

# PROJECT MANUAL AND SPECIFICATIONS

23 MAPLE STREET  
KITCHEN RENOVATION  
ARLINGTON, MASSACHUSETTS

for

TOWN OF ARLINGTON DEPARTMENT OF  
PLANNING AND COMMUNITY DEVELOPMENT



Bid Documents  
October 24, 2017

**TOWN OF ARLINGTON**

23 MAPLE STREET ARLINGTON MA

Siemasko + Verbridge

**TOWN OF ARLINGTON  
23 MAPLE STREET, ARLINGTON, MA 01915**

**BIDDING SET SPECIFICATIONS  
24 OCTOBER 2017**



**TOWN OF ARLINGTON**

23 MAPLE STREET ARLINGTON MA  
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NOT USED

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**TOWN OF ARLINGTON**

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**Town of Arlington, Massachusetts  
INVITATION TO BID #17-57  
23 Maple Street, Arlington - Kitchen Renovation**

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Sealed Bids for 23 Maple Street, Arlington, MA – Kitchen Renovation for the Town of Arlington, MA will be received at the Office of the Town Manager, Arlington Town Hall Annex 2<sup>nd</sup> Floor, 730 Massachusetts Avenue, Arlington, MA no later than **11:00 AM Thursday November 16, 2017** and bids will be publicly read thereafter in the Town Hall Annex 2<sup>nd</sup> Floor.

Specifications and Proposal Forms will be available at the Office of the Town Manager at the above-mentioned address on **Wednesday, 24 October 2017** and on the Town Website [www.arlingtonma.gov/purchasing](http://www.arlingtonma.gov/purchasing).

A **bid deposit** in the form of a bid bond, certified check, or treasurer's or cashier's check, payable to the Town of Arlington, shall accompany every bid. The amount of such bid deposit shall be **five percent (5%)** of the value of the bid. No bid will be accepted unless accompanied by the required bid deposit.

The Town of Arlington requests bids for renovations to the kitchen at 23 Maple Street in Arlington, Massachusetts.

The estimated construction cost is \$65,000.

Sealed Filed Sub-bids: There are no Filed Sub-bids on this project.

All work must be completed by

**A Pre-bid Site Visit will be held on Friday November 3 2017 @ 8:30 A.M. in the 1st floor conference room, Town Hall Annex, 730 Mass Ave. Arlington, MA. All Prospective Bidders are encouraged to attend.**

Questions from bidders will be accepted by the Town until close of business, 4PM, on Wednesday, February 8, 2017. Bidder's questions and corresponding answers from the Architect or Structural Engineer will be posted on the Town's website as an Addendum.

All Bids shall be in sealed envelopes plainly marked: **BID #17-57 23 Maple Street – Kitchen Renovation.**

Attention is called to the fact that minimum wage rates and health and welfare and pension fund contributions are established for this contract and are a part of the Specifications.

Work under this Contract shall be governed by MGL Ch. 149, Sec. 44A-J.

A Performance Bond in the amount of 100% of the total dollar award is required.

A Payment Bond in the amount of 100% of the total dollar award is required.

The Conditions of Employment as set forth in Sections 26 to 27D and 27F of Chapter 149 of the General Laws, as amended, shall prevail in the execution of the work under this Contract.

Bids to receive consideration must be in the possession of the Purchasing Agent at the Office of the Town Manager, or his authorized representative, no later than the abovementioned day and hour.

Bidders shall not include Sales Taxes. The Work for this project for the Town of Arlington is sales tax exempt.

Bids shall be evaluated on the basis of price, previous experience with similar types of projects, ability to perform work in a timely manner, and references.

OSHA Construction Training Required: As of July 1, 2006, under M.G.L. – Chapter 30, Section 39s, any person, submitting a bid for, or signing a contract to work on the construction, reconstruction, alteration, remodeling or repair of any public work by the Commonwealth of Massachusetts/Town of Arlington and estimated by the awarding authority to cost more than \$10,000, shall certify on the bid or contract, under penalty of perjury, that all employees to be employed at the work will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is atleast 10 hours in duration.

For further information relative to this bid please contact Jennifer Raitt, Director of Planning and Community Development, at [jraitt@town.arlington.ma.us](mailto:jraitt@town.arlington.ma.us).

The Town Manager reserves the right to cancel any Invitation for Bids, to reject in whole or in part any and all bids, when it is deemed in the best interest of the Town of Arlington to do so.

The Town of Arlington does not discriminate on the basis of sex, race, age, physical disability, religion or national origin. The Town is an Affirmative Action/Equal Opportunity Employer. Minority/Women's Business Enterprises are encouraged. This project is subject to Title 1, Article 16 of the Town of Arlington By-Laws.

TOWN OF ARLINGTON

Adam W. Chapdelaine  
Town Manager

FORM FOR GENERAL BID

23 Maple Street – Kitchen Renovation  
for the  
Town of Arlington, Massachusetts

General Contractor Name: \_\_\_\_\_

Owner: Town of Arlington, Massachusetts  
730 Massachusetts Avenue  
Arlington, MA 02476  
Jennifer Raitt, Director of Planning and Community Development  
781-316-3092

Architect:

To the Awarding Authority:

A. The undersigned Bidder hereby offers and agrees to furnish all labor and materials required in performance of the Work to complete the 23 Maple Street Kitchen Renovation for the Town of Arlington, Massachusetts, in accordance with the accompanying plans and specifications dated October 24, 2017 prepared by the Architect for the contract price specified below, subject to additions and deductions per the terms of the specifications.

B. This bid includes addenda numbered \_\_\_\_\_

C. The proposed contract price is:

\_\_\_\_\_  
\_\_\_\_\_ dollars  
(\$ \_\_\_\_\_)

**Note:** For each Alternate below indicate “nc” for “no change” in each line for which there is no dollar value inserted.

Alternate No. 1 - (Add Alternate):

Numeric: \$ \_\_\_\_\_

Written: \_\_\_\_\_

Alternate No. 2 – (Add Alternate):



Numeric: \$ \_\_\_\_\_

Written: \_\_\_\_\_

For each of the following Unit Prices add:

Clapboard Siding and Plywood Sheathing	\$ _____ /S.F.
Horizontal Board Siding and Plywood Sheathing	\$ _____ /S.F.
Roof Sheathing	\$ _____ /S.F.

D. Bid Security: Accompanying this Proposal is a Bid Surety in the form of: (Bid Bond)(Certified check)(Treasurer’s check)(Cashier’s check), payable to the Town of Arlington in the amount of \_\_\_\_\_ Dollars

(Written amount, which governs)

( \$ \_\_\_\_\_ )  
(Numeric amount)

E. Examined Conditions: The undersigned Bidder hereby declares that he or she has visited the site and the conditions present and has carefully examined the Contract Documents, together with all Addenda issued, received and acknowledged below, and has familiarized himself or herself with the legal requirements (federal, state, and local laws, ordinances, rules and regulations) and other conditions which may affect the cost, progress or performance of Work, and has made independent investigations, deemed necessary by the Bidder

F. The undersigned agrees that, if he is selected as general contractor, he will within 5 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 to be included in the contract price.

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

H. Withdraw bids: The Bidder agrees that this Bid shall be good and may not be withdrawn for a period of 30 calendar days after the scheduled closing time for receipt of bids.

I. Non-collusion: The undersigned Bidder certifies under the penalty of perjury, that he/she, and his/hers employees and agents of the Bidder, are the only persons interested in this proposal, that this proposal is made without any connection with any other person making any bid for the same work; that no person acting for, or employed by, the Awarding Authority is directly or indirectly interested in this proposal, or in any contract which be made under it, or in expected profits to arise therefrom; and without directly or indirectly influencing or attempting to influence any other person or corporation to bid or to refrain from bidding or to influence the amount of the bid of any other person or corporation; and

that this proposal is made in good faith without collusion or connection with any other person bidding for the same work; and that this proposal is made with distinct reference and relation to the plans and specifications prepared for this contract and herein mentioned. 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 their own investigation and research and not in reliance upon any representation of any employee, officer or agent of the Awarding Authority. The undersigned further certifies under the penalties of perjury that this bid is in all respect 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 provision of any other chapter of the General Laws or any rule or regulation promulgated thereunder.

J. Affidavit of eligibility to perform work in the Commonwealth of Massachusetts: The undersigned 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 29F of Chapter 29, or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation promulgated hereunder.

K. Authority Rights: The Bidder understands the Awarding Authority right to reject any and all bids, if in the public interest to do so.

L. The undersigned further certifies under 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, or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation promulgated thereunder.

Date \_\_\_\_\_

\_\_\_\_\_  
(Name of General Bidder)

By \_\_\_\_\_  
(Title and Name of Person Signing Bid and Title)

\_\_\_\_\_  
(Business Address)

\_\_\_\_\_  
(City and State)

CONSOLIDATED GENERAL CONDITIONS  
OF THE CONTRACT FOR CONSTRUCTION

ARTICLE 1

GENERAL PROVISIONS

1.1 BASIC DEFINITIONS

1.1.1 THE CONTRACT DOCUMENTS

The Contract Documents consist of the Agreement between Owner and Contractor (hereinafter the Agreement), the Consolidated General Conditions of the Contract for Construction, the Supplemental Statutory Conditions, Drawings, Specifications, including all numbered sections, Addenda issued prior to execution of the Contract, Instructions to Bidders and Proposal, other documents listed in the Agreement and within the Building Requirements, Contract Forms and Conditions of the Contract (as set out in the Project Manual for the Arlington Highland Fire Station Renovation & Central Station Envelope Repair), and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include other documents such as bidding requirements (advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or portions of addenda relating to bidding requirements).

In the event of any conflict among the Contract Documents, the Documents shall be construed according to the following priorities:

Highest Priority:	Modifications
Second Priority:	Agreement
Third Priority:	Addenda--later date to take precedence
Fourth Priority:	Supplemental Statutory Conditions
Fifth Priority:	Specifications and Drawings
Sixth Priority:	Consolidated General Conditions
Seventh Priority:	Instructions to Bidders and Proposal

Any references throughout the contract documents (or any other project documents) to "General Conditions" or "Supplementary General Conditions" are deleted and "Consolidated General Conditions and Supplemental Statutory Conditions" is substituted therefor. All bidders and sub-bidders take note that the Town has consolidated and modified former versions of the standard form AIA Document A210 General Conditions of the Contract for Construction with the Town's desired Supplementary General Conditions into one document. The Supplemental Statutory Conditions remain intact and separate, and form a part of the Contract Documents.

### 1.1.2 THE CONTRACT

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. Except as provided in Paragraph 3.18, nothing contained in the Contract Documents shall be construed to create any contractual relationship (1) between the Architect and the Contractor, (2) between the Owner or the Architect and a Subcontractor or Sub-subcontractor, (3) between the Owner and the Architect, or (4) between any persons or entities other than the Owner and the Contractor. The Contract Documents shall comply with the requirements of Mass. Gen. Laws Chapter 44, Section 31C.

### 1.1.3 THE WORK

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

### 1.1.4 THE 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.

### 1.1.5 THE 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.

### 1.1.6 THE 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.

### 1.1.7 THE PROJECT MANUAL

The Project Manual is the volume usually assembled for the work which may include the bidding requirements, sample forms, Consolidated General Conditions of the Contract and Specifications.

## 1.2 EXECUTION, CORRELATION AND INTENT

1.2.1 The Contract Documents shall be signed by the Owner and Contractor as provided in the Agreement. A copy of the signed set shall be deposited with the Architect. If either the Owner or Contractor or both do not sign all the Contract Documents, the Architect shall identify such unsigned Documents upon request.

1.2.2 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents. By executing the Contract, the Contractor also certifies, under penalties of perjury, that to the best of his information, knowledge and belief he has complied with all laws of the Commonwealth of Massachusetts relating to taxes.

1.2.3 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the intended results. All Work mentioned or indicated in the Contract Documents shall be performed by the Contractor as part of this Contract unless it is specifically indicated in the Contract Documents that such Work is to be done by others.

1.2.4 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

1.2.5 Unless otherwise stated in the Contract Documents, words which have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

1.2.6 Where codes, standards, requirements and publications of public and private bodies are referred to in the Specifications, references shall be understood to be to the latest revisions prior to the date of receiving bids, except where otherwise indicated.

1.2.7 Where no explicit quality or standards for materials or workmanship are established for Work, such Work or materials is to be of good, workmanlike quality for the intended use and consistent with the quality of the surrounding Work and of the construction of the Project generally.

1.2.8 All manufactured articles, materials, and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned in accordance with the manufacturer's written or printed directions and instructions unless otherwise indicated in the Contract Documents.

1.2.9 The Mechanical, Electrical and Fire Protection Drawings are diagrammatic only, and are not intended to show the alignment, physical locations or configurations of such Work.

Such Work shall be installed without additional cost to the Owner to clear all obstructions, permit proper clearances for the Work of other trades, and present an orderly appearance where exposed. Prior to beginning such Work, the Contractor shall prepare coordination drawings showing the exact alignment, physical location and configuration of the Mechanical, Electrical and Fire Protection installations and demonstrating to the Contractor's satisfaction that the installations will comply with the preceding sentence.

1.2.10 Ex act locations of fixtures and outlets shall be obtained from the Architect as provided in Subparagraph 3.2.5 before the Work is roughed in; Work installed without such information from the Architect shall be relocated at the Contractor's expense.

1.2.11 Test boring or soil test information included with the Contract Documents or otherwise made available to the Contractor was obtained by the Owner for use by the Architect in the design of the Project or Work. The Owner does not hold out such information to the Contractor as an accurate or approximate indication of subsurface conditions, and no claim for extra cost or extension of time resulting from a reliance by the Contractor on such information shall be allowed except as provided in Subparagraph 4.3.6.

### 1.3 OWNERSHIP AND USE OF ARCHITECT'S DRAWINGS, SPECIFICATIONS AND OTHER DOCUMENTS

1.3.1 The Drawings, Specifications and other documents prepared by the Architect are instruments of the Architect's service through which the Work to be executed by the Contractor is described. The Contractor may retain one contract record set. Neither the Contractor nor any Subcontractor, Sub-subcontractor or material or equipment supplier shall own or claim a copyright in the Drawings, Specifications and other documents prepared by the Architect, and unless otherwise indicated, and except as provided in the Owner/Architect Agreement for the Project, the Architect shall be deemed the author of them and will retain all common law, statutory and other reserved rights, in addition to the copyright. All copies of them, except the Contractor's record set, shall be returned or suitably accounted for to the Architect, on request, upon completion of the Work. The Drawings, Specifications and other documents prepared by the Architect, and copies thereof furnished to the Contractor, are for use solely with respect to this Project. They are not to be used by the Contractor or any Subcontractor, Sub-subcontractor or material or equipment supplier on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner and Architect. The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are granted a limited license to use and reproduce applicable portions of the Drawings, Specifications and other documents prepared by the Architect appropriate to and for use in the execution of their Work under the Contract Documents. All copies made under this license shall bear the statutory copyright notice, if any, shown on the Drawings, Specifications and other documents prepared by the Architect. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Architect's copyright or other reserved rights.

Notwithstanding anything herein to the contrary, as between the Owner and Architect, their rights and obligations with respect to the Architect's instruments of service are governed by the provisions of the Owner/Architect Agreement for the Project.

#### 1.4 CAPITALIZATION

1.4.1 Terms capitalized in these General Conditions include those which are (1) specifically defined, (2) the titles of numbered articles and identified references to Paragraphs, Subparagraphs and Clauses in a document or (3) the titles of documents published by the American Institute of Architects.

#### 1.5 INTERPRETATION

1.5.1 In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

### ARTICLE 2

#### OWNER

#### 2.1 DEFINITIONS

2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. From time to time herein the Owner is referred to as the Town.

2.1.2 The Project Manager is the person or entity identified as such in writing by the Owner, at the Owner's option. The Project Manager shall act as the Owner's representative with respect to all matters pertaining to the Project. The duties, responsibilities, and obligations of the Project Manager under this Contract may be modified from time to time by the Town, so long as such modifications do not interfere materially with the Contractor's performance of the Work hereunder, and so long as the Contractor is given notice of any such modifications that affect the Contractor's performance of the Work.

#### 2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

2.2.1 The Owner upon reasonable written request shall furnish to the Contractor in writing information which is necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein at the time of execution of the Agreement.

2.2.2 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site.

2.2.3 Except for permits and fees which are the responsibility of the Contractor under the Contract Documents, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures, or for permanent changes in existing facilities.

2.2.4 Information or services required of the Owner hereunder shall be furnished by the Owner with reasonable promptness after receipt from the Contractor of a written request for such information or services.

2.2.5 Unless otherwise provided in the Contract Documents, the Contractor will be furnished, free of charge, such copies of Drawings and Project Manuals as are reasonably necessary for execution of the Work.

2.2.6 The foregoing are in addition to other duties and responsibilities of the Owner enumerated herein and especially those in respect to Article 6 (Construction by Owner or by Separate Contractors), Article 9 (Payments and Completion) and Article 11 (Insurance and Bonds).

### 2.3 OWNER'S RIGHT TO STOP THE WORK

2.3.1 If the Contractor fails to correct Work which is not in accordance with the requirements of the Contract Documents as required by Paragraph 12.2 or persistently fails to carry out Work in accordance with the Contract Documents, the Owner, by written order signed by the Project Manager, may order the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity.

2.3.2 The Owner may order the 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 Owner; provided however, that if there is a suspension, delay or interruption ordered by the Owner for fifteen days or more or due to a failure of the Owner to act within the time specified in this Contract, the Owner shall make an adjustment in the Contract Sum for any increase in the cost of performance of this Contract, but shall not include any profit to the Contractor on such increase; and provided further, that the Owner shall not make any adjustment in the Contract Sum 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 Sum under any other contract provisions.

2.3.3 The Contractor must submit the amount of a claim under Subparagraph 2.3.2 to the Owner 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 21 days after the end thereof. Except for costs due to a suspension order, the Owner shall not approve any costs in the claim incurred more than twenty days before the Contractor notified the Owner in writing of the act or failure to act involved in the claim.



## 2.4 OWNER'S RIGHT TO CARRY OUT THE WORK

2.4.1 If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a seven-day period after receipt of written notice from the Owner to begin and prosecute correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Construction Change Directive shall be issued deducting from payments then or thereafter due the Contractor the cost of correcting such deficiencies, including compensation for the Architect's additional services and expenses made necessary by such default, neglect or failure. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

## ARTICLE 3

### CONTRACTOR

#### 3.1 DEFINITION

3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term "Contractor" means the Contractor or the Contractor's authorized representative.

#### 3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

3.2.1 Before starting the Work, and at frequent intervals during the progress thereof, the Contractor shall carefully study and compare the Contract Documents with each other and with any information furnished by the Owner pursuant to Subparagraph 2.2.2 and shall at once report to the Architect any error, inconsistency or omission the Contractor may discover. Any necessary change shall be ordered as provided in Article 7, subject to the requirements of Paragraph 1.2 and other provisions of the Contract Documents. If the Contractor proceeds with the Work without such notice to the Architect, having discovered such errors, inconsistencies or omissions, or if by reasonable study of the Contract Documents the Contractor could have discovered such, the Contractor shall bear all costs arising therefrom.

3.2.2 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 before commencing activities. Errors, inconsistencies or omissions discovered shall be reported to the Architect at once. Any necessary change shall be ordered as provided in Article 7, subject to the requirements of Paragraph 1.2 and other provisions of the Contract Documents. If the Contractor proceeds with the Work without such notice to the Architect, having discovered such errors, inconsistencies or omissions, the Contractor shall bear all costs arising therefrom.

3.2.3 The Contractor shall perform the Work in accordance with the Contract Documents and any submittals made in accordance with Paragraph 3.12.

3.2.4 The Contractor shall give the Architect timely notice of any additional Drawings, Specifications, or instructions required to define the Work in greater detail, or to permit the proper progress of the Work.

3.2.5 The Contractor shall not proceed with any Work not clearly and consistently defined in detail in the Contract Documents, but shall request additional drawings or instructions from the Architect as provided in Subparagraph 3.2.4. If the Contractor proceeds with such Work without obtaining further Drawings, Specifications or instructions, the Contractor shall correct Work incorrectly done at the Contractor's own expense.

### 3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract. Where the Contract Documents refer to particular construction means, methods, techniques, sequences or procedures or indicate or imply that such are to be used in the Work, such mention is intended only to indicate that the operations of the Contractor shall be such as to produce at least the quality of work implied by the operations described, but the actual determination of whether or not the described operations may be safely and suitably employed on the Work shall be the responsibility of the Contractor, who shall notify the Architect in writing of the actual means, methods, techniques, sequences or procedures which will be employed on the Work, if these differ from those mentioned in the Contract Documents. All loss, damage, liability, or cost of correcting defective work arising from the employment of any construction means, methods, techniques, sequences or procedures shall be borne by the Contractor, notwithstanding that such construction means, methods, techniques, sequences or procedures are referred to, indicated or implied by the Contract Documents, unless the Contractor has given timely notice to the Owner and Architect in writing that such means, methods, techniques, sequences or procedures are not safe or suitable, and the Owner has then instructed the Contractor in writing to proceed at the Owner's risk.

3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons performing portions of the Work under a contract with the Contractor.

3.3.3 The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons other than the Contractor.

3.3.4 The Contractor shall be responsible for inspection of portions of Work already performed under this Contract to determine that such portions are in proper condition to receive subsequent Work.

### 3.4 LABOR AND MATERIALS

3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, 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. The word “provide” shall mean furnish and install completely, including connections, unless otherwise specified.

3.4.2 The Contractor shall enforce strict discipline and good order among the Contractor’s employees and other persons carrying out the Contract. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.

### 3.5 WARRANTY

3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents, that the Work will be free from defects not inherent in the quality required or permitted, and that the Work will conform with the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. The Contractor’s warranty excludes remedy for damage or defect occurring after Substantial Completion and caused by abuse, modifications not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear under normal usage.

3.5.2 The Contractor shall be responsible for determining that all materials furnished for the Work meet all requirements of the Contract Documents. The Architect may require the Contractor to produce reasonable evidence that a material meets such requirements, such as certified reports of past tests by qualified testing laboratories, reports of studies by qualified experts, or other evidence which, in the opinion of the Architect, would lead to a reasonable certainty that any material used, or proposed to be used in the Work, meets the requirements of the Contract Documents. All such data shall be furnished at the Contractor’s expense. This provision shall not require the Contractor to pay for periodic testing of different batches of the same material, unless such testing is specifically required by the Contract Documents to be performed at the Contractor’s expense.

3.5.3 If the Contractor proposes to use a material which, while suitable for the intended use, deviates in any way from the detailed requirements of the Contract Documents, the Contractor shall inform the Architect in writing of the nature of such deviations at the time the material is submitted for approval, and shall request written approval of the deviation from the requirements of the Contract Documents, in accordance with the procedures set forth in Mass. Gen. Laws Chapter 30, Section 39I.

3.5.4 In requesting approval of deviations or substitutions, the Contractor shall provide, upon request, evidence leading to a reasonable certainty that the proposed substitution or

deviation meets or exceeds the requirements set forth in Mass. Gen. Laws Chapter 30, Section 39M(b). If, in the opinion of the Architect, the evidence presented by the Contractor does not provide a sufficient basis for such reasonable certainty, the Architect may reject such substitution or deviation.

3.5.5 The Contract Documents are intended to produce a building of consistent character and quality of design. All components of the building including visible items of mechanical and electrical equipment have been selected to have a coordinated design in relation to the overall appearance of the building. The Architect shall judge the design and appearance of proposed substitutes on the basis of their suitability in relation to the overall design of the Project, as well as for their intrinsic merits. The Architect will not approve as equal to materials specified proposed substitutes which, in the Architect's opinion, would be out of character, obtrusive, or otherwise inconsistent with the character or quality of design of the Project. In order to permit coordinated design of color and finishes the Contractor shall, if required by the Architect, furnish the substituted material in any color, finish, texture, or pattern which would have been available from the manufacturer originally specified, at no additional cost to the Owner.

