 CMR 1-7 Clean Water Act
   d. 310 CMR 16, 19 Solid Waste Regulations
   e. 314 CMR 7-8 Clean Air Act

8. Other
   a. 454 CMR 10-23 Division of Industrial Safety

1.6 SUBMITTALS
A. The Contractor shall submit each item in this Article according to the Conditions of the Contract and Section 013300, for information only, unless otherwise indicated.

B. The Contractor shall submit a Waste Management Plan as specified in Section 017419. The Plan shall include identification of the proposed waste hauler and disposal facility with copies of all applicable licenses, registrations and approvals.

C. The Contractor shall provide copies of all worker certifications associated with OSHA 40 Hour Hazardous Waste Site Health and Safety Training in accordance with 29 CFR 1910.120.

D. The Contractor shall provide Owner with all required documentation relating to the proper handling and disposal of any hazardous or regulated waste that leaves the site in accordance with the Waste Management Plan.

E. After completion of the hazardous materials handling, provide a final report documenting handling, transportation and disposal activities. The document shall include copies of manifests, shipping slips, permits, and licenses for this Project.

1.7 QUALITY ASSURANCE

A. Examination of Existing Conditions: The Contractor shall examine the Contract Drawings for material identification, handling, and disposal requirements and provisions for new work.

B. Hazardous Waste Handling and Transportation Firm Qualifications: An experienced firm that has specialized in hazardous waste work similar in material and extent to that indicated for this Project.

C. Regulatory Requirements: Comply with governing EPA and DEP notification regulations before beginning handling of any hazardous waste materials. Comply with hauling and disposal regulations of authorities having jurisdiction.
PART 2 – MATERIALS

2.1 PROTECTIVE EQUIPMENT

A. Provide health and safety equipment required to protect workers and to comply with the Health and Safety Plan.

2.2 DISPOSAL BAGS

A. Disposal Bags: Provide 6 mil (0.15 mm) thick leak-tight polyethylene bags.

2.3 DRUMS


2.4 LABELS

A. DOT Hazardous Waste Labels: in accordance with DOT regulations, Title 49 CFR parts 173, 178, and 179.
PART 3 – EXECUTION

3.1 GENERAL WORK AREA SET UP

A. Signage: Prior to the preparation for work that will disturb regulated materials, the Contractor shall place warning signs immediately outside all entrances and exits to the area.

B. Access to Work Areas: The Contractor shall allow only authorized personnel into the work area. Barrier tape shall be used to limit access to the exterior work area.

3.2 GENERAL HAZARDOUS WASTE MANAGEMENT

A. Do not mix potentially hazardous waste streams. Where feasible, separate each type of hazardous waste from other types of hazardous wastes, from painted/coated waste and from construction waste.

B. Segregate, package, label, transport and dispose of Hazardous Waste in accordance with DOT, EPA, State and Local regulations.

C. The following wastes are designated as Hazardous Wastes and are non-salvageable:

1. Waste Type C lead based paint debris to include containers of paint (if applicable) and paint chips/debris.

D. In the event of an apparent conflict between the requirements of these specifications and the requirements of the Massachusetts Hazardous Waste Regulations (310 CMR 30.000) the Contractor shall bring the apparent conflict to the attention of the Designer for resolution. The Contractor shall not seek to review the apparent conflict with other parties prior to resolution with the Designer.

3.3 HAZARDOUS WASTE PACKAGING AND LABELING

A. Package Hazardous Waste Type C in specified containers as follows:

1. Waste Type C to be packaged in DOT 17-H Open-Top Drums. Fill to capacity only with Waste Type C (do not mix waste stream types). Install gasket on lid, apply lock ring, and seal. Apply Hazardous Waste Label to drum side. Enter DOT Shipping Data as follows: RQ Hazardous Waste Solid, NOS, 9, NA3 077, PG-III, (~D009). Adjacent to each label, enter the date indicating when waste was first placed in each drum.

C. Maintain all containers in a continuously sealed condition after they have been filled. Do not reopen sealed containers or place additional waste in previously sealed containers.
3.4 LEAD-BASED AND OTHER METALS PAINT

A. Lead-based and other metals paint is present on various surfaces throughout the Site. The Contractor shall assume that all painted surfaces contain lead-based and other metals paint. Any of the Contractor activities that may generate dust or impact a leaded or other metals surface shall be responsible for regulating his work area so that dust migration is contained properly within the regulated area. Once the work is complete, the Contractor shall be responsible for the proper clean up and disposal of leaded or other metals dust and materials.

B. All lead based and other metals paint work must be reflected in the lump sum bid of this contract.

C. Contractor shall handle and lawful disposal of RCRA-8 Metal Containing Paint from areas as indicated in the drawings/plans. Clean up and drum materials utilizing wet methods and negative air filtration.

D. Work Areas Affected - In general, the following activities are minimum requirements of this Section and affect the demolition performed on the painted components:

1. No torch cutting, mechanical sanding or stripping or abrasive methods shall occur on painted surfaces without the use of HEPA vacuum attachments.

2. No demolition activities may occur that increase the workers' exposure above applicable Action Levels. The contractor is responsible for compliance with the following OSHA Construction Regulations: Cadmium in Construction Regulation 1926.1127, Chromium in Construction Regulation 1926.1126, and Lead in Construction Regulation 1926.62 when abrasive blasting, welding, cutting, burning on structures, manual scraping or sanding, and manual demolition of structures or any other activity that may produce an exposure above the action level for any of the identified metals. The work practices described in the following sections are intended to adequately protect the workers from exposure to metal hazards, provide a safe workplace, and protect the environment.

3. Workers shall be informed of the components to be demolished that have been identified as containing lead and other metals.

4. Worker protection, at a minimum, shall comply with the above Standards and Worker Right to Know and Health and Safety Standards of 1926.62 shall also apply to the work of this Section.

5. Separation of Trades: Unprotected, untrained workers or trades shall not perform any related work within the same vicinity as demolition involving components identified as containing lead and other metals.

6. Cleanup Activities: The Contractor shall maintain the demolition work zones free of accumulated debris and materials containing lead and other metals.
E. Disposal of Lead and other metals contaminated material.

1. The Contractor must comply fully with SSPC – Guide 71 (DIS) as well as all current regulations concerning the testing, handling, hauling, labeling, and disposal of all paint waste generated during this project.

   a. At a minimum, the Contractor shall collect and submit samples for Toxicity Characteristic Leaching Procedure (TCLP) Method 1311 in accordance with Appendix II of 40 CFR 261 to a Massachusetts Certified Laboratory. The Contractor shall collect at least one sample from each media scheduled for disposal.

   b. All painted or coated building components shall be disposed of off-site.

   c. Lead and other materials that exceed the TCLP criteria shall be disposed in accordance with applicable hazardous waste regulations.

3.5 TRANSPORTATION, DISPOSAL AND/OR RECYCLING OF WASTES

A. Continuously maintain custody of all hazardous material generated at the work site. Provide security, short-term storage, transportation and disposition until custody is transferred to an approved properly permitted disposal site or recycling center. Document continuous chain-of-custody.

B. Do not remove, or cause to be handled, hazardous waste from the Owner’s property without a legally executed Uniform Hazardous Waste manifest.

C. At completion of hauling and disposal of each load submit copy of waste manifest, chain of custody form, and landfill receipt to the Designer.

D. Recycling and Recovery: Where accessible, turn over waste that contains materials for which recovery and/or recycling is possible to an approved recycling center. Materials subject to recycling include:

   1. Metal components

END OF SECTION
DIVISION 02 EXISTING CONDITIONS
SECTION 024100
SELECTIVE DEMOLITION

PART 1- GENERAL

1.01 RELATED DOCUMENTS
A. Drawings and conditions of the Contract, including General and Supplementary General Conditions and all Division 1 Sections, apply to the work of this section.

1.02 RELATED WORK SPECIFIED ELSEWHERE
A. Section 025000- Asbestos Removal and Related Work

1.02 SUMMARY OF WORK
A. Extent of selective demolition work is indicated on drawings.
B. Types of Selective Demolition Work: Demolition required of the selective removal and subsequent offsite disposal by the General Contractor including, but not limited to, the following:
   1. Removal of existing masonry/concrete.
   2. Removal of existing partitions as shown
   3. Removal of existing accessories.
   4. Removal existing vinyl flooring and base.
C. Furnish all shoring, bracing, lintel beams, plates, etc and all other miscellaneous equipment required for completion of this demolition work.
D. Building Demolition Use such methods as required to complete work within limitations of O.S.H.A. and other governing regulations.
E. Remove all existing construction as indicated on the drawings and as otherwise required. Note that drawings are general. "Demolition" includes any incidental existing construction which requires removal in order that the demolition of each existing building component is completed in its entirety.
F. Existing Material
   1. The Drawings indicate the materials of the existing building and structures to be removed to best of designer's knowledge. The General Contractor shall verify the type and dimension of all existing building materials prior to submitting his bid.
G. Break up and remove equipment and remove materials so as to not impose excessive loads to supporting walls, floors or framing.
1.03 JOB CONDITIONS:

A. Condition of Structures: Owner assumes no responsibility for actual condition of items or structures to be demolished.

   1. Conditions existing at time of commencement of contract will be maintained by Owner insofar as practicable. However, variations within structure may occur by Owners removal and salvage operations prior to start of selective demolition work.

   2. All remaining items that are scheduled to be removed shall be the property of the General Contractor and removed from the site.

B. Partial Demolition and Removal: Items indicated to be removed but of salvageable value to Contractor may be removed from structure as work progresses. Transport salvaged items from site as they are removed.

   1. Storage or sale of removed items on site will not be permitted.

   2. The University of Massachusetts, Amherst has first right of refusal on all salvageable items of value and to have Contractor deliver such to a site on campus.

C. Protections: Provide temporary barricades and other forms of protection as required to protect personnel and general public from injury due to selective demolition work.

   1. Provide protective measures as required to provide free and safe passage of personnel and general public to and from occupied portions of the site.

   2. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement or collapse of structure or element to be demolished and adjacent facilities to work to remain.

   3. Remove protections at completion of work.

   4. Provide and maintain watertight protection of all demolition work exposed to the weather.

D. Damages: Promptly repair damages caused to adjacent facilities by demolition work at no cost to Owner.

E. Traffic: Conduct selective demolition operations and debris removal in a manner to ensure minimum interference with roads, streets, walks and other adjacent occupied or used facilities.

   1. Do not close, block or otherwise obstruct streets, walks or other occupied or used facilities without written permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways, if required by governing regulations.

F. Utility Services: Maintain existing utilities indicated to remain, keep in service, and protect against damage during demolition operations.
1. Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to governing authorities, the Owner and Architect.

G. Environmental Controls: Use water sprinkling, temporary enclosures and other suitable methods to limit dust and dirt rising and scattering in air to lowest practical level. Comply with governing regulations pertaining to environmental protection.

1. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding and pollution.

H. The University has the first right of refusal on all salvageable or items of value. The Contractor shall deliver such items to a location on campus. All other items the contractor shall dispose of.

PART 2- PRODUCTS (Not Applicable)

PART 3- EXECUTION

3.01 INSPECTION:

A. Prior to commencement of selective demolition work, inspect areas in which work will be performed. Photograph existing conditions and equipment, which could be misconstrued as damage resulting from selective demolition work; file with Owner’s Representative prior to starting demolition or other work.

3.02 DEMOLITION:

A. Perform selective demolition work in a systematic manner. Use such methods, as required, to complete work indicated on Drawings in accordance with demolition schedule and governing regulations.

1. Locate demolition equipment throughout structure and promptly remove debris to avoid imposing excessive loads on supporting walls, floors or framing.

2. Provide services for effective air and water pollution controls as required by local authorities having jurisdiction.

B. If unanticipated mechanical, electrical or structural elements which conflict with intended function or design and encountered, investigate and measure both nature and extent of the conflict. Submit report to Owner’s Representative in written, accurate detail. Pending receipt of directive from Owner’s Representative, rearrange selective demolition schedule as necessary to continue overall job progress without delay.
3.03 DISPOSAL OF DEMOLISHED MATERIALS:
A. Remove debris, rubbish and other materials resulting from demolition operations from building site. Transport and legally dispose of materials off site.
   1. Burning of removed materials is not permitted on project site.
   2. Except as indicated below, the General Contractor shall remove all demolished materials and rubbish at the end of each day. It shall be taken to places of legal disposal. All costs for disposal shall be paid by the General Contractor.

3.04 PATCHING EXISTING MATERIAL
A. The work shall include items damaged by the removal or installation of any work within this contract, not limited to the following:
   1. Patching of all holes, cracks, divots or splatter of during removals or installation of new material.
   2. Refinish entire surfaces as necessary to provide an even finish to match adjacent finishes:
      a. For continuous surfaces, refinish to nearest intersection i.e. natural break to natural break.
      b. For an assembly, refinish entire unit.

3.05 FLOOR PREPARATION
A. All of the resilient floor tile and glue shall be removed under this Section.
D. All glue shall be removed under this Section.
E. Vinyl base, and glue shall be removed under this section.
F. The General Contractor shall prepare all floor surfaces to receive new floor coverings, or remain exposed concrete.
G. General Contractor shall remove all projections in the floor and fill all hollows and cracks with non-shrink, cement-base patching, conforming to ASTM C-109, at all exposed concrete floors.
   1. The removal and disposal of the existing vinyl base and adhesives shall be by the General Contractor.
      a. The adhesive shall be removed by bead blaster to a depth of 1/64”.
      b. If the adhesive is not removed by blasting it shall be removed using liquid remover and grinders under full containment as per 453 CMR 6.14, with HEPA filtration and all material shall be taken from the site as hazardous waste.
   2. Repair all depressions between high spots. Do not exceed 1/4" under a 10’ straightedge and grind smooth surface protrusions.
3. All areas blasted to a greater depth to remove adhesive shall be topped with Silpro 200.

H. In addition to the floor preparation above, the General Contractor shall prepare all existing floor

3.06 FIRE SAAFFING

A. Pensil Endothermic Sealant at all penetrations thought all walls and floors applied by the General contractor.

3.06 CORE DRILLING

A. Core drilling in masonry and concrete (reinforced and non-reinforced) for holes 1/2” in diameter and larger shall be by the General Contractor; Sub Contractors to mark locations.

1. All holes must be drilled. New and existing holes must be enlarged by drilling, no breaking of concrete slab.

2. Fire saffing at ALL penetrations, new and existing, is part of this section.
   a. Hilti FS-ONE High Performance S Intumescent 1 ½ hour sealant

END OF SECTION 024100
SECTION 025000

ASBESTOS REMOVAL AND RELATED WORK

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 that are hereby made a part of this Section of the Specifications.

B. Equality of material, article, assembly or system other than those named or described in this Section shall be determined in accordance with the provisions of Article III, Paragraph 1 of the CONTRACT AND GENERAL CONDITIONS.

1.2 DESCRIPTION OF WORK

A. The intent of the Work is to remove those Asbestos Containing Materials (ACM) from the Site that may be disturbed due to proposed building renovations work. The Contractor shall furnish all labor, material, supervision, construction tools, transport vehicles and equipment necessary to perform the following work:

1. Pre-bid inspection. The potential Bidders are encouraged to visit the Project Building prior to bidding in order to determine the actual amounts of asbestos containing materials to be removed.

2. Provide documentation of worker training, respiratory protection and medical examination.

3. Provide access, support and protection to all authorized visitors and inspectors.

4. Filing of and/or obtaining all required notifications, permits, work plans and payment of all required associated costs and fees.

5. Work area preparation and work practices.

6. Proper removal, packaging, transport and disposal of all asbestos containing materials as specified herein. If applicable, note that vehicles transporting bulk-loaded demolition debris containing a reportable quantity (greater than 1 pound) of asbestos shall be properly placarded in accordance with USDOT regulations. All drivers shall be appropriately trained and licensed to transport this material.
7. Isolation of the Work Area for the duration of the work so as to prevent asbestos contaminated dust or debris from passing beyond the isolated area.

B. It is the Contractor’s responsibility to determine the most efficient method to legally perform this Work. Unless specifically noted, this Specification does not dictate specific methods to be implemented in the performance of the Work. The entire application of all accessible ACMs shall be removed inclusive of any substrate contamination, whether present on or below the substrate surface or embedded in the matrix of the substrate component.

C. The Contractor shall perform all work in accordance with these specifications, the USEPA and OSHA regulations, NIOSH recommendations, MassDEP and MassDLS regulations, UMASS SOPs and Policies, local statutes, local ordinances, local codes and any other applicable federal, state and local government regulations and guidelines.

D. The Contractor is advised that paints and/or coatings existing within the building may contain lead. The Contractor shall at all times be in compliance with OSHA regulation 29 CFR 1926.62 Lead in Construction; Interim Final Rule as well as other applicable regulatory requirements and other applicable portions of the contract documents.

1.3 SCHEDULING

A. The Contractor and the Owner shall develop an abatement schedule for the work at the Pre-Construction Conference. The Owner may choose to alter the work sequence as they see fit.

B. The Contractor shall update the schedule and submit any schedule changes for review by the Owner at the weekly construction meetings.

1.4 LOCATION OF WORK AND SITE CONSTRAINTS

A. Location of sampled materials, and material descriptions of asbestos-containing materials (ACM) are described in the provided data Table 1. If additional ACM’s are encountered, Contractor shall notify Designer immediately and have an asbestos removal team prepared to abate the material upon written approval by the Owner.

B. Table 1 identifies ACM materials encountered and bulk sampled during the survey. The quantities (Contractor shall review Site Plans/Drawings to determine quantities) are provided for guidance and may not correspond exactly to the quantity to be removed. Contractor shall determine quantities of asbestos for bidding purposes. Table 2 identifies non-ACM materials that were sampled during this assessment.
## Table 1
**Asbestos Containing Building Materials**
**Webster House Suite 234**
**University of Massachusetts- Amherst**

<table>
<thead>
<tr>
<th>Field ID</th>
<th>Description</th>
<th>Location</th>
<th>Material Class</th>
<th>Friability &amp; Access</th>
<th>Condition Assessment</th>
<th>Est. Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>03A, 03B</td>
<td>White textured ceiling coating</td>
<td>Throughout suite 234</td>
<td>Surfacing</td>
<td>Friable, accessible</td>
<td>Intact</td>
<td>*900 SF</td>
</tr>
</tbody>
</table>

Notes: See plans for exact locations and quantities to be removed.
- SF = square feet
- Any suspect materials not identified in report shall be presumed ACM until laboratory data prove otherwise.
- Analytical results for samples obtained by EPA/600/R-93/116 or "visual estimate" quantitative method.

## Table 2
**Suspect Materials with No Asbestos Detected**
**Webster House Suite 234**
**University of Massachusetts- Amherst**

<table>
<thead>
<tr>
<th>Field ID</th>
<th>Description</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>01A</td>
<td>Wall Plaster Skim</td>
<td>Middle Room</td>
</tr>
<tr>
<td>01B</td>
<td>Wall Plaster Skim</td>
<td>Bathroom</td>
</tr>
<tr>
<td>02A</td>
<td>Wall Plaster Base</td>
<td>Middle Room</td>
</tr>
<tr>
<td>02B</td>
<td>Wall Plaster Base</td>
<td>Bathroom</td>
</tr>
<tr>
<td>04A</td>
<td>Residual Black Baseboard Adhesive</td>
<td>Outside Existing Bathroom</td>
</tr>
<tr>
<td>04B</td>
<td>Residual Black Baseboard Adhesive</td>
<td>Outside Existing Bathroom</td>
</tr>
<tr>
<td>05A</td>
<td>Gold Adhesive associated with tan 4&quot; Vinyl Baseboard</td>
<td>Middle Room</td>
</tr>
<tr>
<td>05B</td>
<td>Residual Gold Baseboard Adhesive</td>
<td>Bedroom</td>
</tr>
<tr>
<td>06A</td>
<td>White/Gray Packing Materials at Base of Steam Pipe</td>
<td>Middle Room</td>
</tr>
<tr>
<td>06B</td>
<td>White/Gray Packing Materials at Base of Steam Pipe</td>
<td>Middle Room</td>
</tr>
<tr>
<td>07A</td>
<td>Pink Linoleum</td>
<td>Bathroom</td>
</tr>
<tr>
<td>07B</td>
<td>Pink Linoleum</td>
<td>Bathroom</td>
</tr>
<tr>
<td>08A</td>
<td>Black Adhesive Associated with 07A</td>
<td>Bathroom</td>
</tr>
<tr>
<td>08B</td>
<td>Black Adhesive Associated with 07B</td>
<td>Bathroom</td>
</tr>
<tr>
<td>09A</td>
<td>Wall Tile Grout</td>
<td>Bathroom</td>
</tr>
<tr>
<td>09B</td>
<td>Wall Tile Grout</td>
<td>Bathroom</td>
</tr>
<tr>
<td>10A</td>
<td>Wall Tile Setting Bed</td>
<td>Bathroom</td>
</tr>
<tr>
<td>10B</td>
<td>Wall Tile Setting Bed</td>
<td>Bathroom</td>
</tr>
</tbody>
</table>

### 1.5 Authority to Stop Work

A. Owner has the authority to stop the work at any time Owner determines either personally or through the services of the Designer that conditions are not within the specifications and applicable regulations. The stoppage of work shall continue until conditions have been corrected and corrective steps have been taken to the satisfaction of Owner’s Asbestos Monitor. Standby time required to resolve violations shall be at the Contractor's expense, and any fines, etc., for
hazardous conditions or non-compliance will be at the Contractor's expense, and will not be grounds for change orders or time extension.

B. The Asbestos Monitor shall notify the Contractor when airborne fiber levels measured outside the work area enclosures or at the boundary of regulated areas exceed 0.010 f/cc or established background levels, at which time the Asbestos Monitor will direct the Contractor to stop work, determine the cause of the elevated fiber levels and implement corrective actions.

C. Stop work orders may be issued for, but not limited to the following:

1. Breaks in barriers.
2. Loss of negative air (0.02 inches of water column - minimum negative pressure to be maintained).
3. Leakage to other areas.
4. Fiber concentrations outside the work area, which exceed 0.010 f/cc for any one PCM sample.
5. If the Contractor disregards laws or regulations of any regulatory or governing body having jurisdiction.
6. If the Contractor’s work presents a risk to the building, to building occupants to the general public or to the environment as determined by Owner or the Designer.

D. The absence of a stop work order by Owner or Designer shall not in any way be construed as an approval or acceptance of the Contractor’s work.

1.6 CONTRACTOR QUALIFICATIONS

A. Owner shall approve the proposed Contractor and will be based upon submission by the Contractor of the following:

1. Insurance and bonding as stated in the Contract Documents.
2. Licensing by the MassDLS as an Asbestos Abatement Contractor.
3. Names and locations of at least three asbestos abatement projects similar in scope and size to this project completed by the proposed Contractor. Provide the name and phone number of a contact person for each referenced asbestos abatement project.

1.7 PERSONNEL QUALIFICATIONS

A. All personnel of the Contractor involved with this work shall meet the following minimum qualifications:
1. Asbestos worker medical examination within the past year in accordance with OSHA 1926.1001 with a physician’s written opinion that the worker has no condition that would preclude him/her from working with asbestos or wearing a respirator.

2. Current certification by the MassDLS as an Asbestos Supervisor or Asbestos Worker.

1.8 AVAILABILITY OF TRAINED PERSONNEL

A. There shall be a sufficient number of trained and qualified workers, foremen and superintendents to accomplish the work within the required schedule. No untrained nor fully qualified and pre-approved person shall be employed to speed up completion of the abatement work.

1.9 DEFINITIONS

A. All terms not defined herein shall have the meaning given in the applicable publications and regulations.

B. Abatement: Procedures to control fiber release from asbestos-containing materials. Includes encapsulation, enclosure, and removal.

C. Air Monitoring: The process of measuring the fiber content of a specific volume of air in a stated period of time.

D. Asbestos: The name given to a number of naturally occurring hydrated mineral silicates that possess a unique crystalline structure, are incombustible and are separated into fibers. Asbestos includes chrysotile, crocidolite, amosite, anthophyllite, and actinolite.

E. ACM or Asbestos-containing materials: Any material containing one percent or greater by weight of asbestos of any type or mixture of types.

F. Asbestos wastes: All building materials and debris, insulation, disposable clothing and protective equipment, plastic sheeting and tape, exhaust systems or vacuum filters, or any abatement equipment that is or has been contaminated with asbestos and cannot be completely cleaned by vacuuming or by washing.

G. Authorized Visitors: Any visitor authorized by Owner, the Designer or any representative of a regulatory agency or other agency having jurisdiction over the project.

H. Barrier: Any surface that seals off the work area to inhibit the movement of fibers.

I. Critical Barrier: A solid asbestos impermeable partition erected to constitute a work area closure; the outer perimeter of an asbestos work area, usually erected across corridors or other open spaces to complete containment.

J. Decontamination Enclosure System: A series of connected rooms, with curtained doorways between any two adjacent rooms, for the decontamination of workers or of materials and equipment. A decontamination enclosure system always contains at least one airlock.
K. Encapsulation: All herein specified procedures necessary to coat all asbestos-containing materials with an Encapsulant to control the possible release of asbestos fibers into the ambient air.

L. Enclosure: All herein specified procedures necessary to complete enclosure of all ACM behind airtight impermeable, permanent barriers.

M. Friable Asbestos Material: Material that contains more than one percent asbestos by weight and that can be crumbled, pulverized, or reduced to powder by hand pressure when dry.

N. Glovebag: A sack (typically constructed of 6-mil transparent polyethylene or polyvinylchloride plastic) with two inward projecting long sleeve gloves, which are designed to enclose an object from which an asbestos-containing material is to be removed.

O. HEPA Filter: Equipment with a High Efficiency Particulate Air (HEPA) filter, greater than 99.97 percent efficiency by 0.3-micron DOP test, and complying with ANSI Z9.2 (1979).

P. PACM: Presumed asbestos-containing materials.

Q. Removal: All herein specified procedures necessary to strip all ACM from designated areas and to dispose of these materials at an acceptable site.

R. Respirator: A device designed to protect the wearer from the inhalation of harmful atmospheres.

S. TSI: Thermal system insulations which include all types of insulating materials on boilers, tanks, heat exchangers, pipes, ducts, breeching and other machinery, equipment and components which require insulation.

T. VAT: Vinyl asbestos (floor) tile.

U. Visible Emissions: Any emissions containing particulate asbestos material that are visually detectable without the aid of instruments. This does not include condensed uncombined water vapor.

1.10 EMERGENCY PRECAUTIONS

A. The Contractor shall develop and submit a written fire protection plan, which specifically addresses fire protection during asbestos abatement. This plan shall be submitted to Owner for review prior to the start of work.

B. The Contractor shall establish and maintain emergency and fire exits from the work areas. The Contractor shall submit a written emergency evacuation plan to the Owner and to the Designer for review.

C. Local emergency medical personnel, both ambulance crews and hospital emergency room staff, shall be notified prior to commencement of abatement operations as to the possibility of having to handle contaminated, injured workers, and shall be advised on safe decontamination. The Contractor shall submit copies of such notifications to the Designer.
D. The Contractor shall have a written Health and Safety plan. When an injury occurs the Contractor shall stop work and implement fiber reduction techniques (e.g., water spraying) until the injured person has been removed from the work area.

E. Before the Contractor starts any removal of the asbestos material, the Contractor shall notify the local police and fire departments as to the proper personal protective equipment required by persons providing emergency response services. The Contractor shall make every effort to help these agencies form plans of action should their personnel need to enter contaminated areas.

1.11 SUBMITTALS

A. The Contractor shall submit each item in this Article according to the Conditions of the Contract and Section 013300, for information only, unless otherwise indicated.

B. All submittals shall be submitted to the Designer prior to the start of work.

C. Abatement Plans using conventional containment and negative pressure shall be submitted on a building-by-building basis prior to work in the building. The Work Plan shall include, at a minimum, the following:

1. Layout of project execution components showing the configuration of the containment area.


3. Access routes to asbestos controlled areas.

4. Copy of notification to police department, fire department and local ambulance and hospital.

5. A description of wetting agents and low pressure wetting system.

6. Description of enclosures to be used.

7. Description of wall, floor and opening coverings and sealing tapes.


9. Detailed plans for decontamination facilities, toilets and systems allowing intra-room communication and communication between the work area and other areas.

10. Engineering systems for exposure control showing the number, location and capacity of exhaust systems, the expected direction of flow and the negative pressure in each work area.

11. Submit manufacturer's certification that vacuums, ventilation equipment, and other equipment required to contain airborne asbestos fibers conform to ANSI Z9.2 and to requirements as listed in this Specification.
12. Safety Data Sheets (SDS's) for all products used on the Project.

13. Standard Operating Procedure showing how workers, visitors, and employees will be protected from exposure and how spaces outside the work areas will be protected from contamination until completion of the work.

D. A separate work plan shall be prepared by the Contractor and provided to the Designer and Owner addressing the bulk demolition and segregation of material, if applicable. The Contractor shall submit this Work Plan for review and approval. This work plan shall include the following:

1. A description of the wetting procedures to be used for the work including, but not limited to demolition, load-out, etc. This item shall address the amount of water to be used, size and number of hoses, water source and means for determining whether adequate water is being used (lack of visible emissions, compliance with air sampling action level, etc.).

2. A description of the procedures to be used to contain water run-off.

3. Proposed methodology of bulk loading including minimizing cross-contamination of surrounding areas.

4. A description of the proposed transport vehicles including transporter’s name, size of vehicles, type of container, etc.

5. A description of the proposed packaging procedures.

6. Proposed landfill with applicable license to accept asbestos waste.

7. Proposed methodology to final clean substrate after bulk materials have been removed.

8. Standard Operating Procedure showing how workers, visitors, and employees will be protected from exposure and how spaces outside the work areas will be protected from contamination until completion of the work.

E. To comply with applicable regulations, notify appropriate regulatory agencies of abatement activities.

1. Provide the required written notification at least 10 days before the start of the asbestos abatement activity to the MassDEP and MassDLS. MassDEP requires that an individual demolition and asbestos abatement permit will be required for each building.

2. Provide the required written notification by registered mail to local authorities as required.

3. Obtain and process all applicable forms and permits required.

4. In addition, the Contractor shall be familiar with the following:
   - Amherst Municipal and Zoning Ordinances as they affect the work.
- Massachusetts State Building Code (780 CMR).

F. Sample literature for proposed disposable protective clothing to be used on this Project.

G. Respiratory Protection System(s), including literature describing sample respirators, hoses and certificate with system literature for the air supply system from manufacturer stating that air supply system meets specifications on quality, quantity and escape time. These submittals are required only if supplied air respiratory protection is used.

H. Certification of compliance with OSHA requirements including but not limited to medical surveillance, record keeping and personal monitoring.

I. Documentation of certification in accordance with 453 CMR 6.00 for each employee.

J. Final landfill destination(s) and copies of transporter and Landfill permits as well as Waste Shipment Records

K. Copies of all Notifications made to Massachusetts Asbestos Program, Local Board of Health, Local Fire Department, and any other agencies, as required.

L. Application for and obtaining of waivers and exemptions, which may be required by various regulatory agencies.

1.12 REFERENCES

A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in text by basic designation only. The list provided below is not intended to be all inclusive of each regulation prevailing over the work.

B. Environmental Protection Agency (EPA):


C. Occupational Safety and Health Administration (OSHA):


D. National Institute for Occupational Safety and Health (NIOSH):

E. American National Standards Institute (ANSI):
   3. Z88.2-1980-Respiratory Protective Equipment

F. Massachusetts Department of Labor, Division of Occupational Safety
   1. The Removal, Containment or Encapsulation of Asbestos (453 CMR 6)

G. Massachusetts Department of Environmental Protection
   1. Amendments to Regulations 310 CMR 7.00, 7.09, 7.15 to Control Airborne Asbestos Emissions for the Control of Air Pollution.

H. U.S. Department of Transportation
   1. 49 CFR 171 - 180, Hazardous Materials Regulations
   2. 51 CFR 42176

PART 2 - MATERIALS AND EQUIPMENT

2.1 GENERAL

A. All materials or equipment delivered to the site shall be unloaded, temporarily stored, and transferred to the work area in a manner which shall not interfere with operation of others at the site, or employee’s access and safety.

B. Damaged or deteriorated materials shall not be used and shall be promptly removed from the premises. Materials that become contaminated with asbestos-containing material shall be thoroughly cleaned, or sealed in plastic bags or sheeting, labeled, and legally disposed of in an approved, secure landfill.

C. All materials and equipment shall comply, at a minimum, with all sections of this specification, applicable federal, state, and local codes, and industry standards.

2.2 ABATEMENT EQUIPMENT & SUPPLIES

A. HEPA-Filtered Exhausts - Air inside each work area shall be exhausted through a High Efficiency Particulate Air (HEPA) filter. Commercially manufactured HEPA-filtered exhaust
units, with specification plates intact, must be provided for each work area to attain, at a
minimum, four air volume changes per hour and an inward flow velocity of clean air into each
work area at the Decontamination Facility of at least 100 feet per minute. The HEPA filter shall
be preceded by replaceable prefilters and the unit must be designed so that it cannot be operated
unless all filters are in place. The units must also be designed with a gauge to indicate the
pressure drop across filters, and lights and audible alarms to indicate that the filters are properly
installed, functional, and when they must be changed. Flexible ducting shall be required to allow
exhausting to the exterior of the building. No exhaust with any other type of particulate cleaning
system (such as electrostatic precipitators) shall be allowed without prior written approval.

B. Plastic Sheeting ("Poly") and Bags - shall be polyethylene or equivalent with a thickness of at
least 6 mil for all applications.

C. Wetting Agent or Surfactant - shall be 50 percent polyoxyethylene ester and 50 percent
polyoxyethylene ether, or equivalent, mixed in the proportion of one ounce of surfactant per five
gallons of water. The material shall be odorless, nontoxic, nonirritating, and noncarcinogenic. It
shall be applied as a mist using a low pressure sprayer recommended by the surfactant
manufacturer.

D. Tape and Glue - shall be capable of sealing plastic joints and attaching plastic to finished
surfaces. The bonding strength and resulting seal integrity shall not be affected by mist or water,
wetting or encapsulating agent, or any other materials to be used in the work area.

E. Warning Signs and Labels - shall comply with all federal, state, and local codes and regulations.

F. Waste Containers and Transportation - shall be suitable for loading, temporary storage, transport,
and unloading of contaminated waste without risk of ripping, rupture, or exposure to persons, or
emissions to the atmosphere. - Transportation methods -shall comply with the provisions of 40
CFR 61, Subpart M, and with any and all state and local hazardous or special waste regulations
for temporary storage, transport, and disposal if such codes are enforced in states in which the
waste will be stored, transported, or disposed.

G. Truck Liners - shall be polyethylene or equivalent with a thickness of at least 10 mil for all
applications, as applicable.

2.3 SAFETY SUPPLIES AND EQUIPMENT

A. Respirator Types - Provide all workers with a full or half face piece respirator which is approved
by NIOSH/MSHA for protection against airborne asbestos, and meets the requirements of the
OSHA Asbestos Standard. Provide respirators for each worker and at least two extra respirators
for use by approved visitors. Minimum respiratory protection required shall be compliant with
current OSHA and MassDLS regulations including 453 CMR 6.00 and TITLE 29 CFR
1926.1101

B. Protective Clothing - Provide all workers and approved visitors with disposable coveralls, head
and foot coverings, gloves, eye protection (i.e., safety glasses) and half-face respiratory
protection including replacement HEPA filter cartridges.
2.4 ENCLOSURES, SHOWERS AND TOILETS FOR REMOVAL

A. For each abatement area, provide decontamination facilities located in an area agreed upon with the Designer. The decontamination facilities shall include a Decontamination Enclosure System for workers and visitors and a Decontamination Enclosure System (as necessary) for loading of asbestos into trucks for transportation to the landfill.

B. The Decontamination Enclosure System for workers and visitors shall consist of three rooms that serve as three air locks as follows: Clean Room at entrance followed by Shower Room followed by an Equipment Room leading to the Work Area.

C. The Decontamination Enclosure System for removing asbestos bags or drums from the work area (as applicable) shall consist of an Air Lock from the Work Area leading into the Bag Wash and Wipe Room, and another Air Lock leading to outside the work area.

D. An Airlock is a system permitting unidirectional flow of air through the decontamination unit. It consists of two curtained doorways at least eight feet apart. Each curtained doorway shall be constructed by placing three overlapping sheets of plastic over a framed doorway, securing each along the top of the doorway. The first and third sheet shall be secured on one side of the doorway and the middle sheet shall be secured on the other side of the doorway. Where size of work area permits, eight-foot distance between doorways is acceptable. Where size of work area is prohibitive, distance between doorways may be adjusted but must allow enough space for one doorway to be closed before the next doorway is opened.

E. Provide lockers (as necessary) for storage of workers’ street clothes in the clean room. Provide in the same room uncontaminated disposable protective clothing and gear for workers to don prior to entering the contaminated area and for workers to dress into street clothing after they have showered and dried in the shower room as they exit from the contaminated area.

F. Provide shower room facilities with hot and cold water so arranged as to provide complete showering of workers and visitors as they exit from the contaminated area. Make provisions to prevent any contaminated run-off from the shower room. The shower room facilities and size shall be adequate to allow decontamination and thorough washing of all the workers and visitors within a ten-minute period. The hot and cold water shower shall be functional at all times while workers are within the work area enclosure. Shower water temperature shall be controlled at the tap.

G. Provide the Equipment Room with storage for contaminated clothing and equipment. In this room, workers and visitors shall dispose of their disposable protective clothing except the respirator as they prepare to enter the Shower Room.

H. The Bag Wash and Wipe Room shall be equipped with the facilities to wash and wipe the outside of the drum or bags prior to the loading into the trucks for transportation to a landfill. Make provisions to prevent any contaminated run-off from the Bag Wash Room.

I. The Clean Drum Storage Room shall remain clean at all times.

J. Provide heating and ventilation in entire Decontamination System so that airflow will be from the outside towards the workspace.
2.5 TOOLS AND EQUIPMENT

A. Airless Sprayer: Airless sprayers, in sufficient quantity and suitable for application of encapsulating material, shall be used, as necessary.