3.5.6 Any additional cost, or any loss or damage arising from the substitution of any material or any method for those originally specified shall be borne by the Contractor, notwithstanding approval or acceptance of such substitution by the Owner or the Architect, unless such substitution was made at the written request or direction of the Owner or the Architect.

3.5.7 The warranty provided in this paragraph 3.5 shall be in addition to and not in limitation of any other warranty required by the Contract Documents or otherwise prescribed by law.

3.5.8 The Contractor shall procure and deliver to the Architect, no later than the date claimed by the Contractor as the date of Substantial Completion, all special warranties required by the Contract Documents. Delivery by the Contractor shall constitute the Contractor's guarantee to the Owner that the warranties shall be performed in accordance with their terms and conditions.

### 3.6 TAXES

3.6.1 The Contractor shall pay sales, consumer, use and similar taxes for the Work or portions thereof provided by the Contractor which are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

### 3.7 PERMITS, FEES AND NOTICES

3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit and other permits and governmental fees, licenses and inspections necessary for proper execution and completion of the Work which are customarily secured after execution of the Contract and which are legally required when bids are received or

negotiations concluded. Notwithstanding the foregoing, the Town hereby waives the fee for the Town's building permit for the Project.

3.7.2 The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations and lawful orders of public authorities bearing on performance of the Work.

3.7.3 It is not the Contractor's responsibility to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, building codes, and rules and regulations. However, if the Contractor observes that portions of the Contract Documents are at variance therewith, the Contractor shall promptly notify the Architect and Owner in writing, and necessary changes shall be accomplished by appropriate Modification.

3.7.4 If the Contractor performs Work knowing it to be contrary to laws, statutes, ordinances, building codes, and rules and regulations without such notice to the Architect and Owner, the Contractor shall assume full responsibility for such Work and shall bear the attributable costs.

### 3.8 ALLOWANCES

3.8.1-3.8.2 OMITTED.

### 3.9 SUPERINTENDENCE

3.9.1 The Contractor shall employ a competent superintendent, acceptable to the Owner, and necessary assistants who shall be in attendance at the Project site full time during the progress of the Work until the date of Substantial Completion, and for such additional time thereafter as the Architect may determine to be necessary for the expeditious completion of the Work. The superintendent shall be licensed to act as superintendent in accordance with all applicable laws for projects of this type. The Contractor shall remove the superintendent if requested to do so in writing by the Owner, and shall promptly replace him with a competent person reasonably acceptable to the Owner. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

3.9.2 The Contractor shall retain a competent Registered Professional Engineer or Registered Land Surveyor, acceptable to the Architect, who shall establish the exterior lines and required elevations of all buildings and structures to be erected on the site and shall establish sufficient lines and grades for the construction of associated Work such as, but not limited to, roads, utilities and site grading. The Engineer or Land Surveyor shall certify as to the actual location of the constructed facilities in relation to property lines, building lines, easements, and other restrictive boundaries.

3.9.3 The Contractor shall establish the building grades, lines, levels, column, wall and partition lines required by the various Subcontractors in laying out their Work.

3.9.4 The Contractor shall coordinate and supervise the Work performed by Subcontractors to the end that the Work is carried out without conflict between trades and so that

no trade, at any time, causes delay to the general progress of the Work. If such delays occur, the Owner may deduct anticipated liquidated damages from the Progress Payments to the Contractor. The Contractor and all Subcontractors shall at all times afford each trade, any separate contractor, or the Owner, every reasonable opportunity for the installation of Work and the storage of materials.

### 3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

3.10.1 The Contractor shall prepare and submit to the Architect a progress schedule, and shall comply with such schedule, as described in Subparagraphs 8.2.4 through 8.2.8.

### 3.11 DOCUMENTS AND SAMPLES AT THE SITE

3.11.1 The Contractor shall maintain at the site for the Owner one record copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to record changes and selections made during construction, and in addition approved Shop Drawings, Product Data, Samples and similar required submittals. These shall be available to the Architect and shall be delivered to the Architect for submittal to the Owner upon completion of the Work.

### 3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

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

3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the work.

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

3.12.4 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. The purpose of their submittal 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. Review by the Architect is subject to the limitations of this Paragraph 3.12 and Paragraph 4.2.

3.12.5 The Contractor shall review, approve and submit to the Architect Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents with reasonable promptness, in accordance with the Contractor's progress schedule approved by the Architect, and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors. Submittals made by the Contractor which are not required by the Contract Documents may be returned without action.

3.12.6 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 reviewed by the Architect. Such Work shall be in accordance with reviewed and approved submittals.

3.12.7 By approving and submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor thereby represents that the Contractor has determined and verified all dimensions, quantities, field dimensions, relations to existing work, coordination with work to be installed later, coordination with information on previously accepted Shop Drawings, Product Data, Samples, or similar submittals and verification of compliance with all the requirements of the Contract Documents. The accuracy of all such information is the responsibility of the Contractor. In reviewing Shop Drawings, Product Data, Samples, and similar submittals the Architect shall be entitled to rely upon the Contractor's representation that such information is correct and accurate.

3.12.8 The Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect's review of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submittal and the Architect has given 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 Architect's review thereof.

3.12.9 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 Architect on previous submittals. Unless such notice has been given, the Architect's review of a resubmitted Shop Drawing, Product Data, Sample, or similar submittal shall not constitute acceptance of any changes not requested on the prior submittal.

3.12.10 Informational submittals upon which the Architect is not expected to take responsible action may be so identified in the Contract Documents.

3.12.11 When professional certification of performance criteria of materials, systems or equipment is required by the Contract Documents, the Owner shall be entitled to rely upon such certifications, and neither the Owner nor the Architect shall be expected to make any independent examination with respect thereto.

3.12.12 The Architect will not check dimensions or quantities on any Shop Drawings and will not assume any responsibility for any errors in dimensions or quantities on Shop Drawings.

### 3.13 USE OF SITE

3.13.1 The right of possession of the premises and the improvements made thereon by the Contractor shall remain at all times in the Owner. The Contractor's right to entry and use thereof arises solely from the permission granted by the Owner under the Contract Documents. The Contractor shall confine the Contractor's apparatus, the storage of materials and the

operations of the Contractor's workers to limits indicated by law, ordinances, the Contract Documents and permits and/or directions of the Architect, and shall not unreasonably encumber the premises with the Contractor's materials. The Owner shall not be liable to the Contractor, the Subcontractors, their employees or anyone else with respect to the conditions of the premises, except only for a condition caused directly and solely by the negligence of the Owner.

### 3.14 CUTTING AND PATCHING

3.14.1 The Contractor and its Subcontractors shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly, all to be performed in accordance with the requirements of the Contract Documents.

3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractors by cutting, patching or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's consent to cutting or otherwise altering the Work.

### 3.15 CLEANING UP

3.15.1 The Contractor daily shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work the Contractor shall remove from and about the Project waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials. Immediately prior to the Architect's inspection for Substantial Completion, the Contractor shall completely clean the premises. Concrete and ceramic surfaces shall be cleaned and washed. Resilient coverings shall be cleaned, waxed and buffed. Woodwork shall be dusted and cleaned. Sash, fixtures and equipment shall be thoroughly cleaned. Stains, spots, dust, marks and smears shall be removed from all surfaces. Hardware and all metal surfaces shall be cleaned and polished. Glass and plastic surfaces shall be thoroughly cleaned by professional window cleaners. All damaged, broken or scratched glass or plastic shall be replaced by the Contractor at the Contractor's expense.

3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the cost thereof shall be charged to the Contractor.

3.15.3 The provisions of paragraphs 3.15.1 and 3.15.2 shall apply equally to all subcontractors at the project insofar as each subcontractor's work is concerned.

### 3.16 ACCESS TO WORK

3.16.1 The Contractor shall provide the Owner and Architect access to the work in preparation and progress wherever located.



### 3.17 ROYALTIES AND PATENTS

3.17.1 The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Architect.

### 3.18 INDEMNIFICATION

3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses and expense, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including loss of use resulting therefrom, caused in whole or in part by negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Paragraph 3.18.

3.18.2 In claims against any person or entity indemnified under this Paragraph 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under this Paragraph 3.18 shall not be limited by a limitation on the amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' or workmen's compensation acts, disability benefit acts, or other employee benefit acts.

3.18.3 The obligations of the Contractor under this Paragraph 3.18 shall not extend to the liability of the Architect, the Architect's consultants, and agents and employees of any of them arising out of (1) the preparation of maps, Drawings, opinions, reports, surveys, Change Orders, designs or Specifications, or (2) directions or instructions given by the Architect, the Architect's consultants, and agents or employees of any of them.

### 3.19 COVENANT NOT TO SUE

3.19.1 In consideration of the Contractor's undertaking to indemnify and hold harmless the Architect, the Architect's consultants and agents or employees of any of them, in accordance with Paragraph 3.18, agree that the Architect will not bring any civil suit, action or other proceeding in law, equity or arbitration against the Contractor, or the officers, employees, agents and servants of the Contractor, for or on account of any action which the Architect may have arising out of or in any manner connected with the Work, except to enforce the provisions of

Paragraph 3.18 and this Paragraph 3.19; and the Contractor, or any successor, assign or subrogee of the Contractor, agrees not to bring any civil suit, action or other proceeding in law, equity or arbitration against the Architect, or the officers, employees, agents and servants of the Architect, for the enforcement of any action which the Contractor may have arising out of or in any manner connected with the Work.

### 3.20 RECORD KEEPING REQUIREMENTS

3.20.1 The Contractor shall comply with all applicable requirements of Mass. Gen. Laws Chapter 30, Section 39R.

## ARTICLE 4

### ADMINISTRATION OF THE CONTRACT

#### 4.1 ARCHITECT

4.1.1 The Architect is the person lawfully licensed to practice architecture or an entity lawfully practicing architecture identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term “Architect” means the Architect or the Architect’s authorized representative.

4.1.2 Duties, responsibilities and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner, Contractor and Architect. Consent shall not be unreasonably withheld. To the extent inconsistent herewith, the rights and responsibilities of the Architect shall be governed by the Owner/Architect Agreement for the Project.

4.1.3 In case of termination of employment of the Architect, the Owner shall appoint an architect whose status under the Contract Documents shall be that of the former architect.

#### 4.2 ARCHITECT’S ADMINISTRATION OF THE CONTRACT

4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents. The Architect will advise and consult with the Owner. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents, unless otherwise modified by written instrument in accordance with other provisions of the Contract.

4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction to become generally familiar with the progress and quality of the completed Work and to determine in general if the Work is being performed in a manner indicating that the Work, when completed, will be in accordance with the Contract Documents. The Architect will visit the site at least once per week during periods of active construction. The Architect will not be required to make exhaustive or continuous on-site inspections to check quality or quantity of the Work. On the basis of on-site observations as an architect, the Architect will keep the Owner informed

of progress of the Work, and will endeavor to guard the Owner against defects and deficiencies in the Work.

4.2.3 The Architect will not have control over or charge of and will not be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's responsibility as provided in Paragraph 3.3. The Architect will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. The Architect will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or of any other persons performing portions of the Work.

4.2.4 Communications Facilitating Contract Administration. Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate through the Project Manager. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers generally shall be through the Contractor, although the Owner and Project Manager may have direct communications with subcontractors and suppliers intended to facilitate or expedite construction. Communications by and with separate contractors shall be through the Owner.

As to any written communications between two of the three of the Owner, Architect, and Contractor, a concurrent copy shall be sent to the third.

4.2.5 The Architect will have authority to reject Work which does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable for implementation of the intent of the Contract Documents, the Architect will have authority to require additional inspection or testing of the Work in accordance with Subparagraphs 13.5.2 and 13.5.3, whether or not such Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons performing portions of the Work.

4.2.6 In accordance with generally accepted standards of professional practice the Architect will review, approve, and take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples, for the purpose of checking for conformance with the Contract Documents. The Architect's action will be taken with reasonable promptness, while allowing sufficient time in the Architect's professional judgment to permit adequate review, and in any event shall take no longer than the time permitted by law. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of obligations set forth in Paragraphs 3.3, 3.5 and 3.12. The Architect's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Architect, of any construction means, methods,

techniques, sequences or procedures. The Architect's action with respect to any specific item shall not indicate approval of an assembly of which the item is a component.

4.2.7 The Architect will prepare Change Orders and Construction Change Directives, and may authorize minor changes in the Work as provided in Paragraph 7.4.

4.2.8 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion, will receive and forward to the Owner for the Owner's review and records written warranties and related documents required by the Contract and assembled by the Contractor, and will issue a final Certificate for Payment upon compliance with the requirements of the Contract Documents.

4.2.9 If the Owner and Architect agree in writing, the Architect will provide one or more project representatives to assist in carrying out the Architect's responsibilities at the site. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents. If no such exhibit has been so incorporated, the duties, responsibilities, and limitations of authority of such project representatives shall be as set forth in the edition of AIA Document B352 current as of the date of the Agreement.

4.2.10 The Architect will interpret and decide matters concerning performance under and requirements of the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made with reasonable promptness and within any time limits agreed upon. The Architect may, as the Architect judges desirable, issue additional drawings or instructions indicating in greater detail the construction or design of the various parts of the Work; such drawings or instructions may be effected by field order or other notice to the Contractor, and provided such drawings or instructions are reasonably consistent with the previously existing Contract Documents, the Work shall be executed in accordance with such additional drawings or instructions without additional cost or extension of the Contract Time. If the Contractor claims additional cost or time on account of such additional drawings or instructions, the Contractor shall give the notice provided in Subparagraph 4.3.7.

4.2.11 Interpretations and decisions of the Architect will be consistent with the intent of and reasonably inferable from the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by the Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions so rendered in good faith.

4.2.12 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

### 4.3 CLAIMS AND DISPUTES

4.3.1 Definition. A Claim is a demand or assertion by one of the parties seeking, as a matter of right, adjustment or interpretation of Contract terms, payment of money, extension of time or other relief with respect to the terms of the Contract. The term "Claim" includes Change

Order requests by the Contractor as well as other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. Claims must be made by written notice. The responsibility to substantiate Claims shall rest with the party making the Claim.

4.3.2 Decision of Architect. Claims arising prior to final payment or the earlier termination of the Contract shall be referred initially to the Architect for action as provided in Paragraph 4.4. Action by the Architect, as provided in Paragraph 4.4, shall be required as a condition precedent to arbitration of a Claim between the Contractor and Owner as to all such matters arising prior to the date final payment is due. Action by the Architect in response to a Claim shall not be a condition precedent to arbitration in the event (1) the position of Architect is vacant; (2) the Architect has failed to take action as required under Subparagraph 4.4.1 within 15 days after the Claim is made; (3) the Architect has failed to take action required under Subparagraph 4.4.4 within 30 days after the Claim is made, unless the Architect has notified the parties in writing of the reasons why action could not be taken within 30 days, and of the date by which action will be taken; or (4) the Claim relates to a mechanic's lien.

4.3.3 Time Limits on Claim. Claims by either party must be made within 35 days after occurrence of the event giving rise to such Claim or within 35 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later. Claims must be made by written notice. Any change or addition to a previously made Claim shall be made by timely written notice in accordance with this Subparagraph 4.3.3.

4.3.4 Continuing Contract Performance. Pending final resolution of a Claim including arbitration, unless otherwise agreed in writing the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

4.3.5 Waiver of Claims: Final Payment. The making of final payment shall constitute a waiver of Claims by the Owner except those arising from:

- .1 liens, Claims, security interests or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents; or
- .3 terms of special warranties required by the Contract Documents.

Any Claim which has not been waived in accordance with this Subparagraph shall be deemed to have accrued upon discovery by the Owner of the condition or breach upon which such Claim is based, for the purpose of any applicable statute of limitation.

4.3.6 Claims for Differing Subsurface or Latent Physical Conditions. If, during the progress of the Work, the Contractor or the Owner 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 Owner may request

an equitable adjustment in the Contract Sum 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 Owner 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 Owner shall make an equitable adjustment in the Contract Sum and the Contract shall be modified in writing accordingly.

4.3.6.1 Should conditions encountered below the surface of the ground require that footings, foundations or other parts of the building or other structure be raised, lowered or changed, or if additional depth of excavation below the levels shown on the Drawings is required in order to provide proper bearing for the building or other structure or for any permanent utilities on the site or for permanent grading or other permanent site work, any change in the amount of excavation, dewatering, sheeting, protection, rock excavation, backfill, concrete or other structural work, or any other work permanently incorporated in the building shall be considered a change in the Work, and the Contract Sum shall be adjusted as provided in this Article, provided that the Work has been ordered in writing as provided in 7.1.1.

4.3.7 Claims for Additional Cost or Time. If the Contractor claims that any acts or omissions of the Owner or the Architect, including any instructions or orders, whether oral, written, by Drawings, or otherwise, involve extra cost or time, and the Contractor has not received a written acknowledgment by the Owner or Architect that extra payment will be made or time extended on account thereof, the Contractor shall promptly so notify the Architect in writing of such Claim and shall not proceed with the Work relating to such Claim until the Contractor has received a further written order to proceed except, as provided in Paragraph 10.3, in the case of an emergency affecting life or property. No Claim by the Contractor on account of such acts, omissions, instructions or orders shall be valid unless the Contractor has so notified the Architect before proceeding, and has received the further written order to proceed.

4.3.7.1 OMITTED

4.3.7.2 The Contractor shall have the burden of demonstrating the effect of the claimed act or omission on the Contract Sum or Contract Time, and shall furnish the Architect with such documentation relating thereto as the Architect may reasonably require. In the case of a continuing act or omission only one Claim is necessary.

4.3.7.3 Adverse weather conditions shall not be the basis for a Claim for additional time or cost.

4.3.8 Injury or Damage to Person or Property. If either party to the Contract suffers injury or damage to person or property because of an act or omission of the other party, of any of

the other party's employees or agents, or of others for whose acts such party is legally liable, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after first observance. The notice shall provide sufficient detail to enable the other party to investigate the matter. If a Claim for additional cost or time related to this Claim is to be asserted, it shall be filed as provided in Subparagraph 4.3.7.

#### 4.4 REVIEW OF CLAIMS BY ARCHITECT

4.4.1 The Architect shall take one or more of the following actions within ten days of receipt of a Claim: (1) defer any action with respect to all or any part of a Claim and request additional information from either party; (2) decline to render a decision for any reason which he deems appropriate (including but not limited to the fact that the Claim involves allegations of fault on the part of the Architect); (3) render a decision on all or a part of the Claim, or (4) submit a schedule to the parties indicating when the Architect expects to take action. The Architect shall notify the parties in writing of any action taken with respect to such Claim. If the Architect renders a decision or declines to render a decision, either party may proceed in accordance with Paragraph 4.5. If the Architect decides that the Work relating to such Claim should proceed regardless of his disposition of such Claim, the Architect shall issue to the Contractor a written order to proceed. The Contractor shall proceed as instructed, and all rights of both parties with respect to such Claim shall be deemed to have been reserved.

4.4.2 If a Claim is resolved by agreement of the parties, the Architect will prepare or obtain appropriate documentation indicating the parties' agreement to the resolution. In the absence thereof the Claim shall be treated as not resolved.

4.4.3 If a Claim has not been resolved, the party making the Claim shall, within ten days after the Architect's request, take one or more of the following actions: (1) submit additional supporting data requested by the Architect; (2) modify the initial Claim; (3) respond to the Architect's action under paragraph 4.4.1; or (4) notify the Architect that the initial Claim stands. Upon receipt of the response or supporting data, the Architect will either reject or approve the claim in whole or in part.

#### 4.5 ARBITRATION

4.5.1 Controversies and Claims Subject to Arbitration. Any Claim arising out of or related to the Contract, or the breach thereof, except claims relating to aesthetic effect, shall be settled by arbitration, subject to the foregoing provisions of paragraph 4.4 and the provisions of Subparagraph 4.5.7. Arbitration will be conducted in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association and judgment upon the award rendered by the Arbitrator or Arbitrators may be entered in any Court having jurisdiction thereof. In any such arbitration in which the amount stated in the demand is \$100,000 or less, a single arbitrator shall be appointed in accordance with the procedures set forth in the American Arbitration Association Construction Industry Arbitration Rules. In any such arbitration in which the amount stated in the demand is in excess of \$100,000, a panel of three arbitrators shall be appointed in accordance with the procedures set forth in the American Arbitration Association Construction Industry Arbitration Rules.

4.5.2 Rules For Arbitration. The parties may agree to any arbitration forum. If unable to agree, by default the forum shall be the American Arbitration Association. If the neutral arbitrator(s) is/are appointed by the American Arbitration Association, the said Association shall administer the arbitration and its Construction Industry Arbitration Rules shall govern all aspects of the proceeding including the enforcement of any award. If the neutral arbitrator(s) is/are not appointed by the American Arbitration Association, then the arbitrator(s) shall act as the administrator of the arbitration but the Construction Industry Arbitration Rules of the Association shall nonetheless govern all aspects of the proceeding, including the enforcement of any award. The arbitration panel shall have all of the powers and duties conferred on the Association pursuant to said rules.

In addition, the following rules shall govern the selection of arbitrators and the proceedings:

4.5.2.1 Neither party may appoint as arbitrator an employee or an owner of that party, nor the parent, spouse or child of an employee or owner of that party.

4.5.2.2 After the neutral arbitrator has been appointed, neither party may engage in ex parte communication with the arbitrator appointed by that party.

4.5.3 Contract Performance During Arbitration. During arbitration proceedings, the Owner and Contractor shall comply with Subparagraph 4.3.4.

4.5.4 When a written decision of the Architect states that the decision is final, any demand for arbitration of the matter covered by such decision must be made within two months after substantial completion of the project, as determined by the Architect in accordance with paragraph 9.8.2 hereof. The failure to demand arbitration within said two month period will result in the Architect's decision becoming final and binding upon the Owner and the Contractor.

4.5.4.1 A demand for arbitration shall be made within the time limits specified in Subparagraph 4.5.4, and in no event shall be made after the date when the institution of legal or equitable proceedings based on such Claim would be barred by the applicable statute of limitations.

4.5.5 Claims and Timely Assertion of Claims. A party who files a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded. When a party fails to include a Claim through oversight, inadvertence or excusable neglect, or when a Claim has matured or been acquired subsequently, the arbitrator or arbitrators may permit amendment.

4.5.6 Judgment on Final Award. The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.



4.5.7 Notwithstanding any provision contained in this Paragraph 4.5 or elsewhere in the Contract Documents, the Owner reserves the following rights in connection with Claims and disputes between the Owner and the Contractor:

- .1 the right to institute legal action against the Contractor in any court of competent jurisdiction in lieu of demanding arbitration pursuant to this Paragraph 4.5, in which case the dispute or disputes which are the subject of such action shall be decided by such court, and not by arbitration;
- .2 the right to obtain from any court of competent jurisdiction a stay of any arbitration instituted by the Contractor, provided that the application for such stay is made before the appointment of the neutral arbitrator in such arbitration, in which case the dispute or disputes which are the subject of such arbitration shall be decided by such court, and not by arbitration;
- .3 the right to require the Contractor to join as a party in any arbitration between the Owner and the Architect relating to the Project, in which case the Contractor agrees to be bound by the decision of the arbitrator or arbitrators in such arbitration.

In case the Owner elects to proceed in accordance with 4.5.7.1 or 4.5.7.2 above, the word “litigation” shall be deemed to replace the word “arbitration” wherever the latter word appears in the Contract Documents.

## ARTICLE 5

### SUBCONTRACTORS

#### 5.1 DEFINITIONS

5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term “Subcontractor” is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term “Subcontractor” does not include a separate contractor or Subcontractors of a separate contractor.

5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term “Sub-subcontractor” is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

#### 5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

5.2.1 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the

Owner through the Architect the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Architect will promptly reply to the Contractor in writing stating whether or not the Owner or the Architect, after due investigation, has reasonable objection to any such proposed person or entity. Failure of the Owner or Architect to reply promptly shall constitute notice of no reasonable objection.

5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection, unless otherwise required by law to do so.

5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. The Contract Sum shall be increased or decreased by the difference in cost occasioned by such change and an appropriate Change Order shall be issued. However, no increase in the Contract Sum shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

5.2.4 The Contractor shall not change a Subcontractor, person or entity previously selected if the Owner or Architect makes reasonable objection to such change.