B. Negative Air Filtration Unit: Asbestos filtration devices shall utilize high efficiency particulate air (HEPA) filtration systems, 99.97% efficient to 0.3 microns particulate size.

C. Scaffolding: Scaffolding, lifts, ladders, and aerial equipment as required to accomplish the specified work, shall meet all applicable safety regulations.

D. Transportation Equipment: Transportation equipment, as required, shall be suitable for loading, temporary storage, transport, and unloading of contaminated waste without exposure to persons or property. The equipment shall be secured at all times and access restricted to unauthorized personnel.

E. Vacuum Equipment: All vacuum equipment utilized in the work area shall utilize HEPA filtration systems, 99.97% efficient to 0.3 microns particulate size. Deliver all vacuums to the site with clean waste containers and intact, undamaged HEPA filters installed.

PART 3 – EXECUTION

3.1 COORDINATION AND SCHEDULING

A. The Contractor shall coordinate all work with the Designer and the Owner.

B. The Contractor shall submit to the Designer prior to contract performance, a schedule of work including sequencing of asbestos removal areas and demolition (as necessary).

C. The Contractor shall give not less than a two-week advance notice of proposed time for shutting down or interrupting any utility, service or facility, which may affect normal facility operations.

D. The Contractor shall make all required notifications and obtain all permits including, but not limited to MassDEP and MassDLS. All associated costs and fees shall be paid for by the Contractor and included in the base bid price.

3.2 RESPIRATORY PROTECTION SYSTEMS

A. Provide all workers and authorized visitors with NIOSH approved respirators compliant with OSHA regulations and a sufficient quantity of disposable filters, so that workers can change filters during the workday. Store the respirator filters at the job site in the change room, and protect them from exposure to asbestos or other hazardous materials prior to their use.

B. Workers shall always wear a respirator properly fitted on the face while within the work area enclosure and decontamination and bag/drum wash areas. Any worker failing to wear his/her
respirator or in any way performing his/her work in an unsafe manner shall be restricted from working at this site.

C. Instruct and train workers in proper respirator use.

3.3 PROTECTIVE CLOTHING

A. Provide to all workers, foremen, superintendents and authorized visitors and inspectors protective disposable clothing consisting of full body coveralls, head covers, gloves and 18-inch high boot type covers or reusable footwear.

B. Provide eye protection and hard hats as required by job conditions and safety regulations.

C. Reusable footwear, hard hats and eye protection devices shall be left in the "Contaminated Equipment Room" until the end of the asbestos abatement work.

D. All disposable protective clothing shall be discarded and disposed of as asbestos waste every time the wearer exits from the workspace to the outside through the decontamination facilities.

E. Provide all personnel throughout the abatement process with the specified protective clothing and gear. Ensure that all personnel entering and leaving the workspace use the following procedures:

1. Entering from the outside: Change from street clothes into protective clothing and wear clean protective gear. Go through shower room into Dirty Equipment Room, pick up equipment and tools and enter the work area.

2. Exiting from the Work Area: Dispose of all protective clothing into labeled plastic bags for asbestos waste. Do not take off the respirator, but still wearing the respirator enter the shower and shower thoroughly. Remove respirator and wash and wipe thoroughly to decontaminate the respirator. After drying, enter the Clean Room, store the decontaminated respirator in the assigned space and dress into street clothes.

3. Post written procedures in the workplace and train all personnel on the procedures for the evacuation of the injured and the handling of potential fires. Provide aid to a seriously injured worker without delay for decontamination. Make provisions to minimize exposure of rescue workers and to minimize spreading of contamination during evacuations and fire procedures. Exceptions to normal, routine-exiting procedures shall be made for emergencies such as, but not limited to, serious personal injury and fires.

4. The Contractor shall instruct all employees and workers in the proper care of their personally issued respiratory equipment, including daily maintenance, sanitizing procedures, etc.

F. All respiratory equipment shall be inspected by Contractor's personnel at the beginning of each work period, including breaks and lunch periods.

3.4 GENERAL PREPARATION PROCEDURES
A. Upon receipt of a Notice to Proceed, the Contractor shall meet at the Site with the Designer and Owner to reach agreement on:

1. Scope and manner of work performance and all schedules.
2. Contractor and supporting vendor vehicle access and parking.
3. Contractor access to the work areas, including approved doors, stairways, and corridors.
4. Location of water supply and wastewater drain connection points, if available.
5. Determination of all equipment and other items to be removed from the work areas, and the location of temporary storage space, if applicable.
6. Any other logistical factors to minimize interference with public safety and health, and other Contractor activities.

B. Prepare each work area according to the following general sequence of procedures to ensure that proper fiber containment and protection systems are installed before any work, which could generate airborne asbestos fibers.

1. Erect barricades, post access restriction signs, seal all openings into the work area airtight (including doors, chases, shafts, and other vertical penetrations), and erect or install Decontamination Facilities and HEPA exhaust systems.
2. Install poly sheeting in the work zone. Perform precleaning/surface decontamination where appropriate prior to installing protective poly sheeting.
3. Isolate and seal airtight with plastic and tape all HVAC system openings in the work area. All HVAC or exhaust systems within, or ductwork passing through, a fully contained removal air shall be inactivated (this does not refer to glove bag removal areas).
4. Obtain formal approval from Designer of all preparation work and containment areas before commencing asbestos removal. The Designer shall be given at least 48 hours notification of the intent to start removal work in any work area.
5. If saw cutting or any other method or device that renders roofing friable is utilized during asphalt-based, asbestos-containing roofing removal, then a negative air containment area must be erected.

C. Isolation of Electrical Systems

1. The scope of the electrical isolation work covers the protection of electrical equipment that is in areas where asbestos removal work is performed and where the water used for wetting the material before or during removal could possibly contact the equipment and create a hazard.
2. Provide portable electrical panels with ground fault protection for all non-battery power
requirements. These panels shall have sufficient capacity for all HEPA exhausts and vacuums, power tools, portable lighting, and all other electrical needs.

3. Provide a licensed electrician to perform all electrical work including, but not limited to connecting, energizing, and de-energizing the electrical panels and to be on call to handle any electrical problem, which may arise during the course of the work.

4. All materials and workmanship shall comply with the latest editions of applicable codes, standards, and specifications.

5. Once a work area becomes isolated by containment, only weatherproof lighting and washable tools and equipment will be allowed in the area.

3.5 DECONTAMINATION FACILITIES

A. Description - Any person or thing exiting from the work areas must pass through a Decontamination Facility consisting of three separate, adjacent rooms separated by curtained entrances, constructed in accordance with applicable regulations. Bulk, non-friable asbestos waste, which was packaged in a clean environment, does not require decontamination in a shower. All containers passing through the Decontamination Facility must be cleaned thoroughly before exiting the facility.

B. Construction - Decontamination Facilities shall be constructed and maintained as specified in applicable regulations and shall be located in areas approved by Designer.

C. Manner of Operation - All personnel shall enter the Clean Room, remove and store street clothes, and put on clean protective clothing and respirators; then enter the Equipment Room, put on any additional equipment, and enter the work area. All personnel exiting the work area shall enter the Equipment Room, remove and store or dispose of all contaminated clothing and shoes, shower, and then put on street clothing in the Clean Room. Respirators shall be worn into and cleaned in the shower, and dried and stored in the Clean Room.

D. Wastewater Disposal - All water from the shower and cleaning hose shall be collected, pumped through a 5.0-micron filter, and then legally drained to points approved by the Designer. The Contractor shall legally handle, transport, and dispose of all filtrate and solids.

E. Cleaning - Decontamination Facility shall be cleaned using a HEPA-filtered vacuum at least once every shift, or more frequently, if needed, to prevent dust accumulation.

F. Prohibitions - Smoking, drinking, or eating shall not be permitted in any work area or Decontamination Facility.

3.6 WORK AREA ISOLATION

A. Preclean any fixed objects or equipment within the work areas by using HEPA-filtered vacuum equipment and wet washing except where air samples indicate concentrations of airborne fibers less than 0.010 f/cc and where there is no contamination of any surfaces; then enclose with
minimum 6-mil plastic sheeting sealed airtight.

B. At minimum, large areas, such as open elevator shafts, doorways, and stairwells, shall be sealed with two layers of 6-mil poly over plywood on 2” x 4” framing or approved alternative.

C. Protect and isolate the work area for the duration of work by completely sealing off all openings and fixtures (including, but not limited to, floors, walls, ceilings, heating and ventilation ducts, doorways, corridors, windows, and lighting) using plastic sheeting sealed securely in place. The work area shall be sealed airtight to the extent possible.

D. Seal airtight all holes or other openings in the ceiling above and the floor below in each work area with poly sheeting.

3.7 AIR FILTRATION SYSTEM - FULLY ENCLOSED WORK AREAS

A. Provide negative air filtration system in the work area to maintain a minimum negative pressure of 0.02 inch of water. If negative air pressure of 0.02 inches is lost, work shall be halted until the required negative air pressure is restored.

B. The Contractor shall provide local exhaust ventilation in the work area to maintain a negative pressure in the work area relative to the adjacent non-work areas. The exhaust units must be equipped with a High Efficiency Particulate Air (HEPA) filter capable of retaining 99.97% of particulate matter greater than or equal to 0.3 microns in diameter. This filter must comply with ANSI Z9.2 standards. The fan for each unit should be sized to draw a desired airflow through the filters in the unit at a specified pressure drop. The unit should have an air-handling capacity of 1,000 CFM to 2,000 CFM. (under "clean" filter conditions).

C. High Efficiency Particulate Air (HEPA) air filtration equipment shall be equipped with visible and audible alarms that indicate the equipment is operating properly and when the air filtration media requires replacement and/or equipment requires servicing.

D. The system created to maintain the specified negative air pressure differential shall be capable of providing a minimum of one air change every 15 minutes. Fifteen-minute air changes are mandatory during removal of asbestos-containing materials. All HEPA exhaust units shall be vented outside the building.

E. All air filtration units utilized on this project shall be delivered to the site in good condition with no visible debris and shall have intact HEPA filters installed with no holes, voids or gouges in the filters. Pressure differential across the filters shall be less than 0.02”.

F. The air filtration system shall be operated on a continuous 24-hour basis throughout the abatement process through successful final air clearance testing and containment dismantling. The ventilation system shall be in accordance with EPA recommendations included in the “Guidance for Controlling Friable Asbestos-Containing Materials in Buildings”.

G. No work will be allowed when the pressure differential in the work area is less than 0.02” relative to adjacent building areas.
H. Employees should start removing the asbestos material at a location farthest from the exhaust units and work towards them. If an electric power failure occurs, removal must stop immediately and should not resume until power is restored and exhaust units are operating again.

3.8 WORK AREA EXHAUST

A. Install one or more portable HEPA-filtered exhausts to maintain each work area, including the Decontamination Facility, under negative pressure, and to reduce airborne asbestos fiber concentrations.

B. The exhaust(s) must be capable of providing at least an inward velocity through any unsealed openings, including the Decontamination Facility, of at least 100 fpm, and four full air changes per hour throughout the work area.

C. All exhaust air shall pass through a HEPA filter before being discharged to the exterior of the building.

D. Deficient air flows shall be immediately reported and work ceased until the situation is corrected.

E. Exhaust system shall be operated constantly from the time that preparation is completed, until “clean air” certification is obtained.

3.9 APPROVAL OF CONTAINMENT AREAS

A. After the work area has been prepared as specified, the Contractor shall request an inspection by the Asbestos Monitor. No removal or disturbance of asbestos-contaminated materials or systems is to occur until the Designer, has inspected and approved each separate prepared work area.

B. Any deficiencies in the preparation work shall be promptly corrected in a manner satisfactory to the Designer.

3.10 ASBESTOS REMOVAL PROCEDURES

A. Selective demolition and exploratory demolition may be required. Demolition of block, brick, ceramic tile, concrete, carpeting, floorings, gypsum board walls and ceilings, and other building materials, equipment and components to properly access and remove ACMs is part of the Contractor’s work. Selective demolition shall be performed in a controlled manner as to not affect ACMs or PACMs. Debris generated during the selective exploratory demolition work shall be properly separated and removed prior to performing any asbestos abatement/removal. Additional ACMs discovered in wall and ceiling cavities during this select/limited exploratory demolition shall be brought to the attention of the Designer.

B. The Contractor shall remove all movable objects/items stored in the buildings unless otherwise specified. Non-porous items can be decontaminated and disposed of as conventional waste unless otherwise specified or regulated. Porous materials are to be disposed of as asbestos waste unless regulated or specified otherwise.

C. Asbestos-Containing Materials (Excluding Glovebag Removal):
1. All asbestos-containing materials to be removed shall be contained within a negative pressure enclosure system, wetted with amended water and carefully removed to prevent droppage and creation of airborne dust.

2. Once the removal of all asbestos-containing material is complete, all surfaces and walls within the area shall be thoroughly cleaned by wet wiping/cleaning, followed by thorough drying, and then HEPA vacuumed. A satisfactory encapsulant (lockdown material) shall be applied to all surfaces from which friable asbestos has been removed.

3. The exterior of disposal bags, drums, and other containers shall be vacuumed and washed free of all visible asbestos fibers before their removal from the work area.

D. Asbestos-Containing Materials (Using Glovebag Removal Methods):

1. All glovebag removal operations shall be conducted in accordance with 29 CFR 1926.1101 and applicable state regulations. Glovebags cannot be slid on pipes or reused.

E. Encapsulation:

1. After all asbestos-containing material are removed, seal the surface with an approved encapsulation material. Encapsulation materials shall be applied after clearance visual inspection has been performed by the Asbestos Monitor. The Contractor shall inform the Designer whenever any asbestos-containing materials cannot be removed, whether in total or in part prior to encapsulating.

2. The encapsulant shall be prepared and applied according to the manufacturer’s specifications. A Material Safety Data Sheet (MSDS) must be submitted to Owner and the Designer for acceptance for the encapsulant prior to its use at the Project Site. A copy of the MSDS must be available to the workers and the workers shall wear appropriate personal protective equipment as designated on the MSDS during the preparation and application of the encapsulant.

3.11 WORK AREA CLEANUP, DECONTAMINATION AND WASTE DISPOSAL

A. General Requirements

1. After all asbestos-containing or asbestos-contaminated materials have been removed, remove all wastes and perform a final cleanup and decontamination of each work area. Final cleaning shall be performed only after all waste is packaged and removed, but before reinstalling or demolishing any equipment, or dismantling any barrier, Decontamination Facilities, or protective coverings. Cleaning shall be subject to the approval of the Asbestos Monitor based on a visual inspection, surface dust wipe tests (if necessary), and air testing.

B. Cleaning Methods and Approvals

1. All waste containers and removal equipment shall be thoroughly cleaned with a HEPA-filtered vacuum, decontaminated with the use of amended water, and then promptly removed from the work area.
2. All surfaces in the work area shall be thoroughly wiped/washed clean and, after drying, thoroughly decontaminated with a HEPA-filtered vacuuming device then encapsulated.

3. After cleaning, the Universities Asbestos Monitor shall inspect the work area. To facilitate scheduling of inspections and air tests, the Contractor shall notify the Asbestos Monitor of the anticipated completion of the final work area cleaning at least 48 hours in advance.

4. If any visible waste or fibers are observed within the work area during the inspection, the Contractor shall perform additional cleanup and decontamination.

5. If the air sample results are above the Air Quality Standard of 0.010 f/cc as measured by PCM analysis, the Contractor shall perform additional cleaning and decontamination, and the inspection and air tests shall be repeated at the Contractor’s expense.

6. If the air sample results are below the Air Quality Standard of 0.010 f/cc, the Project Monitor shall give approval for the Contractor to remove all protective coverings, which do not comprise part of the work area seal, containment barrier, or Decontamination Facility.

7. Once these items have been properly packaged and removed from the work area as contaminated waste, package and properly dispose of all remaining plastic sheeting, disassemble and remove the Decontamination Facility and HEPA exhausts, and perform a final HEPA vacuuming and/or wet cleaning of all surfaces.

8. Upon completion of the cleaning, all temporary access openings shall be repaired and all unsafe conditions corrected.

C. Waste Disposal

1. General Requirements - All asbestos wastes (e.g., pipe lagging, floor tile, asbestos-cement, etc.) must be handled, packaged, stored, transported, and disposed of as specified in this subsection, and in compliance with all federal, state, and local regulations and codes.

2. Waste Labeling - If waste containers are not already so preprinted, warning labels having waterproof print and permanent adhesive shall be affixed to the lid and/or sides of the containers, whether or not these containers are further packaged. Warning labels shall be conspicuous and legible, and conform to the latest OSHA, EPA and DOT labeling requirements.

3. Waste Packaging - All waste shall be thoroughly wetted when packaged and Contractor shall inspect each bag, drum or container to observe that water condensation is visible. Insufficiently wetted bags shall be opened, rewetted, and resealed inside a negative pressure enclosure. When a waste bag is full, it shall be securely sealed with tape, and then placed in the designated temporary storage area inside of the work area.

D. Waste Container Removal and Disposal Documentation
1. It is the responsibility of the Contractor to determine current waste handling, transportation, and disposal regulations for the work site and for each waste disposal landfill. The Designer must approve the landfill destination. The Contractor must comply fully with these documents and all U. S. Department of Transportation and EPA requirements.

2. The Contractor, transporter and landfill shall document generation, transport and disposal of the waste at the designated landfill by completing a Waste Shipment Record and forwarding the original along with the Bill of Lading to Owner within the 30-day time period specified by USEPA.

3. To comply with the requirement that waste disposal at an approved landfill be documented, Contractor shall remove waste containers from work areas under the observation of Designer, and shall complete appropriate documentation for each load of waste removed from the site.

4. Measure the volume of each container or load of waste removed from the Site. The Contractor shall provide Owner with an estimated total volume of each load/container of waste and provide an accurate count of each type of container for each load BEFORE the waste is removed from the Site.

5. Provide legal transportation of the waste to the disposal landfill, and complete or obtain all required licenses, manifests, dump slips, or other forms. Proper truck placarding must be performed in accordance with USDOT regulations. Legible copies of all forms or licenses, and the signed original of the Waste Disposal Form (e.g., Asbestos Waste Shipment Record) for each waste load, shall be given to Designer.

6. Waste may not be transported to or temporarily stored at any off-site storage area owned by Contractor. All asbestos waste generated during this Project shall be secured onsite until shipping directly to the waste disposal facility. In addition, no asbestos waste generated from other sites not associated with this project shall be transported, stored, or shipped with asbestos waste generated from this Site.

3.12 MONITORING, TESTING AND INSPECTIONS

A. All monitoring, with the exception of Contractor personnel monitoring, will be performed by the Owners Asbestos Monitor. The Contractor is responsible for personnel monitoring in compliance with OSHA regulations. The Asbestos Monitor may, at his/her discretion, also conduct personal monitoring on Contractor personnel. Monitoring by the Asbestos Monitor shall not relieve the Contractor of obligation to perform personal exposure assessments.

B. The performance and execution of the work will be closely monitored throughout the abatement process and throughout the demolition process by the Asbestos Monitor. The monitoring will be inside the work areas, demolition sites and the surroundings to ensure full compliance with these specifications and all applicable regulations. The Contractor shall provide cooperation and support to the Asbestos Monitor throughout the abatement and demolition process. The continuous monitoring and checking may include air samples in the workspace, personnel samples at breathing levels for a number of workers to be determined solely by the Asbestos Monitor, air samples in the areas surrounding the work area and the outside, checking of the
Standard Operating Procedures, Engineering Control System, Respiratory Protection System, labeling, packaging, transporting and disposal of asbestos, Decontamination Facilities and procedures and any other aspects of the abatement process that may impact the health and safety of the public or the pollution of the environment. The continuous monitoring and checking is further intended to document type and quantities of ACM removed and to document the Contractor’s compliance with regulations and the Contract Documents.

C. The Contractor is responsible for meeting OSHA requirements for their personnel, including but not limited to, monitoring requirements, safety compliance and record keeping. Personal monitoring results from the previous day shall be posted each day, and legible copies of the results forwarded to the Asbestos Monitor.

D. Final Clearance air sampling will be performed by Phase Contrast Microscopy in accordance with MassDLS protocols in work areas where clearance sampling is required.

E. If the concentration of all the air samples taken inside the work area, as analyzed by the PCM method described in 453 CMR 6.00, does not exceed 0.010 fibers per cubic centimeter of sampled air (f/cc), the removal shall be considered complete and the containment area dismantled.

F. If the concentration of any of the air samples taken inside the work area exceeds 0.010 f/cc, then the Contractor shall re-clean the work area and final air clearance testing shall be repeated. All costs associated with the collection and analysis of repeat air clearance samples due to elevated clearance fiber levels shall be paid for by the Contractor.

3.13 FINAL INSPECTION AND TESTING

A. After thorough cleaning and removal of all asbestos waste and Contractor’s materials, tools and equipment, the Contractor’s Asbestos Supervisor shall perform an initial inspection of the work area to determine if it is ready for a final visual inspection by the Asbestos Monitor. Once the Contractor has determined that the containment or regulated work area is ready for the final visual inspection, the Asbestos Monitor shall be notified no less than 24 hours in advance to schedule and perform the required final inspection and final clearance air testing. The Asbestos Monitor will visually inspect the workspace for the detection of any visible debris, dust, residue or contamination. The visual inspection shall be performed prior to applying lockdown encapsulation to surfaces. All surfaces shall be dry to beginning the visual inspection.

B. Following a successful visual inspection of the work area the Contractor shall encapsulate all surfaces within the work area. Following encapsulation of the work area and after a sufficient period of time has elapsed to allow complete drying of the work area, the final clearance air sampling will be performed by the Asbestos Monitor.

C. The final testing shall take place under active agitation of the air in the workspace with fans running, leaf blowers operating and any other means found suitable by the Asbestos Monitor during the final testing. Fans, leaf blowers and extension cords necessary for final clearance air testing shall be provided by the Contractor and the Contractor shall cooperate with and assist the Asbestos Monitor. The analysis of all samples collected shall demonstrate that fiber levels do not exceed 0.010 f/cc by PCM.

Asbestos Removal and Related Work
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D. After the specified post-abatement levels have been confirmed through the final testing specified herein, the plastic enclosure shall be removed, the exposed surfaces thoroughly wet cleaned and/or HEPA vacuumed, and the plastic, tape, material from equipment room and shower room bagged and disposed of as asbestos waste. A final check will be carried out by Owner’s Asbestos Monitor to ensure that no dust or debris remain on surfaces as the result of asbestos removal and related activities and containment dismantling operations. Critical barriers, HEPA exhaust units and decontamination facilities shall remain in place until all final cleaning and clean-up operations have been completed and all other containment dismantling has been completed.

E. After achieving the level of cleanliness and decontamination as specified herein and as confirmed by the final testing and checking, the Asbestos Monitor will thoroughly inspect the work areas jointly with the Contractor to determine whether any damage has been done to any building component, finish, equipment or any other part of the work space or property that will not be subsequently demolished or have been specifically designated for salvage. A final inspection report shall be prepared jointly between the Asbestos Monitor and the Contractor detailing the list of items to be fixed by the Contractor.

END OF SECTION
DIVISION-06 WOOD AND PLASTIC
SECTION 061000
ROUGH CARPENTRY

PART 1 - GENERAL

1.01 CONTRACT REFERENCES
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.

1.02 SCOPE OF WORK
A. The work of this Section without limiting the generality thereof consists of furnishing and installing all rough carpentry and related items as indicated on the Drawings and/or specified herein, and as required to complete the work.
B. All materials shall be verified by the Contractor to be proper for each intended use, and the entire work of this Section shall be done in such a manner that each installation will perform its intended purpose as applicable, in the finished work.
C. Where referred to, standard specifications of technical societies, manufacturer’s associations, and federal agencies shall include all amendments current as of the date of the issue of these Specifications.

1.03 RELATED WORK UNDER OTHER SECTIONS
A. Selective Demolition - Section 024100.

1.04 REFERENCES
A. PS I —83 Construction and Industrial Plywood
B. ASTMD176O-9

1.05 DELIVERY AND STORAGE
A. All materials when delivered to site shall be stacked and stored under protective coverings in such a manner as to insure proper drainage, ventilation, and protection from the weather.
B. Pressure treated wood delivered to the site in a wet or warped condition shall be immediately rejected and removed from the site.
1.06 SUBMITTALS
A. The Contractor shall submit for approval six (6) copies of the manufacturer’s or applicator’s specification for wood preservative treatment to be sure that a satisfactory treatment will be obtained.
B. The Contractor shall submit each type of proposed fastener for approval.

PART 2 - PRODUCTS

2.01 DIMENSIONAL LUMBER
A. Blocking materials shall be of sound stock, new, straight, of consistent size, free of stains and mildew. Where exposed or semi-exposed, wood members shall be selected for the best possible appearance from the grade of stock specified.
B. Blocking materials shall be kiln dried to a moisture content of not more than 19%.
C. Blocking materials shall be surfaced four sides and shall bear the grade and trademark of the association under whose rules it is produced, and a mark of mill identification.
   1. Materials shall be construction grade Douglas Fir, Hem-Fir, West Coast Hemlock, West Coast Fir or Southern Yellow Pine.
D. Blocking shall be furnished in the longest practicable lengths with respect to each intended use, at least twelve feet unless shorter lengths are required. Single length pieces shall be used whenever possible.
E. All new wood shall be pressure-treated with Ammoniacal Copper Quaternary (ACQ) to meet AWPA Cl, AWPA C2, AWPA C4, AWPA CS, AWPA C9, AWPA C15, AWPA C17, AWPA C22, and AWPA PS for ground contact retention (0.40/cu.ft. of wood) for a minimum retention of 95% and marked. Treatment shall have no deleterious effect on the roofing materials. Treatment shall leave a noticeable tint to wood so that treat wood can be visually differentiated from untreated wood. All pressure treated wood shall be kiln dried (to a moisture content of not more than 19%) a second time after treatment with water borne salt preservatives. No oil-based pentachlorophenol or creosote treatments shall be permitted.
F. With the exception of sleepers, the minimum nominal blocking width is six inches (6”).

2.02 PLYWOOD
A. Plywood shall be CDX exterior pressure treated as per above, 5/8” thick all locations maximum moisture content 19% by weight on the dry weight

2.03 FASTENERS/ROUGH HARDWARE
A. Powder-actuated type fasteners shall not be used to fasten wood blocking or flashing.
B. Wood blocking to concrete:
1. 3/8 in. diameter bolts with 1 in. diameter washers, 0.062 in. thick, with approved steel expansion devices. Product: Carbon Steel Kwik Bolt II by Hilti, Tulsa, OK or Dynabolt by JTW Ramset Red Head, Wood Dale, IL.

2. Length: Sufficient to provide 1-5/8in. embedment.

C. Wood sheathing to concrete or masonry:

1. Tapcon 1/4 in. diameter, Phillips flat head anchor by ITW Ramset Red Head, Wood Dale, IL.

2. Structural Concrete Nail or Structural Concrete Screw by Olympic Manufacturing Group Inc., Agawam, MA.


4. Length: Sufficient to provide 1 in. to 1-3/4 in. embedment

D. Wood to wood:

1. Type: Hot dipped galvanized, common, annular ring nail.
   a. Ring diameter: 15% larger than shank diameter.
   b. Length: Sufficient to penetrate underlay blocking 1-1/4 in.

2. Acceptable manufacturers:
   a. Independent Nail Inc., Taunton, MA. I
   b. National Nail Co., Grand Rapids, MI.
   c. W.H. Maze Co., Peru, IL.

E. Fasteners for securing wood blocking to steel deck shall be #14 wirescrews of sufficient length so they penetrate the deepest park of the deck by a minimum of 1". Such fasteners shall be coated with CR-B and able to pass 30 cycles in a Kesternich cabinet with less than 10% rust.

PART 3- EXECUTION

3.01 SURFACE CONDITIONS

A. Examine the areas and conditions by this section. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.02 WORKMANSHIP

A. Season all wood prior to use.

B. Do not use wood with excessive twist or bow.

C. Produce joints which are tight, true, and well secured with members assembled according to the Drawings and with pertinent codes and regulations.

D. Selection of lumber pieces:
   1. Carefully select members.
2. Select individual pieces so that knots and obvious defects will not interfere with proper securement.

3. Cut out and discard defects, which render a piece unable to serve its intended function.

E. Countersink wood blocking to a depth that bolt heads are flush with surface of blocking.

F. Do not use powder actuated fasteners. Use a minimum of 2 fasteners per length of lumber.

G. Where existing are nailers are loose or displaced or do not meet the requirements of this section for fasteners, add such fasteners as specified for new woodwork.

H. Bolt nailers to deck at spacing not over 24 in. centers. Within 8 ft. of outside corners bolt nailers on 16 in centers.

I. Securely nail other blocking and nailers at spacing not over 12 in. centers staggered and not over 6 in. centers staggered within 8 ft. of outside corner

J. Blocking shall be built to the same thickness as the insulation to the maximum extent possible, within 1/16" plus or minus. Blocking shall extend at least 2" beyond the edge of metal flashing flanges.

3.03 BLOCKING INSTALLATION

A. Bolt base blocking to existing surface according to paragraph 3.02- H of this section.

3.04 CLEAN-UP

A. Clean up and remove completely all debris each day to proper disposal or storage.

END OF SECTION 061000
DIVISION-06 WOOD AND PLASTIC  
SECTION 062000  
FINISH CARPENTRY  

PART 1- GENERAL  

1.01 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. Equality of material, article, assembly or system other than those named or described in this Section shall be determined in accordance with the provisions of Article V of the CONTRACT AND GENERAL CONDITIONS  

1.02 SUMMARY  
A. This Section includes the following:  
   1. Plastic-laminate countertops and shelving with associated adhesive and fastening materials.  
   2. Edgeband - Birch-premium grade.  
   3. Particleboard for countertops and shelving.  
   4. Hardwood veneer plywood for shelving.  
   5. Hardwood veneer plywood end panels.  
   6. Acrylic Sealant for sealing interior shelving areas, wherever new laminate on particleboard has been installed, to seal existing joints. General Contractor to apply all caulking.  
   7. Quarter Round Hardwood edge banding.  
   8. Obscure glass frame and glass in existing window.  
B. Related Sections include the following:  
   1. Section 099100 Painting.  

1.03 DEFINITIONS  
A. Inspection agencies, and the abbreviations used to reference them, include the following:  
   1. NHLA - National Hardwood Lumber Association.
1.04 SUBMITTALS
A. Product Data: For each type of process and factory-fabricated product. Include construction details, material descriptions, dimensions of individual components and profiles, textures, and colors.
B. Samples for Verification:
   1. For each species and cut of lumber and panel products with nonfactory-applied finish, with 1/2 of exposed surface finished, 50 sq. in. (300 sq. cm) for lumber and 8 by 10 inches (203 by 250 mm) for panels.
   2. For each finish system and color of lumber and panel products with factory-applied finish, 50 sq. in. (300 sq. cm) for lumber and 8 by 10 inches (203 by 250 mm) for panels.

PART 2 - PRODUCTS
2.01 GENERAL
A. Lumber: DOC PS 20 and applicable grading rules of inspection agencies certified by the American Lumber Standards’ Committee Board of Review.
   1. Factory mark each piece of lumber with grade stamp of inspection agency indicating grade, species, moisture content at time of surfacing, and mill.
   2. For exposed lumber, mark grade stamp on end or back of each piece, or omit grade stamp and provide certificates of grade compliance issued by inspection agency.
B. Environmental Limitations: Do not deliver or install woodwork until the building system is operating and will maintaining temperature between 60 and 90 deg F (16 and 32 deg C) and relative humidity between 25 and 55 percent during the remainder of the construction period.
C. Field Measurements: Where woodwork is indicated to fit to other construction, verify other construction by field measurements before fabrication and indicate measurements.
D. Drawings. Coordinate fabrication schedule with construction progress to avoid delays
E. Locate concealed framing, blocking, and reinforcements that support woodwork measurements before being enclosed and indicate measurements on Shop Drawings.
F. 3/8” obscure tempered glass in wood frame.

2.02 MATERIALS
A. General: Provide materials that comply with requirements of the AWI quality standard for each type of woodwork and quality grade specified, unless otherwise indicated.
B. Hardwood Species and Cut for Transparent Finish: Birch, plain sawn 12% moisture content, maximum flame spread 75.
C. Plywood Products: Comply with the following:
   1. Softwood Plywood: DOC PS 1, Medium Density Overlay, concealed
2. Hardwood Plywood Birch Face Veneers: HPVA HP-I, exposed

D. High-Pressure Decorative Color Core Laminate: as required by woodwork quality standard. Fire-retardant rating 200 (class III).

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering high-pressure decorative laminates that may be incorporated into the Work include, but are not limited to, the following:
   a. Formica Corporation.
   c. Wilsonart International; Div. of Premark International, Inc.

E. Adhesive for Bonding Plastic Laminate: Formica #151.

2.03 PLASTIC-LAMINATE TOPS

A. Quality Standard: Comply with AWI Section 400 requirements for high-pressure decorative laminate countertops as noted.

B. High-Pressure Decorative Laminate Formica COLORCORE2.

C. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:

1. Provide Architect's selections from manufacturer's full range of colors and finishes.

D. Edge Treatment: Lumber edge for transparent finish hardwood wood species.

E. Core Material: Particleboard 45# density (CS 236-66 Type 1, Grade B, Class 2)

2.06 ACCESSORIES

A. Clothes Poles removed and reinstalled by this contractor

2.07 FABRICATION, GENERAL

A. Interior Woodwork Grade: Provide Premium grade interior woodwork complying with the referenced quality standard. (birch)

B. Wood Moisture Content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.

C. Sand fire-retardant-treated wood lightly to remove raised grain on exposed surfaces before fabrication.

D. Fabricate woodwork to dimensions, profiles, and details indicated. Ease edges to radius indicated for the following:

1. Corners of Cabinets and Edges of Solid-Wood (Lumber) Members and Rails: 1/1.6 inch (1.5 mm).

2. Solid hardwood edges all shelves, and cabinet edges.
E. Complete fabrication, including assembly, and hardware application, to maximum extent possible, before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

F. Shop cut openings, to maximum extent possible, to receive hardware, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.

PART 3- EXECUTION

3.1 PREPARATION

A. Condition woodwork to average prevailing humidity conditions in installation areas before installation.

B. Before installing architectural woodwork, examine shop-fabricated work for completion and complete work as required, including removal of packing and backpriming.

3.2 INSTALLATION

A. Quality Standard: Install woodwork to comply with AWI Section 1700 for the same grade specified in Part 2 of this Section for type of woodwork involved.

B. Install woodwork level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb (including tops) to a tolerance of 1/8 inch in 96 inches (3 mm in 2400 mm).

C. Scribe and cut woodwork to fit adjoining work, and refinish cut surfaces and repair damaged finish at cuts.

D. Fire-Retardant-Treated Wood: Handle, store, and install fire-retardant-treated wood to comply with recommendations of chemical treatment manufacturer, including those for adhesives used to install woodwork.

E. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with woodwork and matching final finish if transparent finish is indicated.

F. Standing and Running Trim: Install with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to greatest extent possible. Do not use pieces less than 60 inches (1500 mm) long, except where shorter single-length pieces are necessary. Scarf running joints and stagger in adjacent and related members.

1: Fill gaps, if any, between top of base and wall with plastic wood filler, sand smooth, and finish same as wood base, if finished.

3. Install standing and running trim with no more variation from a straight line than 1/8 inch in 96 inches (3 mm in 2400 mm).

G. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
1. Align adjacent solid-surfacing-material countertops and form seams to comply with manufacturer’s written recommendations using adhesive in color to match countertop. Carefully dress joints smooth, remove surface scratches, and clean entire surface.

2. Install countertops with no more than 1/16 inch in 96-inch sag, bow, or other variation from a straight line.

3. Calk space between backsplash and clear wall with sealant.

2.4 MISCELLANEOUS MATERIALS
A. Fasteners for Interior Finish Carpentry: Nails, screws, and other anchoring devices of type, size, material, and finish required for application indicated to provide secure attachment, concealed where possible.

2.5 FABRICATION
A. Wood Moisture Content: Comply with requirements of specified inspection agencies and with manufacturer’s written recommendations for moisture content of finish carpentry at relative humidity conditions existing during time of fabrication and in installation areas.
B. Back out or kerf backs of the following members, except members with ends exposed in finished work:
   1. Interior standing and running trim, except shoe and crown molds.
C. Ease edges of lumber less than 1 inch (25 mm) in nominal thick to 1/16-inch (1.5-mm) radius and edges of lumber 1 inch (25 mm) or more in nominal thickness to 1/8-inch (3-mm) radius.

2.6 FINISH
A. 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.

PART 3- EXECUTION

3.1 EXAMINATION
A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION
A. Clean substrates of projections and substances detrimental to application.
B. Before installing finish carpentry, condition materials to average prevailing humidity in installation areas for a minimum of 24 hours, unless longer conditioning is recommended by manufacturer.

3.3 INSTALLATION, GENERAL
A. Do not use materials that are unsound, warped, improperly treated or finished, inadequately seasoned, or too small to fabricate with proper jointing arrangements.

B. Install finish carpentry level, plumb, true, and aligned with adjacent materials. Use concealed shims where necessary for alignment.

1. Scribe and cut finish carpentry to fit adjoining work. Refinish and seal cuts as recommended by manufacturer.

2. Countersink fasteners, fill surface flush, and sand where face fastening is unavoidable.

3. Install to tolerance of 1/8 inch in 96 inches (3 mm in 2438 mm) for level and plumb. Install adjoining finish carpentry with 1/32-inch (0.8-mm) maximum offset for flush installation and 1/16-inch (1.5-mm) maximum offset for reveal installation.

4. Coordinate finish carpentry with materials and systems in or adjacent to it. Provide cutouts for mechanical and electrical items that penetrate finish carpentry.

3.4 STANDING AND RUNNING TRIM INSTALLATION

A. Install with minimum number of joints practical, using fill-length pieces from maximum lengths of lumber available. Do not use pieces less than 24 inches (610 mm) long, except where necessary. Stagger Joints in adjacent and related standing and running trim. Cope at returns and miter at corners to produce tight-fitting joints with full-surface contact throughout length of joint. Use scarf joints for end-to-end joints. Plane backs of casings to provide uniform thickness across joints, where necessary for alignment.

1. Match color and grain pattern across joints:

2. Install trim after finishing of existing wood is completed.

3. Drill pilot holes in hardwood before fastening to prevent splitting. Fasten to prevent movement or warping. Countersink fastener heads on exposed carpentry work and fill holes.

3.5 ADJUSTING

A. Replace finish carpentry that is damaged or not comply with requirements. Finish carpentry may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing. Adjust joinery for uniform appearance.

3.6 CLEANING

A. Clean finish carpentry on exposed and semiexposed surfaces. Touch up factory-applied finishes to restore damaged or soiled areas.

END OF SECTION 062000
DIVISION 08 DOORS AND WINDOWS

SECTION 081113
STEEL DOOR FRAMES

PART 1 - GENERAL

1.01 CONTRACT REFERENCES
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.

1.02 SUMMARY
A. This Section includes the following:
   1. Door frame assemblies
   2. Repair and patching existing frames

1.03 DEFINITIONS
A. Steel Sheet Thicknesses: Thickness dimensions, including those referenced in ANSI A250.8, are minimums as defined in referenced ASTM standards for both uncoated steel sheet and the uncoated base metal of metallic-coated steel sheets.

1.04 SUBMITTALS
A. Door Schedule: Use same reference designations indicated on Drawings in preparing schedule for doors and frames.

1.05 QUALITY ASSURANCE
A. Steel Door Frame Standard: Comply with ANSI A 250.8, unless more stringent requirements are indicated.
B. Fire-Rated Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 252.
   1. Test Pressure: Test at atmospheric pressure.
1.06  DELIVERY, STORAGE, AND HANDLING
A. Deliver door frames cardboard-wrapped or crated to provide protection during transit and job storage. Provide additional protection to prevent damage to finish of factory-finished frames.
B. Inspect frames on delivery for damage, and notify shipper and supplier if damage is found. Minor damages may be repaired provided refinished items match new work and are acceptable to Architect. Remove and replace damaged items that cannot be repaired as directed.
C. Store at building site under cover. Place units on minimum 4-inch-(100-mm) high wood blocking. Avoid using nonvented plastic or canvas shelters that could create a humidity chamber. If door packaging becomes wet, remove cartons immediately. Provide minimum 1/4-inch (6-mm) spaces between stacked doors to permit air circulation.

PART 2- PRODUCTS

2.01  MANUFACTURERS
A. 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:
   1. Steel Doors, Side Panels and Frames:
      a. Pioneer Industries Inc.
      b. Republic Builders Products.
      c. Steelcraft; a division of Ingersoll-Rand.

2.02  MATERIALS
A. Hot-Rolled Steel Sheets: ASTM A 569/A 569M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
B. Cold-Rolled Steel Sheets: ASTM A 366/A 366M, Commercial Steel (CS), or ASTM A 620/A 620M, Drawing Steel (DS), Type B; stretcher-leveled standard of flatness.
C. Metallic-Coated Steel Sheets: ASTM A 653/A 65 3M, Commercial Steel (CS), Type B, with an A40 (ZF12O) zinc (galvannealed) coating; stretcher-leveled standard of flatness.

2.03  FRAMES
A. General: Provide steel frames for doors, with details indicated for type and profile fabricated from metallic-coated steel. Conceal fastenings, unless otherwise indicated.
B. Frames 16 gauge thick steel sheet.
C. Supports and Anchors: Fabricated from not less than 0.042-inch- (1.0-mm-) thick, electrolytic zinc-coated or metallic-coated steel sheet.
D. Inserts, Bolts, and Fasteners: Manufacturer’s standard units.
2.05 FABRICATION
A. General: Fabricate steel door frame units to comply with ANSI A250 and to be rigid, neat in appearance, and free from defects including warp and buckle. Where practical, fit and assemble units in manufacturer’s plant. Clearly identify work that cannot be permanently factory assembled before shipment, to assure proper assembly at Project site.
B. Hardware Preparation: Prepare doors frames to receive hardware according to final door hardware schedule and templates provided by hardware supplier. Comply with applicable requirements in ANSI A250.6 and ANSI A115 Series specifications for door and frame preparation for hardware.
C. Frame Construction: Fabricate frames to shape shown.
   1. Fabricate frames with mitered or coped and continuously welded corners and seamless face joints.
   2. Provide welded frames with temporary spreader bars.
D. Reinforce doors and frames to receive surface-applied hardware. Drilling and tapping for surface-applied hardware may be done at Project site.
E. Locate hardware as indicated on Shop Drawings or, if not indicated, according to ANSI A250.8.

2.06 FINISHES
A. Prime Finish: Manufacturer’s standard, factory-applied coat of rust-inhibiting primer complying with ANSI A250.10 for acceptance criteria.

PART 3- EXECUTION

3.01 INSTALLATION
A. General: Install steel doors frames, and accessories according to Shop Drawings, manufacturer’s data, and as specified.
B. Placing Frames: Comply with provisions in SDI 105, unless otherwise indicated. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders, leaving surfaces smooth and undamaged.
C. Existing frames
   1. It is the responsibility of the contractor for this section to modify the existing frames are required for the new hardware.
   2. It is the responsibility of the contractor for this section to fill/patch the existing frames are required when existing hardware is removed.
a. Any and all fill/patches shall match the profile of the existing frame and be ground smooth.

3.02 ADJUSTING AND CLEANING

A. Prime-Coat Touchup: Immediately after installation, sand smooth any rusted or damaged areas of prime coat and apply touch up of compatible air-drying primer.

B. Protection Removal: Immediately before final inspection, remove protective wrappings from doors and frames.

END OF SECTION 081113
DIVISION 08 DOORS AND WINDOWS

SECTION 081416
FLUSH WOOD DOORS

PART 1- GENERAL

1.01 CONTRACT REFERENCES
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.

1.02 SUMMARY
A. This Section includes the following:
   1. Solid-core doors with wood-veneer, faces.
   2. Factory finished flush wood doors.

1.03 SUBMITTALS
A. Product Data: For each type of door. Include details of core and edge construction, louvers, and trim for openings. Include factory-finishing specifications.
B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; location and extent of hardware blocking; and other pertinent data.
   1. Indicate dimensions and locations of cutouts.
   2. Indicate requirements for veneer matching.
   3. Indicate doors to be factory finished and finish requirements.

1.04 QUALITY ASSURANCE
A. Source Limitations: Obtain flush wood doors through one source from a single manufacturer,
C. Fire-Rated Wood Doors: Doors complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 252.
   1. Test Pressure: Test at atmospheric pressure.
   2. Oversize, Fire-Rated Wood Doors: For door assemblies exceeding sizes of tested assemblies, provide oversize fire door label or certificate of inspection, from a testing and inspecting agency acceptable to authorities having jurisdiction, stating that doors comply with requirements of design, materials, and construction.
3. All doors “C” label unless indicated otherwise.

1.05 DELIVERY, STORAGE, AND HANDLING
A. Comply with requirements of referenced standard and manufacturer’s written instructions.
B. Package doors individually in plastic bags or cardboard cartons.
C. Mark each door on top and bottom rail with opening number used on Shop Drawings.

1.06 PROJECT CONDITIONS
A. Environmental Limitations: Do not deliver or install doors until building is enclosed, wet work is complete, and HVAC system is operating and will maintain temperature and relative humidity at occupancy levels during the remainder of the construction period.
B. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature between 60 and 90 deg F (16 and 32 deg C) and relative humidity between 25 and 55 percent during the remainder of the construction period.

1.07 WARRANTY
A. Special Warranty: Manufacturer’s standard form, signed by manufacturer, Installer, and Contractor, in which manufacturer agrees to repair or replace doors that are defective in materials or workmanship, have warped (bow, cup, or twist) more than 1/4 inch (6.4 mm) in a 42-by-84-inch (1067-by-2134-mm) section, or show telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch (0.25 mm in a 75-mm) span.

  1. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.

  2. Warranty shall be in effect during the following period of time from date of Substantial Completion:


PART 2- PRODUCTS

2.01 MANUFACTURERS
A. 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:

   1. Flush Wood Doors:

     a. Eggers Industries; Architectural Door Division.

     b. Mohawk Flush Doors, Inc.

     c. Weyerhaeuser Company.
2.02 DOOR CONSTRUCTION, GENERAL
A. Doors for Transparent Finish:
   1. Grade: Premium, with Grade A faces.
   2. Species and Cut: White Oak, plain sliced
   3. Stiles/rails: Same species as faces. 1 ½” x 1 ½” solid hardwood stiles; rails 5” of same species as faces

2.03 SOLID-CORE DOORS
A. Particleboard Cores: Comply with the following requirements:
   1. ANSI A208.1, Grade LD-I.
   2. Blocking: Provide wood blocking in particleboard-core doors with:
      a. 5-inch (125-mm) top-rail blocking.
      b. 5-inch (125-mm) bottom-rail blocking.
      c. 5-inch (125-mm) midrail blocking, in doors indicated to have exit devices.
   3. Provide doors with glued-block cores instead of particleboard cores at locations where exit devices are indicated.
C. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, DIII Al 1 5-W series standards, and hardware templates.
   1. Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before factory machining.

2.06 FACTORY FINISHING
A. General: Comply with referenced quality standard for factory finishing.
B. Finish all doors at factory.
C. Finish doors at factory to receive transparent finish.
E. Transparent Finish:
   2. Stain. Match Architect’s sample
   3. Effect: Open-grain finish.
3.01 EXAMINATION
A. Examine door and frame before hanging doors.
   1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
   2. Reject doors with defects.
B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION
A. Hardware: For installation, see Section 087100 “Door Hardware.”
B. Manufacturer’s Written Instructions: Install doors to comply with manufacturer’s written instructions, referenced quality standard, and as indicated.
C. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.
D. Factory-Finished Doors: Restore factory finish at factory before installation if fitting or machining is required at Project site.

3.03 ADJUSTING
A. Operation: Re-hang or replace doors that do not swing or operate freely.
B. Finished Doors: Replace doors that are damaged or do not comply with requirements. Doors may be repaired or refinished for minor defects if work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION 081400
PART I - GENERAL.

1.01 CONTRACT REFERENCES

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.

1.02 SUMMARY

A. This Section includes the following:

1. Commercial door hardware for the following:
   a. Swinging doors.

2. Furnishing and installation of all mechanical and electrical finished hardware necessary for all doors and hardware as specified herein and as enumerated in the hardware sets and as indicated and required by the actual conditions at the building. The hardware shall include the furnishing of all necessary screws, bolts, expansion shields, Drops plates and all other devices necessary for the proper application of the hardware. Installation shall include field modifications and preparations of existing doors and or frames for new hardware being installed. Provide necessary fillers, reinforcements and fasteners for mounting new hardware.

B. Related Sections include the following:

1. Section 081416 Flush Wood Doors

1.03 SUBMITTALS

A. Product Data: Include installation details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

   1. Format: Comply with scheduling sequence and vertical format in DHI’s “Sequence and Format for the Hardware Schedule.”

   2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening.

      a. Organize door hardware sets in same order as in the Door Hardware Schedule at the end of Part 3.
3. Content Include the following information:
   a. Type, style, function, size, label, hand, and finish of each door hardware item.
   b. Manufacturer of each item.
   c. Fastenings and other pertinent information.
   d. Location of each door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
   e. Explanation of abbreviations, symbols, and codes contained in schedule.
   f. Mounting locations for door hardware.
   g. Door and frame sizes and materials.

4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.

D. Maintenance Data: For each type of door hardware to include in maintenance manuals specified in Division I.

E. Any substation for any product in this sect requires approval by the awarding authority prior too submitting a bid.

E. Warranties: Special warranties specified in this Section.

1.04 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has completed door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

B. Supplier Qualifications: Door hardware supplier with warehousing facilities in Project’s vicinity and who is or employs a qualified Architectural Hardware Consultant, available during the course of the Work to consult with Contractor, Architect, and Owner about door hardware and keying.

1. Scheduling Responsibility: Preparation of door hardware and keying schedules.

C. Architectural Hardware Consultant Qualifications: A person who is currently certified by the Door and Hardware Institute as an Architectural Hardware Consultant and who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project.

D. Source Limitations: Obtain each type and variety of door hardware from a single manufacture unless otherwise indicated.

E. Regulatory Requirements: Comply with provisions of the following:

1. Where indicated to comply with accessibility requirements, comply with Massachusetts Architectural Access Board regulations and Americans with Disabilities Act (ADA), as follows:
a. Handles, Pulls, Latches, Locks, and other Operating Devices: Shape that is easy to grasp with one hand and does not require tight grasping, tight pinching, or twisting of the wrist.

2. NFPA 101: Comply with the following:
   a. Latches, Locks, and Exit Devices: Not more than 5 lbf to release the latch. Locks shall not require the use of a key, tool, or special knowledge for operation.

1.05 DELIVERY, STORAGE, AND HANDLING
A. Inventory door hardware on receipt and provide secure lock-up for door hardware delivered to Project site.
B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.

1.06 COORDINATION
A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing door hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

   Doors with hardware set #2 shall be factory prepared to install Stanley “Wi-Q lock sets for future installation, but installing Storeroom function lock under this contract.

1.07 WARRANTY
A. General Warranty: Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
B. Special Warranty: Written warranty, executed by manufacturer agreeing to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period. Failures include, but are not limited to, the following:
   1. Structural failures Including excessive deflection, cracking, or breakage.
   2. Faulty operation of operators and door hardware.
   3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
C. Warranty Period: Three years from date of Substantial Completion, unless otherwise indicated.
1.08 MAINTENANCE SERVICE

A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner’s continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2- PRODUCTS

2.01 SCHEDULED DOOR HARDWARE

A. General: Provide door hardware for each door to comply with requirements in this Section, door hardware sets indicated in door and frame schedule, and the Door Hardware Schedule at the end of Part 3.

1. Door Hardware Sets: Provide quantity, item, size, finish and color indicated, of named manufacturer’s products or products equivalent in function and comparable in quality to named products.

B. Designations: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Schedule at the end of Part 3. Products are identified by using door hardware designations, as follows:

1. Named Manufacturer’s Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing minimum requirements. Manufacturers’ names are abbreviated in the Door Hardware Schedule.

2.02 HINGES

A. 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:

1. Hinges:
   a. Hager Companies (HAG).
   c. Stanley Commercial Hardware; Div. of The Stanley Works (STH).

B. Quantity: Provide the following, unless otherwise indicated:

1. Three Hinges for doors.

C. Size: Provide 5” heavy weight hinge at all locations verify sizes in field prior to ordering must match the existing frame cutouts. Non removable pins.

D. Template Requirements: Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template-produced units.

E. Hinge Weight: Unless otherwise indicated, provide the following:

1. Heavy-weight ball bearing hinges.

F. Hinge Base Metal: Unless otherwise indicated, provide the following:

1. Plated steel, with non-rising, pins
G. Fasteners: Comply with the following
   2. Wood Screws: For wood doors and frames.
   3. Screws: Phillips flat-head screws; machine screws (drilled and tapped holes) for metal doors, wood screws for wood doors and frames. Finish screw heads to match surface of hinges.

2.03 LOCKS AND LATCHES
A. 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:
   1. Mechanical Locks and Latches:
      a. Stanley Commercial Hardware
      b. Best Lock Corporation (BLC).
      c. Schlage Lock Company; an Ingersoll-Rand Company (SCH).
B. Lock Trim: Comply with the following:
   1. Lever: Cast stainless steel, Stanley, Hudson TD.
   2. Lockset Designs: Provide the lockset design designated below or, if sets are provided by another manufacturer, provide designs that match those designated:
      a. Locks: Stanley 5400LN, series 400, grade 1, heavy duty, with lock case easily handed without chassis disassembly.
C. Lock Throw: Comply with testing requirements for length of bolts to comply with labeled fire door requirements, and as follows:
D. Backset 2-3/4 inches, unless otherwise indicated.

2.04 CYLINDERS AND KEYING
A. Owner will furnish all cylinders and keys, for installation by Contractor.
   Best interchangeable-core 7-pin tumbler insert cylinder, WB keyway.
B. Provide construction (temporary) cores for use until substantial completion.

2.04 STRIKES
A. Strikes: Provide manufacturer’s standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:
   1. Flat-Lip Strikes: For locks with three-piece antifriction latch bolts, as recommended by manufacture. Verify size in field prior to ordering, must fir cutout in existing frame.
2.06 CLOSURES

A. 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:

1. Surface-Mounted Closers:
   a. Stanley #QDC111-689 Closers.

B. Size of Units: Unless otherwise indicated, comply with manufacturer’s written recommendations for size of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Provide factory-sized closers, adjustable to meet field conditions and requirements for opening force.

C. Appearance: Closers mounted on door, push side or pull side as indicated. Push side closers: heavy duty arm parallel closer. Provide plated metal covers for all closers.

Construction: heavy duty cast iron cylinder with continuously adjustable spring power.

2. Separate adjustments: for latch speed, general closing speed and back check.
3. Hydraulic fluid: requiring no seasonal adjustment.
4. Certification: exceed 10,000,000 full load cycles.

E. Opening force and operation: meet the requirements of ADA and Massachusetts AAB.

1. Independent Architectural Hardware Consultant will inspect door hardware and state in a written report whether installed work complies with or deviates from requirements, including whether door hardware is properly installed and adjusted.

2.05 OPERATING TRIM

A. 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:

1. Hager Companies (HAG).
2. Ives: H. B. Ives (IVS).

B. Materials: Fabricate from solid bar stock stainless steel, unless otherwise indicated.

2.06 STOPS

A. 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:

2. Ives: H. B. Ives (IVS)

B. Silencers for Metal Door Frames: BHMA Grade I; neoprene or rubber, minimum diameter 1/2 inch; fabricated for drilled-in application to frame.

2.07 KICK PLATES

a. 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:
   1. Ives 8400 stainless steel kick plate 12” high x 2” less than the width of the door.

2.08 MISCELLANEOUS DOOR HARDWARE

A. 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:
   1. Hager Companies (HAG).
   2. Ives: H. B. Ives (IVS).

2.09+ FABRICATION

A. Manufacturer’s Nameplate: Do not provide manufacturers’ products that have manufacturer’s name or trade name displayed in a visible location (omit removable nameplates) except in conjunction with required fire-rated labels and as otherwise approved by Architect
   1. Manufacturer’s identification will be permitted on rim of lock cylinders only.

B. Base Metals: Produce door hardware units of base metal, fabricated by forming method indicated, using manufacturer’s standard metal alloy, com temper, and hardness, Furnish metals of a quality equal to or greater than that of specified door hardware units and BHMA A156.18 for finishes. Do not furnish manufacturer’s standard materials or forming methods if different from specified standard.

C. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to commercially recognized industry standards for application intended. Provide Phillips flat-head screws with finished heads to match surface of door hardware, unless otherwise indicated.
   1. Concealed Fasteners: For door hardware units that are exposed when door is closed, except for units already specified with concealed fasteners. Do not use through bolts for installation where bolt head or nut on opposite face is exposed unless it is the only means of securely attaching the door hardware. Where through bolts are used on hollow door and frame construction, provide sleeves for each through bolt
   2. Steel Machine or Wood Screws: For the following fire-rated applications:
      a. Mortise hinges to doors.
      b. Strike plates to frames.
3. Fasteners for Wood Doors: Comply with requirements of DHI WDHS.2, “Recommended Fasteners for Wood Doors.”

2.12 FINISHES
A. Standard: Comply with BHMA A 156.18.
B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
C. Appearance of Finished Work Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3- EXECUTION

3.01 EXAMINATION
A. Examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
B. Proceed with Installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION
A. Doors and frames factory prepared to receive hardware.

3.03 INSTALLATION
A. Mounting Heights: Mount door hardware units at heights indicated in “Recommended Locations for Builders Hardware by the Door and Hardware Institute.
   1. As required by the CMR 521, Architectural Access Board
B. Install each door hardware item to comply with manufacturer’s written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
   1. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
   2. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.

3.04 FIELD QUALITY CONTROL
A. Independent Architectural Hardware Consultant Engage a qualified independent Architectural Hardware Consultant to perform inspections and to prepare inspection reports.
1. Independent Architectural Hardware Consultant will inspect door hardware and state in each report whether installed work complies with or deviates from requirements, including whether door hardware is properly installed and adjusted.

3.05 ADJUSTING

A. Initial Adjustment Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

1. Closure Manufacture shall be present on site to adjust every closers sweep period so that, from an open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 Inches from the latch, measured to the leading edge of the door.

Manufacture will provide a detailed written report what adjustment action was taken at each closure.

3.06 CLEANING AND PROTECTION

A. Clean adjacent surfaces soiled by door hardware installation.

B. Clean operating items as necessary to restore proper function and finish.

C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

3.07 DOOR HARDWARE SCHEDULE

General Notes:

Note 1: Finishes: All finishes: Satin Chrome 626.

Note 2: Stops: Provide at all doors Wall Bumper Glynn Johnson SOC or Floor Bumper: Glynn Johnson FB 15/16 as noted in schedule.

Note 3 Silencers: Provide at all doors, new and existing frames: Glynn Johnson GJ 64

(1) at jamb per single door frame

(2) at head per hinged double door frame

Note 4 Kick plates Provide at all doors 12" high x 2" less than the width of the doors on the push side of the doors

Hardware Set No. I C Label

1 ½ pair of hinges

1 Lockset Stanley grade 1, Passage Lock function.

1 LCN closure

1 Wall Stop Rockwood #409

1 12" stainless steel kick plate both sides

1 Strike 1 1/8" x 3 ½" with dust box.

DOOR HARDWARE

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22 February 2017
Hardware Set No 2; “C”

1 ½ pair hinges; Stanley FBB 179 per leaf
1 LCN 4110 closure push side surface mounted
1 Lockset Stanley grade 1, Bath Privacy Lock function pushbutton on inside, turning handle inside releases button lock.
1 Strike 1 1/8” x 3 ½” with dust box.
1 12” stainless steel kick plate both sides

END OF SECTION 087100
DIVISION 9 FINISHES
SECTION 090003
ACOUSTICAL TILE

PART I - GENERAL
1.01 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.

1.02 SUMMARY
A. This section includes
   1. Suspended acoustic panels
   2. Suspended metal panel system
   3. Trim as required for completion

F. Related Sections include the following:
   1. Division 9 “Gypsum Board Assemblies’ for adjoining walls, soffits and ceiling.

1.02 SUBMITTALS
A. Product Data For each type of product specified.
B. Samples for Verification: Full-size units of each type of ceiling assembly indicated; in sets for each color, texture, and pattern specified, showing the full range of variations expected in these characteristics.
   1. 6-inch- square samples of each acoustical panel type, pattern, and color.
   2. Set of 12-inch- long samples of exposed suspension system members, including moldings, for each color and system type required.
C. Product Test Reports: Indicate compliance of acoustical panel ceilings and components with requirements based on comprehensive testing of current products.

1.03 QUALITY ASSURANCE
A. Installer Qualifications: Engage an experienced installer who has completed acoustical panel ceilings similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.
B. Source Limitations for Ceiling Units: Obtain each acoustical ceiling panel from one source with re sources to provide products of consistent quality in appearance and physical properties without delaying the Work.

C. Source Limitations for Suspension System: Obtain each suspension system from one source with re sources to provide products of consistent quality in appearance and physical properties without delaying the Work.

D. Fire-Test-Response Characteristics: Provide acoustical panel ceilings that comply with the following requirements:
   1. Surface-burning characteristics of acoustical panels comply with ASTM E 1264 for Class A materials as determined by testing identical products per ASTM E 84.
   2. Products are identified with appropriate markings of applicable testing and inspecting agency.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Deliver acoustical panels and suspension system components to Project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.

B. Before installing acoustical panels, permit them to reach room temperature and stabilized moisture content.

C. Handle acoustical panels carefully to avoid chipping edges or damaging units in any way.

1.05 PROJECT CONDITIONS

A. Environmental Limitations: Do not install acoustical panel ceilings until spaces are enclosed and weatherproof, wet-work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

1.06 COORDINATION

A. Coordinate layout and installation of acoustical panels and suspension system with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.

PART 2- PRODUCTS

2.01 MANUFACTURERS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, those indicated for each designation in the Acoustical Panel Ceiling Schedule at the end of Part 3.
2.02 ACOUSTICAL PANELS, GENERAL

A. Acoustical Panel Standard: Provide manufacturer’s standard panels of configuration indicated that comply with ASTM E 1264 classifications as designated by types, patterns, acoustical ratings, and light reflectance, unless otherwise indicated.
   1. Mounting Method for Measuring Noise Reduction Coefficient Type E-400; plenum mounting in which face of test specimen is 15-3/4 inches away from test surface per ASTM E 795.

B. Panel Characteristics: Comply with requirements indicated in the Acoustical Panel Ceiling Schedule at the end of Part 3, including those referencing ASTM E 1264 classifications.

2.03 METAL SUSPENSION SYSTEMS, GENERAL

A. Metal Suspension System Standard: Provide manufacturers standard direct-hung metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable ASTM C 635 requirements.

B. Metal Suspension System Characteristics: Comply with requirements indicated in the Acoustical Panel Ceiling Schedule at the end of Part 3.

C. Finishes and Colors, General: Comply with NAAMM’s “Metal Finishes Manual for Architectural and Metal Products” for recommendations for applying and designating finishes. Provide manufacturer’s standard factory-applied finish for type of system indicated.

D. Attachment Devices: Size for five times design load indicated in ASTM C 635, Table 1, Direct Hung, unless otherwise indicated.
   1. Post installed Powder-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hangers of type indicated, and with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling construction, as determined by testing per ASTM E 1190, conducted by a qualified testing and inspecting agency.

E. Wire Hangers, Braces, and Ties: Provide wires complying with the following requirements:
   2. Size: Select wire diameter so its stress at three times hanger design load (ASTM C 635, Table I, Direct Hung) will be less than yield stress of wire, but provide not less than 0.106-inch- diameter wire.

F. Angle Hangers: Angles with legs not less than 7/8 inch wide; formed with 0.04-inch- thick, galvanized steel sheet complying with ASTM A 653/A 65311, G90 coating designation; with bolted connections and 5/16 inch diameter bolts.

G. Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer’s standard moldings for edges and penetrations that fit acoustical panel edge details and suspension systems indicated; formed from sheet metal of same material and finish as that used for exposed flanges of suspension system runners.
1. For lay-in panels with reveal edge details, provide stepped edge molding that forms reveal of same depth and width as that formed between edge of panel and flange at exposed suspension member.

2. Baked-Enamel Finish: AA-Cl2C42Rlx (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: acid-chromate-fluoride-phosphate conversion coating; Organic Coating as specified below). Comply with paint manufacturer’s written instructions for applying and baking and for minimum dry film thickness.
   a. Organic Coating Manufacturer’s standard thermosetting coating system with a minimum dry film thickness of 0.8 to 1.2 mils.
   b. Color: As selected by Architect from manufacturer’s standard colors.

3. 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. Armstrong World Industries, Inc.
   b. Celotex Corporation (The); Building Products Division; Architectural Ceilings Marketing Dept
   c. Chicago Metallic Corporation.

H. Hold-Down Clips for Non-Fire-Resistance-Rated Ceilings: For interior ceilings consisting of acoustical panels weighing less than 1 lb/sq. ft., provide hold-down clips spaced 24 inches o.c. on all cross tees

PART 3- EXECUTION

3.01 EXAMINATION
A. Examine substrates and structural framing to which acoustical panel ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage, and other conditions affecting performance of acoustical panel ceilings.
   1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION
A. Coordination: Furnish layouts for cast-in-place anchors, clips, and other ceiling anchors whose installation is specified in other Sections,
B. Measure each ceiling area to establish layout of acoustical. Strictly comply with final layout shown on approved shop drawings.
3.03 INSTALLATION

A. General: Install acoustical panel ceilings to comply with publications referenced below per manufacturer’s written instructions and CISCA’s “Ceiling Systems Handbook.”


B. Suspend ceiling hangers from building’s structural members and as follows:

1. Install hangers plumb and free from contact with insulation or other suspension system.
2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, counters playing, or other equally effective means.
3. Where width of ducts and other construction within ceiling plenum produces hanger spacing that interfere with location of hangers at spacing required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards and publications.
4. Secure wire hangers to ceiling suspension members and to supports above with a minimum of three tight turns. Connect hangers directly either to structures or to inserts, eye screws, or other devices that are secure; that are appropriate for substrate; and that will not deteriorate or otherwise fail due to age, corrosion, or elevated tem
5. Do not support ceilings directly from permanent metal forms or floor deck. Fasten hangers to cast-in-place hanger inserts, powder-actuated fasteners, or drilled-in anchors that extend through forms into concrete.
6. Do not attach hangers to steel deck tabs.
7. Space hangers not more than 48 inches o.c. along each member supported directly from hangers, unless otherwise indicated; and provide hangers not more than 8 inches from ends of each member.

C. Secure bracing wires to ceiling suspension members and to supports with a minimum of four tight turns. Suspend bracing from buildings structural members as required for hangers, without attaching to permanent metal forms, steel deck, or steel deck tabs. Fasten bracing wires into concrete with cast-in-place or post installed anchors.
D. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and necessary to conceal edges of acoustical panels.
   1. Screw attach moldings to substrate at intervals no more than 16 inches o.c. and not more than 3 inches from ends, leveling with ceiling suspension system to a tolerance of (1/8 inch in 12 feet. Miter corners accurately and connect securely.
   2. Do not use exposed fasteners, including pop rivets, on moldings and trim.

E. Install suspension system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.

F. Install acoustical panels with undamaged edges and fitted accurately into suspension system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit.
   1. For reveal-edged panels on suspension system runners, install panels with bottom of reveal in firm contact with top surface of runner flanges.

3.04 CLEANING

A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension system members. Comply with manufacturer’s written instructions for cleaning and touchup of minor finish damage. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

3.05 ACOUSTICAL PANEL CEILING SCHEDULE

A. Mineral-Base Acoustical Panels for Acoustical Tile Ceiling Provide fire-resistance-rated acoustical panels complying with the following:
   1. Products: Available products include the following:
      a. Armstrong Ceramaguard Fine Fissured
      b. 24 x24 square edge
   2. Classification: Panels fitting ASTM E 1264 for type and form as follows:
      a. Type III, mineral base.
   3. Color: White
   4. Edge Detail: square to fit flange of exposed suspension system members.
   5. Thickness: 3/4 inch
   6. Size: 24 by 24 inches

B. Suspension System for Acoustical Panel Ceiling: Provide acoustical panel ceiling suspension system complying with the following:
   1. Products: Available products include the following:
2. Wide-Face, Single-Web, and Aluminum Suspension System: Main and cross runners roll formed from cold-rolled electrolytically zinc coated, with prefinished 15/16-inch-wide flanges; other characteristics as follows:


b. Face Finish: Painted white.

3.05 ATTIC STOCK

A. Supply 3 unopened cases of acoustical tile for the owners use, Do not use for punch list work.

END OF SECTION 090003
DIVISION-09 FINISHES

SECTION 092116
GYPSUM BOARD ASSEMBLIES

PART 1 - GENERAL

1.01 CONTRACT REFERENCES
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.

1.02 ITEMS REQUIRED BUT NOT SPECIFIED
A. If an item or material of this trade is indicated on the Drawings but not specifically listed in this Section; provide such item or material at a standard of quality equal to the standard established for the balance of the Work specified, in accordance with the Architect's interpretation.

1.03 EXECUTION, CORRELATION and INTENT
A. In case of an inconsistency between Drawings and Specifications, or within either Document not clarified by Addendum, the better quality or greater quantity of Work is to be provided, in accordance with the Architect’s interpretation (See article 1 of the General and Supplementary General Conditions).

1.04 SCOPE OF WORK
A. This Section includes the following:
   1. Non-load-bearing steel framing (partitions, soffits, ceilings).
   2. 5/8" gypsum board Hi-impact XP.
   3. Gypsum wallboard finishing
   4. All prep work required for GWB surfaces to receive final finish.
B. Related Sections include the following:
   1. Section 061000 Rough Carpentry
   2. Section 081113 Steel Door Frames

1.05 DEFINITIONS
A. Gypsum Board Terminology: Refer to ASTM C 11 for definitions of terms for gypsum board assemblies not defined in this Section or in other referenced standards.

1.06 SUBMITTALS
A. Product Data: For each type of product indicated

1.06 PROJECT CONDITIONS
A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer’s written recommendations, whichever are more stringent.

PART 2- PRODUCTS

2.01 MANUFACTURERS
A. 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:
   1. Steel Framing and Furring:
   2. Gypsum Board and Related Products:
      a. G-P Gypsum Corp.
      c. United States Gypsum Co.

2.02 STEEL PARTITION FRAMING
A. Components, General: As follows:
   1. Comply with ASTM C 754 for conditions indicated.
B. Steel Studs and Runners: ASTM C 645.
   1. Minimum Base Metal Thickness: 20 gage (0.0359 inch).
   2. Depth: As indicated on drawings.
   3. Flex-C Trac. With hammer lock base track
C. Deep-Leg Deflection Track: ASTM C 645 top runner with 2-inch deep flanges.
D. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.
   1. Minimum Base Metal Thickness: 20 gage (0.0359 inch).
E. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power and other properties required to fasten steel members to substrates.

F. Steel Furring; comply with ASTM C754
   1. Channels 7/8" deep @16" O. C.

2.03 INTERIOR GYPSUM WALLBOARD
   A. Panel Size: Provide in maximum lengths and widths available that will minimize joints in each area and correspond with support system indicated.
      1. Type: 5/8" thick, Hi-impact XP fire shield.
      2. Long Edges: Tapered.
      3. Location: All gypsum wallboard.

2.04 TRIM ACCESSORIES
   A. Interior Trim: ASTM C 1047.
      1. Material: Galvanized coated steel sheet or rolled zinc.
      2. Shapes:
         a. Corner bead: Use at outside corners, unless otherwise indicated.
         c. LC-Bead: 3-shaped; exposed long flange receives joint compound; use as indicated.
         d. U-Bead: 3-shaped; Series 400 exposed short flange use at all exposed panel edges

2.05 JOINT TREATMENT MATERIALS
   A. General: Comply with ASTM C 475.
   B. Joint Tape: Pro Form
   C. Pro Form Sta-Smooth Joint Compound for Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
      1. Pre-filling: At open joints and damaged surface areas, use setting-type taping compound.
      2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.
      3. Fill Coat: For second coat, use setting-type, sandable topping compound.
      4. Finish Coat: For third coat, use setting-type, sandable topping compound.
2.06 AUXILIARY MATERIALS
A. General: provide auxiliary materials that comply with referenced installation standards and manufacture's written recommendations.
B. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
   1. Use screws complying with ASTM C 954 for fastening panels to steel members.

2.07 ACOUSTICAL SEALANT
A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
   1. Acoustical Sealant for Exposed and Concealed Joints:
      a. Pecora Corp.; AC-20 FTR Acoustical and Insulation Sealant.
B. Acoustical Sealant for Exposed and Concealed Joints: Non-sag, paintable, lion-staining, latex sealant complying with ASTM C 834 that effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

2.08 SOUND ATTENUATION BATT INSULATION
A. Provide manufacturer’s standard performed insulation units, sized for proper fit in all partitions.
B. Sound Attenuation Batt Insulation: ASTM C665, Type I, passing ASTM E136 combustion test requirements; unfaced semi-rigid mineral wool fiber batt; thickness as required and indicated for wall construction and STC rating.
   1. Total R-value: 3.8 per inch, approx. R-13.3.
   2. Products from the following manufacturers, provided they comply with the requirements of the contract documents, will be among those considered acceptable:
      a. Owens-Corning Fiberglass Corporation.
      b. Certainteed Corp.
      c. Knauf Fiber Glass

PART 3- EXECUTION

3.01 EXAMINATION
A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.
3.02 INSTALLING STEEL FRAMING, GENERAL

A. Installation Standards: ASTM C 754, and ASTM C 840 requirements that apply to framing installation.

B. Install supplementary framing, blocking, and bracing at terminations in gypsum board assemblies to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction, Comply with details indicated and with gypsum board manufacturer’s written recommendations or, if none available, with United States Gypsum’s “Gypsum Construction Handbook.”

C. Isolate steel framing from building structure at locations indicated to prevent transfer of loading imposed by structural movement.
   1. Isolate ceiling assemblies where they abut or are penetrated by building structure.
   2. Isolate partition framing and wall furring where it abuts structure, except at floor. Install slip-type joints at head of assemblies that avoid axial loading of assembly and laterally support assembly.
      a. Use deep-leg deflection track where indicated.

D. Do not bridge building control and expansion joints with steel framing or furring members. Frame both sides of joints independently.

304 APPLYING AND FINISHING PANELS, GENERAL


B. Install gypsum panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.

C. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.

D. Attach gypsum panels to steel studs so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

E. Attach gypsum panels to existing wall surface with Durabond 300 Adhesive applied to the face of the existing wall. No surface screws shall be used.

F. Form control and expansion joints with space between edges of adjoining gypsum panels.

G. Cover both faces of steel stud partition framing (full height to underside of deck above) with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
   1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft in area.
   2. Fit gypsum panels around ducts, pipes, and conduits.

3.05 PANEL APPLICATION METHOD

A. Single-Layer Application:
1. On partitions/walls, apply gypsum panels horizontally (perpendicular to framing), and minimize end joints.
   a. Stagger abutting end joints not less than one framing member in alternate courses of board.

B. Single-Layer Fastening Methods:
   1. Apply gypsum panels to supports with steel drill screws.
   2. Apply gypsum panels to existing wall with adhesive.
      a. Remove existing protrusions, fill voids, or what is required for a smooth plumb installation.