5.2.5 The form of each filed Subcontract shall be submitted to the Owner for its acceptance, which shall not be unreasonably withheld or delayed. The form of subcontract shall be that set forth in Mass. Gen. Laws Chapter 149, Section 44F. Each Subcontract shall expressly provide for the contingent assignment referred to in Paragraph 5.4.

### 5.3 SUBCONTRACTUAL RELATIONS

5.3.1 By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities which the Contractor, by these Documents, assumes toward the Owner and Architect, including without limitation the obligations set forth in Paragraph 3.18. Each Subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that Subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the Subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the Subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed Subcontract agreement which may be at

variance with the Contract Documents. Subcontractors shall similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

#### 5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

5.4.1 Each Subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner provided that:

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Paragraph 14.2 and only for those Subcontract agreements which the Owner accepts by notifying the Subcontractor in writing; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

### ARTICLE6

#### CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTS

#### 6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these, including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided elsewhere in the Contract Documents.

6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each separate contractor with the work of the Contractor, who shall cooperate with them. The Contractor shall participate with other separate contractors and the Owner in reviewing their progress schedules when directed to do so. The Contractor shall make any revisions to the progress schedules and Contract Sum deemed necessary after a joint review and mutual agreement. The progress schedules shall then constitute the schedules to be used by the Contractor, separate contractors and the Owner until subsequently revised.

## 6.2 MUTUAL RESPONSIBILITY

6.2.1 The Contractor shall afford the Owner and separate contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a separate contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Architect apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgement that the Owner's or separate contractors' completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonable discoverable.

6.2.3 Costs caused by delays or by improperly timed activities or defective construction shall be borne by the party responsible therefor.

6.2.4 The Contractor shall promptly remedy damage wrongfully caused by the Contractor to completed or partially completed construction or to property of the Owner or separate contractors as provided in Subparagraph 10.2.5. If such separate contractor sues or initiates an arbitration proceeding against the Owner on account of any damage alleged to have been caused by the Contractor, the Owner shall notify the Contractor, who shall defend such proceedings at the Contractor's expense, and if any judgment or award against the Owner arises therefrom the Contractor shall pay or satisfy it and shall reimburse the Owner for all attorneys' fees and court or arbitration costs which the Owner has incurred.

6.2.5 Claims and other disputes and matters in question between the Contractor and a separate contractor shall be subject to the provisions of Paragraph 4.3 provided the separate contractor has reciprocal obligations.

6.2.6 The Owner and each separate contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Paragraph 3.14.

## 6.3 OWNER'S RIGHT TO CLEAN UP

6.3.1 If a dispute arises among the Contractor, separate contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish as described in Paragraph 3.15, the Owner may clean up and allocate the cost among those responsible as the Architect determines to be just.

## ARTICLE 7

### CHANGES IN THE WORK

#### 7.1 CHANGES

7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor and Architect; a Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Architect alone.

7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive or order for a minor change in the Work.

7.1.4 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are so changed in a proposed Change Order or Construction Change Directive that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

#### 7.2 CHANGE ORDERS

7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor and Architect, stating their agreement upon all of the following:

- .1 a change in the Work;
- .2 the amount of the adjustment in the Contract Sum, if any; and
- .3 the extent of the adjustment in the Contract Time, if any.

#### 7.3 CONSTRUCTION CHANGE DIRECTIVES

7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work and stating a proposed basis for adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

7.3.3 Upon request of the Owner or the Architect, the Contractor shall without cost to the Owner submit to the Architect, in such form as the Architect may require, an accurate written estimate of the cost of any proposed extra Work or change contemplated by a Construction Change Directive. The estimate shall indicate the quantity and unit cost of each item of materials, and the number of hours of work and hourly rate for each class of labor, as well as the description and amounts of all other costs chargeable under the terms of this Article. Unit labor costs for the installation of each item of materials shall be shown if required by the Architect. The Contractor shall promptly revise and resubmit such estimate if the Architect determines that it is not in compliance with the requirements of this Article, or that it contains errors of fact or mathematical errors. If required by the Architect, in order to establish the exact cost of new Work added or of previously required Work omitted, the Contractor shall obtain and furnish to the Architect bona fide proposals from recognized suppliers for furnishing any material included in such Work. Such estimates shall be furnished promptly so as to occasion no delay in the Work, and shall be furnished at the Contractor's expense. The Contractor shall state in the estimate any extension of time required for the completion of the Work if the change or extra work is ordered.

7.3.3.1 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods, as selected by the Owner:

- (a) By unit prices stated in the Contract Documents or otherwise mutually agreed upon.
- (b) By Cost and Percentages (as defined below) estimated by the Contractor as provided in Subparagraph 7.3.3 and accepted by the Owner; the Contractor's estimate shall become a fixed price which shall not be changed by any variation in the actual cost of executing the Work covered by the change.
- (c) By actual Cost determined after the Work covered by the change is completed, plus Percentage.
- (d) By use of the dispute resolution procedures set forth in Paragraph 4.3.

As used in this Paragraph 7.3, "Cost" shall mean the estimated or actual net increase or decrease in cost to the Contractor, Subcontractor, or Sub-subcontractor for performing the Work covered by the change, including actual payments for materials, equipment, rentals, expendable items, wages and associated benefits to workmen and to supervisors employed full time at the site, insurance, bonds and other provable direct costs, but not including any administrative, accounting or expediting costs, or other indirect or overhead costs, or any wages or benefits of supervisory personnel not assigned full time to the site, or any amount for profit or fee to the Contractor, Subcontractor or Sub-subcontractor.

"Percentage" shall mean an allowance to be added to or subtracted from the Cost in lieu of overhead and profit and of any other expense which is not included in the Cost of the Work

covered by the change, as defined above. Percentage for a Sub-subcontractor shall be 10% of any net increase or decrease of Cost of any Work performed by the Sub-subcontractor's own forces plus 5% of any aggregate net increase in Cost of any Work performed for the Sub-subcontractor by other contractors. Percentage for a Subcontractor shall be such percentage allowances for overhead and profit as are set forth in the Subcontract between such Subcontractor and the Contractor. Percentage for the Contractor shall be 9 1/2% of any net increase or decrease of Cost of any Work performed by the Contractor's own forces plus 4 1/2% of any net increase or decrease in the Cost for all other Work covered by the change.

When in the reasonable judgment of the Architect a series of Construction Change Directives or Change Orders effect a single change, Percentage shall be calculated on the cumulative net increase or decrease in Cost, if any.

7.3.3.2 If the Owner elects to determine the cost of the Work as provided in method (a) of sub-Subparagraph 7.3.3.1, the unit prices shall be subject to Subparagraph 7.1.4. Notwithstanding the inclusion of unit prices in the Contract Documents, it shall be the Owner's option to require the Cost of any given change to be determined by one of the other methods stated in 7.3.3.1. If the Owner elects to determine the Cost of the change by unit prices and the nature of the work is such that its extent cannot readily be measured after the completion of such work or any subsequent work, the Contractor shall keep daily records, available at all times to the Architect for inspection, of the actual quantities of such work put in place, and delivery receipts or other adequate evidence, acceptable to the Architect, indicating the quantities of materials delivered to the site for use in such unit price work, and distinguishing such other similar material delivered for use in work included in the base Contract Sum. If so required by the Architect, materials for use in unit price work shall be stored apart from all other materials on the Project.

7.3.3.3 If the Owner elects to determine the cost of the Work as provided in methods (c) or (d) of sub-Subparagraph 7.3.3.1 or if the method of determining the cost has not been established before the Work is begun, the Contractor shall keep detailed daily records of labor and materials costs applicable to the Work.

7.3.4 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

7.3.5 A Construction Change Directive signed by the Contractor indicates the agreement of the Contractor therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

7.3.6 If the Owner and Contractor do not agree with the adjustment in Contract Sum or Contract Time or the method for determining the adjustment, the dispute shall be governed by the procedures set forth in Paragraph 4.3.

#### 7.4 MINOR CHANGES IN THE WORK

7.4.1 The Architect will have authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes shall be effected by written order and shall be binding on the Owner and Contractor. The Contractor shall carry out such written orders promptly.

### ARTICLE 8

#### TIME

##### 8.1 DEFINITIONS

8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

8.1.2 The date of commencement of the Work is the date established in the Agreement. The date shall not be postponed by the failure to act of the Contractor or of persons or entities for whom the Contractor is responsible.

8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Paragraph 9.8.

8.1.4 The term “day” as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

##### 8.2 PROGRESS AND COMPLETION

8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by the Contractor. The date of commencement of the Work shall not be changed by the effective date of such insurance. Unless the date of commencement is established by a notice to proceed given by the Owner, the Contractor shall notify the Owner in writing not less than five days or other agreed period before commencing the Work to permit the timely filing of mortgages, mechanic’s liens and other security interests.

8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.



8.2.4 Within two weeks after award of the Contract, the Contractor shall submit to the Architect a Progress Schedule showing for each class of work the percentage completion to be obtained and the total dollar value of work to be completed as of the first of each month until Substantial Completion.

8.2.5 The Progress Schedule shall be based on an orderly progression of the Work, allowing adequate time for each operation (including adequate time for submission and review of submittals), and leading to a reasonable certainty of Substantial Completion by the date established in the Agreement. The Progress Schedule will be reviewed by the Architect for compliance with the requirements of this Article and will be accepted by the Architect or returned to the Contractor for revision and resubmittal. Unless specifically required by law, no payment under this Contract shall be due until the Progress Schedule has been approved by the Architect.

8.2.6 If in any application for payment as provided for in Paragraph 9.2, the total value of the completed Work in place, as certified by the Architect, is less than 90% of the total value of the Work in place estimated in the Progress Schedule, the Owner may, at the Owner's option, require the Contractor to accelerate the progress of the Work without cost to the Owner by increasing the work force or hours of work, or by other reasonable means approved by the Architect.

8.2.7 If each of three successive applications for payment indicate that the actual Work completed, as certified by the Architect, is less than 90% of the values estimated in the Progress Schedule to be completed by the respective dates, the Owner may at the Owner's option, treat the Contractor's delinquency as a default justifying the action permitted under Paragraph 14.2.

8.2.8 If the Architect has determined that the Contractor should be permitted to extend the time for completion as provided in Paragraph 8.3, the calendar dates in the Progress Schedule shall be adjusted accordingly to retain their same relationship to the adjusted date of Substantial Completion, and the dollar value of Work to be completed as of the first of each month shall be adjusted pro rata.

8.2.9 If the Contractor fails to submit any application for payment in any month, the Architect shall, for the purpose of this evaluation of progress, certify separately to the actual value of the Work in place completed as of the first of the month and to the best of the Architect's knowledge.

8.2.10 Nothing herein shall limit the Owner's right to liquidated or other damages for delays by the Contractor or to any other remedy which the Owner may possess under other provisions of the Contract Documents or by law.

8.2.11 The Progress Schedule required hereunder shall be a CPM Schedule in accordance with the Project Specifications and shall be updated in accordance therewith.

### 8.3 DELAYS AND EXTENSION OF TIME

8.3.1 If the Contractor is delayed at any time in progress of the Work by an act or neglect of the Owner or Architect, of an employee of either, or of a separate contractor employed by the Owner, or by changes ordered in the Work, or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes (except weather) beyond the Contractor's control, or by delay authorized by the Owner, or by other causes which the Architect determines may justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Paragraph 4.3.

8.3.3 The Contractor hereby agrees that the Contractor shall have no claim for damages of any kind against the Owner or the Architect on account of any delay in the commencement of the Work and/or any delay or suspension of any portion of the Work, whether such delay is caused by the Owner, the Architect, or otherwise, except as specifically provided in Subparagraphs 2.3.2 and 2.3.3. The Contractor acknowledges that, except as provided therein, the Contractor's sole remedy for any such delay and/or suspension will be an extension of time as provided in this Article.

8.3.4 No claim for delay shall be allowed on account of failure of the Architect to furnish Drawings, Specifications or instructions or to return Shop Drawings or Samples until the expiration of the applicable time period referred to in Mass. Gen. Laws Chapter 30, Section 39P, and not then unless such claim be reasonable.

8.3.5 No extension of time shall be granted because of seasonal or abnormal variations in temperature, humidity or precipitation, which conditions shall be wholly at the risk of the Contractor, whether occurring within the time originally scheduled for completion or within the period of any extension granted. There shall be no increase in the Contract Sum on account of any additional costs of operations or conditions resulting therefrom.

## ARTICLE 9

### PAYMENTS AND COMPLETION

#### 9.1 CONTRACT SUM

9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the maximum amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents, or in equity, should the Contractor assert a quantum meruit claim for the fair value of Contractor's Work, regardless of whether the Contractor is terminated hereunder.

## 9.2 APPLICATIONS FOR PAYMENT

9.2.1 Within fifteen days after receipt from the Contractor, at the place designated by the Owner if such a place is so designated, of a periodic estimate requesting payment of the amount due for the preceding month, the Owner 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 Owner, less (1) retention based on the Owner's 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 Subparagraph 9.6.2, and less (3) a retention not exceeding five percent of the approved amount of the periodic payment.

9.2.2 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 Owner, less than one percent of the original Contract Sum, or (b) the Contractor substantially completes the work and the Owner takes possession for occupancy, whichever occurs first, the Owner 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 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 Subparagraph 9.6.2, 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 Subparagraph 9.6.2. If the Owner fails to make payment as herein provided, there shall be added to each such payment daily interest at the rediscount rate then 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 after receipt of such a periodic estimate from the Contractor, at the place designated by the Owner 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.

9.2.3 The Owner 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 changes 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 Owner 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, Sunday, or holiday shall be the first working day thereafter.

9.2.4 All periodic estimates shall be submitted to the Owner, or to the Owner's representative, and the date of receipt by the Owner or its representative 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 the Specifications and a column listing the amount paid to each Subcontractor and Sub-subcontractor as of the date the periodic estimate is filed. The person making payment for the Owner shall add the daily interest provided for herein to each payment for each day beyond the due date based on the date of receipt marked on the estimate.

9.2.5 The format and number of copies of applications for payment shall be as directed by the Architect. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to payment as the Owner or Architect may require, such as copies of requisitions from Subcontractors and material suppliers, and reflecting retainage if provided for elsewhere in the Contract Documents.

9.2.5.1 Such applications may include requests for payment on account of changes in the Work which have been properly authorized by Construction Change Directives but not yet included in Change Orders when such Construction Change Directives have set forth an adjustment to the Contract Sum.

9.2.5.2 Such applications may not include requests for payment of amounts the Contractor does not intend to pay to a Subcontractor or material supplier because of a dispute or other reason.

9.2.6 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.

9.3 The Contractor warrants that title to all Work covered by an application for payment will pass to the Owner either by incorporation in the construction or upon receipt of payment by the Contractor, whichever occurs first, free and clear of all liens, claims, security interests or encumbrances, hereinafter referred to in this Article 9 as "liens."

#### 9.4 CERTIFICATES FOR PAYMENT

9.4.1 The Architect will, within seven days after receipt of the Contractor's application for payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in whole or in part as provided in Subparagraph 9.5.1.

9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's observations at the site and the date comprising the application for payment, that the Work has progressed to the point indicated and that, to the best of the Architect's knowledge, information and belief, the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to minor deviations from the Contract Documents correctable prior to completion, and to specific qualifications expressed by the Architect. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed construction means, methods, techniques, sequences or procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

## 9.5 DECISIONS TO WITHHOLD CERTIFICATION

9.5.1 The Architect may decide not to certify payment and may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Subparagraph 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Subparagraph 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also decide not to certify payment or, because of subsequently discovered evidence or subsequent observations, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss because of:

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims;
- .3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or another contractor;

- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the retainage currently held by the Owner would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 persistent failure to carry out the Work in accordance with the Contract Documents.

9.5.2 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

## 9.6 PROGRESS PAYMENTS

9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

### 9.6.2 PaymentstoSubcontractors

9.6.2.1 Forthwith after the Contractor receives payment on account of a periodic estimate, the 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 Contractor.

9.6.2.2 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 Owner as the estimated cost of completing the incomplete and unsatisfactory items of work, shall be due the Subcontractor; and the Owner shall pay that amount to the Contractor. The Contractor shall forthwith pay to the Subcontractor the full amount received from the Owner less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the Subcontractor by the Contractor.

9.6.2.3 Each payment made by the Owner to the Contractor pursuant to Subparagraphs 9.6.2.1 and 9.6.2.2 of this paragraph for the labor performed and the materials furnished by a Subcontractor shall be made to the Contractor for the account of that Subcontractor; and the Owner shall take reasonable steps to compel the Contractor to make each such payment to each such Subcontractor. If the Owner has received a demand for direct payment from a Subcontractor for any amount which has already been included in a payment to the Contractor or which is to be included in a payment to the Contractor for payment to the Subcontractor as provided in Subparagraphs 9.6.2.1 and 9.6.2.2, the Owner shall act upon the demand as provided in this section.

9.6.2.4 If, within seventy days after the Subcontractor has substantially completed the Subcontract work, the Subcontractor has not received from the Contractor the balance due under the Subcontract including any amount due for extra labor and materials furnished to the

Contractor, less any amount retained by the Owner as the estimated cost of completing the incomplete and unsatisfactory items of Work, the Subcontractor may demand direct payment of that balance from the Owner. The demand shall be by a sworn statement delivered to or sent by certified mail to the Owner, and a copy shall be delivered to or sent by certified mail to the Contractor at the same time. The demand 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 Owner and delivered or so mailed a copy to the Contractor, the Contractor may reply to the demand. The reply shall be by a sworn statement delivered to or sent by certified mail to the Owner 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 Contractor and of the amount due for each claim made by the Contractor against the Subcontractor.

9.6.2.5 Within fifteen days after receipt of the demand by the Owner, but in no event prior to the seventieth day after substantial completion of the Subcontract work, the Owner 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 Contractor, less any amount (i) retained by the Owner 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 Contractor in the sworn reply; provided, that the Owner 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 9.6.2.4. The Owner shall make further direct payments to the Subcontractor forthwith after the removal of the basis for deductions from direct payments made as provided in parts (i) and (ii) of this Subparagraph.

9.6.2.6 The Owner shall forthwith deposit the amount deducted from a direct payment as provided in part (iii) of Subparagraph 9.6.2.5 in an interest-bearing joint account in the names of the Contractor and the Subcontractor in a bank in Massachusetts selected by the Owner or agreed upon by the Contractor and the Subcontractor and shall notify the 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 Contractor and the Subcontractor or as determined by decree of a court of competent jurisdiction.

9.6.2.7 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 9.6.2.6 shall be made out of amounts payable to the Contractor at the time of receipt of demand for direct payment from a Subcontractor and out of amounts which later become payable to the Contractor and in the order of receipt of such demands from Subcontractors. All direct payments shall discharge the obligation of the Owner to the Contractor to the extent of such payment.

9.6.2.8 The Owner shall deduct from payments to the Contractor amounts which, together with the deposits in interest-bearing accounts pursuant to Subparagraph 9.6.2.6, 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 Contractor.

9.6.2.9 If the Subcontractor does not receive payments as provided in Subparagraph 9.6.2.1 or if the 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 9.6.2.1, the Subcontractor may demand direct payment by following the procedure in Subparagraph 9.6.2.4 and the 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 Contractor. Thereafter the Owner shall proceed as provided in Subparagraphs 9.6.2.5, 9.6.2.6, 9.6.2.7 and 9.6.2.8.

9.6.3 Neither the Owner nor Architect shall have an obligation to pay or to see to the payment of money to a Subcontractor, Sub-subcontractor or material supplier, except as provided in Subparagraph 9.6.2, or otherwise as provided by law.

9.6.4 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

9.6.5 “Subcontractor” as used in Sub-subparagraphs 9.6.2.1 through 9.6.2.9 shall mean a person who files a sub-bid and receives 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 Contractor. “Subcontractor” as used in other provisions of the Contract Documents shall, except as otherwise expressly provided, have the meaning set forth in Subparagraph 5.1.1.

## 9.7 FAILURE OF PAYMENT

9.7.1 If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor’s application for payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents the amount certified by the Architect, then the Contractor may, upon seven additional days’ written notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended as provided in Article 7.

## 9.8 SUBSTANTIAL COMPLETION

9.8.1 Substantial Completion is the stage in the progress of the Work when the Work is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use and only minor items which can be corrected or completed



without any material interference with the Owner's use of the Work remain to be corrected or completed.

9.8.2 When the Contractor considers that the Work, or a portion thereof designated in the Contract Documents for separate completion, is substantially complete and the premises comply with Subparagraph 3.15.1, the Contractor shall submit to the Architect (1) a list of items to be completed or corrected, (2) all special warranties required by the Contract Documents, endorsed by the Contractor and in a form reasonably acceptable to the Architect and (3) the permits and certificates referred to in Subparagraph 13.5.4. The failure to include any items on the list mentioned in the preceding sentence does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. When the Architect on the basis of an inspection determines that the Work or designated portion thereof is substantially complete and the other conditions have been met, the Architect will then prepare a Certificate of Substantial Completion which shall establish the Date of Substantial Completion, shall state the responsibilities of the Owner and the Contractor for security, maintenance, heat, utilities, damage to the Work, and insurance, and shall fix the time within which the Contractor shall complete the items listed therein. Warranties required by the Contract Documents shall commence on the date of Substantial Completion. The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of the responsibilities assigned to them in such Certificate.

9.8.3 Upon Substantial Completion of the Work or designated portion thereof and upon application by the Contractor and certification by the Architect, the Owner shall make payment, reflecting adjustment in retainage, if any, for such Work or portion thereof as provided in the Contract Documents.

## 9.9 PARTIAL OCCUPANCY OR USE

9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage. Such partial occupancy or use may begin whether or not the portion is substantially complete, provided that the respective responsibilities of the Owner and Contractor with respect to payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work, insurance, correction of the Work, and warranties shall be established by agreement of the Owner and Contractor or, absent such agreement, shall be determined by the Architect subject to the right of either party to contest such determination as provided in Paragraph 4.5.

9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

## 9.10 FINAL COMPLETION AND FINAL PAYMENT

9.10.1 Upon receipt of written notice that the Work is ready for final inspection and acceptance and upon receipt of a final application for payment, the Architect will promptly make such inspection and, when the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's observations and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Subparagraph 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of claims. The making of final payment shall constitute a waiver of claims by the Owner to the extent provided in Subparagraph 4.3.5.

9.10.4 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing

and identified by that payee as unsettled at the time of final application for payment. Such waivers shall be in addition to the waiver described in Subparagraph 4.3.5.

## ARTICLE 10

### PROTECTION OF PERSONS AND PROPERTY

#### 10.1 SAFETY PRECAUTIONS AND PROGRAMS

10.1.1 The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract.

#### 10.2 SAFETY OF PERSONS AND PROPERTY

10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to:

- .1 employees performing the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors;
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction; and
- .4 any other property of the Owner, whether or not forming part of the Work, located at the site or adjacent thereto in areas to which the Contractor has access.

10.2.2 The Contractor shall give notices and comply with applicable laws, ordinances, rules, regulations and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.

10.2.3 The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent sites and utilities.

10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

10.2.5 The Contractor shall promptly remedy damage and loss to property referred to in Clauses 10.2.1.2, 10.2.1.3 and 10.2.1.4. If the damage or loss is due in whole or in part to the Contractor's failure to take the precautions required by this Paragraph 10.2, the Contractor shall, subject to any reimbursement to which the Contractor is entitled under the property insurance required by the Contract Documents, bear the cost.

10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

10.2.7 The Contractor shall not load or permit any part of the construction or site to be loaded so as to endanger its safety.

10.2.8 The Contractor shall provide and maintain in good operating condition suitable and adequate fire protection equipment and services, and shall comply with all reasonable recommendations regarding fire protection made by the representatives of the fire insurance company carrying insurance on the Work or by the local fire chief or fire marshal. The area within the site limits shall be kept orderly and clean, and all combustible rubbish shall be promptly removed from the site.