C. Single –Layer Trim
   1. Corner beads all exposed corners
   2. J-trim series 400 at all terminations.

3.06 INSTALLING TRIM ACCESSORIES
A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer’s written instructions.

3.07 FINISHING GYPSUM BOARD ASSEMBLIES
A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
B. Pre-fill open joints and damaged surface areas.
C. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.
D. Gypsum Board Finish Levels: Finish panels to levels indicated below, according to ASTM C 840 GA 214 and GA 216, for locations indicated:
   1. Level 4: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges at all panel surfaces including above ceilings.

3.08 CLEANING
A. Promptly remove any residual gypsum drywall materials from adjacent or adjoining surfaces, leaving spaces ready for subsequent finishing operations and decorating.

END OF SECTION 092116
PART I GENERAL

1.01 GENERAL PROVISIONS
A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION I — GENERAL REQUIREMENTS, which are hereby made a part of this section of the specifications.

1.02 SUMMARY
A. This Section includes the following:
   1. Ceramic mosaic tile.
   2. Glazed wall tile.
   3. Marble thresholds.
   4. Floor membrane
B. Related Sections include the following:
   1. Division 9 Section “Gypsum Board Assemblies” for backer units in gypsum wallboard assemblies.

1.03 DEFINITIONS
A. Module Size: Actual tile size (minor facial dimension as measured per ASTM C 499) plus joint width indicated.
B. Facial Dimension: Nominal tile size as defined in ANSI A137.1.

1.04 PERFORMANCE REQUIREMENTS
A. Static Coefficient of Friction: For tile installed on walkway surfaces, provide products with the following values as determined by testing identical products per ASTM C 1028:
   1. Level Surfaces: Minimum 0.6.
B. Load-Bearing Performance: For ceramic tile installed on walkway surfaces, provide installations rated for the following load-bearing performance level based on testing assemblies according to ASTM C 627 that are representative of those indicated for this Project:

1.05 SUBMITTALS
A. Product Data: For each type of tile, mortar, grout, and other products specified.
B. Shop Drawings: For the following:
I. Tile patterns and locations.

2. Widths, details, and locations of isolation joints in tile substrates and finished tile surfaces.

C. Tile Samples for Initial Selection: Manufacturer’s color charts consisting of actual tiles or sections of tiles showing the full range of colors, textures, and patterns available for each type and composition of tile indicated. Include Samples of accessories involving color selection.

D. Grout Samples for Initial Selection: Manufacturer’s color charts consisting of actual sections of grout showing the full range of colors available for each type of grout indicated.

E. Samples for Verification: Of each item listed below, prepared on Samples of size and construction indicated. Where products involve normal color and texture variations, include Sample sets showing the full range of variations expected.

   I. Each type and composition of tile and for each color and texture required, at least 12 inches square, mounted on braced cementitious backer units, and with grouted joints using product complying with specified requirements and approved for completed work in color or colors selected by UMA Designer.

   2. Full-size units of each type of trim and accessory for each color required.

   3. Marble thresholds in 6-inch lengths.

F. Product Certificates: Signed by manufacturers certifying that the products furnished comply with requirements.

1.06 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced installer who has completed tile installations similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

B. Source Limitations for Tile: Obtain each color, grade, finish, type, composition, and variety of tile from one source with resources to provide products from the same production run for each contiguous area of consistent quality in appearance and physical properties without delaying the Work.

C. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from a single manufacturer and each aggregate from one source or producer.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store packaged materials in original containers with seals unbroken sealed tile packages.

B. Prevent damage or contamination to materials by water, freezing, foreign matter, and other causes.
1.08 PROJECT CONDITIONS
A. Environmental Limitations: Do not install tile until construction in spaces is completed and ambient temperature and humidity conditions are being maintained to comply with referenced standards and manufacturer’s written instructions.

PART 2- PRODUCTS

2.01 MANUFACTURERS
A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, those indicated in the ceramic tile installation schedules at the end of this Section.

I. Tile Products:
   b. Dal-Tile Corporation.
   c. Mannington Ceramic Tile.
   d. United States Ceramic Tile Company.

2. Tile-Setting and -Grouting Materials:
   b. Dal-Tile Corporation.

2.02 PRODUCTS, GENERAL
A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1, ‘Specifications for Ceramic Tile,” for types, compositions, and other characteristics indicated.

I. Provide tile complying with Standard S Grade requirements, unless otherwise indicated.

2. For facial dimensions of tile, comply with requirements relating to tile sizes specified in Part I “Definitions” Article,


C. Colors, Textures, and Patterns: Where manufacturer’s standard products are indicated for tile, grout, and other products requiring selection of colors, surface textures, patterns, and other appearance characteristics, provide specific products or materials complying with the following requirements:

I. Provide Architect’s selections from manufacturer’s full range of colors, textures, and patterns for products of type indicated.

D. Factory Blending: For tile exhibiting color variations within the ranges selected during Sample submittals, blend tile in the factory and package so tile units taken from one package show the same range in colors as those taken from other packages and match approved Samples.
E. Mounting; Where factory-mounted tile is required, provide back- or edge-mounted tile assemblies as standard with manufacturer, unless another mounting method is indicated.

2.03 TILE PRODUCTS

A. Unglazed Ceramic Mosaic Tile: Provide factory-mounted flat tile complying with the following requirements:
   4. Face: Plain with cushion edges.

B. Glazed Wall Tile: Provide flat tile complying with the following requirements:
   1. Module Size: 2 by 2 inches.
   3. Face: Plain with cushion edges.

C. Trim Units: Provide tile trim units to match characteristics of adjoining flat tile and to comply with the following requirements:
   1. Size: As indicated, coordinated with sizes and coursing of adjoining flat tile where applicable.
   2. Shapes: As follows, selected from manufacturer's standard shapes:
      a. Base for Thin-Set Mortar Installations: Cove.
      b. Wainscot Cap for Thin-Set Mortar Installations: Surface bullnose.

2.04 SETTING MATERIALS

   I. For wall applications, provide nonsagging, latex-portland cement mortar complying with ANSI A 118.4 for mortar of this type defined in Section F-2. 1.2.

2.5 GROUTING MATERIALS

A. Dry-Set Grout ANSI Al 18.6, color as indicated.

2.06 MISCELLANEOUS MATERIALS

A. Trowelable Underlayments and Patching Compounds: Latex-modified, portland-cement-based formulation provided or approved by manufacturer of tile-setting materials for installations indicated,
**B. Metal Edge Strips:** White-zinc-alloy terrazzo strips, 1/8 inch wide at top edge with integral provision for anchorage to mortar bed or substrate, unless otherwise indicated.

**C. Temporary Protective Coating:** Provide product indicated below that is formulated to protect exposed surfaces of tile against adherence of mortar and grout is compatible with tile, mortar, and grout products; and is easily removable after grouting is completed without damaging grout or tile.

- **I. Petroleum paraffin wax,** fully refined and odorless, containing at least 0.5 percent oil with a melting point of 120 to 140 deg F per ASTM D 87.

- **D. Tile Cleaner:** A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.

- **E. Ardex 8+9 two part waterproofing membrane; ANSI A 118.10 entire slab under Suite lav.**

**2.07 MIXING MORTARS AND GROUT**

- **A. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers’ written instructions.**

- **B. Add materials, water, and additives in accurate proportions.**

- **C. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.**

**PART 3- EXECUTION**

**3.01 EXAMINATION**

- **A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.**

  1. Verify that substrates for setting tile are firm; dry; clean; free from oil, waxy films, and curing compounds; and within flatness tolerances required by referenced ANSI A108 series of tile installation standards for Installations indicated.

  2. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed before installing tile.

  3. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust latter in consultation with UMA Designer.

- **B. Do not proceed with installation until unsatisfactory conditions have been corrected.**

**3.02 PREPARATION**

- **A. Remove coatings, including curing compounds, and other substances that contain soap, wax, oil, or silicone and are incompatible with tile-setting materials by using a terrazzo or concrete grinder, a drum sander, or a polishing machine equipped with a heavy-duty wire brush.**
B. Provide concrete substrates for tile floors installed with dry-set or latex-portland cement mortars that comply with flatness tolerances specified in referenced ANSI A 108 series of tile installation standards for installations indicated.
   
   I. Use trowelable leveling and patching compounds per tile-setting material manufacturer’s written instructions to fill cracks, holes, and depressions.
   
   2. Remove protrusions, bumps, and ridges by sanding or grinding.

C. Blending; For tile exhibiting color variations within the ranges selected during Sample submittals, verify that tile has been blended in the factory and packaged so tile units taken from one package show the same range in colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.

3.03 INSTALLATION, GENERAL

A. ANSI Tile Installation Standards: Comply with parts of ANSI A 108 series of tile installation standards in “for Installation of Ceramic Tile” that apply to types of setting and grouting materials and to methods indicated in ceramic tile installation schedules.


C. Extend tile work into recesses and under or behind equipment and fixtures to form a complete covering without interruptions, unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.

D. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.

E. Jointing Pattern: Lay tile in grid pattern, unless otherwise indicated. Align joints when adjoining tiles on floor, base, walls, and trim are the same size. Lay out tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths, unless otherwise indicated.

I. For tile mounted in sheets, make joints between tile sheets the same width as joints within tile sheets so joints between sheets are not apparent in finished work.

F. Lay out tile wainscots to next full tile beyond dimensions indicated.

G. Expansion Joints: Locate expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, during installation of setting materials, mortar beds, and tile Do not saw-cut joints after installing tiles.

H. Grout tile to comply with the requirements of the following tile installation standards:
   
   I. For ceramic tile grouts (sand-portland cement, dry-set, commercial portland cement, and latex-portland cement grouts); comply with ANSI A 108.10,
3.04 FLOOR TILE INSTALLATION
A. General: Install tile to comply with requirements in the Ceramic Tile Floor Installation Schedule, including those referencing TCA installation methods and ANSI A 108 series of tile installation standards.
B. Joint Widths: Install tile on floors with the following joint widths:
   I. Ceramic Mosaic Tile: 1/16 inch.
C. Back Buttering for installations indicated, obtain 100 percent mortar coverage by complying with applicable special requirements for back buttering of tile in referenced ANSI A 108 series of tile installation standards:
   I. Tile floors composed of rib-backed tiles.
D. Marble thresholds: Install where exposed edge of tile flooring meets carpet or other flooring.

3.05 WALL TILE INSTALLATION
A. Install types of tile designated for wall installations to comply with requirements in the Ceramic Tile Wall Installation Schedule, including those referencing TCA installation methods and ANSI setting-bed standards.
B. Joint Widths: Install tile on walls with the following joint widths:
   I. Ceramic Mosaic Tile: 1/16 inch.
   2. Wall Tile: 1/16 inch.

3.06 CLEANING AND PROTECTING
A. Cleaning. On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
   I. Remove latex-portland cement grout residue from tile as soon as possible.
   2. Unglazed tile may be cleaned with acid solutions only when permitted by tile and grout manufacturer’s written instructions, but no sooner than 10 days after installation. Protect metal surfaces, east iron, and vitreous plumbing fixtures from effects of acid cleaning. Flush surface with clean water before and after cleaning.
B. Finished Tile Work Leave finished installation clean and free of cracked, chipped, broken, unbonded, and otherwise defective tile work
C. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure tile is without damage or deterioration at the time of Substantial Completion.
   I. When recommended by tile manufacturer, apply a protective coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with Kraft paper or other heavy covering during construction period to prevent staining, damage, and wear.
   2. Prohibit foot and wheel traffic from tiled floors for at least 7 days after growing is completed.
D. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.
3.07 CERAMIC TILE FLOOR INSTALLATION SCHEDULE

A. Ceramic Tile Floor Installation

   I. Tile Type/Products: Unglazed ceramic mosaic tile. Available products include the following:
      a. Unglazed Porcelain Ceramic Mosaics, American Olean,


   3. Setting Bed and Grout ANSI A 108.5 with the following mortar and grout, or tile manufacturer’s designated mortar and grout for above-grade structural slabs:
      a. Latex portland cement mortar: ANSI Al I 8.4
      b. Grout ANSI Al 18.7
      c. Joint width: 1/8 inch

3.08 CERAMIC TILE WALL INSTALLATION SCHEDULE

A. Ceramic Tile Wall Installations

   I. Tile Type/Products: Glazed wall tile. Available products include the following:

   2. Installation Method: TCA W244 (thin-set mortar bonded to cementitious backer units on metal studs).

   3. Setting Bed and Grout ANSI A 108.5 with the following mortar and grout
      a. Latex portland cement mortar: ANSI Al 18.4
      b. Grout ANSI Al 18.7
      c. Joint width: 1/8 inch

END OF SECTION 093000
PART 1 - GENERAL

1.01 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. Description of work;

1. Vinyl wall base at vinyl tile and carpet flooring.
2. Vinyl floor tile, Furnished by UMass installed under this section
3. Floor preparation

1.03 SUBMITTALS

A. Product Data: For each type of product specified.

B. For resilient accessories, manufacturers standard-size samples, but not less than 12 inches long, of each resilient accessory color and pattern specified. Samples for Initial Selection: Include charts showing colors and glosses of game-line and marker paint for resilient athletic flooring.

D. Maintenance Data: For resilient floor tile to include in the maintenance manuals specified in Division 1.

1.04 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced installer to perform work of this Section who has specialized in installing resilient products similar to those required for this Project and with a record of successful in-service performance.

B. Source Limitations: Obtain each type, color, and pattern of product specified from one source with resources to provide products of consistent quality in appearance and physical properties without delaying the Work.
C. Fire-Test-Response Characteristics: Provide products with the following fire-test-response characteristics as determined by testing identical products per test method indicated below by a testing and inspecting agency acceptable to authorities having jurisdiction.

   1. Smoke Density: Maximum specific optical density of 450 or less when tested per ASTM E 662.

1.05 DELIVERY, STORAGE, AND HANDLING
A. Deliver products to Project site in manufacturer’s original, unopened cartons and containers, each bearing names of product and manufacturer, Project identification, and shipping and handling instructions.
B. Store products in dry spaces protected from the weather, with ambient temperatures maintained between 50 and 90 deg F.
C. Store tiles on flat surfaces.
D. Move products into spaces where they will be installed at least 48 hours before installation, unless longer conditioning period is recommended in writing by manufacturer.

1.06 PROJECT CONDITIONS
A. Maintain a temperature of not less than 70 deg F or more than 95 deg F in spaces to receive products for at least 48 hours before installation, during installation, and for at least 48 hours after installation, unless manufacturer’s written recommendations specify longer time periods. After post installation period, maintain a temperature of not less than 55 deg F or more than 95 deg F.
B. Do not install products until they are at the same temperature as the space where they are to be installed.
C. Close spaces to traffic during flooring installation and for time period after installation recommended in writing by manufacturer.
D. Install tiles and accessories after other finishing operations, including painting, have been completed.
E. Do not install flooring over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive, as determined by flooring manufacturer’s recommended bond and moisture test.

PART 2 – PRODUCTS

2.01 MANUFACTURERS
A. Available Products: Subject to compliance with requirements, products that may be incorporated into the work include, but not limited to, those indicated in the Resilient Schedule at the end of Part 3.

2.02 RESILIENT BASE
A. Vinyl Wall Base: Products complying with FS SS-W-40a, Type II, roll length and with requirements specified in the Resilient Tile Flooring Schedule.
   1. 4” cove base

PART 3- EXECUTION

3.01 EXAMINATION
A. Examine substrates, areas, and conditions where installation of resilient products will occur, with Installer present, for compliance with manufacturer’s requirements. Verify that substrates and conditions are satisfactory for resilient product installation and comply with requirements specified.

3.02 PREPARATION
A. Beyond the requirements of Section 024100; Comply with Floor Preparation. Comply with resilient product manufacturer’s written installation instructions for preparing substrates indicated to receive resilient products.
B. Use trowelable leveling and patching compounds, according to manufacturer’s written instructions, to fill cracks, holes, and depressions in substrates.
C. Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
D. Broom and vacuum clean substrates to be covered immediately before product installation. After cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.03 RESILIENT BASE INSTALLATION
A. Apply resilient wall base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
   1. Install wall base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.
   2. Tightly adhere wall base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
   3. Do not stretch base during installation.
   4. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient wall base with manufacturer’s recommended adhesive filler material.
   5. Install premolded outside corners before installing straight pieces.

3.04 CLEANING AND PROTECTING
A. Perform the following operations immediately
   1. Remove adhesive and other surface blemishes using cleaner recommended by resilient product manufacturers.
2. Protect flooring against mars, indentations and other damage from construction operations and placement of equipment and fixtures during the remainder of construction period.
   a. Strip floor of all the manufacture's factory finishes, wash and apply five coats of wax. **24 hour wait time between each coat.**
   b. Use commercially available products acceptable to the Owner.

3.05 RESILIENT SCHEDULE

A. RESILIENT BASE MATERIALS

1. Vinyl Wall Base: FS SS-W Type TI, and as follows:
   a. Height: 4 inches x 1/8" gauge x 120 - ft. roll.
   b. Style:
      1. Standard cove base at VCT.
      2. Johnsonite #80 Fawn
   c. Corners: prefabricated units matching base in color and finish.
   d. Lengths shall be cut to provide continuous pieces between room corners.

END OF SECTION 096519
PART I – GENERAL PROVISIONS

1.01 CONTRACT REFERENCES

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.

1.02 SUMMARY

A Description of work; This Section includes surface preparation and field painting of the following:

1. Exposed interior items and existing surfaces. See paint schedule for material; top coat for masonry/gypsum walls furnished by the University.

2. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.

4. Paint exposed surfaces, except where the paint schedules indicate that a surface or material is not to be painted or is to remain natural. If the paint schedules do not specifically mention an item or a surface, paint the item or surface the same as similar adjacent materials or surfaces whether or not schedules indicate colors. If the schedules do not indicate color or finish, the Architect will select from standard colors and finishes available.

5. Refinishing of the existing Corridor/Elevator Lobbies, and steel door frames in the entire building

1.02 DEFINITIONS

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 level of 2 per the Master Painters Institute (MPI).

2. Eggshell refers to low-sheen finish level of 3 per the Master Painters Institute (MPI).

1.03 SUBMITTALS

A. Product Data: For each paint system specified. Include block fillers and primers.
1. Material List: Provide 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: Provide manufacturer’s technical information, including label analysis and instructions for handling, storing, and applying each coating material proposed for use.

3. Certification by the manufacturer that products supplied complies with local regulations controlling use of volatile organic compounds (VOCs).

B. Samples for Initial Selection: Manufacturer’s color charts showing the full range of colors available for each type of finish-coat material indicated.

C. Samples for Verification: Of 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 list of materials and applications for each coat of each sample. Label each sample for location and application.

   3. Submit Samples on the following substrates for the Architect’s review of color and texture only

      a. Concrete: Provide two 4-inch- square on site samples for each color and finish.

D. Qualification Data: For firms and persons specified in the “Quality Assurance” Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

1.04 QUALITY ASSURANCE

A. Applicator Qualifications: Engage an experienced applicator who has completed painting system applications similar in material and extent to that indicated for this Project with a record of successful in-service performance.

B. Source Limitations: Obtain block fillers, primers, and undercoat materials for each coating system from the same manufacturer as the finish coats.

C. Emissions: Provide interior products which have low indoor air pollution emissions, low overall VOC emissions, and low concentrations of toxic and irritating components. Provide certification of low emission levels.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to the 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 containers used in storage 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. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and application. Open containers shall be stored on the job site.

1.06 PROJECT CONDITIONS
A. Apply water-based paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50 and 90 deg F.
B. Apply solvent-thinned paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 45 and 95 deg F.
C. Do not apply paint in snow, rain, fog, or mist; or when the 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.

PART 2- PRODUCTS
2.01 MANUFACTURERS
A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in the paint schedules.

1. See paint schedule for the finish material being provided by the University.

B. Manufacturers Names: The following manufacturers are referred to in the paint schedules by use of shortened versions of their names, which are shown in parentheses:

2. PPG Industries, Inc. (PPG).
2.02 PAINT MATERIALS, GENERAL

A. Material Compatibility: Provide block fillers, primers, undercoats, and finish-coat materials that are compatible with one another and 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. 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.

C. Colors: Provide color selections made by the Architect.

D. Contractor MUST prepare and have estimate all the quantities of all materials to be provided by the University at the Pre-construction Meeting

PART 3- EXECUTION

3.01 EXAMINATION

A. Examine substrates, areas, and conditions, with the Applicator present, under which painting will be performed for compliance with paint application requirements.

   1. Do not begin to apply paint until unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.

   2. Start of painting will be construed as the 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 the Architect about anticipated problems using the materials specified over substrates primed by others.

3.02 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 the 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 the substrates of substances that could impair the bond of the various coatings. Remove oil and grease before cleaning.
   1. All existing surfaces including but not limited to walls, floors, exposed structure, ferrous metal, ECT.
   2. Remove all grease, oil and stains with chemical remover.
   3. Wash all surfaces with mineral spirits.
   4. Rinse with clear water.
   5. Apply finish coats as per schedule below.
   6. 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 for each particular substrate condition and as specified.
   1. Provide barrier coats over incompatible primers or remove and reprime.
   2. Cementations Materials: Prepare concrete, concrete masonry block, 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 where moisture content exceeds that permitted in manufacturer’s written instructions.

D. Materials 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 the 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
3.03 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 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 primers coats that are compatible with finish coats used.
4. The term “exposed surfaces” includes areas visible when permanent or built-in fixtures, convector covers, covers for finned-tube radiation, grilles, and similar components are in place. Extend coatings in these areas, as required, to maintain the system integrity and provide desired protection.
5. Paint surfaces behind movable equipment and furniture the same as behind permanently fixed equipment or furniture with prime coat only.

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 the film thickness required are the same regardless of application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer’s written instructions, sand between applications.
2. Omit primer on 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 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, does not deform or feel sticky under moderate thumb pressure, and where application of another coat of paint does not cause the 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 the type of material applied. Use brush of appropriate size for the surface or item being painted.
2. Rollers: Use rollers of carpet, velvet back, or high-pile sheep’s wool as recommended by the manufacturer for the material and texture required.
3. If material applied by spray the final coat MUST be back rolled.

D. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer’s recommended spreading rate. Provide the total dry film thickness of the entire system as recommended by the manufacturer.
E. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to items exposed in occupied spaces (not in equipment rooms).

F. Mechanical items to be painted include, but are not limited to, the following:
   1. Piping, pipe hangers, and supports.
   2. Ductwork.
   3. Accessory items.

G. Electrical items to be painted include, but are not limited to, the following:
   1. Conduit and fittings.
   2. Cable Trays.

H. Prime Coats: Before applying finish coats, apply a prime coat of material, as recommended by the 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. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.

3.04 FIELD QUALITY CONTROL

A. The Owner reserves the right to invoke the following test procedure at any time and as often as the Owner deems necessary during the period when paint is being applied:
   1. The Owner may engage the services of an independent testing agency to sample the paint material being used. Samples of material delivered to the Project will be taken, identified, sealed, and certified in the presence of the Contractor.
   2. The testing agency will perform appropriate tests for the following characteristics as required by the Owner:
      a. Quantitative material analysis.
      b. Abrasion resistance.
      c. Apparent reflectivity.
      d. Flexibility.
      e. Washability.
      f. Absorption.
      g. Accelerated weathering.
      h. Dry opacity.
i. Accelerated yellowness.

j. Recoating.

k. Skinning.

l. Color retention.

m. Alkali and mildew resistance.

3. The Owner may direct the Contractor to stop painting if test results show material being used does not comply with specified requirements. The Contractor shall remove noncomplying paint from the site, pay for testing, and repaint surfaces previously coated with the rejected paint. If necessary, the Contractor may be required to remove rejected paint from previously painted surfaces if, on repainting with specified paint, the 2 coatings are incompatible.

3.05 CLEANING

A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from the site.

   1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping. Be careful not to scratch or damage adjacent finished surfaces.

3.06 PROTECTION

A. Protect work of other trades, whether being painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Architect.

B. Provide “Wet Paint” signs to protect newly painted finishes. Remove temporary protective wrappings provided by others to protect their work after completing painting operations.

   1. At completion of construction activities of other trades, touch up and restore damaged or de-faced painted surfaces. Comply with procedures specified in PDCA PI.

3.07 INTERIOR PAINT SCHEDULE

A. Concrete and Masonry Existing: Provide the following paint systems over interior concrete and brick masonry surfaces:

   1. Low-Luster, Acrylic-Enamel Finish: 2 finish coats over a primer.

      a. Primer: Alkali-resistant, acrylic-latex, interior primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.0 mil.

         1) Moore: Regal First Coat Interior Latex Primer & Underbody #216.

         2) PPG: 6-603 Speedhide Interior/Exterior Acrylic Latex Alkali Resistant Primer.

         3) P & L: Z/F 1004 Suprime “4” Interior Latex Wall Primer.
b. First Coat: Semigloss, acrylic-latex, interior enamel applied at the spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.3 mils.

c. Top Coat: Semigloss, acrylic-latex, interior enamel supplied by the University applied under this section at the spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.3 mils.

B. Gypsum Board: Provide the following finish systems over interior gypsum board surfaces:

1. Low-Luster, Acrylic-Enamel Finish:

   2 Finish coats over-a primer.

      a. Primer Latex-based, interior primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.2 mils.

         1) Moore: Regal First Coat Interior Latex Primer & Underbody #216.
         2) PPG: 17-10 Quick-Drying Interior Latex Primer-Sealer,
         3) P & L: Z/F 1004 Suprime ’4” Interior Latex Wall Primer.

      b. First Coat: Semigloss, acrylic-latex, interior enamel applied at the spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.3 mils.

      c. Top Coat: Semigloss, acrylic-latex, interior enamel supplied by the University applied under this section at the spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.3 mils.

C. Ferrous Metal: Provide the following finish systems over existing metal door frame:

1. Semigloss, Acrylic-Enamel Finish; One finish coat over an enamel undercoater and a primer.

   a. Primer: Quick-drying, rust-inhibitive, alkyd-based or epoxy-metal primer, as recommended by the manufacturer for this substrate, applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.5 mils.

      1) Moore: Ironclad Retard Rust-Inhibitive Paint #163.
      2) PPG: 6-208 Speed hide Interior/Exterior Rust Inhibitive Steel Primer.
      3) P & L: S 455! Tech-Grad High Performance Ruàt inhibitor Primer,

   b. Undercoat Alkyd, interior enamel undercoat or semigloss, acrylic-latex, interior enamel, as recommended by the manufacturer for this substrate, applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.3 mils.

      1) Moore: Moore’s Alkyd Enamel Underbody #2 17.
      2) PPG: 6-6 Speedhide Interior Quick-Drying Enamel Undercoater.
c. Finish; 2 Top Coats Semigloss, acrylic-latex, interior enamel supplied under this section applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.3 mils.

END OF SECTION 099100
PART I – GENERAL

1.01 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.

1.02 DESCRIPTION OF WORK
A. This Section includes Linoleum resilient tackable wall covering surface, burlap backed cork and accessories.
B. This section includes furnishing and installing Gypsum Board sub strait.

1.03 SUBMITTALS
A. Product Data For each type of product specified.
B. Samples for Verification: units of each type of indicated; in sets for each color, texture, and pattern specified, showing the full range of variations expected in these characteristics.
   1. 6-inch- square samples of each material type, pattern, and color.
C. Product Test Reports: Indicate compliance of acoustical panel ceilings and components with requirements based on comprehensive testing of current products.

1.03 QUALITY ASSURANCE
A. Installer Qualifications: Engage an experienced installer who has completed wall covering material, design, and extent to that indicated for this Project and with a record of successful in-service performance.
B. Source Limitations obtain each material from one source with resources to provide products of consistent quality in appearance and physical properties without delaying the Work.
C. Fire-Test-Response Characteristics: Provide acoustical panel ceilings that comply with the following requirements:
   1. Surface-burning characteristics of acoustical panels comply with ASTME 84 for Class materials.
1.04 DELIVERY, STORAGE, AND HANDLING
A. Deliver acoustical panels and suspension system components to Project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.
B. Before installing acoustical panels, permit them to reach room temperature and stabilized moisture content.
C. Handle acoustical panels carefully to avoid chipping edges or damaging units in any way.

1.05 PROJECT CONDITIONS
A. Environmental Limitations: Do not install acoustical panel ceilings until spaces are enclosed and weatherproof, wet-work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

1.06 COORDINATION
A. Coordinate layout and installation of acoustical panels and suspension system with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.

PART 2- PRODUCTS

2.01 MANUFACTURERS
A. Available Products: Furnish all labor, materials, equipment, services and transportation necessary to complete the installation for a warranted wall covering as per the Forbo Linoleum Inc system or approved equal complete with all accessories as shown on the drawings and specified herein.

2.02 WALL COVERING GENERAL
A. Linoleum resilient tackable surface shall be as manufactured by Forbo, ¼" thick self-healing, burlap backed cork.
   1. Linoleum resilient homogeneous tackable surface material shall be natural materials consisting of linseed oil, granulated cork, rosin binders and dry pigments, mix and calendered onto a natural burlap backing. Unicolor shall extend throughout thickness of material.
   2. Color selected by Architect from Manufacture’s full line.
   3. Adhesive, Forbo L910
   4. Extruded Aluminum 5/16 " crown-trim at all exposed ends, anodized finish, color selected by Architect.
PART 3- EXECUTION

3.01 EXAMINATION
A. Examine substrates and structural framing to which covering is attach or abuts, for compliance with requirements specified in this and other Sections that affect the installation and anchorage, and other conditions affecting performance.

1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION
A. Coordination: Measure each wall area to establish layout of the wallcovering. Strictly comply with final layout shown on approved shop drawings.

3.03 INSTALLATION
A. General: Install wall covering in strict accordance with the Manufacture’s a fully adhered application to comply with publications referenced and written instructions.

1. Perimeter of all installations finished with crown molding.

2. Field joints shall be pattern scribed joints.

3.04 CLEANING
A. Clean all surfaces including trim, and edge moldings, Comply with manufacturer’s written instructions for cleaning and touchup of minor finish damage. Remove and replace components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

3.05 ATTIC STOCK
A. Leave one 4’ wide by 25’ roll of unopened covering.

END OF SECTION 099200
DIVISION 10 SPECIALTIES

SECTION 108000

TOILET ACCESSORIES

PART I - GENERAL

1.01 GENERAL PROVISIONS
A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION I — GENERAL REQUIREMENTS, which are hereby made a part of this sect of the specifications.

1.02 SUMMARY
A. This Section includes the following:
   1. Toilet accessories.
   2. Under lavatory guards.
B. Products Installed but not furnished under this Section include the following:
   1. Toilet tissue dispensers
   2. Paper towel dispensers.
   3. Soap dispensers
C. Related Sections include the following:
   1. Division 9 Section “Ceramic Tile”.

1.03 SUBMITTALS
A. Product Data: Include construction details, material descriptions and thicknesses, dimensions, profiles, fastening and mounting methods, specified options, and finishes for each type of accessory specified.

1.04 QUALITY ASSURANCE
A. Source Limitations: Provide products of same manufacturer for each type of accessory unit and for units exposed to view in same areas, unless otherwise approved by Architect.
B. Product Options: Accessory requirements, including those for materials, finishes, dimensions, capacities, and performance, are established by specific products indicated in the Toilet and Bath Accessory Schedule.
   1. Products of other manufacturers with equal characteristics, as judged solely by Architect, may be provided.

1.05 COORDINATION
A. Coordinate accessory locations with other work to prevent interference with clearances required for access by disabled persons, proper installation, adjustment, operation, cleaning, and servicing of accessories.
B. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work
1.06 WARRANTY
A. General Warranty: Special warranty specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
B. Manufacturer's Mirror Warranty; Written warranty, executed by mirror manufacturer agreeing to replace mirrors that develop visible silver spoilage defects within minimum warranty period indicated.
1. Minimum Warranty Period: 15 years from date of Substantial Completion,

PART 2- PRODUCTS
2. 01 MANUFACTURERS
A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering accessories that may be incorporated into the Work include, but are not limited to, the following:
1. Toilet Accessories:
   a. A & J Washroom Accessories, Inc.
   b. American Specialties, Inc.
   c. Bobrick Washroom Equipment, Inc.
   d. Bradley Corporation.
   e. General Accessory Manufacturing Co. (GAMCO).
   f. McKinney/Parker Washroom Accessories Corp.
2. Underlavatory Guards:
   a. Brocar Products, Inc.
   b. Truebro, Inc.
B. Available Products: Subject to compliance with requirements, products are indicated in the Toilet and Bath Accessory Schedule at the end of Part 3.

2.02 MATERIALS
A. Stainless Steel: ASTM A 666, Type 304, with No.4 finish (satin), in 0.03 12-inch minimum nominal thickness, unless otherwise indicated.
B. Sheet Steel: ASTM A 366/A 36GM, cold rolled, commercial quality, 0.0359-inch minimum nominal thickness; surface preparation and metal pretreatment as required for applied finish.
C. Galvanized Steel Sheet: ASTM A 653/A 653M, G60.
D. Chromium Plating: ASTM B 456, Service Condition Number SC 2 (moderate service), nickel plus chromium electrodeposited on base metal.
E. Mirror Glass: ASTM C 1036, Type I, Class I, Quality q2, nominal 6.0 mm thick, with silvering, electro plated copper coating, and protective organic coating complying with FS DD-M-4 II.
F. Galvanized Steel Mounting Devices: ASTM A 153/A 153M, hot-dip galvanized after fabrication,
G. Fasteners: Screws, bolts, and other devices of same material as accessory unit, tamper and theft resistant when exposed, and of galvanized steel when concealed.
2.03 FABRICATION
A. General: One, maximum 1- diameter, unobtrusive stamped manufacturer logo, as approved by Architect, is permitted on exposed face of accessories. On interior surface not exposed to view or back surface of each accessory, provide printed, waterproof label or stamped nameplate indicating manufacturer’s name and product model number.
B. Surface-Mounted Toilet Accessories: Unless otherwise indicated, fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with continuous stainless-steel hinge. Provide concealed anchorage where possible.
C. Recessed Toilet Accessories: Unless otherwise indicated, fabricate units of all-welded construction, without mitered corners. Hang doors and access panels with full-length, stainless-steel hinge. Provide anchorage that is fully concealed when unit is closed.
D. Framed Glass-Mirror Units: Fabricate frames for glass-mirror units to accommodate glass edge protection material. Provide mirror backing and support system that permits rigid, tamper-resistant glass installation and prevents moisture accumulation.
   1. Provide galvanized steel backing sheet, not less than 0.034 inch and full mirror size, with nonabsorptive filler material. Corrugated cardboard is not an acceptable filler material.
E. Mirror-Unit Hangers: Provide mirror-unit mounting system that permits rigid, tamper- and theft- resistant installation, as follows:
   1 One-piece, galvanized steel, wall-hanger device with spring-action locking mechanism to hold mirror unit in position with no exposed screws or bolts.
   2. Heavy wall brackets of galvanized steel, equipped with concealed locking devices requiring a special tools to remove.
F. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to Owner’s representative.

PART 3- EXECUTION

3.01 INSTALLATION
A. Install accessories according to manufacturers’ written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.
B. Secure to walls in concealed, tamper-resistant manner with special hangers, toggle bolts, or screws. Set units level, plumb, and square at locations indicated, according to manufacturer’s written instructions for substrate indicated.
C. Install grab bars to withstand a downward load of at least 250 lbf, when tested according to method in ASTM F 446.
D. Install items furnished by Owner at field approved locations.

3.02 ADJUSTING AND CLEANING
A. Adjust accessories for unencumbered, smooth operation and verify that mechanisms function properly. Replace damaged or defective items.
B. Remove temporary labels and protective coatings.
C. Clean and polish exposed surfaces according to manufacturer’s written recommendations.

3.03 TOILET ACCESSORY SCHEDULE
A. Toilet Tissue Dispensers: Surface mount Install only. Furnished by Owner.
1. Locate on side wall closest to water closet. Set centerline of roll at minimum of 24 inches above floor.

B. Paper Towel Dispenser: Double roll unit. Surface mount. Install only. Furnished by Owner.
   1. Locate on wall as indicated so that dispenser meets ADA height requirements.

C. Soap Dispenser: Surface mount. Install only. Furnished by Owner.

D. Grab Bar: Provide stainless-steel grab bar complying with the following:
   1. Length: As shown.
   2. Stainless-Steel Nominal Thickness: Minimum 0.05 inch.
   3. Mounting: Concealed with manufacturer’s standard flanges and anchors
   4. Gripping Surfaces: Manufacturer’s standard slip-resistant texture
   5. Outside Diameter: 1-1/4 inches for medium-duty applications

E. Framed Mirrors: Provide mirror unit complying with the following:
   1. Stainless-Steel, Channel-Frame Mirror: Fabricate frame from stainless-steel channels in manufacturer’s standard satin or bright finish with square corners mitered to hairline joints and mechanically interlocked, size as per drawings

F. Underlavatory Guard: Provide underlavatory guards at each lavatory complying with the following:
   1. Lavatory protective enclosure: White, antimicrobial, molded-vinyl one piece tapered under lavatory guard, completely enclosing supply and drain piping, intended for use at accessible lavatories to prevent direct contact with and burns from piping. Provide components as required for applications indicated, single piece with easily removable fasteners for access to plumbing.

G. Shower Threshold: Provide and install collapsible water retainer 1 ½” high 1” wide full with of shower, rubber 50 Durometer, secured with silicon.

F. Shower Curtain rod, same as grab bars item D above

H. Shower seat; Accessibility Professionals APSSB2-240150PW, 24” x 15” Bench style seat Phenolic White slatted top stainless steel frame

I. Shower Curtain Furnished and installed by the owner.

END OF SECTION 108000
SECTION 210001
FIRE PROTECTION

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. Sprinkler heads, piping, and fittings.
2. Preparation of complete "Fire Protection Working Drawings" and calculations.
3. Tests of all piping, systems, devices and alarms.
4. Sleeves, escutcheons, hangers and supports.
5. Flow tests.
6. Shop drawings and submittals.
7. Permits, fees and inspections.
8. Drilling for installation of inserts.
9. Core drilling for the Work of this Section.
10. Certified seismic restraints to meet the Commonwealth of Massachusetts Building Code applicable at the time the building permit is issued.
11. Fire watches 24/7 when systems servicing existing spaces are inoperable at no additional cost to UMass.
12. Coordination drawings and record drawings and similar requirements.
13. 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: 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 024100 – SELECTIVE DEMOLITION for coordination of floor and wall penetrations with firestopping contractor.
2. Section 095113 – ACOUSTICAL TILE for coordination with acoustical ceilings.
F. Perform work and provide material and equipment as shown on Drawings and as specified or indicated in this Section of the Specifications. Completely coordinate work of this Section with work of other trades and provide a complete and fully functional installation.