10.2.9 The Contractor shall at all time protect excavations, trenches, buildings and materials, from rain water, ground water, backup or leakage of sewers, drains and other piping, and from water of any other origin and shall remove promptly any accumulation of water. The Contractor shall provide and operate all pumps, piping and other equipment necessary to this end.

10.2.10 The Contractor shall remove snow and ice which might result in damage or delay.

10.2.11 During the progress of the Work and at all times prior to the date of Substantial Completion or occupancy of the Work by the Owner, whichever is earlier, the Contractor shall provide temporary heat, ventilation, and enclosure, as required by Mass. Gen. Laws Chapter 149, Section 44F(1). The permanent heating and ventilation systems may be used for these purposes when available unless otherwise provided in the Contract Documents.

### 10.3 EMERGENCIES

10.3.1 In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Paragraph 4.3 and Article 7.

### 10.4 VANDALISM

10.4.1 The Contractor shall be responsible for protecting the work, the work site, materials, and equipment stored at the site (or incorporated in the work), other property at the

site, or other property of the Owner, against vandalism by known or unknown persons. In discharging this obligation the Contractor shall utilize security personnel, measures, procedures, and equipment or materials necessary to prevent vandalism.

10.4.2 In the event of any damage caused by vandalism to the property/materials/equipment/items referenced in the preceding Article 10.4.1, and regardless of whether the Contractor has exercised due care in avoiding same, the Contractor shall be financially responsible therefor to whatever extent said damage is not indemnified by insurance coverage available to either the Contractor or Owner. The Contractor's obligation hereunder shall include payment of damages to whatever extent insurance coverage is unavailable due to self-insurance, a deductible, or a self-insured retention.

10.4.3 Any monies owed by the Contractor to the Owner on account of damages referenced in the preceding Article 10.4.2 may be offset by the Owner against any periodic payments made under the Contract.

## ARTICLE 11

### INSURANCE AND BONDS

#### 11.1 CONTRACTOR'S LIABILITY INSURANCE

11.1.1 The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located and to which the Owner has no reasonable objection such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- .1 claims under workers' or workmen's compensation, disability benefit and other similar employee benefit acts which are applicable to the Work to be performed;
- .2 claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
- .3 claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
- .4 claims for damages insured by usual personal injury liability coverage which are sustained (1) by a person as a result of an offense directly or indirectly related to employment of such person by the Contractor, or (2) by another person;

- .5 claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- .6 claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle; and
- .7 claims involving contractual liability insurance applicable to the Contractor's obligations under Paragraph 3.18.

11.1.2 The insurance required by Subparagraph 11.1.1 shall include all major divisions of coverage, and shall be on a comprehensive general basis including Premises and Operations (including X-C-U), Owner's and Contractor's Protective, Products and Completed Operations, and Owned, Nonowned, and Hired Motor Vehicles. Such insurance shall be written for not less than any limits of liability required by law or those set forth in the Contract Documents, whichever is greater.

All insurance shall be written on an occurrence basis, unless the Owner approves in writing coverage on a claims-made basis. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from date of commencement of the Work until date of final payment and termination of any coverage required to be maintained after final payment. The Owner shall be added as an Additional Insured on all policies, which shall constitute primary insurance for the Owner in relation to any similar or concurrent insurance independently maintained by the Owner.

11.1.3 Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work. These Certificates and the insurance policies required by this Paragraph 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. These certificates shall set forth evidence of all coverage required by 11.1.1 and 11.1.2. The form of certificate shall be AIA Document G705. The Contractor shall furnish to the Owner copies of any endorsements that are subsequently issued amending limits of coverage. If any of the foregoing insurance coverages are required to remain in force after final payment and are reasonably available, an additional certificate evidencing continuation of such coverage shall be submitted with the final application for payment as required by Subparagraph 9.10.2.

11.1.4 In addition to Statutory Workers' Compensation Coverage, the Contractor shall provide Employers Liability Coverage at the following limits of liability:

Each accident - \$500,000; Disease -  
policy limit \$500,000; Disease -  
each employee \$500,000.

11.1.5 The liability insurance coverage purchased by the Contractor in order to comply with Section 11.1.1 (.1-.7) above shall contain the following limits of liability:

\$3,000,000 - general aggregate;

\$3,000,000 - products/completed operations aggregate;

\$1,000,000 - personal injury and advertising;

\$1,000,000 - each occurrence;

\$1,000,000 - auto liability including hired and non-owned;

\$2,000,000 - umbrella.

## 11.2 OWNER'S LIABILITY INSURANCE

11.2.1 The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance. Optionally, the Owner may purchase and maintain other insurance for self-protection against claims which may arise from operations under the Contract. The Contractor shall not be responsible for purchasing and maintaining this optional Owner's liability insurance unless specifically required by the Contract Documents.

## 11.3 PROPERTY INSURANCE BUILDERS RISK POLICY

11.3.1 Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance in the amount of the initial Contract Sum as well as subsequent modifications thereto for the entire Work at the site on a replacement cost basis. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Paragraph 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Paragraph 11.3 to be covered, whichever is earlier. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Work.

11.3.1.1 Property insurance shall be on an all-risk policy form and shall insure against the perils of fire and extended coverage and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, false-work, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's services and expenses required as a result of such insured loss. Coverage for other perils shall not be required unless otherwise provided in the Contract Documents. The form of policy for this coverage shall provide for coverage in the event of a loss up to the contemplated value of the property following completion of all Work required under the Contract.

11.3.1.2 If the Owner does not intend to purchase such property insurance required by the Contract and with all of the coverages in the amount described above, the Owner shall so inform the Contractor in writing prior to commencement of the Work. The Contractor may then effect insurance which will protect the interests of the Contractor, Subcontractors and Sub-subcontractors in the Work, and by appropriate Change Order the cost thereof shall be charged to the Owner. If the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain insurance as described above, without so notifying the Contractor, then the Owner shall bear all reasonable costs properly attributable thereto.

11.3.1.3 The property insurance maintained hereunder by the Owner has a deductible of \$100,000 applicable to each/any claim thereunder. In the event of any property damage arising from any occurrence prior to the Architect's issuance of a final Certificate for Payment under Section 9.10.1, including but not limited to property damage arising from vandalism or casualty of any kind, the Contractor shall be responsible for the cost of said property damage: (a) to the extent not indemnified by the Owner's insurance policy because of said deductible; or (b) to the extent not indemnified by the Owner's insurance policy for any other reason.

11.3.1.4 Property insurance for portions of the Work stored off site and in transit shall be procured and the cost borne by the Contractor, unless otherwise provided in the Contract Documents.

11.3.2 Boiler and Machinery Insurance. The Owner shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this insurance shall include interests of the Owner, Contractor, Subcontractors and Sub-subcontractors in the Work, and the Owner and Contractor shall be named insureds.

11.3.3 Loss of Use Insurance. The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner's property due to fire or other hazards, however caused. The Owner waives all rights of action against the Contractor for loss of use of the Owner's property, including consequential losses due to fire or other hazards however caused, to the extent covered and paid by insurance under this Subparagraph 11.3.3.

11.3.4 If the Contractor requests in writing that insurance for risks other than those described herein or for other special hazards be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be borne by the Contractor.

11.3.5 If during the Project construction period the Owner insures properties, real or personal or both, adjoining or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, the Owner shall waive all rights in accordance with the terms of Subparagraph 11.3.7 for damages caused by fire or other perils covered by this separate property



insurance. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

11.3.6 Before an exposure to loss may occur, the Owner shall file with the Contractor a copy of each policy that includes insurance coverages required by this Paragraph 11.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that the policy will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Contractor.

11.3.7 Waivers of Subrogation. INTENTIONALLY OMITTED.

11.3.8 A loss insured under Owner's property insurance shall be adjusted by the Owner and made payable to the Owner on its behalf and on behalf of the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Subparagraph 11.3.10. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Subcontractors in similar manner.

11.3.9 If required in writing by a party in interest, the Owner shall, upon occurrence of an insured loss, give bond for proper performance of the Owner's duties all subject to the requirements, if any, of the Owner's construction and/or permanent lender. The cost of required bonds shall be charged against proceeds received by Owner. The Owner shall deposit in a separate account proceeds so received, which the Owner shall distribute in accordance with such agreement as the parties in interest may reach, or in accordance with an arbitration award in which case the procedure shall be as provided in Paragraph 4.5.

11.3.10 The Owner shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power; if such objection be made, arbitrators shall be chosen as provided in Paragraph 4.5. The Owner shall, in that case, make settlement with insurers in accordance with directions of such arbitrators. If distribution of insurance proceeds by arbitration is required, the arbitrators will direct such distribution.

#### 11.4 PERFORMANCE BOND AND PAYMENT BOND

11.4.1 The Contractor shall furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract. Said bonds shall satisfy the applicable statutory requirements of the place in which the Work is to be performed.

11.4.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall permit a copy to be made.

## ARTICLE 12

### UNCOVERING AND CORRECTION OF WORK

#### 12.1 UNCOVERING OF WORK

12.1.1 If a portion of the Work is covered, contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if required in writing by the Architect, be uncovered for the Architect's observation and be replaced at the Contractor's expense without change in the Contract Time.

12.1.2 If a portion of the Work has been covered in accordance with the requirements specifically expressed in the contract documents, and which the Architect has not specifically requested to observe prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be charged to the Owner. If such Work is not in accordance with the Contract Documents, the Contractor shall pay such costs unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

#### 12.2 CORRECTION OF WORK

12.2.1 The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, whether observed before or after Substantial Completion and whether or not fabricated, installed or completed. The Contractor shall bear costs of correcting such rejected work, including additional testing and inspections and compensation for the Architect's services and expenses made necessary thereby and any cost, loss, or damages to the Owner resulting from such failure or defect.

12.2.2 If, within one year after the date of Substantial Completion of the Work or designated portion thereof, or after the date for commencement of warranties established under Subparagraph 9.9.1, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. This period of one year shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual performance of the Work. This obligation under this Subparagraph 12.2.2 shall survive acceptance of the Work under the Contract and termination of the Contract. The Owner shall give such notice promptly after discovery of the condition.

12.2.3 The Contractor shall remove from the site portions of the Work which are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

12.2.4 If the Contractor fails to correct nonconforming Work within a reasonable time, the Owner may correct it in accordance with Paragraph 2.4. If the Contractor does not proceed with correction of such nonconforming Work within a reasonable time fixed by written notice from the Architect, the Owner may remove it and store the salvable materials or equipment at the Contractor's expense. If the Contractor does not pay costs of such removal and storage within ten days after written notice, the Owner may upon ten additional days' written notice sell such materials and equipment at auction or at private sale and shall account for the proceeds thereof, after deducting costs and damages that should have been borne by the Contractor, including compensation for the Architect's services and expenses made necessary thereby. If such proceeds of sale do not cover costs which the Contractor should have borne, the Contract Sum shall be reduced by the deficiency. If payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner.

12.2.5 The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or separate contractors caused by the Contractor's correction or removal of Work which is not in accordance with the requirements of the Contract Documents.

12.2.6 Nothing contained in this Paragraph 12.2 shall be construed to establish a period of limitation with respect to other obligations which the Contractor might have under the Contract Documents. Establishment of the time period of one year as described in Subparagraph 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

## 12.3 ACCEPTANCE OF NONCONFORMING WORK

12.3.1 If the Owner prefers to accept Work which is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

## ARTICLE 13

### MISCELLANEOUS PROVISIONS

#### 13.1 GOVERNING LAW

13.1.1 The Contract shall be governed by the law of the place where the Project is located.

## 13.2 SUCCESSORS AND ASSIGNS

13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to the other party hereto and to partners, successors, assigns and legal representatives of such other party in respect to covenants, agreements and obligations contained in the Contract Documents. Except as hereinafter provided, neither party to the Contract shall assign the Contract or sublet it as a whole without the written consent of the other, nor shall the Contractor assign any moneys due or to become due to him hereunder, without the previous written consent of the Owner. The Owner may assign the Contract to any institutional lender providing construction or permanent financing for the Project or to any person acquiring the Owner's interest in the Project, and the Contractor agrees to execute all consents, certificates, and other documents required by such lender or other person in connection with such assignment.

13.2.2 If the Owner conveys its interest in the Project to a third party, any rights which the Owner may have against the Contractor arising from this Agreement shall automatically transfer to such third party.

## 13.3 WRITTEN NOTICE

13.3.1 Written notice shall be deemed to have been duly served if delivered in person to the individual or a member of the firm or entity or to an officer of the corporation for which it was intended, or if delivered at or sent by registered or certified mail to the last business address known to the party giving notice.

## 13.4 RIGHTS AND REMEDIES

13.4.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.

13.4.2 No action or failure to act by the Owner, Architect or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed in writing.

## 13.5 TESTS AND INSPECTIONS

13.5.1 Tests, inspections and approvals of portions of the Work required by the Contract Documents or by laws, ordinances, rules, regulations or orders of public authorities having jurisdiction shall be made at an appropriate time. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so the Architect may

observe such procedures. The Owner shall bear costs of tests, inspections or approvals which do not become requirements until after bids are received or negotiations concluded.

13.5.2 If the Architect, Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included under Subparagraph 13.5.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so the Architect may observe such procedures. The Owner shall bear such costs except as provided in Subparagraph 13.5.3.

13.5.3 If such procedures for testing, inspection or approval under Subparagraphs 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, the Contractor shall bear all costs made necessary by such failure including those of repeated procedures and compensation for the Architect's services and expenses.

13.5.4 The Contractor shall obtain and deliver promptly to the Architect any occupancy permit and any certificates of final inspection of any part of the Contractor's work and operating permits for any mechanical apparatus, such as elevators, escalators, boilers, air compressors, etc., which may be required by law to permit full use and occupancy of the premises by the Owner. Receipt of such permits or certificates by the Architect shall be a condition precedent to Substantial Completion of the Work.

13.5.5 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

## 13.6 LIMITATION OF LIABILITY

13.6.1 The Owner shall be liable only to the extent of its interest in the Project; and no officer, director, partner, agent or employee of the Owner (or any partner of a partner or any agent or employee of a partner) shall ever be personally or individually liable with respect to this Contract or the Work. Each Subcontract shall include the foregoing limitation, which shall be effective if the Owner ever succeeds to the Contractor's rights and obligations under a Subcontract.

13.7 The Contractor shall comply with any decisions of the Arlington Redevelopment Board applicable to the Project, and with any other Laws, By-Laws, Rules, and Regulations or Ordinances within the Town of Arlington.

## ARTICLE 14

### TERMINATION OR SUSPENSION OF THE CONTRACT

#### 14.1 TERMINATION BY THE CONTRACTOR

14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor, for any of the following reasons:

- .1 issuance of an order of a court or other public authority having jurisdiction; or
- .2 an act of government, such as declaration of national emergency, making material unavailable.

14.1.2 If one of the above reasons exists, the Contractor may, upon seven additional days' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed and for proven loss with respect to materials, equipment, tools, and construction equipment and machinery, including reasonable overhead, profit and damages.

14.1.3 If the Work is stopped for a period of 60 days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor because the Owner has persistently failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' written notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Subparagraph 14.1.2.

#### 14.2 TERMINATION BY THE OWNER

14.2.1 If the Contractor is adjudged a bankrupt, or if the Contractor makes a general assignment for the benefit of the Contractor's creditors, or if a receiver is appointed on account of the Contractor's insolvency, or if the Contractor persistently or repeatedly refuses or fails, except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials, or if the Contractor fails to make prompt payment to Subcontractors for materials or labor, or persistently disregards laws, ordinances, rules, regulations or orders of any public authority having jurisdiction, or otherwise is guilty of a significant violation of any provision of the Contract, including the failure to perform the Work in Accordance With the Contract, then the Contractor shall be in default, and the Owner may, without prejudice to any other right or remedy, and upon seven days' written notice to the Contractor, take possession of all materials, tools, appliances, equipment, construction equipment and machinery and vehicles, offices and other facilities on the Project site, and all

materials intended for the Work, wherever stored, and may terminate the employment of the Contractor, accept assignment of any or all Subcontracts pursuant to Paragraph 5.4, and finish the Work by whatever method the Owner may deem expedient. The Owner shall be entitled to collect from the Contractor all direct, indirect, liquidated, and consequential damages suffered by the Owner on account of the Contractor's default, including without limitation additional services and expenses of the Architect made necessary thereby. The Owner shall be entitled to hold all amounts due the Contractor at the date of termination until all of the Owner's damages have been established, and to apply such amounts to such damages.

14.2.2 When the Owner terminates the Contract for one of the reasons stated in Subparagraph 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished. Any payment to the Contractor in quantum meruit shall be capped at the amount due under this Contract, including any adjustments, regardless of whether said termination by the Owner is deemed rightful or wrongful.

14.2.3 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Architect, upon application, and this obligation for payment shall survive termination of the Contract.

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## SUPPLEMENTAL STATUTORY CONDITIONS

### ARTICLE 1 - WAGES AND EMPLOYMENT PRACTICES

- 1.1 Preference To Veterans and Citizens In Public Work; Rate of Wages. (Statutory reference: Mass. Gen. Laws Chapter 149, Section 26) This Paragraph applies to every contract or subcontract for the construction of public works by the Commonwealth or by a county, town or district, or by persons contracting or subcontracting for such works.
- 1.1.1 In the employment of mechanics and apprentices, teamsters, chauffeurs and laborers, 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, who are veterans as defined in Mass. Gen. Laws Chapter 4, Section 7, clause 43, 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, and every contract for such work shall contain a provision to this effect. Each county, town or district in the construction of public works, or persons contracting or subcontracting for such works, shall give preference to veterans and citizens who are residents of such county, town or district.
- 1.1.2 The rate per hour of the wages paid to said mechanics and apprentices, teamsters, chauffeurs and laborers in the construction of public works shall not be less than the rate or rates of wages to be determined by the Commissioner of Labor and Industries as hereinafter provided; provided, that the wages paid to laborers employed on said works shall not be less than those paid to laborers in the municipal service of the town or towns where said works are being constructed; provided, further, that where the same public work is to be constructed in two or more towns, the wages paid to laborers shall not be less than those paid to laborers in the municipal service of the town paying the highest rate; provided further, that if, in any of the towns where the works are to be constructed, a wage rate or wage rates have been established in certain trades and occupations by collective agreements or understandings in the private construction industry between organized labor and employers, the rate or rates to be paid on said works shall not be less than the rates so established; provided, further, that in towns where no such rate or rates have been so established, the wages paid to mechanics and apprentices, teamsters, chauffeurs and laborers on public works, shall not be less than the wages paid to the employees in the same trades and occupations by private employers engaged in the construction industry. This section shall also apply to regular employees of the Commonwealth or of a county, town or district, when such employees are employed in the construction, addition to or alteration of public buildings for which special appropriations of more than one thousand



dollars are provided. 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.

- 1.2 List of Jobs; Classifications; Determination of Rate of Wages; Schedule.  
(Statutory reference; Mass. Gen. Laws Chapter 149, Section 27) This Paragraph applies to every contract or subcontract for the construction of public works by the Commonwealth, or by a county, town or district.

The Commissioner of Labor and Industries shall prepare, for the use of such public officials or public bodies whose duty it shall be to cause public works to be constructed, a list of the several jobs usually performed on various types of public works upon which mechanics and apprentices, teamsters, chauffeurs and laborers are employed. The Commissioner shall classify said jobs, and he may revise such classifications from time to time, as he may deem advisable. Prior to awarding a contract for the construction of public works, said public official or public body shall submit to the Commissioner a list of the jobs upon which mechanics and apprentices, teamsters, chauffeurs and laborers are to be employed, and shall request the Commissioner to determine the rate of wages to be paid on each job. Said rates shall apply to all persons engaged in transporting gravel or fill to the site of said public works or removing gravel or fill from such site, regardless of whether such persons are employed by a contractor or subcontractor or are independent contractors or owner-operators. The Commissioner, subject to the provisions of Paragraph 1.1 of these Supplementary Statutory Conditions, shall proceed forthwith to determine the same, and shall furnish said official or public body with a schedule of such rate or rates of wages as soon as said determination shall have been made. In advertising or calling for bids for said works, the awarding official or public body shall incorporate said schedule in the advertisement or call for bids by an appropriate reference thereto, and shall furnish a copy of said schedule without cost, to any person requesting the same. Said schedule shall be made a part of the contract for said works and shall continue to the minimum rate or rates of wages for said employees during the life of the contract. Any person engaged in the construction of said works shall cause a legible copy of said schedule to be kept posted in a conspicuous place at the site of said works during the life of the contract. The aforesaid rates of wages in the schedule of wage rates shall include payment by employers to health and welfare plans, pension plans, and supplementary unemployment benefit plans 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. Note: The awarding authority does not guarantee the accuracy of any schedule of wage rates

furnished to the Contractor hereunder, and the Contractor shall be responsible for ascertaining the prevailing wages in the area where the work will be performed.

1.3 Employment Records To Be Kept By Contractor, Subcontractor; Statement of Compliance. (Statutory reference; Mass. Gen. Laws Chapter 149, Section 27B) This Paragraph applies to every contract or subcontract for the construction of public works by the Commonwealth, or by a county, town or district.

Every Contractor, Subcontractor or public body engaged in said public works to which Paragraph 1.2 of these Supplementary Statutory Conditions applies shall keep a true and accurate record of all mechanics and apprentices, teamsters, chauffeurs and laborers employed thereon, showing the name, address and occupational classification of each such employee on said works, and the hours worked by, and the wages paid to, each such employee, and shall furnish to the Commissioner of Labor and Industries, upon his request, a copy of said record, signed by the employer or his authorized agent under the penalties of perjury. Such records shall be open to inspection by any authorized representative of the Department of Labor and Industries at any reasonable time, and as often as may be necessary.

Each such Contractor, Subcontractor or public body shall preserve its payroll records for a period of three years from the date of completion of the contract.

Each such Contractor, Subcontractor or public body shall furnish to the Commissioner of Labor and Industries within fifteen days after completion of its portion of the work a statement, executed by the Contractor, Subcontractor, or public body or by any authorized officer or employee of the Contractor, Subcontractor or public body who supervises the payment of wages in the following form:

STATEMENT OF COMPLIANCE \_\_\_\_\_, 2004

I, \_\_\_\_\_, \_\_\_\_\_  
(Name of signatory party) (Title) do hereby state:

That I pay or supervise the payment of the persons employed by (Contractor, Subcontractor or public body) \_\_\_\_\_ on the \_\_\_\_\_ and that all mechanics (building or project) 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

The above mentioned copies of payroll records and statements of compliance shall be available for inspection by any interested party filing a written request to the Commissioner for such inspection.

- 1.4 Wages Paid to Operators of Trucks and Other Equipment. (Statutory reference: Mass. Gen. Laws Chapter 149, Section 27F) This Paragraph applies to every contract for the construction of public works by the Commonwealth, or by a county, city, town or district.

Prescribed rates of wages, as determined by the Commissioner of Labor and Industries, shall be paid to the operators of all trucks, vehicles or equipment employed on the Project. Said rates of wages shall be requested of said Commissioner by the awarding authority and shall be furnished by the Commissioner in a schedule containing the classification of jobs, and the rate of wages to be paid for each job. Said rates of wages shall include payments to health and welfare plans, or, if no such plan is in effect between employer and employees, the amount of such payments shall be paid directly to said operators.

- 1.5 Reserve Police Officers (Statutory reference: Mass. Gen. Laws. Chapter 149, Section 27B) This Paragraph 1.5 applies to every contract for the construction, alteration, maintenance, repair or demolition of, or addition to, any public works for the Commonwealth or any political subdivision thereof.

The Contractor shall pay to any reserve police officer employed by him in any city or town the prevailing rate of wage paid to regular police officers in such city or town.

- 1.6 Eight-Hour Day, etc. This Paragraph 1.6 applies only to contracts which are subject to the provisions of Mass. Gen. Laws Chapter 149, Sections 30 and 34.

No laborer, worker, mechanic, foreman or inspector working within this Commonwealth in the employ of the Contractor, Subcontractor or other person doing or contracting to do the whole or part of the work contemplated by the contract, 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 emergency.

- 1.7 Lodging, etc. (Statutory reference: Mass. Gen. Laws Chapter 149, Section 25) This Paragraph applies to every contract with the Commonwealth, a county, city or town, or with a department, board, commission, or officer acting therefor, for the doing of public work.