G. Drawings and Specifications form complimentary requirements; provide work specified and not shown, and work shown and not specified as though explicitly required by both. Although work is not specifically shown or specified, provide supplementary or miscellaneous items, appurtenances, devices and materials obviously necessary for a sound, secure and complete installation.

H. Give notices, file plans, obtain permits and licenses, pay fees and back charges, and obtain necessary approvals from authorities that have jurisdiction as required to perform work in accordance with all legal requirements and with Specifications, Drawings, Addenda and Change Orders, all of which are part of Contract Documents.

1.3 SUBMITTALS

A. Comply with requirements specified in Section 013300 – SUBMITTALS REQUIREMENTS.

B. Shop Drawings: Submittals shall include but not be limited to the following. Shop drawings shall be stamped and sealed by a fire protection engineer licensed in the Commonwealth of Massachusetts.
   1. Fire Protection Products:
      a. Sprinkler heads.
      b. Pipe and fittings.
      c. Hangers and supports.

C. Extra Stock: Submit 2 extra typical sprinkler heads for User Agency’s ongoing maintenance.

1.4 DEFINITIONS

A. As used in this Section, "provide" means "furnish and install" and "POS" means "Provided under Other Sections". "Furnish" means "to purchase and deliver to the project site complete with every necessary appurtenance and support," and "Install" means "to unload at the delivery point at the site and perform every operation necessary to establish secure mounting and correct operation at the proper location in the project."

1.5 CONTRACT DOCUMENTS

A. Listing of Drawings does not limit responsibility of determining full extent of work required by Contract Documents. Refer to Architectural, HVAC, Plumbing, Fire Protection, Electrical, Structural, and other Drawings and other Sections that indicate types of construction in which work shall be installed and work of other trades with which work of this Section must be coordinated.

B. Except where modified by a specific notation to the contrary, it shall be understood that the indication and/or description of any item, in the drawings or specifications or both, carries with
it the instruction to furnish and install the item, regardless of whether or not this instruction is explicitly stated as part of the indication or description.

C. Items referred to in singular number in Contract Documents shall be provided in quantities necessary to complete work.

D. Drawings are diagrammatic. They are not intended to be absolutely precise; they are not intended to specify or to show every offset, fitting, and component. The purpose of the drawings is to indicate a systems concept, the main components of the systems, and the approximate geometrical relationships. Based on the systems concept, the main components, and the approximate geometrical relationships, the contractor shall provide all other components and materials necessary to make the systems fully complete and operational.

E. Information and components shown on riser diagrams but not shown on plans, and vice versa, shall apply or be provided as if expressly required on both.

F. Data that may be furnished electronically by the Designer is diagrammatic. Such electronically furnished information is subject to the same limitation of precision as heretofore described. If furnished, such data is for convenience and generalized reference, and shall not substitute for Designer's sealed or stamped construction documents.

1.6 DISCREPANCIES IN DOCUMENTS

A. Where Drawings or Specifications conflict or are unclear, advise Designer in writing before Award of Contract. Otherwise, Designer's interpretation of Contract Documents shall be final, and no additional compensation shall be permitted due to discrepancies or unclarities thus resolved.

B. Where Drawings or Specifications do not coincide with manufacturers' recommendations, or with applicable codes and standards, alert Designer in writing before installation. Otherwise, make changes in installed work as Designer requires within Contract Price.

C. If the required material, installation, or work can be interpreted differently from drawing to drawing, or between drawings and specs, this contractor shall provide that material, installation, or work which is of the higher standard.

D. It is the intent of these contract documents to have the contractor provide systems and components that are fully complete and operational and fully suitable for the intended use. There may be situations in the documents where insufficient information exists to precisely describe a certain component or subsystem, or the routing of a component. In cases such as this, where the contractor has failed to notify the Designer of the situation in accordance with the paragraph above, the contractor shall provide the specific component or subsystem with all parts necessary for the intended use, fully complete and operational, and installed in workmanlike manner either concealed or exposed per the design intent.

1. In cases covered by the paragraph above, where the contractor believes he needs engineering guidance, he shall submit a sketch identifying his proposed solution and the Designer shall review, note if necessary, and approve the sketch.
1.7 MODIFICATIONS IN LAYOUT

A. HVAC, Plumbing, Fire Protection, and Electrical Drawings are diagrammatic. They indicate general arrangements of mechanical and electrical systems and other work. They do not show all offsets required for coordination nor do they show the exact routings and locations needed to coordinate with structure and other trades and to meet architectural requirements.

B. In all spaces, prior to installation of visible material and equipment, including access panels, review Architectural Drawings for exact locations and where not definitely indicated, request information from Designer.

C. Check Contract Drawings as well as Shop Drawings of all subcontractors to verify and coordinate spaces in which work of this Section will be installed.

D. Maintain maximum headroom at all locations. All piping and associated components to be as tight to underside of structure as possible.

E. Make reasonable modifications in layout and components needed to prevent conflict with work of other trades and to coordinate according to Paragraphs A, B, C, D above. Systems shall be run in a rectilinear fashion.

F. Where conflicts or potential conflicts exist and engineering guidance is desired, submit sketch of proposed resolution to Designer for review and approval.

1.8 SITE VISIT

A. Before submitting bid, visit and carefully examine site to identify existing conditions and difficulties that will affect work of this Section. No extra payment will be allowed for additional work caused by unfamiliarity with site conditions that are visible or readily construed by experienced observer.

1.9 EXISTING CONDITIONS AND PREPARATORY WORK

A. Before starting work in a particular area of the project, visit site and examine conditions under which work must be performed including preparatory work done under other Sections or Contracts or by the User Agency. Report conditions that might affect work adversely in writing through Contractor to Designer. Do not proceed with work until defects have been corrected and conditions are satisfactory. Commencement of work shall be construed as complete acceptance of existing conditions and preparatory work.

1.10 CODES, STANDARDS, AUTHORITIES AND PERMITS

A. Perform work strictly as required by rules, regulations, standards, codes, ordinances, and laws of local, state, and Federal governments, and other authorities that have legal jurisdiction over the site. Materials and equipment shall be manufactured, installed and tested as specified in latest editions of applicable publications, standards, rulings and determinations of:

1. Local and state building, plumbing, mechanical, electrical, fire and health department codes.
4. Occupational Safety and Health Act (OSHA).
5. Factory Mutual Association (FM).
6. Underwriters' Laboratories (UL).

B. Material and equipment shall be listed by Underwriters' Laboratories (UL), and approved by ASME for intended service.

C. When requirements cited in this Specification conflict with each other or with Contract Documents, most stringent shall govern work. Designer may relax this requirement when such relaxation does not violate ruling of authorities that have jurisdiction. Approval for such relaxation shall be obtained in writing.

D. Most recent editions of applicable specifications and publications of the following organizations form part of Contract Documents:

   2. American Society of Mechanical Engineers (ASME).
   5. American Water Works Association (AWWA).
   6. Institute of Electrical and Electronics Engineers (IEEE).
   7. Insulated Cable Engineers Association (ICEA).

1.11 GUARANTEE AND 24 HOUR SERVICE

A. Guarantee Work of this Section in writing for one year following the date of Substantial Completion. The guarantee shall repair or replace defective materials, equipment, workmanship and installation that develop within this period, promptly and to Designer's satisfaction and correct damage caused in making necessary repairs and replacements under guarantee within Contract Price.

B. In addition to guarantee requirements of Division 01 and of Subparagraph A above, obtain written equipment and material warranties offered in manufacturer's published data without exclusion or limitation, in User Agency's name.

C. Replace material and equipment that require excessive service during guarantee period as defined and as directed by Designer.

D. Provide 24 hour service beginning on the date the project is first occupied for public use by the User Agency, whether or not fully occupied, and lasting until the termination of the guarantee period. Service shall be at no cost to the User Agency. Service can be provided by this contractor or a separate service organization. Choice of service organization shall be subject to Designer and User Agency approval. Submit name and a phone number that will be answered on a 24 hour basis each day of the week, for the duration of the service.
E. Submit copies of equipment and material warranties to Designer before final payment.

F. At end of guarantee period, transfer manufacturers' equipment and material warranties still in force to User Agency.

G. This Article shall not be interpreted to limit User Agency's rights under applicable codes and laws and under this Contract.

H. Part 2 Paragraphs of this Specification may specify warranty requirements that exceed those of this Paragraph.

I. Use of systems provided under this Section for temporary services and facilities shall not constitute Final Acceptance of work nor beneficial use by User Agency, and shall not institute guarantee period.

J. Provide manufacturer's engineering and technical staff at site to analyze and rectify problems that develop during guarantee period immediately. If problems cannot be rectified immediately to UMass Project Manager's satisfaction, advise Designer in writing, describe efforts to rectify situation, and provide analysis of cause of problem. Designer will suggest course of action.

1.12 RECORD DRAWINGS

A. Comply with requirements specified in Section 017700 – CONTRACT CLOSEOUT.

B. Drawings shall show record condition of details, sections, riser diagrams, control changes and corrections to schedules. Schedules shall show actual manufacturer and make and model numbers of final equipment installation.

1.13 PROTECTION

A. Each separate contractor shall protect the work and material of other trades that might be damaged by his work or workmen and make good all damage thus caused.

1.14 COORDINATION DRAWINGS

A. Refer to Section 013100 – PROJECT MANAGEMENT AND COORDINATION for coordination drawing requirements.

B. Coordination Drawings include but are not necessarily limited to:

1. Structure.
2. Partition/room layout.
3. Ceiling tile and grid.
4. Light fixtures.
5. Access panels.
6. Sheet metal, heating coils, boxes, grilles, diffusers, etc.
7. All heating piping and valves.
8. Smoke and fire dampers.
9. Soil, waste and vent piping.
10. Major water and medical gases.
11. Roof drain piping.
12. Major electrical conduit runs, panelboards, feeder conduit and racks of branch conduit.
13. Above ceiling miscellaneous metal.
14. Sprinkler piping and heads.
15. Heat tracing of piping.

1.15 SPRINKLER WORKING PLANS

A. Definition: Working plans are the installation shop drawings required by NFPA Standard 13 and normally prepared by the installing sub-contractor.

B. Prepare working plans according to the requirements of NFPA Standard 13. Working plans and hydraulic calculations shall be prepared by a NICET-certified Level III or IV automatic sprinkler system engineering technician or be stamped by a professional engineer registered in the jurisdiction of the Project.

1. Working Plans shall be stamped and signed by a Professional Engineer when required by the approving authority, at no additional cost to UMass.

C. Submit working plans to the authorities having jurisdiction for approval, including:

1. Building Department.
2. Fire Department.
4. Designer.

D. Deviation from the approved plans will require re-approval by the reviewing authorities.

E. Prepare sprinkler head layout plans on reflected ceiling plans for submission to the Designer before submission of the working plans.

F. Submit working plans and hydraulic calculations to the Designer in one complete package, after review by the other authorities having jurisdiction. Plans submitted without review stamps or hydraulic calculations will be returned without review.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering fire protection system products which may be incorporated in the work include, but are not limited to, the following:

1. Sprinkler Heads:
   a. Automatic Sprinkler Corp. Of America
   b. Central Sprinkler Corp.
   c. Firematic Sprinkler Devices, Inc.
d. Globe Fire Equipment Co.
e. Guardian Fire Equipment, Inc.
f. ITT Grinnell
g. Reliable Automatic Sprinkler Co., Inc.
h. Star Sprinkler Corp.
i. Viking Corp.

2.2 PIPING, FITTINGS AND JOINTS

A. Sprinkler Piping:
   1. Steel: 2 inches and smaller: ASTM 135 Schedule 40 black steel with threaded joints; 2 inches and larger: ASTM 135 Schedule 40 black steel with grooved or threaded joints.

B. Fittings:

C. Grooved Fittings and Couplings:
   1. Grinnell Fig. 7000, Gustin-Bacon No. 105 or Victaulic Style 75.
   2. Compatibility: Couplings and fittings shall be of a single manufacturer or shall be certified as compatible by both manufacturers.

2.3 JOINING MATERIALS

A. Gasket Materials: Thickness, material, and type suitable for fluid or gas to be handled, and design temperatures and pressures.

2.4 SLEEVES, INSERTS AND ESCUTCHEONS

A. All pipes passing through floors, walls, or partitions shall be provided with sleeves having an internal diameter of approximately one inch larger than the outside diameter of the pipe or insulation on covered lines.

B. Sleeves through floors and through exterior, structural and fire-rated construction shall be hot-dipped galvanized Schedule 40 steel pipe.

C. Sleeves through partitions and non-fire-rated construction shall be 25 gauge galvanized steel with lock longitudinal seams, or approved plastic pipe.

D. Unless otherwise specified herein, escutcheons shall be cast brass chrome plated type and provided with a set screw to properly hold escutcheon in place.

E. The void between sleeves and piping passing through all interior above grade fire rated partitions and floor slabs shall be filled with a two hour fire rated mastic.
1. Fire sealing shall be by the General Contractor and shall be in full accordance with Division 7.

2.5 AUTOMATIC SPRINKLERS

A. Sprinkler Heads: fusible link type, and style as indicated or required by the application. Unless otherwise indicated, provide heads with nominal 2 inch discharge orifice, for “Ordinary” temperature range.

B. Sprinkler Heads Finishes: Provide heads with the following finishes:

1. Concealed Style: rough brass, with painted white cover plate.

2.6 PIPE AND HANGER SUPPORTS

A. Provide pipe supports, sway braces, hangers, and clamps conforming to NFPA 13 and listed by UL and approved by FM. Provide protection of piping against earthquake damage in accordance with NFPA 13.

PART 3 - EXECUTION

3.1 PIPE APPLICATIONS

A. Install piping in accordance with NFPA 13 for sprinkler systems.

B. Install Schedule 40 steel pipe with threaded joints and fittings for smaller than 2-inch.

C. Install Schedule 40 steel pipe with threaded joints and fittings or roll-grooved ends and grooved mechanical couplings for piping 2-inch.

3.2 PIPING INSTALLATIONS

A. Locations and Arrangements: Drawings (plans, schematics, and diagrams) indicate the general location and arrangement of piping systems. So far as practical, install piping as indicated.

1. Deviations, from approved “Working Plans” for sprinkler piping, require written approval of the authority having jurisdiction. Written approval shall be on file with the Designer prior to deviating for the approved “Working Plans.”

B. Install sprinkler piping to provide for system drainage in accordance with NFPA 13.

C. Use approved fittings to make all changes in direction, branch takeoffs from mains, and reductions in pipe sizes.

D. Hangers and Supports: Comply with the requirements of NFPA 13. Hanger and support spacing and locations for piping joined with grooved mechanical couplings shall be in accordance with the grooved mechanical coupling manufacturer’s written instructions, for rigid
systems. Provide protection from damage where subject to earthquake in accordance with NFPA 13.

3.3 PIPE JOINT CONSTRUCTION

A. Threaded Joints: Conform to ANSI B1.20.1, tapered pipe threads for field cut threads. Join pipe, fittings, and valves as follows:
   1. Note the internal length of threads in fittings or valve ends, and proximity of internal seat or wall, to determine how far pipe should be threaded into joint.
   2. Align threads at point of assembly.
   3. Apply appropriate tape or thread compound to the external pipe threads.
   4. Assemble joint to appropriate thread depth. When using a wrench on valves, place the wrench on the valve end into which the pipe is being threaded.
   5. Damaged Threads: Do no use pipe with threads which are corroded, or damaged. If a weld opens during cutting or threading operations, that portion of pipe shall not be used.

B. End Treatment: After cutting pipe lengths, remove burrs and fins from pipe ends.

3.4 SPRINKLER HEAD INSTALLATIONS

A. Use proper tools to prevent damage during installations.

3.5 FIELD QUALITY CONTROL

A. Flush, test, and inspect sprinkler systems in accordance with NFPA 13.

B. Replace piping system components which do not pass the test procedures specified, and retest repaired portion of the system.

3.6 TESTING

A. Testing and flushing of the fire protection systems shall be done at the expense of this Subcontractor and with equipment furnished by him. Testing shall be done in the presence of duly authorized inspectors and representatives of the Designer and UMass’s Project Manager within forty-eight (48) hour notice given those authorities. Prior to testing, the system shall be thoroughly flushed with clean water.

B. The system shall be repaired and retested until made perfect, without additional expense to UMass.

C. Test piping as required by N.F.P.A. and the User Agency's Insurance Underwriter. Piping shall be repaired until such tests show no leaks. Where required, and depending on the building timing and schedule, the system may be required to be tested without final swing elbows and heads installed. In this case, a second test will be required upon installation of swing elbows and heads.
D. Material and test certificates must be signed by the UMass's Project Manager prior to and upon completion of testing. Final test reports must be approved in writing by local authorities.

E. Results of tests shall be recorded and submitted using the forms in NFPA #13, for review by the Engineer. The Material and Test Certificate shall also be sent to the UMass’s Project Manager and User Agency's Insurance Underwriter.

F. Provide all necessary and appropriate personnel to participate in and coordinate fire protection systems with all fire alarm testing, or other systems testing which may interface with fire protection system. Participation shall include all preliminary testing, walk-through testing prior to official walk-through testing and any re-testing if required.

END OF SECTION
SECTION 220001
PLUMBING
(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 1 - 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 filed in a sealed envelope with the University of Massachusetts at a time and place as stipulated in the "NOTICE TO CONTRACTORS".

The following should appear on the upper left hand corner of the envelope:

<table>
<thead>
<tr>
<th>NAME OF SUB-BIDDER:</th>
<th>(Insert legal name of sub-bidder)</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.M.A 17-22</td>
<td></td>
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<tr>
<td>U.M.A. PROJECT: 1010221</td>
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<tr>
<td>SUB-BID FOR SECTION: 220001 – PLUMBING</td>
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</tr>
</tbody>
</table>

2. Each sub-bid submitted for work under this Section shall be on forms furnished by the Awarding Authority as required by Section 44F of Chapter 149 of the Commonwealth of Massachusetts General Laws, as amended. Sub-bid forms may be obtained at the Procurement Department, Goodell Hall, 4th floor of the University of Massachusetts, Amherst or may be obtained by written or telephone request; (telephone (413) 545-0361).

3. Sub-bids filed with the Awarding Authority 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 University 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 Sub-Bid Requirements: (None required under this Section.)

Reference Drawings: The Work of this Filed Sub-Bid is shown on the following Contract Drawings:

T- 0  Title Sheet
A-1  Demolition Plan
A-2  Room layout Plan, Elevations
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. Alterations, additions -and/or removal of existing plumbing systems and fixtures within the renovated area in order to conform to new space requirements.
2. Core drilling for the Work of this Section.
3. Coordination drawings and record drawings and similar requirements.
4. 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. Related Work: The following items are not included in this Section and will be performed under the designated Sections:

1. Section 011000 - SUMMARY for cutting and patching of concrete walls.
2. Section 092116 – GYPSUM BOARD ASSEMBLIES for coordination with gypsum ceilings and blocking for toilet accessories.
3. Section 090003 – ACOUSTICAL PANEL CEILINGS for coordination with acoustical ceilings.

D. Perform work and provide material and equipment as shown on Drawings and as specified or indicated in this Section of the Specifications. Completely coordinate work of this Section with work of other trades and provide a complete and fully functional installation.

E. Drawings and Specifications form complimentary requirements; provide work specified and not shown, and work shown and not specified as though explicitly required by both. Although work is not specifically shown or specified, provide supplementary or miscellaneous items, appurtenances, devices and materials obviously necessary for a sound, secure and complete installation.

F. Give notices, file plans, obtain permits and licenses, pay fees and back charges, and obtain necessary approvals from authorities that have jurisdiction as required to perform work in accordance with all legal requirements and with Specifications, Drawings, Addenda and Change Orders, all of which are part of Contract Documents.

1.3 SUBMITTALS

A. Comply with requirements specified in Section 013300 – SUBMITTAL REQUIREMENTS.
B. Material and equipment requiring Shop Drawing Submittals shall include but not be limited to:

1. Plumbing fixtures and trim.
2. Piping.
3. Fittings, unions, flanges, and couplings.
4. Insulation.
5. Valves.
7. No-hub couplings.
8. Hangers.

1.4 DEFINITIONS

A. As used in this Section, "provide" means "furnish and install" and "POS" means "Provided Under Other Sections". "Furnish" means "to purchase and deliver to the project site complete with every necessary appurtenance and support," and "Install" means "to unload at the delivery point at the site and perform every operation necessary to establish secure mounting and correct operation at the proper location in the project."

1.5 CONTRACT DOCUMENTS

A. Listing of Drawings does not limit responsibility of determining full extent of work required by Contract Documents. Refer to Architectural, HVAC, Plumbing, Fire Protection, Electrical, Structural, and other Drawings and other Sections that indicate types of construction in which work shall be installed and work of other trades with which work of this Section must be coordinated.

B. Except where modified by a specific notation to the contrary, it shall be understood that the indication and/or description of any item, in the drawings or specifications or both, carries with it the instruction to furnish and install the item, regardless of whether or not this instruction is explicitly stated as part of the indication or description.

C. Items referred to in singular number in Contract Documents shall be provided in quantities necessary to complete work.

D. Drawings are diagrammatic. They are not intended to be absolutely precise; they are not intended to specify or to show every offset, fitting, and component. The purpose of the drawings is to indicate a systems concept, the main components of the systems, and the approximate geometrical relationships. Based on the systems concept, the main components, and the approximate geometrical relationships, the contractor shall provide all other components and materials necessary to make the systems fully complete and operational.

E. Information and components shown on riser diagrams but not shown on plans, and vice versa, shall apply or be provided as if expressly required on both.

F. Data that may be furnished electronically by the Designer (on computer tape, diskette, or otherwise) is diagrammatic. Such electronically furnished information is subject to the same limitation of precision as heretofore described. If furnished, such data is for convenience and
generalized reference, and shall not substitute for Designer's sealed or stamped construction documents.

1.6 DISCREPANCIES IN DOCUMENTS

A. Where Drawings or Specifications conflict or are unclear, advise Designer in writing before Award of Contract. Otherwise, Designer's interpretation of Contract Documents shall be final, and no additional compensation shall be permitted due to discrepancies or unclarities thus resolved.

B. Where Drawings or Specifications do not coincide with manufacturers' recommendations, or with applicable codes and standards, alert Designer in writing before installation. Otherwise, make changes in installed work as Designer requires within Contract Price.

C. If the required material, installation, or work can be interpreted differently from drawing to drawing, or between drawings and specs, this contractor shall provide that material, installation, or work which is of the higher standard.

D. It is the intent of these contract documents to have the contractor provide systems and components that are fully complete and operational and fully suitable for the intended use. There may be situations in the documents where insufficient information exists to precisely describe a certain component or subsystem, or the routing of a component. In cases such as this, where the contractor has failed to notify the Designer of the situation in accordance with the paragraph above, the contractor shall provide the specific component or subsystem with all parts necessary for the intended use, fully complete and operational, and installed in workmanlike manner either concealed or exposed per the design intent.

E. In cases covered by the paragraph above, where the contractor believes he needs engineering guidance, he shall submit a sketch identifying his proposed solution and the Designer shall review, note if necessary, and approve the sketch.

1.7 MODIFICATIONS IN LAYOUT

A. HVAC, Plumbing, Fire Protection, and Electrical Drawings are diagrammatic. They indicate general arrangements of mechanical and electrical systems and other work. They do not show all offsets required for coordination nor do they show the exact routings and locations needed to coordinate with structure and other trades and to meet architectural requirements.

B. In all spaces, prior to installation of visible material and equipment, including access panels, review Architectural Drawings for exact locations and where not definitely indicated, request information from Designer.

C. Check Contract Drawings as well as Shop Drawings of all subcontractors to verify and coordinate spaces in which work of this Section will be installed.

D. Maintain maximum headroom at all locations. All piping and associated components to be as tight to underside of structure as possible.
E. Make reasonable modifications in layout and components needed to prevent conflict with work of other trades and to coordinate according to Paragraphs A, B, C, D above. Systems shall be run in a rectilinear fashion.

F. Where conflicts or potential conflicts exist and engineering guidance is desired, submit sketch of proposed resolution to Designer for review and approval.

1.8 SITE VISIT

A. Before submitting bid, visit and carefully examine site to identify existing conditions and difficulties that will affect work of this Section. No extra payment will be allowed for additional work caused by unfamiliarity with site conditions that are visible or readily construed by experienced observer.

1.9 EXISTING CONDITIONS AND PREPARATORY WORK

A. Before starting work in a particular area of the project, visit site and examine conditions under which work must be performed including preparatory work done under other Sections or Contracts or by User Agency. Report conditions that might affect work adversely in writing through Contractor to Designer. Do not proceed with work until defects have been corrected and conditions are satisfactory. Commencement of work shall be construed as complete acceptance of existing conditions and preparatory work.

1.10 CODES, STANDARDS, AUTHORITIES AND PERMITS

A. Perform work strictly as required by rules, regulations, standards, codes, ordinances, and laws of local, state, and Federal governments, and other authorities that have legal jurisdiction over the site. Materials and equipment shall be manufactured, installed and tested as specified in latest editions of applicable publications, standards, rulings and determinations of:

1. Local and state building, plumbing, mechanical, electrical, fire and health department codes.
2. American Gas Association (AGA).
5. Occupational Safety and Health Act (OSHA).
6. Factory Mutual Association (FM) if applicable to project.
7. Underwriters' Laboratories (UL).
9. Compressed Gas Association (CGA).
10. Canadian Standards Association (CSA).

B. Material and equipment shall be listed by Underwriters' Laboratories (UL), and approved by ASME and AGA for intended service.
C. When requirements cited in this Specification conflict with each other or with Contract Documents, most stringent shall govern work. Designer may relax this requirement when such relaxation does not violate ruling of authorities that have jurisdiction. Approval for such relaxation shall be obtained in writing.

D. Most recent editions of applicable specifications and publications of the following organizations form part of Contract Documents:

2. American Society of Mechanical Engineers (ASME).
5. American Water Works Association (AWWA).
6. Thermal Insulation Manufacturers Association (TIMA).
7. Institute of Electrical and Electronics Engineers (IEEE).
8. Insulated Cable Engineers Association (ICEA).

1.11 GUARANTEE AND 24 HOUR SERVICE

A. Guarantee Work of this Section in writing for one year following the date of Substantial Completion. If the equipment is used for ventilation, temporary heat, etc. prior to Substantial Completion, the bid price shall include an extended period of warranty covering the one-year of occupancy, starting from the initial date of Substantial Completion. The guarantee shall repair or replace defective materials, equipment, workmanship and installation that develop within this period, promptly and to Designer's satisfaction and correct damage caused in making necessary repairs and replacements under guarantee within Contract Price.

B. In addition to guarantee requirements of Division 01 and of Subparagraph A above, obtain written equipment and material warranties offered in manufacturer's published data without exclusion or limitation, in User Agency's name.

C. Replace material and equipment that require excessive service during guarantee period as defined and as directed by Designer.

D. Provide 24 hour service beginning on the date the project is first occupied for public use by the User Agency, whether or not fully occupied, and lasting until the termination of the guarantee period. Service shall be at no cost to UMass. Service can be provided by this contractor or a separate service organization. Choice of service organization shall be subject to Designer and UMass’s Project Manager approval. Submit name and a phone number that will be answered on a 24-hour basis each day of the week, for the duration of the service.

E. Submit copies of equipment and material warranties to Designer before final payment.

F. At end of guarantee period, transfer manufacturers' equipment and material warranties still in force to User Agency.

G. This Paragraph shall not be interpreted to limit UMass’s Project Manager's rights under applicable codes and laws and under this Contract.
H. Part 2 Paragraphs of this Specification may specify warranty requirements that exceed those of this Paragraph.

I. Use of systems provided under this Section for temporary services and facilities shall not constitute Final Acceptance of work nor beneficial use by User Agency, and shall not institute guarantee period.

J. Provide manufacturer's engineering and technical staff at site to analyze and rectify problems that develop during guarantee period immediately. If problems cannot be rectified immediately to UMASS’s Project Manager's satisfaction, advise Designer in writing, describe efforts to rectify situation, and provide analysis of cause of problem. Designer will suggest course of action.

1.12 RECORD DRAWINGS

A. Comply with requirements specified in Section 017700 – CONTRACT CLOSEOUT.

B. Drawings shall show record condition of details, sections, riser diagrams, control changes and corrections to schedules. Schedules shall show actual manufacturer and make and model numbers of final equipment installation.

1.13 BULLETINS, MANUALS, AND OPERATING INSTRUCTIONS, AND PROTECTION

A. Obtain at time of purchase of equipment, three copies of operation, lubrication and maintenance manuals for all items. Assemble literature in coordinated manuals with additional information describing combined operation of field-assembled units, including as built wiring diagrams. Manual shall contain names and addresses of manufacturers and local representatives who stock or furnish repair parts for items or equipment. Divide manuals into three sections or books as follows:

1. Directions for and sequence of operation of each item of Plumbing systems. Sequence shall list valves, switches, and other devices used to start, stop and control system. Include approved valve directory showing each valve number, location of each valve, and equipment or fixture controlled by valve.

2. Detailed maintenance and trouble shooting manuals containing data furnished by manufacturer for complete maintenance. Include copy of balancing report.

3. Lubrication instructions detailing type of lubricant, amount, and intervals recommended by manufacturer for each item of equipment. Include additional instructions necessary for implementation of first class lubrication program. Include approved summary of lubrication instructions in chart form, where appropriate.

B. Furnish three copies of manuals to Designer for approval and distribution to UMASS’s Project Manager. Deliver manuals no less than 30 days prior to acceptance of equipment to permit User Agency's personnel to become familiar with equipment and operation prior to acceptance.

C. Operating instructions: Upon completion of installation or when UMASS’s Project Manager accepts portions of building and equipment for operational use, instruct User Agency's operating personnel in any or all parts of various systems. Instructions shall be performed by factory trained personnel. User Agency shall determine which systems require additional
instructions. Duration of instructions shall take equipment through complete cycle of operation (at least five working days). Make adjustments under operating conditions.

D. Each contractor shall be responsible for his work and equipment until finally inspected, tested, and accepted. Carefully store materials and equipment which are not immediately installed after delivery to site. Close open ends of work with temporary covers or plug during construction to prevent entry of obstructing material.

E. Each separate contractor shall protect the work and material of other trades that might be damaged by his work or workmen and make good all damage thus caused.

1.14 DELIVERY, STORAGE, AND HANDLING OF MEDICAL GAS COMPONENTS

A. Protection: Use all means necessary to protect materials of this Section before, during, and after installation and to protect installed work and materials of all other trades.

B. Pipe, Valves, and Fittings: Deliver medical gas piping and system components to the site washed and capped for oxygen service. Store material in a secured, cleaned area off the floor. Components which are stored on the floor or have been contaminated shall be rewashed on-site in accordance with CGA Pamphlet G-4.1.

C. Replacements: In case of damage, immediately make all repairs and replacement necessary to the approval of the Designer at no change in Contract Sum.

1.15 COORDINATION DRAWINGS

A. Refer to Section 013100 – PROJECT MANAGEMENT AND COORDINATION for coordination drawing requirements.

B. Coordination Drawings include but are not necessarily limited to:

1. Structure.
2. Partition/room layout.
3. Ceiling tile and grid.
4. Light fixtures.
5. Access panels.
6. Sheet metal, heating coils, boxes, grilles, diffusers, etc.
7. All heating piping and valves.
8. Smoke and fire dampers.
9. Soil, waste and vent piping.
10. Major water and medical gases.
11. Roof drain piping.
12. Major electrical conduit runs, panelboards, feeder conduit and racks of branch conduit.
13. Above ceiling miscellaneous metal.
14. Sprinkler piping and heads.
15. Heat tracing of piping.
PART 2 - PRODUCTS

2.1 PIPING, FITTINGS AND JOINTS

A. General:

1. Pipe and fittings shall conform to the latest ANSI, ASTM, NFPA and AWWA Standards including latest amendments.
2. Each length of pipe, each pipe fitting, trap, material and/or device used in the respective system shall have cast, stamped or indelibly marked on it, the maker's name or mark, weight and quality of the product when such marking is required by the approved standard that applies.
3. Piping and fittings shall be factory coated.
4. Pro-press type piping and fittings may be used, but shall be limited to domestic water lines, 2 inches or less in diameter.

B. Sanitary Drainage Piping Above Floor (Soil, Waste, and Vent)

1. Piping 2 in. and larger shall be no-hub service weight cast iron soil pipe except at urinals and cleanouts and joints just prior to exiting the building which shall be service weight hub and spigot with lead and oakum joints.
2. Piping 12 in. and smaller shall be type “L” copper.
   a. In lieu of soldered joints for 2 in. through 8 in. type “L” copper tubing systems, Victaulic or approved equal by Grinnell or Anvil Gruvlok grooved joint couplings and fittings may be used. Fittings shall be ASME B16.22 wrought copper or ASME B16.18 bronze casting with copper tubing sized grooved ends (flaring of tube and fitting ends to IPS dimensions is not permitted).
   b. Couplings shall consist of two ductile iron housings cast with offsetting, angle-pattern bolt pads coated with copper-colored enamel, pressure-responsive, synthetic rubber gasket (Grade “T” Nitrile), and plated steel bolts and nuts. Victaulic Style 607 or approved equal by Grinnell or Anvil Gruvlok.
3. Couplings for joining no-hub cast iron soil pipe: Couplings shall have a shield constructed of corrugated 304 stainless steel and provide a shield thickness of 0.16 inches or greater. Shield shall be a minimum width of 3 inches for pipe sizes 1-1/2 inch through 4 inch, and a minimum width of 4 inches for pipe sizes 5 inch through 10 inches. Couplings with at least 4 sealing bands shall require 80 inch pounds of torque per band. Tightening screws shall be 3/8 inch hexagon head. Couplings with only 2 sealing bands on sizes 1-1/2 inch through 4 inches shall require 125 inch pound of torque per band. Gaskets shall be neoprene rubber conforming to ASTM C-564.
4. Joints in copper tubing except as otherwise specified herein shall be made according to manufacturer's specifications using sweat fitting and lead free solder and non corrosive flux.
5. Connections between earthenware of any fixture and flanges in soil and waste piping shall be made absolutely gas and watertight with closet setting compounds and gaskets which must be absolutely gas and fireproof, watertight, stainproof, containing neither oil nor asphaltum and which will not rot, harden or dry under any extreme climatic change, and must adhere on wet surfaces.

C. Water Piping (Domestic)
1. Above Ground
   a. 2-1/2 inches and smaller shall be hard drawn Type K copper with wrought or cast copper fittings.
   b. Joints in copper tubing except as otherwise specified herein shall be made according to manufacturer's specifications using sweat fitting and lead free solder and non corrosive flux.

2. Pro-press type piping and fittings may be used, but shall be limited to domestic water lines, 2 inches or less in diameter.

D. Unions and Flanges

1. Unless otherwise specified herein, unions for copper and brass piping two inches and smaller in diameter shall be 125 SWP, bronze body brass ground joint type. Those larger than two inches in diameter shall be 150 SWP flat faced cast brass flanges conforming to ANSI Standard B16.24.

2. Where brass flanges and ferrous flanges are to be joined, ferrous flanges shall be full faced.

3. Mating of ferrous and non ferrous flanges shall be separated with rubber gaskets (1/16 inch minimum thickness) and Teflon liners installed in the bolt holes. Bolt holes shall be drilled to receive the Teflon lines. Physical contact between the ferrous and non ferrous flanges including the bolts, nuts and washers will not be permitted.

4. Unions for ferrous piping shall be of the same material as the piping to which they connect.

5. On grooved piping systems, the couplings shall act as the union

6. Grooved flange adapter Victaulic Style 641 or approved equal by Grinnell or Anvil Gruvlok for direct connection to CL 150 flanged components.

2.2 VALVES AND SUNDRIES

A. General

1. Manufacturer: Subject to compliance with requirements, provide products from one of the manufacturers listed.

2. Valve Design: Rising stem or rising outside screw and yoke stems.

3. Nonrising stem valves may be used where headroom prevents full extension of rising stems.

4. Pressure and Temperature Ratings: As scheduled and required to suit system pressures and temperatures.

5. Sizes: Same size as upstream pipe, unless otherwise indicated.

6. Operators: Provide the following special operator features:
   a. Handwheels, fastened to valve stem, for valves other than quarter turn.
   b. Lever handles, on quarter turn valves 6 inch and smaller.

7. Extended Stems: Where insulation is indicated or specified, provide extended stems arranged to receive insulation.

8. Bypass and Drain Connections: Comply with MSS SP-45 bypass and drain connections.

   1) Caution: Where soldered end connections are used, use solder having a melting point below 840 deg. F for gate, globe, and check valves; below 421 deg F for ball valves.

B. Valves in the interior domestic water piping systems (cold water, hot water):

1. Acceptable Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:
   a. Apollo.
   b. Nibco.
   c. Victaulic.
   d. Watts.

2. Ball Valves
   a. Ball Valves, 1-1/4 Inch and Smaller: Rated for 200 psi cold water pressure, two-piece construction; with forged brass body, full port, chrome-plated brass ball and brass stem, PTFE seat ring and packing, lever handle, push-to-connect ends for domestic hot and cold water service. Victaulic PermaLynx 300 Series or approved equal.
   b. Ball Valves, 1-1/4 Inch to 2 Inch: Rated for 150 psi saturated steam pressure, 400 psi WOG pressure; 3 piece construction; with bronze body conforming to ASTM B 62, conventional port, chrome-plated brass ball, replaceable “Teflon” or “TFE” seats and seals, blowout-proof stem, and vinyl covered steel handle. Provide solder ends for domestic hot and cold water service.

C. Sundries
   1. Shock absorbers shall be of the mechanical, pre pressurized type installed where indicated and in accordance with "Standard P.D.I. WH201.”

2.3 HANGERS AND ACCESSORIES

A. General

1. Provide pipe stands, supports, hangers and other supporting appliances as necessary to support work required by Contract Documents. All components of the hanger support system shall comply with the standards set forth in MSS-SP58 and MSS-SP69 (Manufacturers Standardization Society) latest publication.

2. Manufacturers: Subject to compliance with requirements, provide hangers and supports of Carpenter and Patterson, Inc, ITT Grinnel Corp., Elecen Metal Products or approved equal.

B. Secure vertical piping to building construction to prevent sagging or swinging.

C. Space hangers for horizontal piping as follows:

<table>
<thead>
<tr>
<th>Pipe Size</th>
<th>Rod Diameter</th>
<th>Maximum Spacing</th>
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<tr>
<td>½ in. and ¾ in.</td>
<td>3/8 in.</td>
<td>6 ft.- 0 in.</td>
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D. Friction clamps shall be equal to Figures 126 and copper plated when in direct contact with copper or brass piping.

E. Hangers for uncovered (uninsulated) copper or brass piping 2 in. and smaller shall be Carpenter & Patterson Figure 1ACT steel, copper plated band type.

F. Hangers for uncovered (uninsulated) steel or cast iron piping 2 in. and smaller shall be Carpenter & Patterson Figure 1A steel band type.

G. Hangers for uncovered (uninsulated) steel or cast iron piping 2-1/2 in. and larger shall be Carpenter & Patterson Figure 100 steel clevis type.

H. Hangers for all insulated piping shall be Carpenter & Patterson Figure 100 steel clevis type with insulation shield specified below.

I. Extension type split ring hangers with wall plates shall be equal to Carpenter & Patterson Figures 81, 81 CT, 90 CT and 85, 85 CT plates for iron, steel and copper.

J. Hanger rods for other installations shall be sized in accordance with the recommended load capacities of ASTM Specifications Designation A 107, latest amendment.

K. Insulation protectors (shields) for horizontal piping shall be constructed of galvanized steel formed to a 180 degree arc and 12 inches long, equal to Carpenter & Patterson Figure 265P, 18 gauge type H for hangers 5 inches in size and smaller, 16 gauge for hangers larger than 5 inches in size.

L. Exposed rods, clamps and hangers shall be electrogalvanized coated.

M. Installation of hangers which permit wide lateral motions of any pipe will not be acceptable.

N. "C" clamps installed with pipe hangers or equipment hangers will not be permitted unless provided with retaining straps.

2.4 INSERTS AND ESCUTCHEONS

A. Inserts shall be individual or strip type of pressed steel construction with accommodation for removable nuts and threaded rods up to 3/4 inch diameter, permitting lateral adjustment. Individual inserts shall have an opening at the top to allow reinforcing rods up to 2 inch
diameter to be passed through the insert body. Strip inserts shall have attached rods with hooked ends to allow fastening to reinforcing rods.

B. Unless otherwise specified herein, escutcheons shall be cast brass chrome plated type and provided with a set screw to properly hold escutcheon in place.

2.5 PIPE COVERING

A. General

1. The pipe covering specified herein for piping system shall be provided to strict accordance with the manufacturer's printed instructions, the best practice of the trade and to the full intent of this Specification.

2. Flame/Smoke Ratings: Provide complete fibrous glass pipe insulation (insulation, jackets, coverings, sealers, mastics and adhesives) with flame spread index of 25 or less, and smoke developed index of 50 or less, as tested by ASTM E 84 (NFPA 255) method.

3. Manufacturer: Subject to compliance with requirements, provide products of Armstrong World Industries, Inc., Knauf Fiber-Glass, Owens Corning or approved equal.

4. Apply insulation after systems have been tested, proved tight and approved by Designer. Remove dirt, scale, oil, rust and foreign matter prior to installation of insulation.

5. No leaks in vapor barrier or voids in insulation will be accepted.

6. Insulation and vapor barrier on piping which passes through walls or partitions shall pass continuously through sleeve, except that piping between floors and through fire walls or smoke partitions shall have space allowed for application of approved packing between sleeves and piping, to provide firestop as required by NFPA. Seal ends to provide continuous vapor barrier where insulation is interrupted.

B. Interior Cold, Hot Water Systems and indicated portions of Waste Systems:

1. 1 in. thickness fiberglass piping insulation:
   a. ASTM E-547, Class I

2. Fire retardant foil face jackets for piping insulation: ASTM C-921, Type I for piping with temperatures below ambient, Type II for piping with temperatures above ambient. Type I may be used for all piping at installation option.

3. Encase piping fittings insulation with one piece premolded PVC fitting covers, fastened as per manufacturer’s recommendations.

4. Staples, Bands, Wires, and Cement: As recommended by insulation manufacturer for applications indicated.

2.6 CLEANOUTS

A. Cleanouts shall be Jay R. Smith, Josam, Zurn or approved equal.

B. Bodies of cleanout ferules in hub and spigot or no hub piping shall be standard pipe size conforming in thickness to that required for pipe and fittings, and shall extend not less than 3/4 inch above the hub of the pipe. The cleanout plug shall be of cast brass and shall be provided with a raised nut 3/4 inch high. Cleanouts in copper waste piping shall be soldered brass cleanout fittings with extra heavy brass screw plugs of the same size as the pipe line. Cleanouts
in threaded waste piping shall be cast iron drainage "T" pattern 90 degree branch fittings with extra heavy brass screw plugs of the same size as the pipe.

2.7 PLUMBING FIXTURES

A. In general, the work of this Article shall include, but not be limited to:

1. Plumbing fixtures and trim.
2. Faucets and flushometers.
3. Stops and supplies.
4. Traps and tailpieces.
5. Drain outlets.
7. Carriers and supports.
8. Lavatory insulators.

B. Fixtures and Trim

1. Acceptable Manufacturers: Submit manufacturers not listed below for review and approval as specified for substitutions in Article Quality Assurance in this Section.
   a. Vitreous China: American Standard, Crane or Kohler.
   b. Faucets: Chicago Faucet Co., Kohler or T & S Brass.
   c. Stainless Steel Sinks: Elkay, Just Manufacturing or Metcraft Inc.
   d. Carriers and Supports: Jay R. Smith, Wade, or Zur.
   g. Electric Water Coolers: Filtrine, Halsey Taylor or Haws.
   h. Flush Valves: Sloan, Delany, or Zurn.
   i. Stops and Supplies: Chicago Faucet Co., Kohler or McGuire.
   k. Handicap Lavatory Insulators: McGuire, TCI Products or Truebro.

2. Fixture Trim and Accessories: Provide fixtures complete with floor mounted fixture carrier supports; faucets, flushometers; drain outlets, tailpieces, P-traps and stops and supplies.
   a. Color and Finish: All trim exposed to view shall be polished chrome plated, and all fixtures and toilet seats shall be white unless specified otherwise.
   b. Drain Outlets: Provide drain outlet of the same manufacturer as the fixture or faucet trim with chrome plated 17 gauge minimum weight tailpiece.
      1) Provide 1-1/4 inch tailpiece on lavatories.
      2) Provide offset drain outlets on handicapped use lavatories.

3. P-Traps: Cast brass adjustable P-trap with cleanout plug, ground joint and 17 gage minimum weight extension with escutcheon.
   a. Provide McGuire No. 8090 1-1/4 inch by 1-1/2 inch on lavatories.
   b. Provide McGuire No. 1208 2 inch by 2 inch on showers.

4. Stops and Supplies: Provide stops and supplies of the same manufacturer as the fixture or faucet trim, or provide McGuire Model 170-LK loose key angle stop with 5 inch long 2 inch nominal copper sweat extension, bell escutcheon, and 3/8 inch O.D. by 12 inch flexible riser.
5. Lavatories: Vitreous china, equal to American Standard Model 0955.001EC, with Model 0059.020EC Shroud/Knee Contact Guard.
8. Flushometers: Exposed, battery powered, sensor activated ECOS model water closet flushometer, equal to Sloan ECOS Model 8111-1.28. Mounting height of flushometer shall be modified to not interfere with grab bars.
9. Toilet Seats: Provide extra heavy-duty, commercial/industrial type, elongated, open front, solid white injection molded plastic with integral bumpers; and self-sustaining stainless steel check hinges.
10. Shower System: Barrier free (ADA), equal to Symmons Origins Model 9605-PLR. Provide system with lever handles, pressure balancing mixing valve with adjustable stop screw to limit handle turn, 36” slide bar, separate two function diverter, in-line vacuum breaker, 60” flexible hose, ADA hand shower, ½” IPS connections, and polished chrome finish. Include integral service stops and 2.0 gpm flow rate restrictor.
11. Water Conservation: Provide water conserving fixtures and trim in compliance with the following maximum water use requirements. Provide Omni or equal variable pressure flow controls on lavatory faucets.
   a. Public lavatories: 0.5 gpm
   b. Showers: 2 gpm
   c. Water Closets: 1.6 gallons per flush.
12. Fixture Supports: Provide floor mounted fixture support carriers for wall mounted fixtures including but not limited to: water closets and lavatories.
13. Fixture carriers shall support at least 250 pounds on the front rim of the fixture for 5 minutes.
   a. Water Closets: Jay R. Smith Series 200-Y

2.8 FIRESTOPPING

A. Work of General Contractor

2.9 SLEEVES AND PENETRATIONS

A. Piping penetrations through fire rated construction shall comply with a listed fire rated assembly as detailed in the UL Fire Resistance Directory. Pipe sleeves through floors, exterior walls and fire-rated construction shall be galvanized Schedule 40 steel pipe. Pipe sleeves through non-fire-rated partitions shall be 26 gauge-galvanized steel.

1. In areas where pipe is exposed, install sleeves flush with the finish floor, except in mechanical rooms, and janitor's closets extend sleeves at least 4 inches above finish floor.
2. Annular Space Requirements: Sleeves shall be sized to provide a total clearance of approximately 1 inch around pipe including insulation cover. Annular space around fire rated through penetrations assemblies shall be in compliance with the Listed Assembly.
3. Packing between the pipe and sleeve in fire rated construction shall be a combination of listed insulation and fireproof caulk.

2.10 VALVE TAGS

A. Upon completion of piping installation work provide valve tags on all valves installed under the work of the mechanical sections. Valve tags shall be at least 1-1/2 inch diameter brass or engraved plastic with 1/4 inch high lettering for service designation over 2 inch high consecutively numbered valve identification. Engraved valve tags shall be color coded as specified for piping identification. Coordinate valve tag numbers with the User Agency’s facility management program. Provide service designation prefix as scheduled:

1. Plumbing Systems: Prefix:
   a. Domestic Cold Water CW
   b. Domestic Hot Water HW
   c. Domestic Hot Water Return HWR

B. Valve tags on plumbing systems may be engraved laminated plastic tags color-coded to match the pipe identification marks.

2.11 PIPING IDENTIFICATION

A. Piping: Provide clip-on color-coded piping identification markers on mechanical piping systems. Provide matching flow arrows to indicate direction of flow. Markers shall be equal to Seton Setmark.

1. Color coding and size of legend letters shall comply with the standards of ANSI A13.1.

2. Provide markers with legend letters sized in compliance with the following schedule:

<table>
<thead>
<tr>
<th>Outside Diameter (Over Insulation)</th>
<th>Size of Letters:</th>
<th>Length of Color Code:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1/4 inch and smaller</td>
<td>2 inch</td>
<td>8 inches</td>
</tr>
<tr>
<td>1-1/2 inch to 2 inch</td>
<td>3/4 inch</td>
<td>8 inches</td>
</tr>
<tr>
<td>2-1/2 inches to 6 inches</td>
<td>1-1/4 inch</td>
<td>12 inches</td>
</tr>
</tbody>
</table>

3. Plumbing Systems: Provide color-coded identification markers in compliance with the following schedule with contrasting legend letters.

<table>
<thead>
<tr>
<th>Service</th>
<th>Identification</th>
<th>Color Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cold Water</td>
<td>Dom. Cold Water</td>
<td>Green</td>
</tr>
<tr>
<td>Hot Water</td>
<td>Dom. Hot Water</td>
<td>Green</td>
</tr>
<tr>
<td>Hot Water Return</td>
<td>Dom. Hot Water Return</td>
<td>Green</td>
</tr>
<tr>
<td>Soil or Waste</td>
<td>Sanitary</td>
<td>Yellow</td>
</tr>
<tr>
<td>Vent</td>
<td>Plumbing Vent</td>
<td>Yellow</td>
</tr>
</tbody>
</table>
PART 3 - EXECUTION

3.1 IDENTIFICATION

A. All equipment and each length of pipe fitting, trap, fixture, control panel, starter and device used in the systems shall have a permanently attached nameplate or be cast, stamped or indelibly marked with the manufacturer's mark or name, the weight, type and class. The nameplates shall be kept clean and readable at all times.

3.2 CLEANING AND ADJUSTING

A. Cleaning and Adjusting

1. At the completion of the work, all parts of the installation shall be thoroughly cleaned. All equipment, pipe, valves and fittings shall be cleaned of grease, metal cuttings and sludge which may have accumulated by operation of the system for testing.
2. Any stoppage or discoloration or other damage to parts of the building, its finish, or furnishings due to the Plumbing subcontractor's failure to properly clean the piping system shall be repaired by this Contractor at no increase in Contract costs.
3. At the completion of the work, all water systems shall be adjusted for quiet operation.
4. All automatic control devices shall be adjusted for proper operation.
5. All plumbing fixtures and exposed metal work shall be cleaned and polished. Floor drain strainers and traps shall be cleaned of all debris.
6. All items of equipment shall be thoroughly inspected. Any items dented, scratched or otherwise damaged in any manner shall be replaced or repaired and painted to match the original finish. All items so repaired and refinished shall be brought to the attention of the Designer and UMASS’s Project Manager for inspection and approval.

3.3 SYSTEMS

A. Sanitary Waste System

1. The Plumbing subcontractor shall be responsible for checking each pipe for alignment, center line elevation and invert grade for underground installations.
2. The sanitary (soil, waste and vent) piping three inches and smaller in diameter shall pitch a minimum of 1/4 inch per foot. Piping four inches and larger in diameter shall pitch a minimum of 1/8 inch per foot.
3. Branch connections to each drainage system shall be made with "Wye" and long turn "Tee Wye" fittings. Installation of short radius 1/4 bends, common off sets, double hub fittings and saddles will not be approved. Installation of short "Tee Wye" fittings will be permitted for vertical piping only, and only where space conditions will not permit the use of long turn fittings. Only fittings conforming to the Code shall be installed.
4. The changes in direction of each drainage system shall be made with "Wye" branches and 1/8 bends. Provide long sweep bends at bottom of stacks with a vertical cleanout just above the floor at places where a "Wye" and 1/8 bends and end cleanouts cannot be installed.
5. Every fixture shall be separately trapped and the traps must be vented unless an approved battery vented system is being installed. Floor drains shall be considered as a fixture.
6. Vents shall be connected to the discharge of each trap in the sanitary system, thence carried individually to a point above the flood level of the fixture before connecting with any other vent pipes. Pitch the branch vents back to the fixture.

7. Cleanouts shall be provided in drainage piping at changes in directions, at foot of stacks or other required points accessible for cleaning or rodding out.

8. Cleanouts shall be of the same size as the pipe installed in up to four inches in diameter and not less than four inches in diameter for piping larger than four inches in diameter.

9. The maximum horizontal distance between cleanouts in piping four inches in diameter and smaller shall not be more than 50 feet apart. In piping five inches in diameter and larger, cleanouts shall not be more than 100 feet apart.

10. Traps on sanitary piping not integral with fixtures and in accessible locations shall be provided with a brass trap screw protected by the water seal, and will be regarded as a cleanout.

B. Cold and Hot Water Piping

1. Vacuum breakers shall be installed on supplies to each piece of equipment to prevent back siphonage.

2. Branch lines from water service or main lines shall be taken off the top or bottom of main, using such crossover fittings as may be required by structural or installation conditions. All water service pipes, fittings, and valves shall be kept a sufficient distance from other work to permit finished covering to be not less than 1.5 inches from other work and not less than 1.5 inches between coverings on the different services.

3. Provide shock absorbers at special equipment, tops of the risers, at each individual or each group of fixtures.

4. Water piping shall be run parallel and graded evenly to the drainage points.

5. Provide suitable means of thermal expansion for the hot water piping using swing joints, expansion loops and long turn offsets as required to suit building conditions.

6. Piping connections to equipment shall be provided with unions or flanges to permit convenient disassembly for alterations and repairs.

7. No piping shall be installed in a manner to permit back siphonage or any flow of water from sanitary or drainage systems into the water systems or their distribution piping under any conditions.

8. Air gaps, open end of funnel drains, and approved vacuum breaking devices shall be provided as specified or as indicated on the Drawings. Piping to hose end faucets or hose end fittings, or any fixtures where water supply outlet is below the fixture overflow rim shall have vacuum breakers.

9. Where flanges are installed in the water systems, red rubber gaskets shall be installed between each pair of flanges.

10. Heating or bending of copper tubing to eliminate the installation of fittings will not be permitted.

11. Piping systems shall be kept clean during all phases of work. Open ends of incomplete piping shall be protected to prevent the entrance of foreign materials.

12. Pipe shall be cut accurately to measurements established at the site and shall be worked into place without springing or forcing.

13. Provide copper plated friction clamps on the old water supplies to each water closet and urinal flushometer. Friction clamp shall be firmly clamped to the pipe and shall be firmly attached to the adjacent wall structure.
3.4 GENERAL INSTALLATION REQUIREMENTS

A. Piping Installation

1. Install piping approximately as shown on the drawings and as directed during installation by the Designer’s representative.
2. Piping shall be installed as straight and direct as possible, forming right angles or parallel lines with building walls, other piping and be neatly spaced.
3. The horizontal runs of piping, except where concealed in partitions, shall be installed as high as possible.
4. Piping or other apparatus shall not be installed in such a manner as to interfere with the full swing of the doors and access to other equipment.
5. The arrangement, positions and connections of pipes, fixtures, drains, valves, and the like, indicated on the Drawings shall be followed as closely as possible.
6. It shall be possible to drain the water from all sections of each cold and hot water piping system. Pitch piping back to drain valves.
7. Screwed piping of brass or chrome plated brass shall be made up with special care to avoid marring or damaging pipe and fitting exterior and interior surfaces.
8. Small fittings shall be taper thread. Lampwick, cord, wool or any other similar material shall not be used to make up thread joints.
9. Screwed pipe and copper tubing shall be reamed smooth before installation.
10. All exposed piping in connection with fixtures shall be chrome plated. Where chrome plated piping is installed, cut and thread pipe so that no unplated pipe threads are visible when work is completed.
11. Reducing fittings, unless otherwise approved in special cases, shall be provided in making reduction in size of pipe. Bushings will not be allowed unless specifically approved.
12. Remove and replace with new materials, any copper or brass piping (chrome plated or unplated) showing visible tool marks.
13. Vertical risers shall be firmly supported by riser clamps, properly installed to relieve all weight from the fittings.
14. Any piece of pipe six inches or less in length shall be considered as a nipple.
15. All water service piping shall be kept a sufficient distance from other work to permit finished covering to be not less than 1.5 inches from other work and not less than 1.5 inches between the coverings (insulation) on the different services.

B. Hanger Installation

1. All piping shall be supported from the building structure by means of approved hangers and supports, to maintain proper grading and pitching of lines, to prevent vibration and to secure piping in place, and shall be so arranged as to provide for expansion and contraction.
   a. Maximum spacing of hangers on soil pipe shall be five feet and hangers shall be provided at all changes in direction. Vertical hanger rods to support piping from the structure or supplementary steel shall not exceed four feet in total length. Where pipe support assemblies exceed four feet in total length vertically, this Contractor shall provide factory fabricated channels and all associated accessories.
   b. Friction clamps shall be installed at the base of the plumbing risers and at each floor (above or below floor slabs). Friction clamps installed above floor slabs shall not be supported from or rest on floor sleeves.
c. Provide hangers at a maximum distance of two feet from all changes in direction (horizontal and vertical) and on both sides of concentrated loads independent of the piping.

d. Hangers, in general, for all horizontal piping shall be Clevis type hangers. These hangers shall be sized to fit the outside diameter of the pipe insulation and insulation protectors (sheet metal shields) specified herein. For sprinkler/stand pipe systems, hanger shall be approved black malleable iron, heavy duty pattern having two (2) parts bolted together.

e. All vertical drops and runouts including insulated pipes shall be supported by split ring hangers with extension rods and wall plates. These hangers shall be copper plated when used on uncovered copper tubing. Supports on insulated vertical piping shall be sized to fit the outside diameter of the pipe insulation with 360 degrees insulation protector.

f. Provide on each horizontal insulated lines, pipe covering protectors (shields) at each hanger. Each protector shall be sized to fit the outside diameter of the pipe insulation.

g. Retaining straps shall be provided with all beam clamps.

h. All supplementary steel, including factory fabricated channels, associated accessories, and 12 inch long sheet metal shields, throughout the project for this Section of the Specifications, both suspended and floor mounted, shall be provided by this Contractor and shall be subject to the approval of the Engineer.

i. Hangers shall not pierce the insulation on any insulated pipe.

j. Wire, tape or wood fastenings for shims or support of any pipe or tubing shall not be used.

k. Remove all rust from the ferrous hanger equipment (hangers, rods, and bolts) and apply one coat of red lead immediately after erection.

l. Piping at all equipment and each control valve shall be supported to prevent strains or distortions in the connected equipment and control valves. Piping at equipment shall be supported to allow for removal of equipment, valves and accessories with a minimum of dismantling and without requiring additional support after these items are removed.

m. All piping shall be independently supported from the building structure and not from the piping, ductwork, conduit or ceiling suspension systems of other systems.

n. Installation of hangers which permit wide lateral motions of any pipe will not be acceptable.

o. "C" clamps installed with pipe hangers or equipment hangers will not be permitted unless provided with retaining straps.

p. All no hub cast iron pipe 6 inches or larger in diameter shall be braced to prevent horizontal movement as recommended by the Cast Iron Soil Pipe Institute by using braces, blocking or rodding as illustrated in the CISPI Handbook, Vol. II, Specification Section 310.

C. Pipe Covering Installation

1. Before pipe covering is applied, all pressure tests shall have been performed and approved by the Local Plumbing Inspector.

2. Pipe covering shall be applied over clean, dry surfaces.

3. Pipe covering shall be continuous and shall be carefully fitted with side and end joints butted firmly and tightly together and finished as specified herein.

4. Pipe covering and auxiliaries shall be kept dry during storage and application.
5. Adhesives, cements and coatings shall not be applied when the ambient temperature is below 40 degrees Fahrenheit.
6. Valve bodies shall have covering applied up to the stem.
7. It is the intent of this Specification that all vapor barriers be sealed and be continuous throughout. Staples shall not be used on vapor barrier jackets.
8. Where pipe covering ends occur at equipment or fixtures, end caps on the covering shall be provided.
9. Adequate operating clearances shall be provided at control mechanisms.
10. Pipe covering for flanges shall overlap the adjoining pipe by a minimum of three inches on each side.
11. Pipe covering shall be provided on all piping passing through ceilings and through the interior above ground sleeves (wall and floor).
12. All voids and seams in insulation shall be filled with insulating cement and finished as specified herein.
13. End joints of each section of the installed pipe covering shall be tightly butted.

D. Installation of Sleeves, Inserts and Escutcheons

1. Sleeves in floors shall be set 1 inch above the finished floor surface or as indicated on the Architectural Drawings.
2. Sleeves through interior masonry or non masonry walls or partitions shall be set flush with the finished surfaces of the wall or partition.
3. Field drilling for inserts required for work under this Section of the Specifications shall be provided by this Contractor.
4. Each interior wall or partition sleeve shall be packed with foam or glass wool to within one inch of each face of wall, and the remaining portion of each end of sleeve to be sealed with U.L. listed fire proof caulking compound equal to the rating of the partition.
5. Escutcheons shall be installed around all exposed insulated or bare pipe, except water closet starts or bends passing through a finished floor, wall or ceiling. Escutcheons shall fit snugly around the bare pipe or insulated pipe.

E. Valve Installation

1. Location of Valves: There shall be valves where indicated on the drawings and where specified as follows:
   a. At building service entrances, foot of all supply risers, branches to groups of fixtures, branches to separate fixtures, equipment, wall hydrants, hose bibbs, connections to other systems and sectionalizing points in each system.
   b. Each fixture supply shall have a separate angle stop or straight stop finished like the pipe it services.
   c. Each piece of equipment shall have isolation valves for each service connected.
   d. At the low points of each water system including trapped sections, provide a tee with 2 inch branch and valve with 3/4 inch hose end adapter and attached chain with cap.
   e. Valves shall be located to permit easy operation, replacement or repair.

F. Blending Valve Installation

1. All piping shall be thoroughly flushed before the blending valve is installed. Insure that hot and cold water piping are connected to proper parts.
2. Follow manufacturers instructions for setting of maximum allowable temperature limits allowed by code.
3. Valve must be flowing when setting temperature.

G. Installation of Cleanouts and Ferrules
1. Cover Plates: Where cleanouts or test tees occur on concealed pipes in finished rooms, they shall be provided with a 1/8 inch thick, machine finished, brass cover plate of sufficient diameter to cover the opening in the finished wall or partition. The cleanout plug shall have a solid head, tapped for a 1/4 inch brass screw to secure the cover plate. Where cleanout plugs extend beyond the wall finish, the cover plates shall be of machine finished brass and shall be only of sufficient depth to fit against the wall to cover plug. Cleanout cover plates shall be painted to match adjacent wall finish.
2. Cleanouts Plugs For Threaded Fittings: Cleanout plugs for threaded fittings shall be in accordance with ANSI B16.12. Except for test openings, where size must be sufficient to admit test plug, bushings will be permitted on pipes 5 inches and larger to reduce plug size to 4 inches; cleanout plugs for piping 4 inches and smaller shall be the same size as the pipe.
3. Cleanout Plugs For Hub and Spigot Fittings: Cleanout plugs for hub and spigot fittings shall be screwed into ferrules caulked into the fitting. Ferrules and plugs shall be in accordance with ANSI B16.12, except that plugs required to be flush with the floor shall have square countersunk heads in lieu of raised heads.
4. Cleanout Plugs For Copper Drainage Lines: Cleanout plugs on copper drainage lines shall be installed in solder joint fittings having threaded openings provided for the cleanout, or in solder joint fittings with threaded adapters.

H. Installation of Plumbing Fixtures
1. General:
   a. Refer to Architectural Drawings for locations and mounting heights of all plumbing fixtures, counter sinks, water fountains and showers.
   b. Provide with all plumbing fixtures, all trim, supports, fittings, connections and all incidentals necessary to make a complete installation in accordance with plumbing codes and the Contract Documents.
   c. All visible hanger nuts and all escutcheons shall likewise be chrome plated over nickel plate.
2. Examination:
   a. Examine roughing-in for potable cold water and hot water supplies and soil, waste, and vent piping systems to verify actual locations of piping connections prior to installing fixtures.
   b. Examine walls, floors, and cabinets for suitable conditions where fixtures are to be installed.
   c. Do not proceed until unsatisfactory conditions have been corrected.
3. Fixture Roughings
   a. Install rough plumbing including fixture carriers and supports, valves and water hammer arrestors within chase tolerances. Supply roughing through finish walls and at hose bibbs and shower heads shall be secure and free of movement. Locate valves and water hammer arrestors within 12 inches of approved access panel location.
   b. Align exposed waste and supply pipe roughings with fixture connections within 1 inch tolerance. Provide flush valves in alignment with the fixture, without vertical
or horizontal offsets. Obtain fixture manufacturer roughing data sheets for recommended roughing dimensions.

c. Provide fixture templates for casework contractor for counter mounted sinks and lavatories.

1) Rough handicapped use water closets to locate the flush valve handle on the wide side of the toilet stall.

d. Secure fixture supports to floor slab construction with lag bolts and metal expansion shields to support at least 250 pounds on the front rim of the fixture for 5 minutes.

e. Mounting Heights:

1) Handicapped Use Water Closets: 17 inches to rim.

2) Handicapped Use Lavatories: 34 inches maximum to rim with at least 29 inches from finish floor to bottom of apron.

3) Drinking Fountains: 36 inches maximum to spout outlet.

f. Provide fixture rough-in piping connections sizes in accordance with the following schedule:

<table>
<thead>
<tr>
<th>Fixture Type</th>
<th>HW</th>
<th>CW</th>
<th>S or W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Closets</td>
<td>-</td>
<td>1 inch</td>
<td>4 inches</td>
</tr>
<tr>
<td>Lavatories</td>
<td>1/2 inch</td>
<td>1/2 inch</td>
<td>1 1/2 inches</td>
</tr>
<tr>
<td>Sinks</td>
<td>1/2 inch</td>
<td>1/2 inch</td>
<td>2 inches</td>
</tr>
</tbody>
</table>

4. Fixture Supports
a. All fixtures (including drinking fountains) shall be supported and fastened to the building structure. The method of support for each type fixture shall be specified herein, except when the fixture designations on the Contract Drawings indicate modifications.

b. Wall hung water closets shall be generally supported on combination drainage fittings and chair carriers and with foot supports fastened to the floor slab with expansion lag screws.

c. Installations shall be complete with all necessary bolts, nuts and washers, iron or brass connecting nipples between fixtures and piping system of the proper length and graphite non-asbestos gaskets for closet connections.

d. Where wall hung fixtures are secured to masonry walls or partitions, they shall be fastened with 1/4 inch through bolts provided with nuts and washers at back. Bolt heads and nuts shall be hexagon and exposed bolts, nuts, washers and screws shall be chromium plated brass.

e. Where secured to concrete or brick walls, they shall be fastened with brass bolts or machine screws in lead sleeve type expansion shields and shall extend at least three inches into solid concrete or brick work, except fixtures specified to be supported or chair carriers.

5. Installation of Fixtures
a. Mount fixtures level at elevations shown on architectural drawings. Refer to toilet room elevations and casework details.

b. Install handicapped use fixtures in accordance with the requirements to the Architectural Access Board Code and ANSI A117.1. Insulate hot water supply and waste piping under lavatories.

c. Grout wall and floor mounted fixtures watertight where the fixtures are in contact with walls and floors.
d. Caulk deck-mounted trim at the time of assembly, including fixture and casework mounted. Caulk self-rimming sinks installed in casework.

6. Fixture Trim:
   a. All materials specified to be chromium plated shall be thoroughly cleaned and polished before plating, and plate shall be heavily, thoroughly and evenly applied, guaranteed not to strip or peel.
   b. Where escutcheons are not furnished with plumbing fixtures, this Contractor shall supply them. Escutcheons shall be the type and material specified herein.
   c. Each fixture shall be separately trapped using the type and size of trap specified herein and required by the Plumbing Code.
   d. Unless otherwise specified, faucets and all exposed fittings shall be chromium plated. Chromium plating for brass shall be applied on a first plating of nickel.
   e. All fixtures requiring hot and cold water shall have the cold water faucet on the right hand side of the fixture and the hot water faucet on the left hand side of the fixture.
   f. All brass shall conform to brass tubing and shall be not less than No. 17 gauge.

7. Adjustments and Cleaning
   a. After completion of the installation work and equipment start-ups, perform the necessary adjustments to systems installed under this Section. Submit verification that systems are operating at the specified temperatures and pressures.
   b. Operate and adjust faucets and controls. Replace damaged and malfunctioning fixtures, fittings, and controls.
   c. Adjust water pressure at drinking fountains, electric water coolers, and faucets, shower valves, and flushometers having controls, to provide proper flow and stream.
   d. Replace washers of leaking and dripping faucets and stops.
   e. Adjust flush valves, open fixture stops, and clean faucet aerators.
   f. Adjust metering faucets to deliver a maximum of 1/4 gallon of hot water at a rate of 2 gpm and operate for at least 10 seconds upon activation.
   g. Temperature adjustments: Adjust metering faucets in public toilet rooms to provide a maximum temperature of 110 degrees F.
   h. Clean fixtures, fittings, and spout and drain strainers with manufacturers' recommended cleaning methods and materials.

8. Protection
   a. Provide protective covering for installed fixtures and fittings.
   b. Do not allow use of fixtures for temporary facilities, except when approved in writing by UMASS’s Project Manager.

3.5 INSPECTION AND TESTS

A. General

1. All labor, materials, instruments, devices and power required for testing shall be provided by the Plumbing Subcontractor. The tests shall be performed in the presence and to the satisfaction of the Designer and UMASS’s Project Manager and such other parties as may have legal jurisdiction. No piping in any location shall be closed up, furred in, or covered before testing and approval by the Local Plumbing Inspector and UMASS’s Project Manager.
2. Where portions of piping systems are to be covered or concealed before completion of the project, those portions shall be tested separately in the manner specified herein for the respective entire system.

3. Any piping or equipment that has been left unprotected and subject to mechanical or other injury in the opinion of UMASS’s Project Manager shall be retested in part or in whole as directed.

4. The Authority retains the right to request a recheck or resetting of any pump or instrument by the Plumbing Subcontractor during the guarantee period at no additional cost to the Contract or UMASS.

5. Repair, or if directed by Designer or UMASS’s Project Manager, replace any defective work with new work without extra cost to UMASS. Repeat tests as directed, until the work is proven to meet the requirements specified herein.

6. Restore to its finished condition any work, provided by other Contractors, damaged or disturbed by tests. The Plumbing Subcontractor shall engage the original Contractor to do the work of restoration to the damaged or disturbed work.

7. The fixtures shall be tested for stability of support and satisfactory operation. The piping shall be tested when directed by the Designer, Local Plumbing Inspector or UMASS’s Project Manager for stability of support.

8. After the fixtures are set and connected, and the piping systems to same have been tested, the Plumbing Subcontractor shall turn water on to the fixtures, equipment, fill the traps, etc., and the proper operation of all items shall be demonstrated by him in the presence of and to the satisfaction of the Designer, UMASS’s Project Manager, Plumbing Inspector, or their designated representative.

9. Caulking of screwed joints or holes in piping will not be acceptable.

10. The Plumbing Subcontractor shall notify the Designer, UMASS’s Project Manager and all inspectors having jurisdiction, a minimum of 48 hours in advance of making any required tests so that arrangements may be made for their presence to witness scheduled tests.

B. Specific

1. Storm and Sanitary Piping Systems:
   a. Before the installation of fixtures, equipment and insulation, each system including vents shall have all necessary openings plugged to permit the entire system to be tested in accordance with the State Plumbing Code. Each system shall hold this water without a drop in water level. Test to be witnessed by Local Plumbing Inspector and UMASS’s Project Manager.
   b. Where a portion of the system is to be tested, the test shall be accomplished with a vertical stack ten feet above the highest horizontal line to be tested may be installed, and filled with water to maintain sufficient pressure. A pump may be used to supply the required pressure. The pressure shall be maintained for a minimum of four hours for sufficient time to permit inspection of all joints.

2. Cold and Hot Water Piping System:
   a. Upon completion of the roughing in and before setting fixtures and final connections to all equipment, all water piping systems shall be tested to a hydrostatic pressure of 150 pounds per square inch.
   b. Each systems test shall be maintained for eight hours without a drop in pressure. These tests to be witnessed by Local Plumbing Inspector and UMASS’s Project Manager.
   c. After testing, provide complete adjustment of all parts of each water system until design distribution or balancing is obtained throughout.
3.6 COMMISSIONING OF EQUIPMENT AND SYSTEMS

A. The Designer will check the completed installation either sequentially as different parts are completed, or when the entire installation is complete, at the sole option of the Designer.

B. Prior to the Designer's checking a part of the installation or the entire installation, this contractor shall submit a letter signed by an officer of this contracting company or an officer of the Construction Manager stating that:

   1. he is a an officer of the company,
   2. he has personally inspected the installation to be checked,
   3. the date of his inspection,
   4. the installation is complete and tested and ready to be inspected by the Designer, and that all required test reports have been submitted.

3.7 SPECIAL RESPONSIBILITIES

A. Coordination: Cooperate and coordinate with work of other Sections in executing work of this Section.

   1. Perform work such that progress of entire project including work of other Sections shall not be interfered with or delayed.
   2. Provide information as requested on items furnished under this Section which shall be installed under other Sections.
   3. Obtain detailed installation information from manufacturers of equipment provided under this Section.
   4. Obtain final roughing dimensions or other information as needed for complete installation of items furnished under other Sections or by User Agency.
   5. Keep fully informed as to shape, size and position of openings required for material or equipment to be provided under this and other Sections. Give full information so that openings required by work of this Section may be coordinated with other work and other openings and may be provided for in advance. In case of failure to provide sufficient information in proper time, provide cutting and patching or have same done, at own expense and to full satisfaction of Designer.
   6. Notify Designer of location and extent of existing piping, ductwork and equipment that interferes with new construction. In coordination with and with approval of Designer, relocate piping, ductwork and equipment to permit new work to be provided as required by Contract Documents. Remove non functioning and abandoned piping, ductwork and equipment as directed by Designer. Dispose of or store items as requested by Designer.

B. Maintenance of equipment and systems: Maintain HVAC, Plumbing and Fire Protection equipment and systems until Final Acceptance. Ensure adequate protection of equipment and material during delivery, storage, installation and shutdown and during delays pending final test of systems and equipment because of seasonal conditions.

C. Use of premises: Use of premises shall be restricted as directed by Designer and as required below.

   1. Remove and dispose of dirt and debris, and keep premises reasonably clean. Upon completion of work, remove equipment and unused material. Put building and premises
in neat and clean condition, and do cleaning and washing required to provide acceptable appearance and operation of equipment, to satisfaction of Designer and as specified under CLEANING article.

2. It shall be this trade's responsibility to store his materials in a manner that will maintain an orderly clean appearance. If stored on site in open or unprotected areas, all equipment and material shall be kept off the ground by means of pallets or racks, and covered with tarpaulins.