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.

- 1.8 Access to Contractor's Records (Executive Order No. 195) This paragraph applies to every contract for the purchase of services or material by any agency, bureau, board, commission, institution, or department of the Commonwealth.

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.

- 1.9 Worker's Compensation Insurance (Statutory reference: Mass. Gen. Laws Chapter 149, Section 34A) This Paragraph 1.9 applies to every contract for the construction, alteration, maintenance, repair or demolition of, or addition to, any public building or other public works for the Commonwealth or any political subdivision thereof.

The Contractor shall, before commencing performance of the contract, provide by insurance for the payment of compensation and the furnishing of other benefits under Mass. Gen. Laws Chapter 152 to all persons to be employed under the contract, and the Contractor shall continue such insurance in full force and effect during the term of the contract. Sufficient proof of compliance with this Paragraph 1.9 must be furnished at the time of execution of this contract. Failure to provide and continue in force such insurance as aforesaid shall be deemed a material breach of the contract and shall operate as an immediate termination thereof. No cancellation of such insurance, whether by the insurer or by the insured, shall be valid unless written notice thereof is given by the party proposing cancellation to the other party and to the awarding authority at least fifteen days prior to the intended effective date thereof, which date shall be expressed in full notice.

## ARTICLE 2 - EQUAL EMPLOYMENT OPPORTUNITY AND AFFIRMATIVE ACTION

(Statutory reference: Mass. Gen. Laws Chapter 151B; Executive Orders No. 74, No. 116 and No. 246). The provisions of this Article 2 are intended to comply with the Commonwealth's Supplemental Equal Employment Opportunity Anti-Discrimination and Affirmative Action Program, referred to in Executive Order No. 116 and administered by the Massachusetts Commission Against Discrimination. If no specific percentage has been inserted in Subparagraph 2.2.3 below, the applicable minimum percentage provided for in such Supplemental Program shall be deemed to have been so inserted.

- 2.1 Definitions. For purposes of this Contract, "minority" refers to Asian-Americans, Blacks, Spanish-Surnamed Americans, North American Indians, and Cape Verdeans. "Commission" refers to the Massachusetts Commission Against Discrimination.

- 2.2 Non-Discrimination and Affirmative Action Requirements. During the performance of this Contract, the Contractor and all of his Subcontractors (hereinafter “Contractor”), for himself, his assignees and successors in interest, agree to comply with Subparagraphs 2.2.1 through 2.2.11.
- 2.2.1 In connection with the performance of Work under this Contract, the Contractor shall not discriminate against any employee or applicant for employment because of race, color, religious creed, national origin, age 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 post hereafter in conspicuous places, available for employees and applicants for employment, notices to be provided by the Commission setting forth the provisions of the Fair Employment Practices Law of the Commonwealth.
- 2.2.2 In connection with the performance of Work under this Contract, 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 or sex, and to eliminate and remedy any effects of such discrimination in the past. Such affirmative action shall entail positive and aggressive measures to ensure equal opportunity in the areas of hiring, upgrading, demotion or transfer, recruitment, layoff or termination, rate of compensation, and in-service or apprenticeship training programs. This affirmative action shall include all action required to guarantee equal employment opportunity for all persons, regardless of race, color, religious creed, national origin, age or sex. A purpose of this provision is to ensure to the fullest extent possible an adequate supply of skilled tradesmen for this and future Commonwealth public construction projects.
- 2.2.3 As part of his obligation of remedial action under the foregoing Subparagraph 2.2.2, the Contractor shall maintain on this project a not less than ten percent (10%) ratio of minority employee man hours to total man 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 Mass. Gen. Laws Chapter 149, Section 44F.
- 2.2.4 In the hiring of minority journeymen, apprentices, trainees and advanced trainees, the Contractor shall rely on referrals from a multi-employer affirmative action program approved by the 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 (described in Subparagraph 2.2.5 below) or the Commission.

- 2.2.5 At the discretion of the Commission there may be established for the life of this Contract a body to be known as the Liaison Committee. The Liaison Committee shall be composed of one representative each from the agency or agencies administering this project, hereinafter called the administering agency, the Commission and such other representatives as may be designated by the Commission in conjunction with the administering agency.
- 2.2.6 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.
- 2.2.7 The Contractor shall prepare projected manning 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 Commission and Liaison Committee.
- 2.2.8 Records of employment referral orders, prepared by the Contractor, shall be made available to the Commission and to the Liaison Committee on request.
- 2.2.9 The Contractor shall prepare weekly reports in a form approved by the Commission of hours worked in each trade by each employee, identified as a minority or non-minority. Copies of these shall be provided at the end of each week to the Commission and to the Liaison Committee.

If the Contractor shall use any Subcontractor on any work performed under this Contract, he shall take affirmative action to negotiate with qualified minority Subcontractors. This affirmative action shall cover both pre-bid and post-bid periods. It shall include notification to the Office of Minority Business Assistance (within the Executive Office of Communities and Development) or its designee, while bids are in preparation, of all products, work or services for which the Contractor intends to negotiate bids.

In the employment of journeymen, apprentices, trainees and advanced trainees, the Contractor shall give preference, first, to citizens of the Commonwealth who have served in the armed forces of the United States in time of war and have been honorably discharged therefrom or released from active duty therein, and who are qualified to the perform the work to which the employment relates, and, secondly, to citizens of the Commonwealth generally, and, if such cannot be obtained in sufficient numbers, then to citizens of the United States.

A designee of the Commission and a designee of the Liaison Committee shall each have right of access to the construction site.

2.2.10 The Contractor shall maintain as a goal on this project a not less than five percent ratio of women work force to total project hours in both the general contract and each individual filed sub-bid contract.

A Labor Scheduling Table will be used as a tool for achieving a range of women work force participation for the entire project in both the general contract and each individual filed sub-bid contract. Said Labor Scheduling Table shall be in a form acceptable to the Town.

2.2.11 Before starting work, the Contractors (includes the General Contractor, for itself and its Subcontractors, as well as all filed sub-bid Contractors) will submit plans for achievement of the equal opportunity goals of the contract. All Contractors will be required to make a good faith effort to achieve these goals. The plan will indicate if the Contractors expect to achieve the requirements during the first quarter. If there are reasons why the Contractors do not expect to achieve the requirements during the first quarter year of the contract construction phase, then the Contractors shall provide a plan calculated to address, to the extent reasonably possible, these obstacles to a good faith effort to achieve such goals.

Not more than ten days following the end of each work quarter, the Contractors will report on the achievement of the goals, detailing the good faith efforts that have been made and will continue to be made and any other appropriate efforts not yet undertaken.

All reports will be signed by an officer or principal of the company who has the authority to contractually obligate the company.

2.3 The Contractor shall comply with the provisions of Executive Order No. 74, as amended by Executive Order No. 166, dated May 1, 1975, and of Mass. Gen. Laws Chapter 151B, both of which are herein incorporated by reference and made a part of this Contract.

2.4 The Contractor, in the performance of all Work, and prior to completion of the Work, will not discriminate on grounds of race, color, religious creed, national origin, age or sex in employment practices, in the selection or retention of Subcontractors, or in the procurement of materials and rentals of equipment.

2.5 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.

2.6 The Contractor hereby certifies that he shall comply with the minority manpower ratio and specific action steps contained herein. The Contractor shall be required to obtain from each of its Subcontractors and submit to the administering agency

prior to the performance of any work under the Contract a certification by said Subcontractor, regardless of tier, that it will comply with the minority manpower ration and specific affirmative action steps contained herein. Such certification shall be provided on forms furnished by the administering agency or, in the absence thereof, on forms prescribed by the Commission.

2.7 The Contractor's certification form must be signed by all successful low bidder(s) prior to award by the administering agency.

2.8 Compliance Information, Reports and Sanctions.

2.8.1 The Contractor will provide all information and reports required by the administering agency or the Commission on instructions issued by either of them and will permit access to its facilities and books, records, accounts and other sources of information which may be determined by the Commission to affect the employment of personnel. This provision shall apply only to information pertinent to the Commonwealth'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 administering agency or the Commission as appropriate and shall set forth what efforts he has made to obtain the information.

2.8.2 Whenever the administering agency, the Commission or the Liaison Committee believes the Contractor or any Subcontractor may not be operating in compliance with the terms of this Paragraph 2.8, the Commission directly, or through its designated agent, shall conduct an appropriate investigation, and may confer with the parties, to determine if such Contractor is operating in compliance with the terms of this Paragraph 2.8. If the Commission or its agent finds the Contractor or any Subcontractor not in compliance, it shall 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 shall make a final report of non-compliance, and recommend to the administering agency 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 administering agency shall move to impose one or more of the following sanctions, as it may deem appropriate to attain full and effective enforcement:

- (i) The recovery by the administering agency 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 administering agency from the Contractor, to be assessed by the Contractor as a back charge against



the Subcontractor, of 1/10 or 1% of the subcontract price, or \$400, whichever sum is greater, in the nature of liquidated damages, for each week that such party fails or refuses to comply;

- (ii) 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;
- (iii) The termination, or cancellation, of the Contract, in whole or in part, unless the Contractor or any subcontractor is able to demonstrate within a specified time his compliance with the terms of the Contract;
- (iv) The denial to the Contractor or any Subcontractor of the right to participate in any future contracts awarded by the administering agency for a period of up to three years.

If at any time after the imposition of one or more of the above sanctions a Contractor is able to demonstrate that he is in compliance with this Paragraph 2.8, he may request that the administering agency, in consultation with the Commission, 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 administering agency, based on the recommendation of the Commission, shall either lift the sanctions or reimpose them.

Sanctions enumerated under Subparagraph 2.8.2 of this Paragraph 2.8 shall not be imposed by the administering agency except after an adjudicatory proceeding, as that term is used in Mass. Gen. Laws Chapter 30A, has been conducted. No investigation by the Commission or its agent shall be initiated without prior notice to the Contractor.

2.9 Severability. The provisions of this Article 2 are severable, and if any of these provisions shall be held unconstitutional by any court of competent jurisdiction, the decision of such court shall not affect or impair any of the remaining provisions.

2.10 The Contractor shall comply with the provisions of Executive Order No. 246, relating to discrimination against and equal employment opportunity for the handicapped, which is herein incorporated by reference and made a part of this Contract. In connection with the performance of work under this Contract, the Contractor, Subcontractors and suppliers of goods and services shall not discriminate against the handicapped. Furthermore, Contractors, Subcontractors and suppliers of goods and services must give written notice of their commitments under this Paragraph 2.10 to any labor union, association or brotherhood with which they have a collective bargaining contract or other agreement, and must give such notice to handicapped contractors and to handicapped contractor

associations. A copy of such notice must be furnished to the awarding authority at the time of the signing of the contract.

2.11 Suspension of Payments.

2.11.1 If the awarding authority determines after investigation that the Contractor or any Subcontractor is not in compliance with the terms of Article 2, it may suspend any payment or portion thereof due under the Contract until the Contractor demonstrates compliance with the terms of Article 2.

2.11.2 Payment shall not be suspended if the awarding authority finds that the Contractor made his best efforts to comply with Article 2, or that some other justifiable reason exists for waiving the provisions of Article 2 in whole or in part.

2.11.3 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.

2.11.4 This temporary suspension of payments by the awarding authority is separate from the sanctions set forth in Paragraph 2.8 above, which are determined by the Commission and recommended to the awarding authority.

ARTICLE 3 - MASSACHUSETTS PUBLIC CONSTRUCTION STATUTES

3.1 To whatever extent Massachusetts statutory laws regarding public construction apply to this project, said laws specifically are incorporated herein as if re-stated herein.

ARTICLE 4 - TITLE I GENERAL GOVERNMENT, ARTICLE 16 CONSTRUCTION PROJECTS, § 1-3 OF THE TOWN OF ARLINGTON GENERAL BY-LAWS

4.1 Women Work Force Participation.

4.1.1 The contractor shall maintain as a goal on this project a not less than five percent ratio of women work force to total project hours in both the general contract and each individual filed sub-bid contract, if applicable. The preceding sentence shall be included in all construction contracts whether entered into by the Town pursuant to the provisions of M.G.L. c. 149 or M.G.L. c. 30, § 39M et. seq. provided however, that if entered into under Chapter 30 same shall not be deemed to apply where the projected bid price as determined by the Director of Public Works is not likely to exceed \$200,000.

- 4.1.2 A Labor Scheduling Table which will be used as a tool for achieving a range of women work force participation for the entire project in both the general contract and each individual filed sub-bid contract.
- 4.2 Equal Opportunity Goal Compliance.
  - 4.2.1 Before starting work, the contractors (includes the general contractor, for itself and its subcontractors, as well as all filed sub-bid contractors, if applicable) will submit plans for achievement of the equal opportunity goals of the contract. All contractors will be required to make a good faith effort to achieve these goals. The plan will indicate if the contractors expect to achieve the requirements during the first quarter. If there are reasons why the contractors do not expect to achieve the requirements during the first quarter year of the contract construction phase, then the contractors shall provide a plan calculated to address, to the extent reasonably possible, these obstacles to a good faith effort to achieve such goals.
  - 4.2.2 Not more than ten days following the end of each work quarter, the contractors will report on the achievement of the goals, detailing the good faith efforts that have been made and will continue to be made and any other appropriate efforts not yet undertaken.
  - 4.2.3 All reports will be signed by an officer or principal of the company who has the authority to contractually obligate the company.
- 4.3 Recruitment and Training
  - 4.3.1 Any board, officer, committee, or other agency of the Town, which acts on behalf of the Town in making or supervising any contract, in any amount exceeding the sum of \$100,000 for the purchase of goods or services or for the construction, renovation, or repair of buildings or other improvement of real estate, may make arrangements with contractors and other interested agencies for special programs of recruitment and training in connection with the work to be performed on such contract, with the objective of promoting equal employment opportunity for members of minority groups protected by the fair employment laws of the Commonwealth and the United States. Any board, officer, committee or other Town agency may expend Town funds in carrying them out provided that appropriations specifically designed for such purposes have been voted by the Town Meeting.

215451.1

TOWN OF ARLINGTON

GENERAL CONTRACT

THE TOWN OF ARLINGTON, a municipal corporation of the Commonwealth of Massachusetts, acting through its Town Manager, and

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(The Contractor) hereby mutually agree as follows:

ARTICLE I - THE CONTRACT DOCUMENTS

The Contract Documents, as defined in the CONSOLIDATED GENERAL CONDITIONS and SUPPLEMENTAL STATUTORY CONDITIONS, including said CONSOLIDATED GENERAL CONDITIONS and SUPPLEMENTAL STATUTORY CONDITIONS are hereby incorporated by reference and made a part hereof, and shall include Addenda and Alternates, if any.

ARTICLE II - GENERAL DESCRIPTION OF THE WORK

The Contractor shall furnish all of the materials and perform all of the Work required by the Contract Documents entitled \_\_\_\_\_, dated \_\_\_\_\_ prepared by [ \_\_\_\_\_ ], acting as, and in these Contract Documents entitled, the Architect.

ARTICLE III - COMMENCEMENT AND COMPLETION OF WORK AND LIQUIDATED DAMAGES

It is agreed that time is of the essence of this Contract.

The Contractor shall commence work only upon the execution of this Contract by the Town of Arlington by its Town Manager, the certification of the availability of the appropriation by the Town Comptroller, approval as to form by the Town Counsel, and upon issuance of a Notice to Proceed, and shall bring the Work to Substantial Completion by [DATE], and to Final Completion within 15 calendar days thereafter. Liquidated damages in the amount of [\$\_\_\_] per calendar day will be applicable after the date of Substantial Completion for which the project is not substantially complete, and for each day after the date of Final Completion for which the project is not finally complete, and otherwise in accordance with the provisions of the CONSOLIDATED GENERAL CONDITIONS and SUPPLEMENTAL STATUTORY CONDITIONS. The liquidated damages amount per calendar day is a minimum damage figure to compensate the Owner for administrative costs and loss or delay of its use of the building and site, and does not limit in any way the liability of the Contractor for damages in excess of the specified liquidated damages amount for other damages, for example, damages for breach of Contract, and added architect and consultant fees. It is expressly understood that such liquidated

damages do not constitute a penalty. All work shall be phased (if applicable) in accordance with the Contract Documents.

NOTE: NOTWITHSTANDING ANYTHING TO THE CONTRARY, THE TIME OF COMMENCEMENT SHALL ONLY BE BY WRITTEN NOTICE TO PROCEED WITH THE WORK AS DATED AND ISSUED TO THE CONTRACTOR BY THE TOWN OF ARLINGTON. NOTICE TO PROCEED MAY BE GIVEN ANYTIME AFTER THE AWARD OF THE CONTRACT, BUT NOT LATER THAN 14 DAYS AFTER THE EXECUTION OF THE CONTRACT.

ARTICLE IV - COMPENSATION TO BE PAID BY TOWN

The Town shall pay and the Contractor shall accept, as full compensation for everything furnished, done by or resulting to the Contractor in carrying out this Contract, subject to additions and deductions in the Contract Documents in the sum of:

\_\_\_\_\_

ARTICLE V - AVAILABILITY OF APPROPRIATION

This Contract is subject to an appropriation being available therefor.

This Contract is executed by the Town of Arlington and by the Contractor as of this \_\_\_\_\_ day of \_\_\_\_\_, 2004.

TOWN OF ARLINGTON

BY: \_\_\_\_\_  
Town Manager

Approved as to Availability  
of Appropriation

\_\_\_\_\_  
Town Comptroller

CONTRACTOR:

\_\_\_\_\_  
(Name)

\_\_\_\_\_  
(Address)

Approved as to Form:

BY: \_\_\_\_\_  
(Name)

\_\_\_\_\_  
Town Counsel

\_\_\_\_\_  
(Title)

(Affix Corporate Seal Here)

**Prevailing Wage Rates Here**

To view and print Weekly Payroll & Statement of Compliance Forms, click on [www.mass.gov/dols/pw](http://www.mass.gov/dols/pw).

PLEASE NOTE: The attached Prevailing Wage Schedule is valid for 90 days. An Awarding Authority should re-request an up to date Prevailing Wage Schedule if it has NOT opened bids or selected a contractor within 90 days of the issuance date of the attached prevailing wage schedule.

\*For MULTI-YEAR projects bid on or after 8/8/08, Awarding Authorities must request an Annual Update to this Prevailing Wage Schedule each year for the duration of the project, no later than two weeks before the anniversary date of the execution of the general contract. Annual updates are not required for projects that last LESS THAN ONE YEAR.

\*For CM AT RISK projects (bid pursuant to GL c.149A), Awarding Authorities must request a Prevailing Wage Schedule NOT sooner than 90-days before the earlier of: (a) the execution date of the GMP Amendment, or (b) the bid for the first construction scope of work.

\*For MULTI-YEAR CM AT RISK projects, Awarding Authorities must request an Annual Update to this Prevailing Wage Schedule each year for the duration of the project, no later than two weeks before the anniversary date, which is the earlier of: (a) the execution date of the GMP Amendment, or (b) the execution date of the first amendment to procure construction scopes of work.

Apprentice wages (expressed as dollar figures) and the required benefits are listed on the Prevailing Wage Schedule. For further details, please see opinion letter PW-2010-03-03.16.10 (dated March 18, 2010) at [www.mass.gov/dols/pw](http://www.mass.gov/dols/pw).

Request Prevailing Wage Rates online at: [www.mass.gov/dols/pw](http://www.mass.gov/dols/pw).

THIS IS A SYSTEM-GENERATED EMAIL. PLEASE DO NOT REPLY TO THIS EMAIL. TO CONTACT DLS REGARDING PREVAILING WAGE MATTERS, CALL 617-626-6953.

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APPROVAL/DENIAL COMMENTS

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**THE COMMONWEALTH OF MASSACHUSETTS  
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT  
DEPARTMENT OF LABOR STANDARDS**

**Prevailing Wage Rates**

**As determined by the Director under the provisions of the  
Massachusetts General Laws, Chapter 149, Sections 26 to 27H**

CHARLES D. BAKER  
Governor

ROSALIN ACOSTA  
Secretary

KARYN E. POLITO  
Lt. Governor

WILLIAM D MCKINNEY  
Director

**Awarding Authority:** Town of Arlington  
**Contract Number:** 17-57 **City/Town:** ARLINGTON  
**Description of Work:** 23 Maple Street Kitchen Renovation - Project consists of renovation of existing laundry and kitchen facility in a group home.  
**Job Location:** 23 Maple Street

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



Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
<b>Construction</b>						
(2 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	12/01/2016	\$33.25	\$10.91	\$10.89	\$0.00	\$55.05
(3 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	12/01/2016	\$33.32	\$10.91	\$10.89	\$0.00	\$55.12
(4 & 5 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	12/01/2016	\$33.44	\$10.91	\$10.89	\$0.00	\$55.24
ADS/SUBMERSIBLE PILOT <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2015	\$88.29	\$9.80	\$19.23	\$0.00	\$117.32
For apprentice rates see "Apprentice- PILE DRIVER"						
AIR TRACK OPERATOR <i>LABORERS - ZONE 1</i>	06/01/2017	\$37.60	\$7.60	\$14.65	\$0.00	\$59.85
	12/01/2017	\$38.45	\$7.60	\$14.65	\$0.00	\$60.70
	06/01/2018	\$39.40	\$7.60	\$14.65	\$0.00	\$61.65
	12/01/2018	\$40.35	\$7.60	\$14.65	\$0.00	\$62.60
	06/01/2019	\$41.35	\$7.60	\$14.65	\$0.00	\$63.60
	12/01/2019	\$42.35	\$7.60	\$14.65	\$0.00	\$64.60
For apprentice rates see "Apprentice- LABORER"						
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. <i>HEAT &amp; FROST INSULATORS LOCAL 6 (BOSTON)</i>	06/01/2017	\$34.90	\$11.50	\$7.10	\$0.00	\$53.50
	12/01/2017	\$35.90	\$11.50	\$7.10	\$0.00	\$54.50
	06/01/2018	\$36.90	\$11.50	\$7.10	\$0.00	\$55.50
	12/01/2018	\$37.90	\$11.50	\$7.10	\$0.00	\$56.50
	06/01/2019	\$38.90	\$11.50	\$7.10	\$0.00	\$57.50
	12/01/2019	\$39.90	\$11.50	\$7.10	\$0.00	\$58.50
	06/01/2020	\$40.90	\$11.50	\$7.10	\$0.00	\$59.50
	12/01/2020	\$41.90	\$11.50	\$7.10	\$0.00	\$60.50
ASPHALT RAKER <i>LABORERS - ZONE 1</i>	06/01/2017	\$37.10	\$7.60	\$14.65	\$0.00	\$59.35
	12/01/2017	\$37.95	\$7.60	\$14.65	\$0.00	\$60.20
	06/01/2018	\$38.90	\$7.60	\$14.65	\$0.00	\$61.15
	12/01/2018	\$39.85	\$7.60	\$14.65	\$0.00	\$62.10
	06/01/2019	\$40.85	\$7.60	\$14.65	\$0.00	\$63.10
	12/01/2019	\$41.85	\$7.60	\$14.65	\$0.00	\$64.10
For apprentice rates see "Apprentice- LABORER"						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2017	\$46.38	\$10.00	\$15.25	\$0.00	\$71.63
	12/01/2017	\$47.38	\$10.00	\$15.25	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2017	\$46.38	\$10.00	\$15.25	\$0.00	\$71.63
	12/01/2017	\$47.38	\$10.00	\$15.25	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BARCO-TYPE JUMPING TAMPER <i>LABORERS - ZONE 1</i>	06/01/2017	\$37.10	\$7.60	\$14.65	\$0.00	\$59.35
	12/01/2017	\$37.95	\$7.60	\$14.65	\$0.00	\$60.20
	06/01/2018	\$38.90	\$7.60	\$14.65	\$0.00	\$61.15
	12/01/2018	\$39.85	\$7.60	\$14.65	\$0.00	\$62.10
	06/01/2019	\$40.85	\$7.60	\$14.65	\$0.00	\$63.10
	12/01/2019	\$41.85	\$7.60	\$14.65	\$0.00	\$64.10
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BLOCK PAVER, RAMMER / CURB SETTER <i>LABORERS - ZONE 1</i>	06/01/2017	\$37.60	\$7.60	\$14.65	\$0.00	\$59.85
	12/01/2017	\$38.45	\$7.60	\$14.65	\$0.00	\$60.70
	06/01/2018	\$39.40	\$7.60	\$14.65	\$0.00	\$61.65
	12/01/2018	\$40.35	\$7.60	\$14.65	\$0.00	\$62.60
	06/01/2019	\$41.35	\$7.60	\$14.65	\$0.00	\$63.60
	12/01/2019	\$42.35	\$7.60	\$14.65	\$0.00	\$64.60
For apprentice rates see "Apprentice- LABORER"						
BOILER MAKER <i>BOILERMAKERS LOCAL 29</i>	01/01/2017	\$42.92	\$6.97	\$16.21	\$0.00	\$66.10