3. Do not interfere with function of existing sewers and water and gas mains. Extreme care shall be observed to prevent debris from entering ductwork. Confer with Designer as to disruption of heating services or other utilities due to testing or connection of new work to existing. Interruption of heating services shall be performed at time of day or night deemed by Designer to provide minimal interference with normal operation. Obtain Designer's approval of the method proposed for minimizing service interruption.

D. Surveys and measurements:

1. Base measurements, both horizontal and vertical, on reference points established by Contractor and be responsible for correct laying out of work.

2. In event of discrepancy between actual measurements and those indicated, notify Designer in writing and do not proceed with work until written instructions have been issued by Designer.

3.8 MATERIALS AND WORKMANSHIP

A. Work shall be neat and rectilinear. Piping shall run concealed except in mechanical rooms and areas where no hung ceiling exists. Install material and equipment as required by manufacturers. Installation shall operate safely and without leakage, undue wear, noise, vibration, corrosion or water hammer. Work shall be properly and effectively protected, and pipe openings shall be temporarily closed to prevent obstruction and damage before completion.

B. Except as specified otherwise, material and equipment shall be new. Provide supplies, appliances and connections necessary for complete and operational installation. Provide components required or recommended by OSHA and applicable NFPA documents.

C. References to manufacturers and to catalog designation are intended to establish standards of quality for materials and performance but imply no further limitation of competitive bidding.

D. Finish of materials, components and equipment shall be as approved by Designer and shall be resistant to corrosion and weather as necessary.

E. UMASS will not be responsible for material and equipment before testing and acceptance.

3.9 CONTINUITY OF SERVICES

A. Do not interrupt existing services without UMASS’s Project Manager's approval.

B. Schedule interruptions in advance, according to UMASS’s Project Manager's instructions. Submit, in writing, with request for interruption, methods proposed to minimize length of interruption.
C. Interruptions shall be scheduled at such times of day and work so that they have minimal impact on User Agency's operations.

3.10 INSTALLATION OF EQUIPMENT

A. Avoid interference with structure and with work of other trades, preserving adequate headroom and clearing doors and passageways, to satisfaction of Designer and in accordance with code requirements. Installation shall permit clearance for access to equipment for repair, servicing and replacement.

B. Install equipment so as to properly distribute equipment loads on building structural members provided for equipment support under other Sections. Roof mounted equipment shall be installed and supported on structural steel provided under other Sections.

C. Provide suspended platforms, strap hangers, brackets, shelves, stands or legs as necessary for floor, wall or ceiling mounting of equipment provided under this Section (e.g. heating and ventilating units, fans, ducts and piping) as indicated on Drawings and in Specifications.

D. Provide steel supports and hardware for proper installation of hangers, anchors, guides, etc.

E. Provide cuts, weights, and other pertinent data required for proper coordination of equipment support provisions and installation.

F. Structural steel and hardware shall conform to Standard Specifications of ASTM; use of steel and hardware shall conform to requirements of Section Five of Code of Practice of American Institute of Steel Construction.

G. Verify site conditions and dimensions of equipment to ensure access for proper installation of equipment without disassembly which will void warrantee. Report in writing to Designer, prior to purchase or shipment of equipment involved, on conditions which may prevent proper installation.

3.11 SYSTEM SHUTDOWNS

A. Coordination shutdowns of existing systems with the UMASS’s Project Manager and submit a written request at least ten working days in advance. Minimize system shut downs as much as possible. Submit a list of all effected areas, the proposed work to be performed, and the expected length of the shut-down including time for retesting.

B. Provide temporary services to maintain active system during extended shut-downs as required for demolition and construction phasing.

3.12 CORE DRILLING

A. Do not core new concrete structure without written approval from the Structural Engineer.

B. Perform all core drilling required for the proper installation of this Section. Locate all required openings and prior to coring. Coordinate the opening with the other Trades and obtain approval from the Structural Engineer.
C. Thoroughly investigate the existing conditions in the vicinity of the required opening prior to cutting. Take care so as not to disturb the existing building systems. Damage to existing conditions incurred during core drilling shall be corrected to UMASS’s Project Manager’s satisfaction with no additional expense to the UMASS.

END OF SECTION
SECTION 230001
HEATING, VENTILATING AND AIR CONDITIONING

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. Sleeves, inserts and hangers.
2. Sheet metal work.
3. Exhaust and ventilating air fans.
4. Instruction manuals and startup instructions.
5. Cleaning.
6. Coordination drawings and record drawings and similar requirements.
7. 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: 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 024100 – SELECTIVE DEMOLITION for coordination of floor and wall penetrations with firestopping contractor.
2. Section 095113 – ACOUSTICAL TILE for coordination with acoustical ceilings.
3. Section 260001 - ELECTRICAL WORK for electrical power to mechanical equipment as indicated on the Drawings.

F. Perform work and provide material and equipment as shown on Drawings and as specified or indicated in this Section of the Specifications. Completely coordinate work of this Section with work of other trades and provide a complete and fully functional installation.

G. Give notices, file plans, obtain permits and licenses, pay fees and back charges, and obtain necessary approvals from authorities that have jurisdiction as required to perform work in...
accordance with all legal requirements and with Specifications, Drawings, Addenda and Change Orders, all of which are part of Contract Documents.

1.3 SUBMITTALS

A. Comply with requirements specified in Section 013300 – SUBMITTAL REQUIREMENTS.

B. Shop Drawing: Submittals shall include but not be limited to:
   1. Fans.
   2. Ducts.
   3. Duct Sealant.
   4. Exhaust Louvers.

1.4 DEFINITIONS

A. As used in this Section, "provide" means "furnish and install" and "HVAC" means "Heating, Ventilating and Air Conditioning" and "POS" means "Provided Under Other Sections". "Furnish" means "to purchase and deliver to the project site complete with every necessary appurtenance and support," and "Install" means "to unload at the delivery point at the site and perform every operation necessary to establish secure mounting and correct operation at the proper location in the project."

1.5 CONTRACT DOCUMENTS

A. Listing of Drawings does not limit responsibility of determining full extent of work required by Contract Documents. Refer to Architectural, HVAC, Electrical, Structural, and other Drawings and other Sections that indicate types of construction in which work shall be installed and work of other trades with which work of this Section must be coordinated.

B. Except where modified by a specific notation to the contrary, it shall be understood that the indication and/or description of any item, in the Drawings or specifications or both, carries with it the instruction to furnish and install the item, regardless of whether or not this instruction is explicitly stated as part of the indication or description.

C. Items referred to in singular number in Contract Documents shall be provided in quantities necessary to complete work.

D. Drawings are diagrammatic. They are not intended to be absolutely precise; they are not intended to specify or to show every offset, fitting, and component. The purpose of the Drawings is to indicate a systems concept, the main components of the systems, and the approximate geometrical relationships. Based on the systems concept, the main components, and the approximate geometrical relationships, the contractor shall provide all other components and materials necessary to make the systems fully complete and operational.

E. Information and components shown on riser diagrams but not shown on plans, and vice versa, shall apply or be provided as if expressly required on both.
F. Data that may be furnished electronically by the Designer (on computer tape, diskette, or otherwise) is diagrammatic. Such electronically furnished information is subject to the same limitation of precision as heretofore described. If furnished, such data is for convenience and generalized reference, and shall not substitute for Designer’s sealed or stamped construction documents.

1.6 DISCREPANCIES IN DOCUMENTS

A. Where Drawings or Specifications conflict or are unclear, advise Designer in writing before Award of Contract. Otherwise, Designer’s interpretation of Contract Documents shall be final, and no additional compensation shall be permitted due to discrepancies or unclarities thus resolved.

B. Where Drawings or Specifications do not coincide with manufacturers' recommendations, or with applicable codes and standards, alert Designer in writing before installation. Otherwise, make changes in installed work as Designer requires within Contract Price.

C. If the required material, installation, or work can be interpreted differently from drawing to drawing, or between drawings and specs, this contractor shall provide that material, installation, or work which is of the higher standard.

D. It is the intent of these contract documents to have the contractor provide systems and components that are fully complete and operational and fully suitable for the intended use. There may be situations in the documents where insufficient information exists to precisely describe a certain component or subsystem, or the routing of a component. In cases such as this, where the contractor has failed to notify the Designer of the situation in accordance with Paragraph (A) above, the contractor shall provide the specific component or subsystem with all parts necessary for the intended use, fully complete and operational, and installed in workmanlike manner either concealed or exposed per the design intent.

E. In cases covered by Paragraph (D) above, where the contractor believes he needs engineering guidance, he shall submit a sketch identifying his proposed solution and the Designer shall review, note if necessary, and approve the sketch.

1.7 MODIFICATIONS IN LAYOUT

A. HVAC, Plumbing, Fire Protection, and Electrical Drawings are diagrammatic. They indicate general arrangements of mechanical and electrical systems and other work. They do not show all offsets required for coordination nor do they show the exact routings and locations needed to coordinate with structure and other trades and to meet architectural requirements.

B. In all spaces, prior to installation of visible material and equipment, including access panels, review Architectural Drawings for exact locations and where not definitely indicated, request information from Designer.

C. Check Contract Drawings as well as Shop Drawings of all subcontractors to verify and coordinate spaces in which work of this Section will be installed.
D. Maintain maximum headroom at all locations. All piping, duct, conduit, and associated components to be as tight to underside of structure as possible.

E. Make reasonable modifications in layout and components needed to prevent conflict with work of other trades and to coordinate according to Paragraphs A, B, C, D above. Systems shall be run in a rectilinear fashion.

F. Where conflicts or potential conflicts exist and engineering guidance is desired, submit sketch of proposed resolution to Designer for review and approval.

1.8 EXISTING CONDITIONS AND PREPARATORY WORK

A. Before starting work in a particular area of the project, visit site and examine conditions under which work must be performed including preparatory work done under other Sections or Contracts. Report conditions that might affect work adversely in writing through Contractor to Designer. Do not proceed with work until defects have been corrected and conditions are satisfactory. Commencement of work shall be construed as complete acceptance of existing conditions and preparatory work.

1.9 CODES, STANDARDS, AUTHORITIES AND PERMITS

A. Perform work strictly as required by rules, regulations, standards, codes, ordinances, and laws of local, state, and Federal governments, and other authorities that have legal jurisdiction over the site. Materials and equipment shall be manufactured, installed and tested as specified in latest editions of applicable publications, standards, rulings and determinations of:

1. Local and state building, plumbing, mechanical, electrical, fire and health department codes.
2. American Gas Association (AGA).
5. Occupational Safety and Health Act (OSHA).
6. Underwriters' Laboratories (UL).

B. Material and equipment shall be listed by Underwriters' Laboratories (UL), and approved by ASME and AGA for intended service.

C. Most recent editions of applicable specifications and publications of the following organizations form part of Contract Documents:

2. American Society of Mechanical Engineers (ASME).
5. American Water Works Association (AWWA).
6. American Society for Heating, Refrigerating and Air Conditioning Engineers (ASHRAE).
7. Air Moving and Conditioning Association (AMCA).
8. Sheet Metal and Air Conditioning Contractors National Association (SMACNA).
9. American Diffuser Council (ADC).
10. Air Conditioning and Refrigeration Institute (ARI).
11. Thermal Insulation Manufacturers Association (TIMA).
12. Institute of Electrical and Electronics Engineers (IEEE).
13. Insulated Cable Engineers Association (ICEA).
15. Illuminating Engineering Society (IES).

D. Special attention is directed to requirements of NFPA 45, Laboratories Using Chemicals.

1.10 GUARANTEE AND 24 HOUR SERVICE

A. Guarantee Work of this Section in writing for one year following the date of Substantial Completion. If the equipment is used for ventilation, temporary heat, etc. prior to Substantial Completion, the bid price shall include an extended period of warranty covering the one year of occupancy, starting from the initial date of Substantial Completion. The guarantee shall repair or replace defective materials, equipment, workmanship and installation that develop within this period, promptly and to Designer’s satisfaction and correct damage caused in making necessary repairs and replacements under guarantee within Contract Price.

B. In addition to guarantee requirements of Division 01 and of Subparagraph A above, obtain written equipment and material warranties offered in manufacturer's published data without exclusion or limitation, in UMASS’s name.

C. Replace material and equipment that require excessive service during guarantee period as defined and as directed by Designer.

D. Provide 24 hour service beginning on the date the project is first occupied for public use by the User Agency, whether or not fully occupied, and lasting until the termination of the guarantee period. Service shall be at no cost to UMASS. Service can be provided by this contractor or a separate service organization. Choice of service organization shall be subject to Designer and UMASS approval. Submit name and a phone number that will be answered on a 24 hour basis each day of the week, for the duration of the service.

E. Submit copies of equipment and material warranties to Designer before final payment.

F. At end of guarantee period, transfer manufacturers' equipment and material warranties still in force to UMASS.

G. This Paragraph shall not be interpreted to limit UMASS’s rights under applicable codes and laws and under this Contract.

H. Part 2 Paragraphs of this Specification may specify warranty requirements that exceed those of this Paragraph.

I. Use of systems provided under this Section for temporary services and facilities shall not constitute Final Acceptance of work nor beneficial use, and shall not institute guarantee period.
J. Provide manufacturer's engineering and technical staff at site to analyze and rectify problems that develop during guarantee period immediately. If problems cannot be rectified immediately to The UMASS Project Manager’s satisfaction, advise Designer in writing, describe efforts to rectify situation, and provide analysis of cause of problem. Designer will suggest course of action.

1.11 RECORD DRAWINGS

A. Comply with requirements specified in Section 017700 – CONTRACT CLOSEOUT.

B. Drawings shall show record condition of details, sections, riser diagrams, control changes and corrections to schedules. Schedules shall show actual manufacturer and make and model numbers of final equipment installation.

1.12 MANUALS, AND OPERATING INSTRUCTIONS, AND PROTECTION

A. Obtain at time of purchase of equipment, three copies of operation, lubrication and maintenance manuals for all items. Assemble literature in coordinated manuals with additional information describing combined operation of field assembled units, including as built wiring diagrams. Manual shall contain names and addresses of manufacturers and local representatives who stock or furnish repair parts for items or equipment. Divide manuals into three sections or books as follows:

1. Directions for and sequence of operation of each item of HVAC system, e.g. air handling units and boilers. Sequence shall list valves, switches, and other devices used to start, stop and control system. Detail procedure to be followed in case of malfunctions. Include detailed approved flow diagrams of temperature control, heating, condensate, chilled water, condenser water, etc. as appropriate for systems provided. Include approved valve directory showing each valve number, location of each valve, and equipment or fixture controlled by valve.

2. Detailed maintenance and troubleshooting manuals containing data furnished by manufacturer for complete maintenance. Include copy of balancing report.

3. Lubrication instructions detailing type of lubricant, amount, and intervals recommended by manufacturer for each item of equipment. Include additional instructions necessary for implementation of first class lubrication program. Include approved summary of lubrication instructions in chart form, where appropriate.

B. Furnish three copies of manuals to Designer for approval and distribution. Deliver manuals no less than 30 days prior to acceptance of equipment to permit User Agency’s personnel to become familiar with equipment and operation prior to acceptance.

C. Each contractor shall be responsible for his work and equipment until finally inspected, tested, and accepted. Carefully store materials and equipment which are not immediately installed after delivery to site. Close open ends of work with temporary covers or plug during construction to prevent entry of obstructing material.

D. Each separate contractor shall protect the work and material of other trades that might be damaged by his work or workmen and make good all damage thus caused.
1.13 COORDINATION DRAWINGS

A. Refer to Section 013100 – PROJECT MANAGEMENT AND COORDINATION for coordination drawing requirements.

B. Coordination Drawings include but are not necessarily limited to:

1. Structure.
2. Partition/room layout.
3. Ceiling tile and grid.
4. Light fixtures.
5. Access panels.
6. Sheet metal, heating coils, boxes, grilles, diffusers, etc.
7. All heating piping and valves.
8. Smoke and fire dampers.
9. Soil, waste and vent piping.
10. Major water and medical gases.
11. Roof drain piping.
12. Major electrical conduit runs, panelboards, feeder conduit and racks of branch conduit.
13. Above ceiling miscellaneous metal.
14. Sprinkler piping and heads.
15. Heat tracing of piping.

PART 2 - PRODUCTS

2.1 DUCTWORK AND AIR DISTRIBUTION EQUIPMENT

A. Reference Standards: Material, construction and installation shall meet requirements of most recent editions of the following standards and references, except for more stringent requirements specified or shown on Drawings:

<table>
<thead>
<tr>
<th>Standard</th>
<th>As Applicable To:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMACNA HVAC Duct</td>
<td>Sheet Metal Ductwork;</td>
</tr>
<tr>
<td>Construction Standards</td>
<td>Duct Liners; Adhesives;</td>
</tr>
<tr>
<td>Metal and Flexible</td>
<td>Fasteners; Flexible Ductwork.</td>
</tr>
<tr>
<td>SMACNA HVAC Air Duct Leakage Test Manual</td>
<td>Duct Leakage Testing</td>
</tr>
</tbody>
</table>

B. General

1. Provide supporting and hanging devices necessary to attach entire HVAC system including ductwork and equipment, and to prevent vibration.
2. Provide vertical and horizontal supports as required by codes to meet minimum applicable earthquake resistance standards.
3. Ductwork shall be free from vibration under all conditions of operation. Dimensions shown on Drawings for lined ductwork are net inside dimensions. Increase ductwork to accommodate lining requirements.

4. Pipe or conduit crossing duct:
   a. No pipe, conduit, hanger, Architectural element nor structural member shall pass through duct without Designer’s written approval.
   b. Where it is impossible to reroute pipe or conduit and when written approval has been obtained, increase duct size to maintain constant cross sectional area at point of interference. Provide streamlined enclosure for pipe or conduit, as illustrated in SMACNA.

5. When making offsets and transformations necessary to accommodate structural conditions, preserve full cross sectional area of ductwork shown on Drawings.

6. Support
   a. Space hangers as required by SMACNA (8 ft max) for horizontal duct on 8 ft. centers, unless concentrated loadings require closer spacing.
   b. Supports for ductwork and equipment shall be galvanized unless specified otherwise.

7. Connections
   a. Connect inlets and outlets of air handling units and fans to ductwork with flexible connections unless fan has vibration isolator mounts inside unit with flexible connections and no external vibration isolators. Exception: Do not use flex on life safety smoke exhaust fans.
   b. Indoors, flexible connections shall be neoprene coated fibrous glass fire retardant fabric, by Ventfabrics, or Durodyne. Outdoors, flexible connections shall be Dupont hypalon coated fibrous glass fire, weather, and UV resistant by Ventfabrics or Durodyne.
   c. Secure flexible connections tightly to air handlers with metal bands. Bands shall be same material as duct construction.
   d. Connections from trunk to branch ducts shall be as detailed on Drawings.

8. Construction
   a. No sharp metal edges shall extend into air streams.

9. Joints
   a. Longitudinal lock seams shall be double locked and flattened to make tight joints.
   b. Make transverse joints, field connections, collar attachments and flexible connections to ducts and equipment with sheet metal screws or bolts and nuts. Do not use rivets and staples.

10. Prefabricated Transverse Duct Joints
    a. Transverse joints in galvanized sheet metal ductwork may be made with galvanized gasketed frame and angle duct joint system by Ductmate, TDF, TDC or approved equal. Angles shall be at least 20 gauge. Prefabricated transverse duct joints shall not be used for duct 16 GA. and heavier, nor for duct 23 GA. or lighter.
    b. Secure angles to duct with screws (using clutched arbor) or spot welds spaced as recommended by manufacturer for duct pressure class.

11. Elbows and Bends
    a. For round ductwork provide stamped elbows, with centerline radii equal to 1 1/2 times duct diameter, or gored elbows as follows:

<table>
<thead>
<tr>
<th>Elbow Angle</th>
<th>No. of Gores</th>
</tr>
</thead>
<tbody>
<tr>
<td>0° - 36°</td>
<td>2</td>
</tr>
<tr>
<td>37° - 72°</td>
<td>3</td>
</tr>
</tbody>
</table>

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12. Duct Leakage Tests
   a. Leak testing shall be per SMACNA HVAC Air Duct Leakage Test Manual. Provide orifice assembly including straightening vanes, orifice plate mounted in straight tube with properly located pressure taps, and U tube manometer or other device as specified by SMACNA. Orifice assembly shall be calibrated accurately and shall come with calibration curve. Leakage classes shall be as previously specified. Submit leak test report (per SMACNA format) for Designer review. Drawings of ductwork tested shall also be submitted with report, indicating presence of takeoffs, wall penetrations, joints, etc.

C. Shower Exhaust Ductwork
   1. Shower exhaust ductwork shall be aluminum, of types as detailed in this specification above and constructed in accordance with SMACNA except that Seal Class shall be "A" regardless of duct pressure rating.

PART 3 - EXECUTION

3.1 COMMISSIONING OF EQUIPMENT AND SYSTEMS
   A. The Designer will check the completed installation when the entire installation is complete.
   B. Prior to the Designer’s checking the entire installation, this contractor shall submit a letter signed by an officer of this contracting company or an officer of the Construction Manager stating that:
      1. he is an officer of the company,
      2. he has personally inspected the installation to be checked,
      3. the date of his inspection,
      4. the installation is complete and tested and ready to be inspected by the Designer, and that all required test reports have been submitted.

3.2 MATERIALS AND WORKMANSHIP
   A. Work shall be neat and rectilinear. Ductwork and piping shall run concealed except in mechanical rooms and areas where no hung ceiling exists. Install material and equipment as required by manufacturers. Installation shall operate safely and without leakage, undue wear, noise, vibration, corrosion or water hammer. Work shall be properly and effectively protected, and pipe and duct openings shall be temporarily closed to prevent obstruction and damage before completion.
   B. Except as specified otherwise, material and equipment shall be new. Provide supplies, appliances and connections necessary for complete and operational installation. Provide components required or recommended by OSHA and applicable NFPA documents.
C. References to manufacturers and to catalog designation, are intended to establish standards of quality for materials and performance but imply no further limitation of competitive bidding.

D. Finish of materials, components and equipment shall be as approved by Designer and shall be resistant to corrosion and weather as necessary.

E. UMASS will not be responsible for material and equipment before testing and acceptance.

3.3 CONTINUITY OF SERVICES

A. Do not interrupt existing services without the UMASS Project Manager’s approval.

B. Schedule interruptions in advance, according to the UMASS Project Manager’s instructions. Submit, in writing, with request for interruption, methods proposed to minimize length of interruption.

C. Interruptions shall be scheduled at such times of day and work so that they have minimal impact on the User Agency’s operations.

3.4 PENETRATIONS AND SLEEVES

A. General

1. Provide pipe and duct sleeves and packing materials as specified and as shown on Drawings at penetrations of foundations, walls, slabs (except on grade), partitions and floors. Sleeves shall meet NFPA 101 requirements and materials requirements of Part 2 of this Section.

2. Coordinate work carefully with architectural and structural work. Set sleeves in forms before concrete is poured. Provide core drilling as necessary if walls are poured, or otherwise constructed, without sleeves and a wall penetration is required. Provide core drilling as required for penetrations of existing construction. Do not penetrate structural members without Designer’s approval.

3. Sleeves for insulated pipe and duct in non fire rated construction shall accommodate continuous insulation without compression. Sleeves and/or penetrations in fire rated construction shall be packed with fire rated material which shall maintain the fire rating of the wall. Seal ends of penetrations to provide continuous vapor barrier where insulation is interrupted. See Part Two of these specifications for requirements for packing materials.

4. Sleeves through floors shall be water tight and shall extend 2” above floor surface.

B. Pipe Sleeves

1. Annular space between pipe and sleeve shall be at least 1/4”.

2. Sleeves are not required for slabs on grade unless specified otherwise.

3. Sleeves and packing materials, through rated fire walls and smoke partitions shall maintain fire rating of construction penetrated.

4. Do not support piping risers on sleeves.

C. Duct Sleeves and Prepared Openings
1. Provide duct sleeves for round ducts 15" and smaller; provide prepared, framed openings for round ducts larger than 15" and for square, rectangular and flat oval ducts, except as specified otherwise. Sleeves shall meet SMACNA requirements.

2. Provide sleeves for ducts through 1, 2 or 3 hour fire rated construction and smoke partitions, regardless of size and shape of ducts. Sleeves shall maintain fire rating of construction penetrated. Sleeve and seal materials, construction and clearances shall meet requirements of SMACNA Fire Damper and Heat Stop Guide for Air Handling Systems.

3. Prepared openings shall be framed to provide 1" clearance between framing and duct or duct insulation.

D. Installation Testing, Listings and Approvals

1. Installation shall meet material manufacturer's recommendations exactly, particularly as regards safety, ventilation, removal of foreign materials and other details of installation. Dam openings as recommended. Remove flammable materials used for damming and forming seals in fire rated construction.

2. Sleeve penetration methods shall be water and gas tight and shall meet requirements of ASTM E 119 Standard Methods of Fire Tests of Building Construction and Materials.

3. Fire stop penetration seal methods and materials shall be FM approved and UL listed as applicable.

4. Inspect foamed sealants to ensure manufacturer's optimum cell structure and color ranges.

3.5 INSTALLATION OF EQUIPMENT

A. Avoid interference with structure and with work of other trades, preserving adequate headroom and clearing doors and passageways, to satisfaction of Designer and in accordance with code requirements. Installation shall permit clearance for access to equipment for repair, servicing and replacement.

B. Install equipment so as to properly distribute equipment loads on building structural members provided for equipment support under other Sections. Roof mounted equipment shall be installed and supported on structural steel provided under other Sections.

C. Provide suspended platforms, strap hangers, brackets, shelves, stands or legs as necessary for floor, wall or ceiling mounting of equipment provided under this Section (e.g. heating and ventilating units, fans, ducts and piping) as indicated on Drawings and in Specifications.

D. Provide steel supports and hardware for proper installation of hangers, anchors, guides, etc.

E. Provide cuts, weights, and other pertinent data required for proper coordination of equipment support provisions and installation.

F. Structural steel and hardware shall conform to Standard Specifications of ASTM; use of steel and hardware shall conform to requirements of Section Five of Code of Practice of American Institute of Steel Construction.

G. Verify site conditions and dimensions of equipment to ensure access for proper installation of equipment without disassembly which will void warrantee. Report in writing to Designer, prior
to purchase or shipment of equipment involved, on conditions which may prevent proper installation.

3.6 CLEANING

A. Ductwork

1. Ducts shall be thoroughly cleaned so that no dirt or dust shall be discharged from diffusers, registers or grilles, when system is operated.

B. Equipment

1. After completion of project, clean the exterior surface of equipment included in this section, including concrete residue.

END OF SECTION
SECTION 260001 - ELECTRICAL WORK

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. Reference Drawings: The Work is shown on the following Contract Drawing:

E.1 ELECTRICAL PLAN

E. The following sections are included in and part of Section 260001:

260519 Low Voltage Electrical Power Conductors and Cables.
260526 Grounding and Bonding For Electrical Systems
260529 Hangers and Supports for Electrical Systems
260533 Raceways and Boxes for Electrical Systems
260553 Identification for Electrical Systems
262726 Wiring Devices
265100 Interior Lighting

1.2 DESCRIPTION AND REQUIREMENTS

A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:

1. Remove and replace existing light fixtures in existing wardrobe units in student room, including related wiring and switching as shown on the Drawing.

2. Furnish and install new lighting and GFCI receptacles in bathrooms. Provide new breakers in existing panelboards for bathroom modifications as shown on the Drawings.

B. Furnish and install electrical wiring, systems, equipment and accessories in accordance with the specifications and drawings. Capacities and ratings of motors, transformers, cable, switchboards, switchgear, panelboards, motor control centers, and other items and arrangements for the specified items are shown on drawings.

C. Wiring ampacities specified or shown on the drawings are based on copper conductors, with the conduit and raceways accordingly sized. Aluminum conductors are prohibited.
D. The Electrical Contractor shall carry the costs for all permits and fees in his/her bid.

1.3 MINIMUM STANDARDS

A. References to the Massachusetts Electrical Code (MEC), Underwriters Laboratories, Inc. (UL) and National Fire Protection Association (NFPA) are minimum installation requirement standards.

B. All materials and equipment shall be listed, labeled or certified by a nationally recognized testing laboratory to meet Underwriters Laboratories, Inc., standards where test standards have been established. Equipment and materials which are not covered by UL Standards will be accepted provided equipment and material is listed, labeled, certified or otherwise determined to meet safety requirements of a nationally recognized testing laboratory. Equipment of a class which no nationally recognized testing laboratory accepts, certifies, lists, labels, or determines to be safe, will be considered if inspected or tested in accordance with national industrial standards, such as NEMA, or ANSI. Evidence of compliance shall include certified test reports and definitive shop drawings.

C. Definitions:

1. Listed; equipment or device of a kind mentioned which:
   a. Is published by a nationally recognized laboratory which makes periodic inspection of production of such equipment.
   b. States that such equipment meets nationally recognized standards or has been tested and found safe for use in a specified manner.

2. Labeled; equipment or device is when:
   a. It embodies a valid label, symbol, or other identifying mark of a nationally recognized testing laboratory such as Underwriters Laboratories, Inc.
   b. The laboratory makes periodic inspections of the production of such equipment.
   c. The labeling indicates compliance with nationally recognized standards or tests to determine safe use in a specified manner.

3. Certified; equipment or product is which:
   a. Has been tested and found by a nationally recognized testing laboratory to meet nationally recognized standards or to be safe for use in a specified manner.
   b. Production of equipment or product is periodically inspected by a nationally recognized testing laboratory.
c. Bears a label, tag, or other record of certification.

4. Nationally recognized testing laboratory; laboratory which is approved, in accordance with OSHA regulations, by the Secretary of Labor.

1.4 QUALIFICATIONS (PRODUCTS AND SERVICES)

A. Manufacturers Qualifications: The manufacturer shall regularly and presently produce, as one of the manufacturer's principal products, the equipment and material specified for this project, and shall have manufactured the item for at least three years.

B. Product Qualification:

1. Manufacturer's product shall have been in satisfactory operation, on three installations of similar size and type as this project, for approximately three years.

2. The University reserves the right to require the Contractor to submit a list of installations where the products have been in operation before approval.

C. Service Qualifications: There shall be a permanent service organization maintained or trained by the manufacturer which will render satisfactory service to this installation within eight hours of receipt of notification that service is needed. Submit name and address of service organizations.

1.5 MANUFACTURED PRODUCTS

A. Materials and equipment furnished shall be of current production by manufacturers regularly engaged in the manufacture of such items, for which replacement parts shall be available.

B. When more than one unit of the same class of equipment is required, such units shall be the product of a single manufacturer.

C. Equipment Assemblies and Components:

1. Components of an assembled unit need not be products of the same manufacturer.

2. Manufacturers of equipment assemblies, which include components made by others, shall assume complete responsibility for the final assembled unit.

3. Components shall be compatible with each other and with the total assembly for the intended service.

4. Constituent parts which are similar shall be the product of a single manufacturer.

D. Factory wiring shall be identified on the equipment being furnished and on all wiring diagrams.
E. When Factory Testing Is Specified:

1. The University shall have the option of witnessing factory tests. The contractor shall notify the University Project Manager a minimum of 15 working days prior to the manufacturers making the factory tests.

2. Four copies of certified test reports containing all test data shall be furnished to the Project Engineer prior to final inspection and not more than 90 days after completion of the tests.

3. When equipment fails to meet factory test and re-inspection is required, the contractor shall be liable for all additional expenses, including expenses of the University.

1.6 EQUIPMENT REQUIREMENTS

Where variations from the contract requirements are requested in accordance with GENERAL CONDITIONS and Section 013300, SUBMITTAL REQUIREMENTS, the connecting work and related components shall include, but not be limited to additions or changes to branch circuits, circuit protective devices, conduits, wire, feeders, controls, panels and installation methods.

1.7 EQUIPMENT PROTECTION

A. Equipment and materials shall be protected during shipment and storage against physical damage, dirt, moisture, cold and rain:

1. During installation, enclosures, equipment, controls, controllers, circuit protective devices, and other like items, shall be protected against entry of foreign matter; and be vacuum cleaned both inside and outside before testing and operating and repainting if required.

2. Damaged equipment shall be, as determined by the Project Engineer, placed in first class operating condition or be returned to the source of supply for repair or replacement.

3. Painted surfaces shall be protected with factory installed removable heavy kraft paper, sheet vinyl or equal.

4. Damaged paint on equipment and materials shall be refinished with the same quality of paint and workmanship as used by the manufacturer so repaired areas are not obvious.

1.8 WORK PERFORMANCE

A. All electrical work must comply with the requirements of the MEC, Amherst Building Department requirements, the Massachusetts Building Code, and University of Massachusetts Standards, in addition to other references required by contract.

B. Job site safety and worker safety is the responsibility of the contractor.
C. Electrical work shall be accomplished with all affected circuits or equipment de-energized. When an electrical outage cannot be accomplished in this manner for the required work, the following requirements are mandatory:

1. Electricians must use full protective equipment (i.e., certified and tested insulating material to cover exposed energized electrical components, certified and tested insulated tools, etc.) while working on energized systems in accordance with NFPA 70E.

2. Work on energized circuits or equipment cannot begin until prior written approval is obtained from the University Project Manager.

D. For work on existing stations, arrange, phase and perform work to assure electrical service for other buildings at all times.

E. New work shall be installed and connected to existing work neatly and carefully. Disturbed or damaged work shall be replaced or repaired to its prior conditions, as required by GENERAL REQUIREMENTS.

F. Coordinate location of equipment and conduit with other trades to minimize interferences.

1.9 EQUIPMENT INSTALLATION AND REQUIREMENTS

A. Equipment location shall be as close as practical to locations shown on the drawings.

B. Working spaces shall not be less than specified in the MEC for all voltages specified.

C. Inaccessible Equipment:

1. Where the University determines that the Contractor has installed equipment not within proper working clearances or not conveniently accessible for operation and maintenance, the equipment shall be removed and reinstalled as directed at no additional cost to the University.

2. "Conveniently accessible" is defined as being capable of being reached without the use of ladders, or without climbing or crawling under or over obstacles such as, but not limited to, motors, pumps, belt guards, transformers, piping, ductwork, conduit and raceways.

1.10 SUBMITTALS

A. Submit in accordance with section 013300, SUBMITTAL REQUIREMENTS.

B. The University’s approval shall be obtained for all equipment and material before delivery to the job site. Delivery, storage or installation of equipment or material which has not had prior approval will not be permitted at the job site.
C. All submittals shall include adequate descriptive literature, catalog cuts, shop drawings and other data necessary for the University to ascertain that the proposed equipment and materials comply with specification requirements. Catalog cuts submitted for approval shall be legible and clearly identify equipment being submitted.

D. Submittals for individual systems and equipment assemblies which consist of more than one item or component shall be made for the system or assembly as a whole. Partial submittals will not be considered for approval.

1. Mark the submittals, "SUBMITTED UNDER SECTION__________________".

2. Submittals shall be marked to show specification reference including the section and paragraph numbers.

3. Submit each section separately.

E. The submittals shall include the following:

1. Information that confirms compliance with contract requirements. Include the manufacturer's name, model or catalog numbers, catalog information, technical data sheets, shop drawings, pictures, nameplate data and test reports as required.

2. Submittals are required for all equipment anchors and supports. Submittals shall include weights, dimensions, center of gravity, standard connections, manufacturer's recommendations and behavior problems (e.g., vibration, thermal expansion,) associated with equipment or piping so that the proposed installation can be properly reviewed.

3. Elementary and interconnection wiring diagrams for communication and signal systems, control system and equipment assemblies. All terminal points and wiring shall be identified on wiring diagrams.

4. Parts list which shall include those replacement parts recommended by the equipment manufacturer, quantity of parts, current price and availability of each part.

F. Manuals: Submit in accordance with GENERAL REQUIREMENTS.

1. Maintenance and Operation Manuals: Submit as required for systems and equipment specified in the technical sections. Furnish four copies, bound in hardback binders, (manufacturer's standard binders) or an approved equivalent. Furnish one complete manual as specified in the technical section but in no case later than prior to performance of systems or equipment test, and furnish the remaining manuals prior to contract completion.

2. Inscribe the following identification on the cover: the words "MAINTENANCE AND OPERATION MANUAL," the name and location of the system, equipment,
building, name of Contractor, and contract number. Include in the manual the names, addresses, and telephone numbers of each subcontractor installing the system or equipment and the local representatives for the system or equipment.

3. Provide a "Table of Contents" and assemble the manual to conform to the table of contents, with tab sheets placed before instructions covering the subject. The instructions shall be legible and easily read, with large sheets of drawings folded within.

4. The manuals shall include:
   a. Internal and interconnecting wiring and control diagrams with data to explain detailed operation and control of the equipment.
   b. A control sequence describing start-up, operation, and shutdown.
   c. Description of the function of each principal item of equipment.
   d. Installation and maintenance instructions.
   e. Safety precautions.
   f. Diagrams and illustrations.
   g. Testing methods.
   h. Performance data.
   i. Lubrication schedule including type, grade, temperature range, and frequency.
   j. Pictorial "exploded" parts list with part numbers. Emphasis shall be placed on the use of special tools and instruments. The list shall indicate sources of supply, recommended spare parts, and name of servicing organization.
   k. Appendix; list qualified permanent servicing organizations for support of the equipment, including addresses and certified qualifications.

G. Approvals will be based on complete submission of manuals together with shop drawings.

H. After approval and prior to installation, furnish the Project Engineer with one sample of each of the following:
   1. A 12 inch length of each type and size of wire and cable along with the tag from the coils of reels from which the samples were taken.
   2. Each type of conduit coupling, bushing and termination fitting.
   3. Each type of receptacle, toggle switch, outlet box, manual motor starter, device plate, engraved nameplate, wire and cable splicing and terminating material and single pole molded case circuit breaker.

1.11 SINGULAR NUMBER

Where any device or part of equipment is referred to in these specifications in the singular number (e.g., "the switch"), this reference shall be deemed to apply to as many such devices as are required to complete the installation as shown on the drawings.
1.12 TRAINING

A. Training shall be provided in accordance with Article, INSTRUCTIONS, in GENERAL REQUIREMENTS section.

B. Training shall be provided for the particular equipment or system as required in each associated specification.

C. A training schedule shall be developed and submitted by the contractor and approved by the University Project Engineer at least 30 days prior to the planned training.

END OF SECTION 260001
SECTION 260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL – PART OF SECTION 260001 – ELECTRICAL WORK

1.1 RELATED DOCUMENTS

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 SUMMARY

A. Section Includes:

1. Building wires and cables rated 600 V and less.
2. Connectors, splices, and terminations rated 600 V and less.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.4 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Alcan Products Corporation; Alcan Cable Division.
2. General Cable Technologies Corporation.

B. Copper Conductors shall be used: Comply with NEMA WC 70/ICEA S-95-658.

C. Conductor Insulation: Comply with NEMA WC 70/ICEA S-95-658 for Type THHN-2-THWN-2 and Type XHHW-2.
D. Multiconductor Cable: Comply with NEMA WC 70/ICEA S-95-658 for metal-clad cable, Type MC steel armor with ground wire. For use only in concealed spaces where indicated or as approved by the Engineer of Record.

2.2 CONNECTORS AND SPLICES

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. AFC Cable Systems, Inc.
3. O-Z/Gedney; a brand of the EGS Electrical Group.

B. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

2.3 SYSTEM DESCRIPTION

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

A. Feeders: Copper, stranded for No. 8 AWG and larger.

B. Branch Circuits: Copper, stranded for No. 12 AWG and larger.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

A. Service Entrance: Type THHN-2-THWN-2, single conductors in raceway.

B. Exposed Feeders: Type THHN-2-THWN-2, single conductors in raceway.

C. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspace: Type THHN-2-THWN-2, single conductors in raceway.

D. Exposed Branch Circuits: Type THHN-2-THWN-2, single conductors in surface mounted metallic raceway. Reuse existing concrete plank header duct.
3.3 INSTALLATION OF CONDUCTORS
A. Conceal conductor in concrete plank decks were possible. Where exposed, install in steel surface mounted raceway system.
B. Complete raceway installation between conductor and cable termination points according to Section 260533 "Raceways and Boxes for Electrical Systems" prior to pulling conductors and cables.
C. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
D. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips that will not damage cables or raceway.
E. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.
F. Support cables according to Section 260529 "Hangers and Supports for Electrical Systems."

3.4 CONNECTIONS
A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.
B. Make splices, terminations, and taps that are compatible with conductor material.
   1. Use oxide inhibitor in each splice, termination, and tap for aluminum conductors.
C. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches of slack.

3.5 IDENTIFICATION
A. Identify and color-code conductors and cables according to Section 260553 "Identification for Electrical Systems."
B. Identify each spare conductor at each end with identity number and location of other end of conductor, and identify as spare conductor.

3.6 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS
A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies.
3.7 FIRESTOPPING

A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly.

3.8 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.

B. Perform the following tests and inspections and prepare test written reports:

1. After installing conductors and cables and before electrical circuitry has been energized, test for compliance with requirements.

C. Test and Inspection Reports: Prepare a written report to record the following. Submit to Project Manager upon request:

1. Procedures used.
2. Results that comply with requirements.
3. Results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

D. Cables will be considered defective if they do not pass tests and inspections.

END OF SECTION 260519
SECTION 260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL – PART SECTION 260001 – ELECTRICAL WORK

1.1 RELATED DOCUMENTS
   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 SUMMARY
   A. Section includes grounding and bonding systems and equipment.

1.3 ACTION SUBMITTALS
   A. Product Data: For each type of product indicated.

1.4 QUALITY ASSURANCE
   A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in the Massachusetts Electrical Code, by a qualified testing agency, and marked for intended location and application.
   B. Comply with UL 467 for grounding and bonding materials and equipment.

PART 2 - PRODUCTS

2.1 MANUFACTURERS
   A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
      1. Burndy; Part of Hubbell Electrical Systems.
      2. ERICO International Corporation.
      3. O-Z/Gedney; A Brand of the EGS Electrical Group.

2.2 SYSTEM DESCRIPTION
   A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in the Massachusetts Electrical Code, by a qualified testing agency, and marked for intended location and application.
B. Comply with UL 467 for grounding and bonding materials and equipment.

2.3 CONDUCTORS

A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.

B. Bare Copper Conductors:
   2. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch in diameter.
   3. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
   4. Bonding Jumper: Copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.

2.4 CONNECTORS

A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.

B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy.

C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

D. Bus-Bar Connectors: Mechanical type, cast silicon bronze, solderless compression-type wire terminals, and long-barrel, two-bolt connection to ground bus bar.

PART 3 - EXECUTION

3.1 APPLICATIONS

A. Conductors: Install stranded conductors for No. 12 AWG and larger unless otherwise indicated.

B. Isolated Grounding Conductors: Green-colored insulation with continuous yellow stripe. On feeders with isolated ground, identify grounding conductor where visible to normal inspection, with alternating bands of green and yellow tape, with at least three bands of green and two bands of yellow.

C. Conductor Terminations and Connections:
   1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
   2. Underground Connections: Welded connectors except at test wells and as otherwise indicated.
   3. Connections to Ground Rods at Test Wells: Bolted connectors.

3.2 GROUNDING AT THE SERVICE

A. Equipment grounding conductors and grounding electrode conductors shall be connected to the ground bus. Install a main bonding jumper between the neutral and ground buses.

3.3 EQUIPMENT GROUNDING

A. Install insulated equipment grounding conductors with all feeders and branch circuits.

B. Install insulated equipment grounding conductors with the following items, in addition to those required by the Massachusetts Electrical Code:
   1. Feeders and branch circuits.
   2. Lighting circuits.
   3. Receptacle circuits.
   5. Three-phase motor and appliance branch circuits.
   6. Flexible raceway runs.
   7. Armored and metal-clad cable runs.

3.4 INSTALLATION

A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

B. Bonding Straps and Jumper: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.
   1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
   2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.
   3. Use exothermic-welded connectors for outdoor locations; if a disconnect-type connection is required, use a bolted clamp.

C. Grounding and Bonding for Piping:
   1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes; use a bolted clamp connector or bolt a lug-type connector to a pipe flange by using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street
side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.

2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.

3. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.

D. Grounding for Steel Building Structure: Install a driven ground rod at base of each corner column and at intermediate exterior columns at distances not more than 60 feet (18 m) apart.

3.5 FIELD QUALITY CONTROL

A. Perform tests and inspections.

1. Inspect components, assemblies, and equipment installations, including connections, and test.

B. Tests and Inspections:

1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.

2. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.

C. Grounding system will be considered defective if it does not pass tests and inspections.

D. Prepare written test and inspection reports.

END OF SECTION 260526
SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL – PART OF SECTION 260001 – ELECTRICAL WORK

1.1 RELATED DOCUMENTS

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 SUMMARY

A. This Section includes the following:

1. Hangers and supports for electrical equipment and systems.
2. Construction requirements for concrete bases.

B. Related Sections include the following:

1. "Vibration and Seismic Controls for Electrical Systems" for products and installation requirements necessary for compliance with seismic criteria.

1.3 DEFINITIONS

A. EMT: Electrical metallic tubing.
B. IMC: Intermediate metal conduit.
C. RMC: Rigid metal conduit.

1.4 SUBMITTALS

A. Product Data: For the following:

1. Steel slotted support systems.
2. Nonmetallic slotted support systems.

B. Shop Drawings: Show fabrication and installation details and include calculations for the following:

1. Trapeze hangers. Include Product Data for components.
2. Steel slotted channel systems. Include Product Data for components.
3. Nonmetallic slotted channel systems. Include Product Data for components.
4. Equipment supports.
1.5 QUALITY ASSURANCE
A. Comply with the Massachusetts Electrical Code.

PART 2 - PRODUCTS

2.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS
A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.
   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. Allied Tube & Conduit.
      b. Cooper B-Line, Inc.; a division of Cooper Industries.
      c. ERICO International Corporation.
      d. GS Metals Corp.
      e. Thomas & Betts Corporation.
      f. Unistrut; Tyco International, Ltd.

   2. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
   3. Painted Coatings: Manufacturer's standard painted coating applied according to MFMA-4.
   4. Channel Dimensions: Selected for applicable load criteria.

B. Raceway and Cable Supports: As described in NECA 1 and NECA 101.

C. Conduit and Cable Support Devices: Steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.

D. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.

E. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.

F. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:
   1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
a. 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:

1) Hilti Inc.
2) ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.
3) MKT Fastening, LLC.
4) Simpson Strong-Tie Co., Inc.; Masterset Fastening Systems Unit.

2. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.

3. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.

4. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.

5. Toggle Bolts: All-steel springhead type.


2.2 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

A. Description: Welded or bolted, structural-steel shapes, shop fabricated to fit dimensions of supported equipment.

B. Materials: Comply with requirements in Section for steel shapes and plates.

PART 3 - EXECUTION

3.1 APPLICATION

A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.

B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT, IMC, and RMC as per the Massachusetts Electrical Code. Minimum rod size shall be 1/4 inch in diameter.

C. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.

1. Secure raceways and cables to these supports with two-bolt conduit clamps.

D. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch and smaller raceways serving branch circuits and communication systems above suspended ceilings and for fastening raceways to trapeze supports.
3.2 SUPPORT INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.

B. Raceway Support Methods: In addition to methods described in NECA 1, EMT, IMC, and RMC may be supported by openings through structure members, as permitted in the Massachusetts Electrical Code.

C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.

D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:

1. To Wood: Fasten with lag screws or through bolts.
2. To New Concrete: Bolt to concrete inserts.
3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
4. To Existing Concrete: Expansion anchor fasteners.
5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches thick.
6. To Steel: Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69.
7. To Light Steel: Sheet metal screws.
8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate by means that meet seismic-restraint strength and anchorage requirements.

E. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

END OF SECTION 260529
SECTION 260533 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL – PART OF SECTION 260001 – ELECTRICAL WORK

1.1 RELATED DOCUMENTS

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 SUMMARY

A. Section Includes:
   1. Metal conduits, tubing, and fittings.
   2. Nonmetal conduits, tubing, and fittings.
   3. Metal wireways and auxiliary gutters.
   4. Nonmetal wireways and auxiliary gutters.
   5. Surface raceways.

1.3 DEFINITIONS

A. ARC: Aluminum rigid conduit.

B. GRC: Galvanized rigid steel conduit.

C. IMC: Intermediate metal conduit.

1.4 SUBMITTALS

A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.

B. Shop Drawings: For custom enclosures and cabinets. Include plans, elevations, sections, and attachment details.
PART 2 - PRODUCTS

2.1 METAL CONDUITS, TUBING, AND FITTINGS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. AFC Cable Systems, Inc.
3. Thomas & Betts Corporation.
4. Western Tube and Conduit Corporation.

B. Listing and Labeling: Metal conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. GRC: Comply with ANSI C80.1 and UL 6.

D. ARC: Comply with ANSI C80.5 and UL 6A.

E. IMC: Comply with ANSI C80.6 and UL 1242.

F. EMT: Comply with ANSI C80.3 and UL 797.

G. FMC: Comply with UL 1; zinc-coated steel.

H. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.

I. Fittings for Metal Conduit: Comply with NEMA FB 1 and UL 514B.


2. Fittings for EMT:
   a. Material: Steel.
   b. Type: Compression.

3. Expansion Fittings: PVC or steel to match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.

4. Joint Compound for IMC, GRC, or ARC: Approved, as defined in NFPA 70, by authorities having jurisdiction for use in conduit assemblies, and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.
2.2 SURFACE RACEWAYS

A. Listing and Labeling: Surface raceways shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Surface Metal Raceways: Galvanized steel with snap-on covers complying with UL 5. Manufacturer's standard enamel finish in color selected by Architect.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   a. Mono-Systems, Inc.
   b. Panduit Corp.
   c. Wiremold / Legrand.

2.3 BOXES, ENCLOSURES, AND CABINETS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

   1. Cooper Technologies Company; Cooper Crouse-Hinds.
   2. Hoffman; a Pentair company.
   3. Hubbell Incorporated; Killark Division.
   4. RACO; a Hubbell Company.
   5. Spring City Electrical Manufacturing Company.
   7. Wiremold / Legrand.

B. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.

C. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A.

D. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.

E. Cast-Metal Access, Pull, and Junction Boxes: Comply with NEMA FB 1 and UL 1773, galvanized, cast iron with gasketed cover.

F. Box extensions used to accommodate new building finishes shall be of same material as recessed box.

G. Hinged-Cover Enclosures: Comply with UL 50 and NEMA 250, Type 1 with continuous-hinge cover with flush latch unless otherwise indicated.

   1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
2. Interior Panels: Steel; all sides finished with manufacturer's standard enamel.

H. Cabinets:
1. NEMA 250, Type 1 galvanized-steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
2. Hinged door in front cover with flush latch and concealed hinge.
3. Key latch to match panelboards.
4. Metal barriers to separate wiring of different systems and voltage.
5. Accessory feet where required for freestanding equipment.
6. Nonmetallic cabinets shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

A. Indoors: Apply raceway products as specified below unless otherwise indicated:
1. Exposed (except in apartments), Not Subject to Physical Damage: EMT
2. Exposed and Subject to Severe Physical Damage: GRC.
3. Exposed, Surface Metal Raceway.
4. Concealed in Ceilings and Interior Walls and Partitions: EMT
5. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
6. Damp or Wet Locations: GRC.

B. Minimum Raceway Size: 3/4-inch trade size.

C. Raceway Fittings: Compatible with raceways and suitable for use and location.
1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.
2. EMT: Use compression, steel fittings. Comply with NEMA FB 2.10.
3. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.

D. Do not install aluminum conduits, boxes, or fittings in contact with concrete or earth.

3.2 INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NECA 102 for aluminum conduits. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.
B. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.

C. Complete raceway installation before starting conductor installation.

D. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for hangers and supports.

E. Arrange stub-ups so curved portions of bends are not visible above finished slab.

F. Install no more than the equivalent of three 90-degree bends in any conduit run except for control wiring conduits, for which fewer bends are allowed. Support within 12 inches of changes in direction.

G. Conceal conduit and EMT within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines.

H. Support conduit within 12 inches of enclosures to which attached.

I. Stub-ups to Above Recessed Ceilings:
   1. Use EMT, IMC, or RMC for raceways.
   2. Use a conduit bushing or insulated fitting to terminate stub-ups not terminated in hubs or in an enclosure.

J. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.

K. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors including conductors smaller than No. 4 AWG.

L. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch trade size and insulated throat metal bushings on 1-1/2-inch trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.

M. Install raceways square to the enclosure and terminate at enclosures with locknuts. Install locknuts hand tight plus 1/4 turn more.

N. Do not rely on locknuts to penetrate nonconductive coatings on enclosures. Remove coatings in the locknut area prior to assembling conduit to enclosure to assure a continuous ground path.

O. Cut conduit perpendicular to the length. For conduits 2-inch trade size and larger, use roll cutter or a guide to make cut straight and perpendicular to the length.

P. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each
end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.

Q. Surface Raceways:

1. Install surface raceway with a minimum 2-inch radius control at bend points.
2. Secure surface raceway with screws or other anchor-type devices at intervals not exceeding 48 inches and with no less than two supports per straight raceway section. Support surface raceway according to manufacturer's written instructions. Tape and glue are not acceptable support methods.

R. Install raceway sealing fittings at accessible locations according to NFPA 70 and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings according to NFPA 70.

S. Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal the interior of all raceways at the following points:

1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
2. Where an underground service raceway enters a building or structure.
3. Where otherwise required by NFPA 70.

T. Comply with manufacturer's written instructions for solvent welding RNC and fittings.

U. Expansion-Joint Fittings:

1. Install expansion fittings at all locations where conduits cross building or structure expansion joints.
2. Install each expansion-joint fitting with position, mounting, and piston setting selected according to manufacturer's written instructions for conditions at specific location at time of installation. Install conduit supports to allow for expansion movement.

V. Flexible Conduit Connections: Comply with NEMA RV 3. Use a maximum of 72 inches (of flexible conduit for equipment subject to vibration, noise transmission, or movement; and for transformers and motors.

1. Use LFMC in damp or wet locations subject to severe physical damage.
2. Use LFMC or LFNC in damp or wet locations not subject to severe physical damage.

W. Mount boxes at heights indicated on Drawings. If mounting heights of boxes are not individually indicated, give priority to ADA requirements.

X. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall. Prepare block surfaces to
provide a flat surface for a raintight connection between box and cover plate or supported equipment and box.

Y. Horizontally separate boxes mounted on opposite sides of walls so they are not in the same vertical channel.

Z. Locate boxes so that cover or plate will not span different building finishes.

AA. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.

BB. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.

3.3 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies.

3.4 FIRESTOPPING

A. Install firestopping at penetrations of fire-rated floor and wall assemblies.

3.5 PROTECTION

A. Protect coatings, finishes, and cabinets from damage and deterioration.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION 260533
SECTION 260553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL – PART OF SECTION 260001 – ELECTRICAL WORK

1.1 RELATED DOCUMENTS

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 SUMMARY

A. Section Includes:

1. Identification for raceways.
2. Identification of power and control cables.
3. Identification for conductors.
4. Warning labels and signs.
5. Instruction signs.
7. Miscellaneous identification products.

1.3 SUBMITTALS

A. Product Data: For each electrical identification product indicated.

1.4 QUALITY ASSURANCE

A. Comply with ANSI A13.1

B. Comply with NFPA 70.


D. Comply with ANSI Z535.4 for safety signs and labels.

E. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

1.5 COORDINATION

A. Coordinate identification names, abbreviations, colors, and other features with requirements in other Sections requiring identification applications, Drawings, Shop...

B. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.

C. Coordinate installation of identifying devices with location of access panels and doors.

D. Install identifying devices before installing acoustical ceilings and similar concealment.

PART 2 - PRODUCTS

2.1 POWER AND CONTROL RACEWAY IDENTIFICATION MATERIALS

A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway size.

B. Colors for Raceways Carrying Circuits at 600 V or Less:
   1. Black letters on an orange field.
   2. Legend: Indicate voltage and system or service type.

C. Vinyl Labels for Raceways Carrying Circuits at 600 V or Less: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound clear adhesive tape for securing ends of legend label.

2.2 POWER AND CONTROL CABLE IDENTIFICATION MATERIALS

A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each cable size.

B. Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound clear adhesive tape for securing ends of legend label.

2.3 CONDUCTOR IDENTIFICATION MATERIALS

A. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils thick by 1 to 2 inches wide.

B. Marker Tapes: Vinyl or vinyl-cloth, self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.
   1. Marker for Tags: Permanent, waterproof, black ink marker recommended by tag manufacturer.
2. Labels for Tags: Self-adhesive label, machine-printed with permanent, waterproof, black ink recommended by printer manufacturer, sized for attachment to tag.

2.4 WARNING LABELS AND SIGNS


B. Self-Adhesive Warning Labels: Factory-printed, multicolor, pressure-sensitive adhesive labels, configured for display on front cover, door, or other access to equipment unless otherwise indicated.

2.5 EQUIPMENT IDENTIFICATION LABELS

A. Self-Adhesive, Engraved, Laminated Acrylic or Melamine Label: Adhesive backed, with white letters on a dark-gray background. Minimum letter height shall be 3/8 inch.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Verify identity of each item before installing identification products.

B. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.

C. Apply identification devices to surfaces that require finish after completing finish work.

D. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.

E. Attach signs and plastic labels that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.

F. Attach plastic raceway and cable labels that are not self-adhesive type with clear vinyl tape with adhesive appropriate to the location and substrate.

G. System Identification Color-Coding Bands for Raceways and Cables: Each color-coding band shall completely encircle cable or conduit. Place adjacent bands of two-color markings in contact, side by side. Locate bands at changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas.

H. Cable Ties: For attaching tags. Use general-purpose type, except as listed below:

1. Outdoors: UV-stabilized nylon.
2. In Spaces Handling Environmental Air: Plenum rated.

3.2 IDENTIFICATION SCHEDULE

A. Accessible Raceways and Metal-Clad Cables, 600 V or Less, for Service and Feeders: Identify with self-adhesive vinyl label. Install labels at 10-foot maximum intervals.

B. Accessible Raceways and Cables within Buildings: Identify the covers of each junction and pull box of the following systems with self-adhesive vinyl labels with the wiring system legend and system voltage.

C. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, manholes, and handholes, use color-coding conductor tape to identify the phase.

1. Color-Coding for Phase Identification, 600 V or Less: Use colors listed below for ungrounded conductors.

   a. Colors for 208/120-V Circuits:
      1) Phase A: Black.
      2) Phase B: Red.
      3) Phase C: Blue.

   b. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.

D. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and the Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.

1. Labeling Instructions:

   a. Indoor Equipment: Self-adhesive, engraved, laminated acrylic or melamine label. Unless otherwise indicated, provide a single line of text with 1/2-inch high letters on 1-1/2-inch high label; where two lines of text are required, use labels 2 inches high.

2. Equipment to Be Labeled:

   a. Panelboards: Typewritten directory of circuits in the location provided by panelboard manufacturer. Panelboard identification shall be self-adhesive, engraved laminated acrylic or melamine label.
b. Enclosures and electrical cabinets.
c. Access doors and panels for concealed electrical items.
d. Switchgear.
e. Switchboards.

END OF SECTION 260553
SECTION 262726 - WIRING DEVICES

PART 1 - GENERAL – PART OF SECTION 260001 – ELECTRICAL WORK

1.1 RELATED DOCUMENTS
   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 SUMMARY
   A. Section Includes:
      1. Receptacles, receptacles with integral GFCI and AFCI, and associated device plates.
      2. Snap switches and wall-box dimmers.

1.3 DEFINITIONS
   A. EMI: Electromagnetic interference.
   B. GFCI: Ground-fault circuit interrupter.
   C. Pigtail: Short lead used to connect a device to a branch-circuit conductor.
   D. RFI: Radio-frequency interference.
   E. TVSS: Transient voltage surge suppressor.
   F. UTP: Unshielded twisted pair.

1.4 ADMINISTRATIVE REQUIREMENTS
   A. Coordination:
      1. Receptacles for Owner-Furnished Equipment: Match plug configurations.
      2. Cord and Plug Sets: Match equipment requirements.

1.5 ACTION SUBMITTALS
   A. Product Data: For each type of product.
B. Shop Drawings: List of legends and description of materials and process used for premarking wall plates.

C. Samples: One for each type of device and wall plate specified, in each color specified.

1.6 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.7 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For wiring devices to include in all manufacturers' packing-label warnings and instruction manuals that include labeling conditions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers' Names: Shortened versions (shown in parentheses) of the following manufacturers' names are used in other Part 2 articles:

1. Cooper Wiring Devices; Division of Cooper Industries, Inc. (Cooper).
2. Hubbell Incorporated; Wiring Device-Kellems (Hubbell).

B. Source Limitations: Obtain each type of wiring device and associated wall plate from single source from single manufacturer.

2.2 GENERAL WIRING-DEVICE REQUIREMENTS

A. Wiring Devices, Components, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

C. Devices that are manufactured for use with modular plug-in connectors may be substituted under the following conditions:

1. Connectors shall comply with UL 2459 and shall be made with stranding building wire.
2. Devices shall comply with the requirements in this Section.
2.3 STRAIGHT-BLADE RECEPTACLES

A. Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 Configuration 5-20R, UL 498 Supplement SD, and FS W-C-596.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
   a. Cooper; 8300.
   b. Hubbell; HBL8300SGA.
   c. Leviton; 8300-SGG.
   d. Pass & Seymour; 63H.

2.4 GFCI RECEPTACLES

A. General Description:
   1. Straight blade, feed through type.
   2. Comply with NEMA WD 1, NEMA WD 6, UL 498, UL 943 Class A, and FS W-C-596.
   3. Include indicator light that shows when the GFCI has malfunctioned and no longer provides proper GFCI protection.

2.5 TOGGLE SWITCHES

A. Comply with NEMA WD 1, UL 20, and FS W-S-896.

B. Switches, 120/277 V, 20 A:

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

   1) Single Pole:
      a) Cooper; AH1221.
      b) Hubbell; HBL1221.
      c) Leviton; 1221-2.
      d) Pass & Seymour; CSB20AC1.

   2) Two Pole:
      3) Cooper; AH1222.
         a) Hubbell; HBL1222.
         b) Leviton; 1222-2.
         c) Pass & Seymour; CSB20AC2.

   4) Three Way:
      a) Cooper; AH1223.
      b) Hubbell; HBL1223.
      c) Leviton; 1223-2.
d) Pass & Seymour; CSB20AC3.

5) Four Way:
   a) Cooper; AH1224.
   b) Hubbell; HBL1224.
   c) Leviton; 1224-2.
   d) Pass & Seymour; CSB20AC4.

2.6 WALL PLATES

A. Single and combination types shall match corresponding wiring devices.
   1. Plate-Securing Screws: Metal with head color to match plate finish.
   4. Material for Damp Locations: Nylon with spring-loaded lift cover, and listed and labeled for use in wet and damp locations.

B. Wet-Location, Weatherproof Cover Plates: NEMA 250, complying with Type 3R, weather-resistant, thermoplastic with lockable cover.

2.7 FINISHES

A. Device Color:
   1. Wiring Devices Connected to Normal Power System: As selected by Architect unless otherwise indicated or required by NFPA 70 or device listing.

B. Wall Plate Color: Match existing devices or as selected by Architect.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with NECA 1, including mounting heights listed in that standard, unless otherwise indicated.

B. Coordination with Other Trades:
   1. Protect installed devices and their boxes. Do not place wall finish materials over device boxes and do not cut holes for boxes with routers that are guided by riding against outside of boxes.
   2. Keep outlet boxes free of plaster, drywall joint compound, mortar, cement, concrete, dust, paint, and other material that may contaminate the raceway system, conductors, and cables.
   3. Install device boxes in brick or block walls so that the cover plate does not cross a joint unless the joint is troweled flush with the face of the wall.
4. Install wiring devices after all wall preparation, including painting, is complete.

C. Conductors:

1. Do not strip insulation from conductors until right before they are spliced or terminated on devices.
2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
3. The length of free conductors at outlets for devices shall meet provisions of NFPA 70, Article 300, without pigtails.
4. Existing Conductors:
   a. Cut back and pigtail, or replace all damaged conductors.
   b. Straighten conductors that remain and remove corrosion and foreign matter.
   c. Pigtailling existing conductors is permitted, provided the outlet box is large enough.

D. Device Installation:

1. Replace devices that have been in temporary use during construction and that were installed before building finishing operations were complete.
2. Keep each wiring device in its package or otherwise protected until it is time to connect conductors.
3. Do not remove surface protection, such as plastic film and smudge covers, until the last possible moment.
4. Connect devices to branch circuits using pigtails that are not less than 6 inches (152 mm) in length.
5. When there is a choice, use side wiring with binding-head screw terminals. Wrap solid conductor tightly clockwise, two-thirds to three-fourths of the way around terminal screw.
6. Use a torque screwdriver when a torque is recommended or required by manufacturer.
7. When conductors larger than No. 12 AWG are installed on 15- or 20-A circuits, splice No. 12 AWG pigtails for device connections.
8. Tighten unused terminal screws on the device.
9. When mounting into metal boxes, remove the fiber or plastic washers used to hold device-mounting screws in yokes, allowing metal-to-metal contact.

E. Receptacle Orientation:

1. Install ground pin of vertically mounted receptacles down, and on horizontally mounted receptacles to the right.
2. Install hospital-grade receptacles in patient-care areas with the ground pin or neutral blade at the top.

F. Device Plates: Do not use oversized or extra-deep plates. Repair wall finishes and remount outlet boxes when standard device plates do not fit flush or do not cover rough wall opening.
3.2 GFCI RECEPTACLES

A. Install non-feed-through-type GFCI receptacles where protection of downstream receptacles is not required.

3.3 IDENTIFICATION

A. Comply with Section 260553 "Identification for Electrical Systems."

B. Identify each receptacle with panelboard identification and circuit number. Use hot, stamped, or engraved machine printing with black-filled lettering on face of plate, and durable wire markers or tags inside outlet boxes.

3.4 FIELD QUALITY CONTROL

A. Tests for Convenience Receptacles:
   1. Line Voltage: Acceptable range is 105 to 132 V.
   2. Percent Voltage Drop under 15-A Load: A value of 6 percent or higher is unacceptable.
   3. Ground Impedance: Values of up to 2 ohms are acceptable.
   4. GFCI Trip: Test for tripping values specified in UL 1436 and UL 943.
   5. Using the test plug, verify that the device and its outlet box are securely mounted.
   6. Tests shall be diagnostic, indicating damaged conductors, high resistance at the circuit breaker, poor connections, inadequate fault current path, defective devices, or similar problems. Correct circuit conditions, remove malfunctioning units and replace with new ones, and retest as specified above.

B. Wiring device will be considered defective if it does not pass tests and inspections.

C. Prepare test and inspection reports.

END OF SECTION 262726
SECTION 265100 - INTERIOR LIGHTING

PART 1 - GENERAL – PART OF SECTION 260001 – ELECTRICAL WORK

1.1 RELATED DOCUMENTS

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 SUMMARY

A. Section Includes:

1. Interior lighting fixtures, lamps, and ballasts.
2. Emergency lighting units.
3. Exit signs.
4. Lighting fixture supports.

B. Related Sections:

1. Section 262726 "Wiring Devices" for manual wall-box switches.

1.3 DEFINITIONS

A. BF: Ballast factor.
B. CCT: Correlated color temperature.
C. CRI: Color-rendering index.
D. HID: High-intensity discharge.
E. LER: Luminaire efficacy rating.
F. Lumen: Measured output of lamp and luminaire, or both.
G. Luminaire: Complete lighting fixture, including ballast housing if provided.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of lighting fixture, arranged in order of fixture designation. Include data on features, accessories, finishes, and the following:
1. Physical description of lighting fixture including dimensions.
2. Emergency lighting units including battery and charger.
3. Ballast, including BF.
5. Life, output (lumens, CCT, and CRI), and energy-efficiency data for lamps.
6. Photometric data and adjustment factors based on laboratory tests, complying with IESNA Lighting Measurements Testing & Calculation Guides, of each lighting fixture type. The adjustment factors shall be for lamps, ballasts, and accessories identical to those indicated for the lighting fixture as applied in this Project.
   a. Testing Agency Certified Data: For indicated fixtures, photometric data shall be certified by a qualified independent testing agency. Photometric data for remaining fixtures shall be certified by manufacturer.
   b. Manufacturer Certified Data: Photometric data shall be certified by a manufacturer's laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products.

B. Shop Drawings: For nonstandard or custom lighting fixtures. Include plans, elevations, sections, details, and attachments to other work.

   1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
   2. Wiring Diagrams: For power, signal, and control wiring.

C. Installation instructions.

1.5 INFORMATIONAL SUBMITTALS

   A. Field quality-control reports.

   B. Warranty: Sample of special warranty.

1.6 CLOSEOUT SUBMITTALS

   A. Operation and Maintenance Data: For lighting equipment and fixtures to include in emergency, operation, and maintenance manuals.

   1. Provide a list of all lamp types used on Project; use ANSI and manufacturers' codes.
1.7 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

1.8 COORDINATION

A. Coordinate layout and installation of lighting fixtures and suspension system with other construction that penetrates ceilings or is supported by them, including HVAC equipment, fire-suppression system, and partition assemblies.

1.9 WARRANTY

A. Special Warranty for Emergency Lighting Batteries: Manufacturer's standard form in which manufacturer of battery-powered emergency lighting unit agrees to repair or replace components of rechargeable batteries that fail in materials or workmanship within specified warranty period.

1. Warranty Period for Emergency Lighting Unit Batteries: 5 years from date of Substantial Completion. Full warranty shall apply for first year, and prorated warranty for the remaining years.

2. Warranty Period for Emergency Fluorescent Ballast and Self-Powered Exit Sign Batteries: Seven years from date of Substantial Completion. Full warranty shall apply for first year, and prorated warranty for the remaining six years.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, product(s) indicated on Drawings.

2.2 GENERAL REQUIREMENTS FOR LIGHTING FIXTURES AND COMPONENTS

A. Recessed Fixtures: Comply with NEMA LE 4 for ceiling compatibility for recessed fixtures.

B. Fluorescent Fixtures: Comply with UL 1598. Where LER is specified, test according to NEMA LE 5 and NEMA LE 5A as applicable.
C. HID Fixtures: Comply with UL 1598. Where LER is specified, test according to NEMA LE 5B.

D. Metal Parts: Free of burrs and sharp corners and edges.

E. Sheet Metal Components: Steel unless otherwise indicated. Form and support to prevent warping and sagging.

F. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.

G. Factory-Applied Labels: Comply with UL 1598. Include recommended lamps and ballasts. Labels shall be located where they will be readily visible to service personnel, but not seen from normal viewing angles when lamps are in place.

1. Label shall include the following lamp and ballast characteristics:
   a. "USE ONLY" and include specific lamp type.
   b. Lamp diameter code (T-4, T-5, T-8, T-12, etc.), tube configuration (twin, quad, triple, etc.), base type, and nominal wattage for fluorescent and compact fluorescent luminaires.
   c. Lamp type, wattage, bulb type (ED17, BD56, etc.) and coating (clear or coated) for HID luminaires.
   d. Start type (preheat, rapid start, instant start, etc.) for fluorescent and compact fluorescent luminaires.
   e. ANSI ballast type (M98, M57, etc.) for HID luminaires.
   f. CCT and CRI for all luminaires.

2.3 BALLASTS FOR LINEAR FLUORESCENT LAMPS

A. General Requirements for Electronic Ballasts:
   1. Comply with UL 935 and with ANSI C82.11.
   2. Designed for type and quantity of lamps served.
   3. Ballasts shall be designed for full light output unless another BF, dimmer, or bi-level control is indicated.

B. Luminaires controlled by occupancy sensors shall have programmed-start ballasts.

C. Single Ballasts for Multiple Lighting Fixtures: Factory wired with ballast arrangements and bundled extension wiring to suit final installation conditions without modification or rewiring in the field.

D. Ballasts for Low-Temperature Environments:
1. Temperatures Minus 20 Deg F (Minus 29 Deg C) and Higher: Electromagnetic type designed for use with indicated lamp types.

2.4 FLUORESCENT LAMPS

A. T8 rapid-start lamps, rated 32 W maximum, nominal length of 48 inches (1220 mm), 2800 initial lumens (minimum), CRI 75 (minimum), color temperature 3500 K, and average rated life 20,000 hours unless otherwise indicated.

B. Existing T12 Lamps shall be returned to UMASS.

2.5 LIGHTING FIXTURE SUPPORT COMPONENTS

A. Comply with Section 260529 "Hangers and Supports for Electrical Systems" for channel- and angle-iron supports and nonmetallic channel and angle supports.

B. Single-Stem Hangers: 1/2-inch (13-mm) steel tubing with swivel ball fittings and ceiling canopy. Finish same as fixture.

C. Twin-Stem Hangers: Two, 1/2-inch (13-mm) steel tubes with single canopy designed to mount a single fixture. Finish same as fixture.

D. Wires: ASTM A 641/A 641M, Class 3, soft temper, zinc-coated steel, 12 gage (2.68 mm)

E. Wires for Humid Spaces: ASTM A 580/A 580M, Composition 302 or 304, annealed stainless steel, 12 gage (2.68 mm)

F. Rod Hangers: 3/16-inch (5-mm) minimum diameter, cadmium-plated, threaded steel rod.

G. Hook Hangers: Integrated assembly matched to fixture and line voltage and equipped with threaded attachment, cord, and locking-type plug.

2.6 SPARE PARTS

A. The electrical contractor shall provide additional lenses for all fixtures types installed. The required quantity of additional lenses shall be 10% of each fixture installed. The contractor shall verify all quantities and label spares with manufacturers data and locations fixtures were installed.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Lighting fixtures:
1. Set level, plumb, and square with ceilings and walls unless otherwise indicated.
2. Install lamps in each luminaire.

B. Temporary Lighting: If it is necessary, and approved by Architect, to use permanent luminaires for temporary lighting, install and energize the minimum number of luminaires necessary. When construction is sufficiently complete, remove the temporary luminaires, disassemble, clean thoroughly, install new lamps, and reinstall.

C. Remote Mounting of Ballasts: Distance between the ballast and fixture shall not exceed that recommended by ballast manufacturer. Verify, with ballast manufacturers, maximum distance between ballast and luminaire.

D. Lay-in Ceiling Lighting Fixtures Supports: Use grid as a support element.

1. Install ceiling support system rods or wires, independent of the ceiling suspension devices, for each fixture. Locate not more than 6 inches (150 mm) from lighting fixture corners.
2. Support Clips: Fasten to lighting fixtures and to ceiling grid members at or near each fixture corner with clips that are UL listed for the application.
3. Fixtures of Sizes Less Than Ceiling Grid: Install as indicated on reflected ceiling plans or center in acoustical panel, and support fixtures independently with at least two 3/4-inch (20-mm) metal channels spanning and secured to ceiling tees.
4. Install at least one independent support rod or wire from structure to a tab on lighting fixture. Wire or rod shall have breaking strength of the weight of fixture at a safety factor of 3.

E. Suspended Lighting Fixture Support:

1. Pendants and Rods: Where longer than 48 inches (1200 mm), brace to limit swinging.
3. Continuous Rows: Use tubing or stem for wiring at one point and tubing or rod for suspension for each unit length of fixture chassis, including one at each end.
4. Do not use grid as support for pendant luminaires. Connect support wires or rods to building structure.

F. Connect wiring according to Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

3.2 IDENTIFICATION

A. Install labels with panel and circuit numbers on concealed junction and outlet boxes. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."
3.3 FIELD QUALITY CONTROL

A. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation. Verify transfer from normal power to battery and retransfer to normal.

B. Verify that self-luminous exit signs are installed according to their listing and the requirements in NFPA 101.

C. Prepare a written report of tests, inspections, observations, and verifications indicating and interpreting results. If adjustments are made to lighting system, retest to demonstrate compliance with standards.

END OF SECTION 265100