**Apprentice - BOILERMAKER - Local 29**

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

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	\$27.90	\$6.97	\$10.54	\$0.00	\$45.41
2	65	\$27.90	\$6.97	\$10.54	\$0.00	\$45.41
3	70	\$30.04	\$6.97	\$11.35	\$0.00	\$48.36
4	75	\$32.19	\$6.97	\$12.16	\$0.00	\$51.32
5	80	\$34.34	\$6.97	\$12.97	\$0.00	\$54.28
6	85	\$36.48	\$6.97	\$13.78	\$0.00	\$57.23
7	90	\$38.63	\$6.97	\$14.59	\$0.00	\$60.19
8	95	\$40.77	\$6.97	\$15.40	\$0.00	\$63.14

**Notes:**

**Apprentice to Journeyworker Ratio:1:5**

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING) <i>BRICKLAYERS LOCAL 3 (BOSTON)</i>	08/01/2017	\$52.06	\$10.75	\$19.35	\$0.00	\$82.16
	02/01/2018	\$52.74	\$10.75	\$19.35	\$0.00	\$82.84
	08/01/2018	\$54.09	\$10.75	\$19.48	\$0.00	\$84.32
	02/01/2019	\$54.73	\$10.75	\$19.48	\$0.00	\$84.96
	08/01/2019	\$56.08	\$10.75	\$19.62	\$0.00	\$86.45
	02/01/2020	\$56.72	\$10.75	\$19.62	\$0.00	\$87.09
	08/01/2020	\$58.07	\$10.75	\$19.77	\$0.00	\$88.59
	02/01/2021	\$58.71	\$10.75	\$19.77	\$0.00	\$89.23
	08/01/2021	\$60.11	\$10.75	\$19.93	\$0.00	\$90.79
	02/01/2022	\$60.70	\$10.75	\$19.93	\$0.00	\$91.38

**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - BRICK/PLASTER/CEMENT MASON - Local 3 Boston**

**Effective Date - 08/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.03	\$10.75	\$19.35	\$0.00	\$56.13
2	60	\$31.24	\$10.75	\$19.35	\$0.00	\$61.34
3	70	\$36.44	\$10.75	\$19.35	\$0.00	\$66.54
4	80	\$41.65	\$10.75	\$19.35	\$0.00	\$71.75
5	90	\$46.85	\$10.75	\$19.35	\$0.00	\$76.95

**Effective Date - 02/01/2018**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.37	\$10.75	\$19.35	\$0.00	\$56.47
2	60	\$31.64	\$10.75	\$19.35	\$0.00	\$61.74
3	70	\$36.92	\$10.75	\$19.35	\$0.00	\$67.02
4	80	\$42.19	\$10.75	\$19.35	\$0.00	\$72.29
5	90	\$47.47	\$10.75	\$19.35	\$0.00	\$77.57

**Notes:**

**Apprentice to Journeyworker Ratio:1:5**

<b>BULLDOZER/GRADER/SCRAPER</b> <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
<b>CAISSON &amp; UNDERPINNING BOTTOM MAN</b> <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2016	\$37.45	\$7.60	\$14.35	\$0.00	\$59.40
For apprentice rates see "Apprentice- LABORER"						
<b>CAISSON &amp; UNDERPINNING LABORER</b> <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2016	\$36.30	\$7.60	\$14.35	\$0.00	\$58.25
For apprentice rates see "Apprentice- LABORER"						
<b>CAISSON &amp; UNDERPINNING TOP MAN</b> <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2016	\$36.30	\$7.60	\$14.35	\$0.00	\$58.25
For apprentice rates see "Apprentice- LABORER"						
<b>CARBIDE CORE DRILL OPERATOR</b> <i>LABORERS - ZONE 1</i>	06/01/2017	\$37.10	\$7.60	\$14.65	\$0.00	\$59.35
	12/01/2017	\$37.95	\$7.60	\$14.65	\$0.00	\$60.20
	06/01/2018	\$38.90	\$7.60	\$14.65	\$0.00	\$61.15
	12/01/2018	\$39.85	\$7.60	\$14.65	\$0.00	\$62.10
	06/01/2019	\$40.85	\$7.60	\$14.65	\$0.00	\$63.10
	12/01/2019	\$41.85	\$7.60	\$14.65	\$0.00	\$64.10
For apprentice rates see "Apprentice- LABORER"						
<b>CARPENTER</b> <i>CARPENTERS -ZONE 2 (Eastern Massachusetts)</i>	09/01/2017	\$39.28	\$9.90	\$17.50	\$0.00	\$66.68
	03/01/2018	\$40.28	\$9.90	\$17.50	\$0.00	\$67.68
	09/01/2018	\$41.32	\$9.90	\$17.50	\$0.00	\$68.72
	03/01/2019	\$42.35	\$9.90	\$17.50	\$0.00	\$69.75

**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - CARPENTER - Zone 2 Eastern MA**

**Effective Date - 09/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.64	\$9.90	\$1.73	\$0.00	\$31.27
2	60	\$23.57	\$9.90	\$1.73	\$0.00	\$35.20
3	70	\$27.50	\$9.90	\$12.31	\$0.00	\$49.71
4	75	\$29.46	\$9.90	\$12.31	\$0.00	\$51.67
5	80	\$31.42	\$9.90	\$14.04	\$0.00	\$55.36
6	80	\$31.42	\$9.90	\$14.04	\$0.00	\$55.36
7	90	\$35.35	\$9.90	\$15.77	\$0.00	\$61.02
8	90	\$35.35	\$9.90	\$15.77	\$0.00	\$61.02

**Effective Date - 03/01/2018**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.14	\$9.90	\$1.73	\$0.00	\$31.77
2	60	\$24.17	\$9.90	\$1.73	\$0.00	\$35.80
3	70	\$28.20	\$9.90	\$12.31	\$0.00	\$50.41
4	75	\$30.21	\$9.90	\$12.31	\$0.00	\$52.42
5	80	\$32.22	\$9.90	\$14.04	\$0.00	\$56.16
6	80	\$32.22	\$9.90	\$14.04	\$0.00	\$56.16
7	90	\$36.25	\$9.90	\$15.77	\$0.00	\$61.92
8	90	\$36.25	\$9.90	\$15.77	\$0.00	\$61.92

**Notes:**

**Apprentice to Journeyworker Ratio:1:5**

CEMENT MASONRY/PLASTERING BRICKLAYERS LOCAL 3 (BOSTON)	07/01/2017	\$47.40	\$12.20	\$19.41	\$1.30	\$80.31
	01/01/2018	\$48.17	\$12.20	\$19.41	\$1.30	\$81.08
	07/01/2018	\$49.56	\$12.20	\$19.41	\$1.30	\$82.47
	01/01/2019	\$50.30	\$12.20	\$19.41	\$1.30	\$83.21
	07/01/2019	\$51.69	\$12.20	\$19.41	\$1.30	\$84.60
	01/01/2020	\$52.44	\$12.20	\$19.41	\$1.30	\$85.35

**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - CEMENT MASONRY/PLASTERING - Eastern Mass (Boston)**

**Effective Date - 07/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.70	\$12.20	\$12.41	\$0.00	\$48.31
2	60	\$28.44	\$12.20	\$14.41	\$1.30	\$56.35
3	65	\$30.81	\$12.20	\$15.41	\$1.30	\$59.72
4	70	\$33.18	\$12.20	\$16.41	\$1.30	\$63.09
5	75	\$35.55	\$12.20	\$17.41	\$1.30	\$66.46
6	80	\$37.92	\$12.20	\$18.41	\$1.30	\$69.83
7	90	\$42.66	\$12.20	\$19.41	\$1.30	\$75.57

**Effective Date - 01/01/2018**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.09	\$12.20	\$12.41	\$0.00	\$48.70
2	60	\$28.90	\$12.20	\$14.41	\$1.30	\$56.81
3	65	\$31.31	\$12.20	\$15.41	\$1.30	\$60.22
4	70	\$33.72	\$12.20	\$16.41	\$1.30	\$63.63
5	75	\$36.13	\$12.20	\$17.41	\$1.30	\$67.04
6	80	\$38.54	\$12.20	\$18.41	\$1.30	\$70.45
7	90	\$43.35	\$12.20	\$19.41	\$1.30	\$76.26

**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 1	06/01/2017	\$37.10	\$7.60	\$14.65	\$0.00	\$59.35
	12/01/2017	\$37.95	\$7.60	\$14.65	\$0.00	\$60.20
	06/01/2018	\$38.90	\$7.60	\$14.65	\$0.00	\$61.15
	12/01/2018	\$39.85	\$7.60	\$14.65	\$0.00	\$62.10
	06/01/2019	\$40.85	\$7.60	\$14.65	\$0.00	\$63.10
	12/01/2019	\$41.85	\$7.60	\$14.65	\$0.00	\$64.10

For apprentice rates see "Apprentice- LABORER"

CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES OPERATING ENGINEERS LOCAL 4	06/01/2017	\$47.38	\$10.00	\$15.25	\$0.00	\$72.63
	12/01/2017	\$48.38	\$10.00	\$15.25	\$0.00	\$73.63

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

COMPRESSOR OPERATOR OPERATING ENGINEERS LOCAL 4	06/01/2017	\$31.86	\$10.00	\$15.25	\$0.00	\$57.11
	12/01/2017	\$32.55	\$10.00	\$15.25	\$0.00	\$57.80

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

DELEADER (BRIDGE) PAINTERS LOCAL 35 - ZONE 2	01/01/2017	\$51.41	\$7.85	\$16.10	\$0.00	\$75.36
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**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - PAINTER Local 35 - BRIDGES/TANKS**

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

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.71	\$7.85	\$0.00	\$0.00	\$33.56
2	55	\$28.28	\$7.85	\$3.66	\$0.00	\$39.79
3	60	\$30.85	\$7.85	\$3.99	\$0.00	\$42.69
4	65	\$33.42	\$7.85	\$4.32	\$0.00	\$45.59
5	70	\$35.99	\$7.85	\$14.11	\$0.00	\$57.95
6	75	\$38.56	\$7.85	\$14.44	\$0.00	\$60.85
7	80	\$41.13	\$7.85	\$14.77	\$0.00	\$63.75
8	90	\$46.27	\$7.85	\$15.44	\$0.00	\$69.56

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

DEMO: ADZEMAN LABORERS - ZONE 1	06/01/2017	\$37.00	\$7.60	\$14.65	\$0.00	\$59.25
	12/01/2017	\$37.85	\$7.60	\$14.65	\$0.00	\$60.10
	06/01/2018	\$38.80	\$7.60	\$14.65	\$0.00	\$61.05
	12/01/2018	\$39.75	\$7.60	\$14.65	\$0.00	\$62.00
	06/01/2019	\$40.75	\$7.60	\$14.65	\$0.00	\$63.00
	12/01/2019	\$41.75	\$7.60	\$14.65	\$0.00	\$64.00

For apprentice rates see "Apprentice- LABORER"

DEMO: BACKHOE/LOADER/HAMMER OPERATOR LABORERS - ZONE 1	06/01/2017	\$38.00	\$7.60	\$14.65	\$0.00	\$60.25
	12/01/2017	\$38.85	\$7.60	\$14.65	\$0.00	\$61.10
	06/01/2018	\$39.80	\$7.60	\$14.65	\$0.00	\$62.05
	12/01/2018	\$40.75	\$7.60	\$14.65	\$0.00	\$63.00
	06/01/2019	\$41.75	\$7.60	\$14.65	\$0.00	\$64.00
	12/01/2019	\$42.75	\$7.60	\$14.65	\$0.00	\$65.00

For apprentice rates see "Apprentice- LABORER"

DEMO: BURNERS LABORERS - ZONE 1	06/01/2017	\$37.75	\$7.60	\$14.65	\$0.00	\$60.00
	12/01/2017	\$38.60	\$7.60	\$14.65	\$0.00	\$60.85
	06/01/2018	\$39.55	\$7.60	\$14.65	\$0.00	\$61.80
	12/01/2018	\$40.50	\$7.60	\$14.65	\$0.00	\$62.75
	06/01/2019	\$41.50	\$7.60	\$14.65	\$0.00	\$63.75
	12/01/2019	\$42.50	\$7.60	\$14.65	\$0.00	\$64.75

For apprentice rates see "Apprentice- LABORER"

DEMO: CONCRETE CUTTER/SAWYER LABORERS - ZONE 1	06/01/2017	\$38.00	\$7.60	\$14.65	\$0.00	\$60.25
	12/01/2017	\$38.85	\$7.60	\$14.65	\$0.00	\$61.10
	06/01/2018	\$39.80	\$7.60	\$14.65	\$0.00	\$62.05
	12/01/2018	\$40.75	\$7.60	\$14.65	\$0.00	\$63.00
	06/01/2019	\$41.75	\$7.60	\$14.65	\$0.00	\$64.00
	12/01/2019	\$42.75	\$7.60	\$14.65	\$0.00	\$65.00

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DEMO: JACKHAMMER OPERATOR <i>LABORERS - ZONE 1</i>	06/01/2017	\$37.75	\$7.60	\$14.65	\$0.00	\$60.00
	12/01/2017	\$38.60	\$7.60	\$14.65	\$0.00	\$60.85
	06/01/2018	\$39.55	\$7.60	\$14.65	\$0.00	\$61.80
	12/01/2018	\$40.50	\$7.60	\$14.65	\$0.00	\$62.75
	06/01/2019	\$41.50	\$7.60	\$14.65	\$0.00	\$63.75
	12/01/2019	\$42.50	\$7.60	\$14.65	\$0.00	\$64.75
For apprentice rates see "Apprentice- LABORER"						
DEMO: WRECKING LABORER <i>LABORERS - ZONE 1</i>	06/01/2017	\$37.00	\$7.60	\$14.65	\$0.00	\$59.25
	12/01/2017	\$37.85	\$7.60	\$14.65	\$0.00	\$60.10
	06/01/2018	\$38.80	\$7.60	\$14.65	\$0.00	\$61.05
	12/01/2018	\$39.75	\$7.60	\$14.65	\$0.00	\$62.00
	06/01/2019	\$40.75	\$7.60	\$14.65	\$0.00	\$63.00
	12/01/2019	\$41.75	\$7.60	\$14.65	\$0.00	\$64.00
For apprentice rates see "Apprentice- LABORER"						
DIRECTIONAL DRILL MACHINE OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2015	\$58.86	\$9.80	\$19.23	\$0.00	\$87.89
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2015	\$42.04	\$9.80	\$19.23	\$0.00	\$71.07
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2015	\$63.06	\$9.80	\$19.23	\$0.00	\$92.09
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER/SLURRY (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2015	\$88.23	\$9.80	\$19.23	\$0.00	\$117.26
For apprentice rates see "Apprentice- PILE DRIVER"						
DRAWBRIDGE OPERATOR (Construction) <i>ELECTRICIANS LOCAL 103</i>	09/01/2017	\$49.28	\$13.00	\$17.48	\$0.00	\$79.76
	03/01/2018	\$50.15	\$13.00	\$17.85	\$0.00	\$81.00
	09/01/2018	\$51.34	\$13.00	\$17.89	\$0.00	\$82.23
	03/01/2019	\$52.53	\$13.00	\$17.93	\$0.00	\$83.46
For apprentice rates see "Apprentice- ELECTRICIAN"						
ELECTRICIAN <i>ELECTRICIANS LOCAL 103</i>	09/01/2017	\$49.28	\$13.00	\$17.48	\$0.00	\$79.76
	03/01/2018	\$50.15	\$13.00	\$17.85	\$0.00	\$81.00
	09/01/2018	\$51.34	\$13.00	\$17.89	\$0.00	\$82.23
	03/01/2019	\$52.53	\$13.00	\$17.93	\$0.00	\$83.46

**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - ELECTRICIAN - Local 103**

**Effective Date - 09/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$19.71	\$13.00	\$0.59	\$0.00	\$33.30
2	40	\$19.71	\$13.00	\$0.59	\$0.00	\$33.30
3	45	\$22.18	\$13.00	\$13.39	\$0.00	\$48.57
4	45	\$22.18	\$13.00	\$13.39	\$0.00	\$48.57
5	50	\$24.64	\$13.00	\$13.76	\$0.00	\$51.40
6	55	\$27.10	\$13.00	\$14.12	\$0.00	\$54.22
7	60	\$29.57	\$13.00	\$14.50	\$0.00	\$57.07
8	65	\$32.03	\$13.00	\$14.87	\$0.00	\$59.90
9	70	\$34.50	\$13.00	\$15.25	\$0.00	\$62.75
10	75	\$36.96	\$13.00	\$15.62	\$0.00	\$65.58

**Effective Date - 03/01/2018**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$20.06	\$13.00	\$0.60	\$0.00	\$33.66
2	40	\$20.06	\$13.00	\$0.60	\$0.00	\$33.66
3	45	\$22.57	\$13.00	\$13.61	\$0.00	\$49.18
4	45	\$22.57	\$13.00	\$13.61	\$0.00	\$49.18
5	50	\$25.08	\$13.00	\$13.99	\$0.00	\$52.07
6	55	\$27.58	\$13.00	\$14.38	\$0.00	\$54.96
7	60	\$30.09	\$13.00	\$14.76	\$0.00	\$57.85
8	65	\$32.60	\$13.00	\$15.15	\$0.00	\$60.75
9	70	\$35.11	\$13.00	\$15.53	\$0.00	\$63.64
10	75	\$37.61	\$13.00	\$15.93	\$0.00	\$66.54

**Notes :**  
 App Prior 1/1/03; 30/35/40/45/50/55/65/70/75/80

**Apprentice to Journeyworker Ratio:2:3\*\*\***

ELEVATOR CONSTRUCTOR ELEVATOR CONSTRUCTORS LOCAL 4	01/01/2017	\$55.86	\$15.28	\$15.71	\$0.00	\$86.85
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**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - ELEVATOR CONSTRUCTOR - Local 4**

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

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.93	\$15.28	\$0.00	\$0.00	\$43.21
2	55	\$30.72	\$15.28	\$15.71	\$0.00	\$61.71
3	65	\$36.31	\$15.28	\$15.71	\$0.00	\$67.30
4	70	\$39.10	\$15.28	\$15.71	\$0.00	\$70.09
5	80	\$44.69	\$15.28	\$15.71	\$0.00	\$75.68

**Notes:**

Steps 1-2 are 6 mos.; Steps 3-5 are 1 year

**Apprentice to Journeyworker Ratio:1:1**

ELEVATOR CONSTRUCTOR HELPER <i>ELEVATOR CONSTRUCTORS LOCAL 4</i>	01/01/2017	\$39.10	\$15.28	\$15.71	\$0.00	\$70.09
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For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"

FENCE & GUARD RAIL ERECTOR <i>LABORERS - ZONE 1</i>	06/01/2017	\$37.10	\$7.60	\$14.65	\$0.00	\$59.35
	12/01/2017	\$37.95	\$7.60	\$14.65	\$0.00	\$60.20
	06/01/2018	\$38.90	\$7.60	\$14.65	\$0.00	\$61.15
	12/01/2018	\$39.85	\$7.60	\$14.65	\$0.00	\$62.10
	06/01/2019	\$40.85	\$7.60	\$14.65	\$0.00	\$63.10
	12/01/2019	\$41.85	\$7.60	\$14.65	\$0.00	\$64.10

For apprentice rates see "Apprentice- LABORER"

FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2017	\$42.15	\$10.00	\$15.25	\$0.00	\$67.40
	11/01/2017	\$42.88	\$10.00	\$15.25	\$0.00	\$68.13
	05/01/2018	\$43.59	\$10.00	\$15.25	\$0.00	\$68.84

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2017	\$43.61	\$10.00	\$15.25	\$0.00	\$68.86
	11/01/2017	\$44.34	\$10.00	\$15.25	\$0.00	\$69.59
	05/01/2018	\$45.06	\$10.00	\$15.25	\$0.00	\$70.31

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2017	\$22.41	\$10.00	\$15.25	\$0.00	\$47.66
	11/01/2017	\$22.83	\$10.00	\$15.25	\$0.00	\$48.08
	05/01/2018	\$23.26	\$10.00	\$15.25	\$0.00	\$48.51

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

FIRE ALARM INSTALLER <i>ELECTRICIANS LOCAL 103</i>	09/01/2017	\$49.28	\$13.00	\$17.48	\$0.00	\$79.76
	03/01/2018	\$50.15	\$13.00	\$17.85	\$0.00	\$81.00
	09/01/2018	\$51.34	\$13.00	\$17.89	\$0.00	\$82.23
	03/01/2019	\$52.53	\$13.00	\$17.93	\$0.00	\$83.46

For apprentice rates see "Apprentice- ELECTRICIAN"

FIRE ALARM REPAIR / MAINTENANCE <i>LOCAL 103</i> / COMMISSIONING <i>ELECTRICIANS</i>	09/01/2017	\$36.96	\$13.00	\$15.62	\$0.00	\$65.58
	03/01/2018	\$37.61	\$13.00	\$15.93	\$0.00	\$66.54
	09/01/2018	\$38.51	\$13.00	\$15.96	\$0.00	\$67.47
	03/01/2019	\$39.40	\$13.00	\$15.98	\$0.00	\$68.38

For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIREMAN (ASST. ENGINEER) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2017	\$38.49	\$10.00	\$15.25	\$0.00	\$63.74
	12/01/2017	\$39.32	\$10.00	\$15.25	\$0.00	\$64.57
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER <i>LABORERS - ZONE 1</i>	06/01/2017	\$20.50	\$7.60	\$14.65	\$0.00	\$42.75
	12/01/2017	\$21.50	\$7.60	\$14.65	\$0.00	\$43.75
	06/01/2018	\$21.50	\$7.60	\$14.65	\$0.00	\$43.75
	12/01/2018	\$22.50	\$7.60	\$14.65	\$0.00	\$44.75
	06/01/2019	\$22.50	\$7.60	\$14.65	\$0.00	\$44.75
	12/01/2019	\$23.50	\$7.60	\$14.65	\$0.00	\$45.75
For apprentice rates see "Apprentice- LABORER"						
FLOORCOVERER <i>FLOORCOVERERS LOCAL 2168 ZONE 1</i>	03/01/2016	\$42.13	\$9.80	\$17.62	\$0.00	\$69.55

**Apprentice - FLOORCOVERER - Local 2168 Zone 1**

**Effective Date - 03/01/2016**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.07	\$9.80	\$1.79	\$0.00	\$32.66
2	55	\$23.17	\$9.80	\$1.79	\$0.00	\$34.76
3	60	\$25.28	\$9.80	\$12.25	\$0.00	\$47.33
4	65	\$27.38	\$9.80	\$12.25	\$0.00	\$49.43
5	70	\$29.49	\$9.80	\$14.04	\$0.00	\$53.33
6	75	\$31.60	\$9.80	\$14.04	\$0.00	\$55.44
7	80	\$33.70	\$9.80	\$15.83	\$0.00	\$59.33
8	85	\$35.81	\$9.80	\$15.83	\$0.00	\$61.44

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

FORK LIFT/CHERRY PICKER <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2017	\$46.38	\$10.00	\$15.25	\$0.00	\$71.63
	12/01/2017	\$47.38	\$10.00	\$15.25	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GENERATOR/LIGHTING PLANT/HEATERS <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2017	\$31.86	\$10.00	\$15.25	\$0.00	\$57.11
	12/01/2017	\$32.55	\$10.00	\$15.25	\$0.00	\$57.80
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) <i>GLAZIERS LOCAL 35 (ZONE 2)</i>	01/01/2017	\$40.91	\$7.85	\$16.10	\$0.00	\$64.86

**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - GLAZIER - Local 35 Zone 2**

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

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.46	\$7.85	\$0.00	\$0.00	\$28.31
2	55	\$22.50	\$7.85	\$3.66	\$0.00	\$34.01
3	60	\$24.55	\$7.85	\$3.99	\$0.00	\$36.39
4	65	\$26.59	\$7.85	\$4.32	\$0.00	\$38.76
5	70	\$28.64	\$7.85	\$14.11	\$0.00	\$50.60
6	75	\$30.68	\$7.85	\$14.44	\$0.00	\$52.97
7	80	\$32.73	\$7.85	\$14.77	\$0.00	\$55.35
8	90	\$36.82	\$7.85	\$15.44	\$0.00	\$60.11

**Notes:**  
Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

HOISTING ENGINEER/CRANES/GRADALLS	06/01/2017	\$46.38	\$10.00	\$15.25	\$0.00	\$71.63
OPERATING ENGINEERS LOCAL 4	12/01/2017	\$47.38	\$10.00	\$15.25	\$0.00	\$72.63

**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - OPERATING ENGINEERS - Local 4**

**Effective Date - 06/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$25.51	\$10.00	\$0.00	\$0.00	\$35.51
2	60	\$27.83	\$10.00	\$15.25	\$0.00	\$53.08
3	65	\$30.15	\$10.00	\$15.25	\$0.00	\$55.40
4	70	\$32.47	\$10.00	\$15.25	\$0.00	\$57.72
5	75	\$34.79	\$10.00	\$15.25	\$0.00	\$60.04
6	80	\$37.10	\$10.00	\$15.25	\$0.00	\$62.35
7	85	\$39.42	\$10.00	\$15.25	\$0.00	\$64.67
8	90	\$41.74	\$10.00	\$15.25	\$0.00	\$66.99

**Effective Date - 12/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$26.06	\$10.00	\$0.00	\$0.00	\$36.06
2	60	\$28.43	\$10.00	\$15.25	\$0.00	\$53.68
3	65	\$30.80	\$10.00	\$15.25	\$0.00	\$56.05
4	70	\$33.17	\$10.00	\$15.25	\$0.00	\$58.42
5	75	\$35.54	\$10.00	\$15.25	\$0.00	\$60.79
6	80	\$37.90	\$10.00	\$15.25	\$0.00	\$63.15
7	85	\$40.27	\$10.00	\$15.25	\$0.00	\$65.52
8	90	\$42.64	\$10.00	\$15.25	\$0.00	\$67.89

**Notes:**

**Apprentice to Journeyworker Ratio:1:6**

HVAC (DUCTWORK) <i>SHEETMETAL WORKERS LOCAL 17 - A</i>	08/01/2017	\$43.83	\$11.45	\$24.03	\$2.38	\$81.69
	02/01/2018	\$44.98	\$11.45	\$24.03	\$2.38	\$82.84
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (ELECTRICAL CONTROLS) <i>ELECTRICIANS LOCAL 103</i>	09/01/2017	\$49.28	\$13.00	\$17.48	\$0.00	\$79.76
	03/01/2018	\$50.15	\$13.00	\$17.85	\$0.00	\$81.00
	09/01/2018	\$51.34	\$13.00	\$17.89	\$0.00	\$82.23
	03/01/2019	\$52.53	\$13.00	\$17.93	\$0.00	\$83.46
For apprentice rates see "Apprentice- ELECTRICIAN"						
HVAC (TESTING AND BALANCING - AIR) <i>SHEETMETAL WORKERS LOCAL 17 - A</i>	08/01/2017	\$43.83	\$11.45	\$24.03	\$2.38	\$81.69
	02/01/2018	\$44.98	\$11.45	\$24.03	\$2.38	\$82.84
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (TESTING AND BALANCING -WATER) <i>PIPEFITTERS LOCAL 537</i>	03/01/2017	\$51.19	\$9.70	\$18.14	\$0.00	\$79.03
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HVAC MECHANIC <i>PIPEFITTERS LOCAL 537</i>	03/01/2017	\$51.19	\$9.70	\$18.14	\$0.00	\$79.03
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HYDRAULIC DRILLS <i>LABORERS - ZONE 1</i>	06/01/2017	\$37.60	\$7.60	\$14.65	\$0.00	\$59.85
	12/01/2017	\$38.45	\$7.60	\$14.65	\$0.00	\$60.70
	06/01/2018	\$39.40	\$7.60	\$14.65	\$0.00	\$61.65
	12/01/2018	\$40.35	\$7.60	\$14.65	\$0.00	\$62.60
	06/01/2019	\$41.35	\$7.60	\$14.65	\$0.00	\$63.60
	12/01/2019	\$42.35	\$7.60	\$14.65	\$0.00	\$64.60

For apprentice rates see "Apprentice- LABORER"

INSULATOR (PIPES & TANKS) <i>HEAT &amp; FROST INSULATORS LOCAL 6 (BOSTON)</i>	09/01/2017	\$47.09	\$11.75	\$14.20	\$0.00	\$73.04
	09/01/2018	\$49.34	\$11.75	\$14.20	\$0.00	\$75.29
	09/01/2019	\$51.84	\$11.75	\$14.20	\$0.00	\$77.79

**Apprentice - ASBESTOS INSULATOR (Pipes & Tanks) - Local 6 Boston**

**Effective Date - 09/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.55	\$11.75	\$10.45	\$0.00	\$45.75
2	60	\$28.25	\$11.75	\$11.20	\$0.00	\$51.20
3	70	\$32.96	\$11.75	\$11.95	\$0.00	\$56.66
4	80	\$37.67	\$11.75	\$12.70	\$0.00	\$62.12

**Effective Date - 09/01/2018**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.67	\$11.75	\$10.45	\$0.00	\$46.87
2	60	\$29.60	\$11.75	\$11.20	\$0.00	\$52.55
3	70	\$34.54	\$11.75	\$11.95	\$0.00	\$58.24
4	80	\$39.47	\$11.75	\$12.70	\$0.00	\$63.92

**Notes:**

Steps are 1 year

**Apprentice to Journeyworker Ratio:1:4**

IRONWORKER/WELDER <i>IRONWORKERS LOCAL 7 (BOSTON AREA)</i>	03/16/2017	\$44.65	\$7.80	\$20.85	\$0.00	\$73.30
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**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - IRONWORKER - Local 7 Boston**

**Effective Date - 03/16/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$26.79	\$7.80	\$20.85	\$0.00	\$55.44
2	70	\$31.26	\$7.80	\$20.85	\$0.00	\$59.91
3	75	\$33.49	\$7.80	\$20.85	\$0.00	\$62.14
4	80	\$35.72	\$7.80	\$20.85	\$0.00	\$64.37
5	85	\$37.95	\$7.80	\$20.85	\$0.00	\$66.60
6	90	\$40.19	\$7.80	\$20.85	\$0.00	\$68.84

**Notes:**

\*\* Structural 1:6; Ornamental 1:4

**Apprentice to Journeyworker Ratio:\*\***

JACKHAMMER & PAVING BREAKER OPERATOR LABORERS - ZONE 1	06/01/2017	\$37.10	\$7.60	\$14.65	\$0.00	\$59.35
	12/01/2017	\$37.95	\$7.60	\$14.65	\$0.00	\$60.20
	06/01/2018	\$38.90	\$7.60	\$14.65	\$0.00	\$61.15
	12/01/2018	\$39.85	\$7.60	\$14.65	\$0.00	\$62.10
	06/01/2019	\$40.85	\$7.60	\$14.65	\$0.00	\$63.10
	12/01/2019	\$41.85	\$7.60	\$14.65	\$0.00	\$64.10

For apprentice rates see "Apprentice- LABORER"

LABORER LABORERS - ZONE 1	06/01/2017	\$36.85	\$7.60	\$14.65	\$0.00	\$59.10
	12/01/2017	\$37.70	\$7.60	\$14.65	\$0.00	\$59.95
	06/01/2018	\$38.65	\$7.60	\$14.65	\$0.00	\$60.90
	12/01/2018	\$39.60	\$7.60	\$14.65	\$0.00	\$61.85
	06/01/2019	\$40.60	\$7.60	\$14.65	\$0.00	\$62.85
	12/01/2019	\$41.60	\$7.60	\$14.65	\$0.00	\$63.85

**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - LABORER - Zone 1**

**Effective Date - 06/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$22.11	\$7.60	\$14.65	\$0.00	\$44.36
2	70	\$25.80	\$7.60	\$14.65	\$0.00	\$48.05
3	80	\$29.48	\$7.60	\$14.65	\$0.00	\$51.73
4	90	\$33.17	\$7.60	\$14.65	\$0.00	\$55.42

**Effective Date - 12/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$22.62	\$7.60	\$14.65	\$0.00	\$44.87
2	70	\$26.39	\$7.60	\$14.65	\$0.00	\$48.64
3	80	\$30.16	\$7.60	\$14.65	\$0.00	\$52.41
4	90	\$33.93	\$7.60	\$14.65	\$0.00	\$56.18

**Notes:**

**Apprentice to Journeyworker Ratio:1:5**

LABORER: CARPENTER TENDER LABORERS - ZONE 1	06/01/2017	\$36.85	\$7.60	\$14.65	\$0.00	\$59.10
	12/01/2017	\$37.70	\$7.60	\$14.65	\$0.00	\$59.95
	06/01/2018	\$38.65	\$7.60	\$14.65	\$0.00	\$60.90
	12/01/2018	\$39.60	\$7.60	\$14.65	\$0.00	\$61.85
	06/01/2019	\$40.60	\$7.60	\$14.65	\$0.00	\$62.85
	12/01/2019	\$41.60	\$7.60	\$14.65	\$0.00	\$63.85

For apprentice rates see "Apprentice- LABORER"

LABORER: CEMENT FINISHER TENDER LABORERS - ZONE 1	06/01/2017	\$36.85	\$7.60	\$14.65	\$0.00	\$59.10
	12/01/2017	\$37.70	\$7.60	\$14.65	\$0.00	\$59.95
	06/01/2018	\$38.65	\$7.60	\$14.65	\$0.00	\$60.90
	12/01/2018	\$39.60	\$7.60	\$14.65	\$0.00	\$61.85
	06/01/2019	\$40.60	\$7.60	\$14.65	\$0.00	\$62.85
	12/01/2019	\$41.60	\$7.60	\$14.65	\$0.00	\$63.85

For apprentice rates see "Apprentice- LABORER"

LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER LABORERS - ZONE 1	06/01/2017	\$37.00	\$7.60	\$14.65	\$0.00	\$59.25
	12/01/2017	\$37.85	\$7.60	\$14.65	\$0.00	\$60.10
	06/01/2018	\$38.80	\$7.60	\$14.65	\$0.00	\$61.05
	12/01/2018	\$39.75	\$7.60	\$14.65	\$0.00	\$62.00
	06/01/2019	\$40.75	\$7.60	\$14.65	\$0.00	\$63.00
	12/01/2019	\$41.75	\$7.60	\$14.65	\$0.00	\$64.00

For apprentice rates see "Apprentice- LABORER"

<b>Classification</b>	<b>Effective Date</b>	<b>Base Wage</b>	<b>Health</b>	<b>Pension</b>	<b>Supplemental Unemployment</b>	<b>Total Rate</b>
LABORER: MASON TENDER <i>LABORERS - ZONE 1</i>	06/01/2017	\$37.10	\$7.60	\$14.65	\$0.00	\$59.35
	12/01/2017	\$37.95	\$7.60	\$14.65	\$0.00	\$60.20
	06/01/2018	\$38.90	\$7.60	\$14.65	\$0.00	\$61.15
	12/01/2018	\$39.85	\$7.60	\$14.65	\$0.00	\$62.10
	06/01/2019	\$40.85	\$7.60	\$14.65	\$0.00	\$63.10
	12/01/2019	\$41.85	\$7.60	\$14.65	\$0.00	\$64.10
	For apprentice rates see "Apprentice- LABORER"					
LABORER: MULTI-TRADE TENDER <i>LABORERS - ZONE 1</i>	06/01/2017	\$36.85	\$7.60	\$14.65	\$0.00	\$59.10
	12/01/2017	\$37.70	\$7.60	\$14.65	\$0.00	\$59.95
	06/01/2018	\$38.65	\$7.60	\$14.65	\$0.00	\$60.90
	12/01/2018	\$39.60	\$7.60	\$14.65	\$0.00	\$61.85
	06/01/2019	\$40.60	\$7.60	\$14.65	\$0.00	\$62.85
	12/01/2019	\$41.60	\$7.60	\$14.65	\$0.00	\$63.85
	For apprentice rates see "Apprentice- LABORER"					
LABORER: TREE REMOVER <i>LABORERS - ZONE 1</i>	06/01/2017	\$36.85	\$7.60	\$14.65	\$0.00	\$59.10
	12/01/2017	\$37.70	\$7.60	\$14.65	\$0.00	\$59.95
	06/01/2018	\$38.65	\$7.60	\$14.65	\$0.00	\$60.90
	12/01/2018	\$39.60	\$7.60	\$14.65	\$0.00	\$61.85
	06/01/2019	\$40.60	\$7.60	\$14.65	\$0.00	\$62.85
	12/01/2019	\$41.60	\$7.60	\$14.65	\$0.00	\$63.85
	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 <i>LABORERS - ZONE 1</i>	06/01/2017	\$37.10	\$7.60	\$14.65	\$0.00	\$59.35
	12/01/2017	\$37.95	\$7.60	\$14.65	\$0.00	\$60.20
	06/01/2018	\$38.90	\$7.60	\$14.65	\$0.00	\$61.15
	12/01/2018	\$39.85	\$7.60	\$14.65	\$0.00	\$62.10
	06/01/2019	\$40.85	\$7.60	\$14.65	\$0.00	\$63.10
	12/01/2019	\$41.85	\$7.60	\$14.65	\$0.00	\$64.10
	For apprentice rates see "Apprentice- LABORER"					
MARBLE & TILE FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE &amp; TILE</i>	08/01/2017	\$39.82	\$10.75	\$17.80	\$0.00	\$68.37
	02/01/2018	\$40.36	\$10.75	\$17.80	\$0.00	\$68.91
	08/01/2018	\$41.44	\$10.75	\$17.93	\$0.00	\$70.12
	02/01/2019	\$41.95	\$10.75	\$17.93	\$0.00	\$70.63
	08/01/2019	\$43.03	\$10.75	\$18.07	\$0.00	\$71.85
	02/01/2020	\$43.54	\$10.75	\$18.07	\$0.00	\$72.36
	08/01/2020	\$44.62	\$10.75	\$18.22	\$0.00	\$73.59
	02/01/2021	\$45.13	\$10.75	\$18.22	\$0.00	\$74.10
	08/01/2021	\$46.25	\$10.75	\$18.38	\$0.00	\$75.38
	02/01/2022	\$46.72	\$10.75	\$18.38	\$0.00	\$75.85



**Apprentice - MARBLE & TILE FINISHER - Local 3 Marble & Tile**

**Effective Date - 08/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.91	\$10.75	\$17.80	\$0.00	\$48.46
2	60	\$23.89	\$10.75	\$17.80	\$0.00	\$52.44
3	70	\$27.87	\$10.75	\$17.80	\$0.00	\$56.42
4	80	\$31.86	\$10.75	\$17.80	\$0.00	\$60.41
5	90	\$35.84	\$10.75	\$17.80	\$0.00	\$64.39

**Effective Date - 02/01/2018**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.18	\$10.75	\$17.80	\$0.00	\$48.73
2	60	\$24.22	\$10.75	\$17.80	\$0.00	\$52.77
3	70	\$28.25	\$10.75	\$17.80	\$0.00	\$56.80
4	80	\$32.29	\$10.75	\$17.80	\$0.00	\$60.84
5	90	\$36.32	\$10.75	\$17.80	\$0.00	\$64.87

**Notes:**

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**Apprentice to Journeyworker Ratio:1:3**

MARBLE MASONS, TILELAYERS & TERRAZZO MECH	08/01/2017	\$52.10	\$10.75	\$19.35	\$0.00	\$82.20
BRICKLAYERS LOCAL 3 - MARBLE & TILE	02/01/2018	\$52.78	\$10.75	\$19.35	\$0.00	\$82.88
	08/01/2018	\$54.13	\$10.75	\$19.48	\$0.00	\$84.36
	02/01/2019	\$54.75	\$10.75	\$19.48	\$0.00	\$84.98
	08/01/2019	\$56.10	\$10.75	\$19.62	\$0.00	\$86.47
	02/01/2020	\$56.73	\$10.75	\$19.62	\$0.00	\$87.10
	08/01/2020	\$58.08	\$10.75	\$19.77	\$0.00	\$88.60
	02/01/2021	\$58.72	\$10.75	\$19.77	\$0.00	\$89.24
	08/01/2021	\$60.12	\$10.75	\$19.93	\$0.00	\$90.80
	02/01/2022	\$60.69	\$10.75	\$19.93	\$0.00	\$91.37

**Apprentice - MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile**

**Effective Date - 08/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.05	\$10.75	\$19.35	\$0.00	\$56.15
2	60	\$31.26	\$10.75	\$19.35	\$0.00	\$61.36
3	70	\$36.47	\$10.75	\$19.35	\$0.00	\$66.57
4	80	\$41.68	\$10.75	\$19.35	\$0.00	\$71.78
5	90	\$46.89	\$10.75	\$19.35	\$0.00	\$76.99

**Effective Date - 02/01/2018**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.39	\$10.75	\$19.35	\$0.00	\$56.49
2	60	\$31.67	\$10.75	\$19.35	\$0.00	\$61.77
3	70	\$36.95	\$10.75	\$19.35	\$0.00	\$67.05
4	80	\$42.22	\$10.75	\$19.35	\$0.00	\$72.32
5	90	\$47.50	\$10.75	\$19.35	\$0.00	\$77.60

**Notes:**

**Apprentice to Journeyworker Ratio:1:5**

MECH. SWEEPER OPERATOR (ON CONST. SITES) OPERATING ENGINEERS LOCAL 4	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MECHANICS MAINTENANCE OPERATING ENGINEERS LOCAL 4	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MILLWRIGHT (Zone 1) MILLWRIGHTS LOCAL 1121 - Zone 1	10/01/2017	\$39.52	\$9.90	\$18.50	\$0.00	\$67.92
	04/01/2018	\$40.42	\$9.90	\$18.50	\$0.00	\$68.82
	10/01/2018	\$41.32	\$9.90	\$18.50	\$0.00	\$69.72
	04/01/2019	\$42.22	\$9.90	\$18.50	\$0.00	\$70.62

**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - MILLWRIGHT - Local 1121 Zone 1**

**Effective Date - 10/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$21.74	\$9.90	\$5.31	\$0.00	\$36.95
2	65	\$25.69	\$9.90	\$15.13	\$0.00	\$50.72
3	75	\$29.64	\$9.90	\$16.10	\$0.00	\$55.64
4	85	\$33.59	\$9.90	\$17.06	\$0.00	\$60.55

**Effective Date - 04/01/2018**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$22.23	\$9.90	\$5.31	\$0.00	\$37.44
2	65	\$26.27	\$9.90	\$15.13	\$0.00	\$51.30
3	75	\$30.32	\$9.90	\$16.10	\$0.00	\$56.32
4	85	\$34.36	\$9.90	\$17.06	\$0.00	\$61.32

**Notes:**

Steps are 2,000 hours

**Apprentice to Journeyworker Ratio:1:5**

MORTAR MIXER LABORERS - ZONE 1	06/01/2017	\$37.10	\$7.60	\$14.65	\$0.00	\$59.35
	12/01/2017	\$37.95	\$7.60	\$14.65	\$0.00	\$60.20
	06/01/2018	\$38.90	\$7.60	\$14.65	\$0.00	\$61.15
	12/01/2018	\$39.85	\$7.60	\$14.65	\$0.00	\$62.10
	06/01/2019	\$40.85	\$7.60	\$14.65	\$0.00	\$63.10
	12/01/2019	\$41.85	\$7.60	\$14.65	\$0.00	\$64.10

For apprentice rates see "Apprentice- LABORER"

OILER (OTHER THAN TRUCK CRANES,GRADALLS) OPERATING ENGINEERS LOCAL 4	06/01/2017	\$23.47	\$10.00	\$15.25	\$0.00	\$48.72
	12/01/2017	\$23.99	\$10.00	\$15.25	\$0.00	\$49.24

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

OILER (TRUCK CRANES, GRADALLS) OPERATING ENGINEERS LOCAL 4	06/01/2017	\$27.54	\$10.00	\$15.25	\$0.00	\$52.79
	12/01/2017	\$28.15	\$10.00	\$15.25	\$0.00	\$53.40

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

OTHER POWER DRIVEN EQUIPMENT - CLASS II OPERATING ENGINEERS LOCAL 4	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

PAINTER (BRIDGES/TANKS) PAINTERS LOCAL 35 - ZONE 2	01/01/2017	\$51.41	\$7.85	\$16.10	\$0.00	\$75.36
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**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - PAINTER Local 35 - BRIDGES/TANKS**

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

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.71	\$7.85	\$0.00	\$0.00	\$33.56
2	55	\$28.28	\$7.85	\$3.66	\$0.00	\$39.79
3	60	\$30.85	\$7.85	\$3.99	\$0.00	\$42.69
4	65	\$33.42	\$7.85	\$4.32	\$0.00	\$45.59
5	70	\$35.99	\$7.85	\$14.11	\$0.00	\$57.95
6	75	\$38.56	\$7.85	\$14.44	\$0.00	\$60.85
7	80	\$41.13	\$7.85	\$14.77	\$0.00	\$63.75
8	90	\$46.27	\$7.85	\$15.44	\$0.00	\$69.56

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER (SPRAY OR SANDBLAST, NEW) \* 01/01/2017 \$42.31 \$7.85 \$16.10 \$0.00 \$66.26

\* If 30% or more of surfaces to be painted are new construction,  
NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 2

**Apprentice - PAINTER Local 35 Zone 2 - Spray/Sandblast - New**

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

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.16	\$7.85	\$0.00	\$0.00	\$29.01
2	55	\$23.27	\$7.85	\$3.66	\$0.00	\$34.78
3	60	\$25.39	\$7.85	\$3.99	\$0.00	\$37.23
4	65	\$27.50	\$7.85	\$4.32	\$0.00	\$39.67
5	70	\$29.62	\$7.85	\$14.11	\$0.00	\$51.58
6	75	\$31.73	\$7.85	\$14.44	\$0.00	\$54.02
7	80	\$33.85	\$7.85	\$14.77	\$0.00	\$56.47
8	90	\$38.08	\$7.85	\$15.44	\$0.00	\$61.37

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER (SPRAY OR SANDBLAST, REPAINT) 01/01/2017 \$40.37 \$7.85 \$16.10 \$0.00 \$64.32

PAINTERS LOCAL 35 - ZONE 2

**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - PAINTER Local 35 Zone 2 - Spray/Sandblast - Repaint**

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

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.19	\$7.85	\$0.00	\$0.00	\$28.04
2	55	\$22.20	\$7.85	\$3.66	\$0.00	\$33.71
3	60	\$24.22	\$7.85	\$3.99	\$0.00	\$36.06
4	65	\$26.24	\$7.85	\$4.32	\$0.00	\$38.41
5	70	\$28.26	\$7.85	\$14.11	\$0.00	\$50.22
6	75	\$30.28	\$7.85	\$14.44	\$0.00	\$52.57
7	80	\$32.30	\$7.85	\$14.77	\$0.00	\$54.92
8	90	\$36.33	\$7.85	\$15.44	\$0.00	\$59.62

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER (TRAFFIC MARKINGS) LABORERS - ZONE 1	06/01/2017	\$36.85	\$7.60	\$14.65	\$0.00	\$59.10
	12/01/2017	\$37.70	\$7.60	\$14.65	\$0.00	\$59.95
	06/01/2018	\$38.65	\$7.60	\$14.65	\$0.00	\$60.90
	12/01/2018	\$39.60	\$7.60	\$14.65	\$0.00	\$61.85
	06/01/2019	\$40.60	\$7.60	\$14.65	\$0.00	\$62.85
	12/01/2019	\$41.60	\$7.60	\$14.65	\$0.00	\$63.85

For Apprentice rates see "Apprentice- LABORER"

PAINTER / TAPER (BRUSH, NEW) *	01/01/2017	\$40.91	\$7.85	\$16.10	\$0.00	\$64.86
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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 2

**Apprentice - PAINTER - Local 35 Zone 2 - BRUSH NEW**

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

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.46	\$7.85	\$0.00	\$0.00	\$28.31
2	55	\$22.50	\$7.85	\$3.66	\$0.00	\$34.01
3	60	\$24.55	\$7.85	\$3.99	\$0.00	\$36.39
4	65	\$26.59	\$7.85	\$4.32	\$0.00	\$38.76
5	70	\$28.64	\$7.85	\$14.11	\$0.00	\$50.60
6	75	\$30.68	\$7.85	\$14.44	\$0.00	\$52.97
7	80	\$32.73	\$7.85	\$14.77	\$0.00	\$55.35
8	90	\$36.82	\$7.85	\$15.44	\$0.00	\$60.11

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER / TAPER (BRUSH, REPAINT) PAINTERS LOCAL 35 - ZONE 2	01/01/2017	\$38.97	\$7.85	\$16.10	\$0.00	\$62.92
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**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - PAINTER Local 35 Zone 2 - BRUSH REPAINT**

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

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.49	\$7.85	\$0.00	\$0.00	\$27.34
2	55	\$21.43	\$7.85	\$3.66	\$0.00	\$32.94
3	60	\$23.38	\$7.85	\$3.99	\$0.00	\$35.22
4	65	\$25.33	\$7.85	\$4.32	\$0.00	\$37.50
5	70	\$27.28	\$7.85	\$14.11	\$0.00	\$49.24
6	75	\$29.23	\$7.85	\$14.44	\$0.00	\$51.52
7	80	\$31.18	\$7.85	\$14.77	\$0.00	\$53.80
8	90	\$35.07	\$7.85	\$15.44	\$0.00	\$58.36

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PANEL & PICKUP TRUCKS DRIVER  
TEAMSTERS JOINT COUNCIL NO. 10 ZONE A  
12/01/2016    \$33.08    \$10.91    \$10.89    \$0.00    \$54.88

PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK)  
PILE DRIVER LOCAL 56 (ZONE 1)  
For apprentice rates see "Apprentice- PILE DRIVER"  
08/01/2015    \$42.04    \$9.80    \$19.23    \$0.00    \$71.07

PILE DRIVER  
PILE DRIVER LOCAL 56 (ZONE 1)  
08/01/2015    \$42.04    \$9.80    \$19.23    \$0.00    \$71.07

**Apprentice - PILE DRIVER - Local 56 Zone 1**

**Effective Date - 08/01/2015**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.02	\$9.80	\$19.23	\$0.00	\$50.05
2	60	\$25.22	\$9.80	\$19.23	\$0.00	\$54.25
3	70	\$29.43	\$9.80	\$19.23	\$0.00	\$58.46
4	75	\$31.53	\$9.80	\$19.23	\$0.00	\$60.56
5	80	\$33.63	\$9.80	\$19.23	\$0.00	\$62.66
6	80	\$33.63	\$9.80	\$19.23	\$0.00	\$62.66
7	90	\$37.84	\$9.80	\$19.23	\$0.00	\$66.87
8	90	\$37.84	\$9.80	\$19.23	\$0.00	\$66.87

**Notes:**

**Apprentice to Journeyworker Ratio:1:3**

PIPEFITTER & STEAMFITTER  
PIPEFITTERS LOCAL 537  
03/01/2017    \$51.19    \$9.70    \$18.14    \$0.00    \$79.03

**Apprentice - PIPEFITTER - Local 537**

**Effective Date - 03/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$20.48	\$9.70	\$7.50	\$0.00	\$37.68
2	45	\$23.04	\$9.70	\$18.14	\$0.00	\$50.88
3	60	\$30.71	\$9.70	\$18.14	\$0.00	\$58.55
4	70	\$35.83	\$9.70	\$18.14	\$0.00	\$63.67
5	80	\$40.95	\$9.70	\$18.14	\$0.00	\$68.79

**Notes:**  
 \*\* 1:3; 3:15; 1:10 thereafter / Steps are 1 yr.  
 Refrig/AC Mechanic \*\*1:1;1:2;2:4;3:6;4:8;5:10;6:12;7:14;8:17;9:20;10:23(Max)

**Apprentice to Journeyworker Ratio:\*\***

PIPELAYER <i>LABORERS - ZONE 1</i>	06/01/2017	\$37.10	\$7.60	\$14.65	\$0.00	\$59.35
	12/01/2017	\$37.95	\$7.60	\$14.65	\$0.00	\$60.20
	06/01/2018	\$38.90	\$7.60	\$14.65	\$0.00	\$61.15
	12/01/2018	\$39.85	\$7.60	\$14.65	\$0.00	\$62.10
	06/01/2019	\$40.85	\$7.60	\$14.65	\$0.00	\$63.10
	12/01/2019	\$41.85	\$7.60	\$14.65	\$0.00	\$64.10

For apprentice rates see "Apprentice- LABORER"

PLUMBERS & GASFITTERS <i>PLUMBERS &amp; GASFITTERS LOCAL 12</i>	03/01/2017	\$52.69	\$11.32	\$15.46	\$0.00	\$79.47
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**Apprentice - PLUMBER/GASFITTER - Local 12**

**Effective Date - 03/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$18.44	\$11.32	\$5.74	\$0.00	\$35.50
2	40	\$21.08	\$11.32	\$6.49	\$0.00	\$38.89
3	55	\$28.98	\$11.32	\$8.73	\$0.00	\$49.03
4	65	\$34.25	\$11.32	\$10.23	\$0.00	\$55.80
5	75	\$39.52	\$11.32	\$11.72	\$0.00	\$62.56

**Notes:**  
 \*\* 1:2; 2:6; 3:10; 4:14; 5:19/Steps are 1 yr  
 Step4 with lic\$58.50 Step5 with lic\$65.36

**Apprentice to Journeyworker Ratio:\*\***

PNEUMATIC CONTROLS (TEMP.) <i>PIPEFITTERS LOCAL 537</i>	03/01/2017	\$51.19	\$9.70	\$18.14	\$0.00	\$79.03
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For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"

PNEUMATIC DRILL/TOOL OPERATOR <i>LABORERS - ZONE 1</i>	06/01/2017	\$37.10	\$7.60	\$14.65	\$0.00	\$59.35
	12/01/2017	\$37.95	\$7.60	\$14.65	\$0.00	\$60.20
	06/01/2018	\$38.90	\$7.60	\$14.65	\$0.00	\$61.15
	12/01/2018	\$39.85	\$7.60	\$14.65	\$0.00	\$62.10
	06/01/2019	\$40.85	\$7.60	\$14.65	\$0.00	\$63.10
	12/01/2019	\$41.85	\$7.60	\$14.65	\$0.00	\$64.10

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER"						
POWDERMAN & BLASTER <i>LABORERS - ZONE 1</i>	06/01/2017	\$37.85	\$7.60	\$14.65	\$0.00	\$60.10
	12/01/2017	\$38.70	\$7.60	\$14.65	\$0.00	\$60.95
	06/01/2018	\$39.65	\$7.60	\$14.65	\$0.00	\$61.90
	12/01/2018	\$40.60	\$7.60	\$14.65	\$0.00	\$62.85
	06/01/2019	\$41.60	\$7.60	\$14.65	\$0.00	\$63.85
	12/01/2019	\$42.60	\$7.60	\$14.65	\$0.00	\$64.85
For apprentice rates see "Apprentice- LABORER"						
POWER SHOVEL/DERRICK/TRENCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2017	\$46.38	\$10.00	\$15.25	\$0.00	\$71.63
	12/01/2017	\$47.38	\$10.00	\$15.25	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (CONCRETE) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2017	\$46.38	\$10.00	\$15.25	\$0.00	\$71.63
	12/01/2017	\$47.38	\$10.00	\$15.25	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2017	\$31.86	\$10.00	\$15.25	\$0.00	\$57.11
	12/01/2017	\$32.55	\$10.00	\$15.25	\$0.00	\$57.80
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY MIX CONCRETE DRIVERS after 4/30/10 (Drivers Hired After 4/30/2010) <i>TEAMSTERS LOCAL 25c</i>	07/01/2017	\$28.18	\$8.48	\$9.72	\$0.00	\$46.38
READY-MIX CONCRETE DRIVER <i>TEAMSTERS LOCAL 25c</i>	07/01/2017	\$29.48	\$8.48	\$9.72	\$0.00	\$47.68
RECLAIMERS <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RESIDENTIAL WOOD FRAME (All Other Work) <i>CARPENTERS -ZONE 2 (Residential Wood)</i>	06/01/2016	\$25.32	\$9.80	\$16.82	\$0.00	\$51.94
RESIDENTIAL WOOD FRAME CARPENTER **	10/01/2017	\$26.93	\$7.07	\$7.18	\$0.00	\$41.18
** The Residential Wood Frame Carpenter classification applies only to the construction of new, wood frame residences that do not exceed four stories including the basement. <i>CARPENTERS -ZONE 2 (Residential Wood)</i>	04/01/2018	\$27.35	\$7.07	\$7.18	\$0.00	\$41.60
	10/01/2018	\$27.77	\$7.07	\$7.18	\$0.00	\$42.02
	04/01/2019	\$28.20	\$7.07	\$7.18	\$0.00	\$42.45
	10/01/2019	\$28.63	\$7.07	\$7.18	\$0.00	\$42.88

As of 9/1/09 Carpentry work on wood-frame residential WEATHERIZATION projects shall be paid the RESIDENTIAL WOOD FRAME CARPENTER rate.



**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - CARPENTER (Residential Wood Frame) - Zone 2**

**Effective Date - 10/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$16.16	\$7.07	\$0.00	\$0.00	\$23.23
2	60	\$16.16	\$7.07	\$0.00	\$0.00	\$23.23
3	65	\$17.50	\$7.07	\$7.18	\$0.00	\$31.75
4	70	\$18.85	\$7.07	\$7.18	\$0.00	\$33.10
5	75	\$20.20	\$7.07	\$7.18	\$0.00	\$34.45
6	80	\$21.54	\$7.07	\$7.18	\$0.00	\$35.79
7	85	\$22.89	\$7.07	\$7.18	\$0.00	\$37.14
8	90	\$24.24	\$7.07	\$7.18	\$0.00	\$38.49

**Effective Date - 04/01/2018**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$16.41	\$7.07	\$0.00	\$0.00	\$23.48
2	60	\$16.41	\$7.07	\$0.00	\$0.00	\$23.48
3	65	\$17.78	\$7.07	\$7.18	\$0.00	\$32.03
4	70	\$19.15	\$7.07	\$7.18	\$0.00	\$33.40
5	75	\$20.51	\$7.07	\$7.18	\$0.00	\$34.76
6	80	\$21.88	\$7.07	\$7.18	\$0.00	\$36.13
7	85	\$23.25	\$7.07	\$7.18	\$0.00	\$37.50
8	90	\$24.62	\$7.07	\$7.18	\$0.00	\$38.87

**Notes:**

**Apprentice to Journeyworker Ratio:1:5**

RIDE-ON MOTORIZED BUGGY OPERATOR <i>LABORERS - ZONE 1</i>	06/01/2017	\$37.10	\$7.60	\$14.65	\$0.00	\$59.35
	12/01/2017	\$37.95	\$7.60	\$14.65	\$0.00	\$60.20
	06/01/2018	\$38.90	\$7.60	\$14.65	\$0.00	\$61.15
	12/01/2018	\$39.85	\$7.60	\$14.65	\$0.00	\$62.10
	06/01/2019	\$40.85	\$7.60	\$14.65	\$0.00	\$63.10
	12/01/2019	\$41.85	\$7.60	\$14.65	\$0.00	\$64.10
ROLLER/SPREADER/MULCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17
ROOFER (Inc.Roofer Waterproofng &Roofer Damproofg) <i>ROOFERS LOCAL 33</i>	08/01/2017	\$41.36	\$11.20	\$14.80	\$0.00	\$67.36
	02/01/2018	\$42.51	\$11.20	\$14.80	\$0.00	\$68.51
	08/01/2018	\$43.61	\$11.20	\$14.80	\$0.00	\$69.61
	02/01/2019	\$44.76	\$11.20	\$14.80	\$0.00	\$70.76

For apprentice rates see "Apprentice- LABORER"

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - ROOFER - Local 33**

**Effective Date - 08/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.68	\$11.20	\$3.44	\$0.00	\$35.32
2	60	\$24.82	\$11.20	\$14.80	\$0.00	\$50.82
3	65	\$26.88	\$11.20	\$14.80	\$0.00	\$52.88
4	75	\$31.02	\$11.20	\$14.80	\$0.00	\$57.02
5	85	\$35.16	\$11.20	\$14.80	\$0.00	\$61.16

**Effective Date - 02/01/2018**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.26	\$11.20	\$3.44	\$0.00	\$35.90
2	60	\$25.51	\$11.20	\$14.80	\$0.00	\$51.51
3	65	\$27.63	\$11.20	\$14.80	\$0.00	\$53.63
4	75	\$31.88	\$11.20	\$14.80	\$0.00	\$57.88
5	85	\$36.13	\$11.20	\$14.80	\$0.00	\$62.13

**Notes:** \*\* 1:5, 2:6-10, the 1:10; Reroofing: 1:4, then 1:1  
 Step 1 is 2000 hrs.; Steps 2-5 are 1000 hrs.  
 (Hot Pitch Mechanics' receive \$1.00 hr. above ROOFER)

**Apprentice to Journeyworker Ratio:\*\***

ROOFER SLATE / TILE / PRECAST CONCRETE <i>ROOFERS LOCAL 33</i>	08/01/2017	\$41.61	\$11.20	\$14.80	\$0.00	\$67.61
	02/01/2018	\$42.76	\$11.20	\$14.80	\$0.00	\$68.76
	08/01/2018	\$43.86	\$11.20	\$14.80	\$0.00	\$69.86
	02/01/2019	\$45.01	\$11.20	\$14.80	\$0.00	\$71.01
For apprentice rates see "Apprentice- ROOFER"						
SHEETMETAL WORKER <i>SHEETMETAL WORKERS LOCAL 17 - A</i>	08/01/2017	\$43.83	\$11.45	\$24.03	\$2.38	\$81.69
	02/01/2018	\$44.98	\$11.45	\$24.03	\$2.38	\$82.84

**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - SHEET METAL WORKER - Local 17-A**

**Effective Date - 08/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.53	\$11.45	\$5.61	\$0.00	\$34.59
2	40	\$17.53	\$11.45	\$5.61	\$0.00	\$34.59
3	45	\$19.72	\$11.45	\$10.76	\$1.26	\$43.19
4	45	\$19.72	\$11.45	\$10.76	\$1.26	\$43.19
5	50	\$21.92	\$11.45	\$11.71	\$1.35	\$46.43
6	50	\$21.92	\$11.45	\$11.96	\$1.36	\$46.69
7	60	\$26.30	\$11.45	\$13.61	\$1.54	\$52.90
8	65	\$28.49	\$11.45	\$14.56	\$1.64	\$56.14
9	75	\$32.87	\$11.45	\$16.47	\$1.82	\$62.61
10	85	\$37.26	\$11.45	\$17.87	\$2.00	\$68.58

**Effective Date - 02/01/2018**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.99	\$11.45	\$5.24	\$0.00	\$34.68
2	40	\$17.99	\$11.45	\$5.24	\$0.00	\$34.68
3	45	\$20.24	\$11.45	\$10.31	\$1.27	\$43.27
4	45	\$20.24	\$11.45	\$10.31	\$1.27	\$43.27
5	50	\$22.49	\$11.45	\$11.21	\$1.37	\$46.52
6	50	\$22.49	\$11.45	\$11.46	\$1.38	\$46.78
7	60	\$26.99	\$11.45	\$13.02	\$1.56	\$53.02
8	65	\$29.24	\$11.45	\$13.93	\$1.67	\$56.29
9	75	\$33.74	\$11.45	\$15.74	\$1.85	\$62.78
10	85	\$38.23	\$11.45	\$17.05	\$2.03	\$68.76

**Notes:**  
Steps are 6 mos.

**Apprentice to Journeyworker Ratio:1:4**

SIGN ERECTOR PAINTERS LOCAL 35 - ZONE 2	06/01/2013	\$25.81	\$7.07	\$7.05	\$0.00	\$39.93
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**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - SIGN ERECTOR - Local 35 Zone 2**

**Effective Date - 06/01/2013**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$12.91	\$7.07	\$0.00	\$0.00	\$19.98
2	55	\$14.20	\$7.07	\$2.45	\$0.00	\$23.72
3	60	\$15.49	\$7.07	\$2.45	\$0.00	\$25.01
4	65	\$16.78	\$7.07	\$2.45	\$0.00	\$26.30
5	70	\$18.07	\$7.07	\$7.05	\$0.00	\$32.19
6	75	\$19.36	\$7.07	\$7.05	\$0.00	\$33.48
7	80	\$20.65	\$7.07	\$7.05	\$0.00	\$34.77
8	85	\$21.94	\$7.07	\$7.05	\$0.00	\$36.06
9	90	\$23.23	\$7.07	\$7.05	\$0.00	\$37.35

**Notes:**  
Steps are 4 mos.

**Apprentice to Journeyworker Ratio:1:1**

SPECIALIZED EARTH MOVING EQUIP < 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	12/01/2016	\$33.54	\$10.91	\$10.89	\$0.00	\$55.34
SPECIALIZED EARTH MOVING EQUIP > 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	12/01/2016	\$33.83	\$10.91	\$10.89	\$0.00	\$55.63
SPRINKLER FITTER <i>SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1</i>	03/01/2017	\$56.08	\$8.77	\$17.20	\$0.00	\$82.05

**Apprentice - SPRINKLER FITTER - Local 550 (Section A) Zone 1**

**Effective Date - 03/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$19.63	\$8.52	\$8.70	\$0.00	\$36.85
2	40	\$22.43	\$8.52	\$8.70	\$0.00	\$39.65
3	45	\$25.24	\$8.52	\$8.70	\$0.00	\$42.46
4	50	\$28.04	\$8.52	\$8.70	\$0.00	\$45.26
5	55	\$30.84	\$8.52	\$8.70	\$0.00	\$48.06
6	60	\$33.65	\$8.52	\$10.20	\$0.00	\$52.37
7	65	\$36.45	\$8.52	\$10.20	\$0.00	\$55.17
8	70	\$39.26	\$8.52	\$10.20	\$0.00	\$57.98
9	75	\$42.06	\$8.52	\$10.20	\$0.00	\$60.78
10	80	\$44.86	\$8.52	\$10.20	\$0.00	\$63.58

**Notes:** Apprentice entered prior 9/30/10:  
40/45/50/55/60/65/70/75/80/85  
Steps are 850 hours

**Apprentice to Journeyworker Ratio:1:3**

STEAM BOILER OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN OPERATING ENGINEERS LOCAL 4	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TELECOMMUNICATION TECHNICIAN ELECTRICIANS LOCAL 103	09/01/2017	\$36.96	\$13.00	\$15.62	\$0.00	\$65.58
	03/01/2018	\$37.61	\$13.00	\$15.93	\$0.00	\$66.54
	09/01/2018	\$38.51	\$13.00	\$15.96	\$0.00	\$67.47
	03/01/2019	\$39.40	\$13.00	\$15.98	\$0.00	\$68.38

**Apprentice - TELECOMMUNICATION TECHNICIAN - Local 103**

**Effective Date - 09/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$14.78	\$13.00	\$0.44	\$0.00	\$28.22
2	40	\$14.78	\$13.00	\$0.44	\$0.00	\$28.22
3	45	\$16.63	\$13.00	\$12.55	\$0.00	\$42.18
4	45	\$16.63	\$13.00	\$12.55	\$0.00	\$42.18
5	50	\$18.48	\$13.00	\$12.82	\$0.00	\$44.30
6	55	\$20.33	\$13.00	\$13.10	\$0.00	\$46.43
7	60	\$22.18	\$13.00	\$13.39	\$0.00	\$48.57
8	65	\$24.02	\$13.00	\$13.66	\$0.00	\$50.68
9	70	\$25.87	\$13.00	\$13.95	\$0.00	\$52.82
10	75	\$27.72	\$13.00	\$14.22	\$0.00	\$54.94

**Effective Date - 03/01/2018**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$15.04	\$13.00	\$0.45	\$0.00	\$28.49
2	40	\$15.04	\$13.00	\$0.45	\$0.00	\$28.49
3	45	\$16.92	\$13.00	\$12.74	\$0.00	\$42.66
4	45	\$16.92	\$13.00	\$12.74	\$0.00	\$42.66
5	50	\$18.81	\$13.00	\$13.03	\$0.00	\$44.84
6	55	\$20.69	\$13.00	\$13.32	\$0.00	\$47.01
7	60	\$22.57	\$13.00	\$13.61	\$0.00	\$49.18
8	65	\$24.45	\$13.00	\$13.90	\$0.00	\$51.35
9	70	\$26.33	\$13.00	\$14.19	\$0.00	\$53.52
10	75	\$28.21	\$13.00	\$14.48	\$0.00	\$55.69

Notes:

**Apprentice to Journeyworker Ratio:1:1**

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TERRAZZO FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE &amp; TILE</i>	08/01/2017	\$51.00	\$10.75	\$19.35	\$0.00	\$81.10
	02/01/2018	\$51.68	\$10.75	\$19.35	\$0.00	\$81.78
	08/01/2018	\$53.03	\$10.75	\$19.48	\$0.00	\$83.26
	02/01/2019	\$53.67	\$10.75	\$19.48	\$0.00	\$83.90
	08/01/2019	\$55.02	\$10.75	\$19.62	\$0.00	\$85.39
	02/01/2020	\$55.66	\$10.75	\$19.62	\$0.00	\$86.03
	08/01/2020	\$57.01	\$10.75	\$19.77	\$0.00	\$87.53
	02/01/2021	\$57.65	\$10.75	\$19.77	\$0.00	\$88.17
	08/01/2021	\$59.05	\$10.75	\$19.93	\$0.00	\$89.73
	02/01/2022	\$59.64	\$10.75	\$19.93	\$0.00	\$90.32

**Apprentice - TERRAZZO FINISHER - Local 3 Marble & Tile**

**Effective Date - 08/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.50	\$10.75	\$19.35	\$0.00	\$55.60
2	60	\$30.60	\$10.75	\$19.35	\$0.00	\$60.70
3	70	\$35.70	\$10.75	\$19.35	\$0.00	\$65.80
4	80	\$40.80	\$10.75	\$19.35	\$0.00	\$70.90
5	90	\$45.90	\$10.75	\$19.35	\$0.00	\$76.00

**Effective Date - 02/01/2018**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.84	\$10.75	\$19.35	\$0.00	\$55.94
2	60	\$31.01	\$10.75	\$19.35	\$0.00	\$61.11
3	70	\$36.18	\$10.75	\$19.35	\$0.00	\$66.28
4	80	\$41.34	\$10.75	\$19.35	\$0.00	\$71.44
5	90	\$46.51	\$10.75	\$19.35	\$0.00	\$76.61

**Notes:**

**Apprentice to Journeyworker Ratio:1:3**

TEST BORING DRILLER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2016	\$37.70	\$7.60	\$14.35	\$0.00	\$59.65
For apprentice rates see "Apprentice- LABORER"						
TEST BORING DRILLER HELPER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2016	\$36.42	\$7.60	\$14.35	\$0.00	\$58.37
For apprentice rates see "Apprentice- LABORER"						
TEST BORING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2016	\$36.30	\$7.60	\$14.35	\$0.00	\$58.25
For apprentice rates see "Apprentice- LABORER"						
TRACTORS/PORTABLE STEAM GENERATORS <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TRAILERS FOR EARTH MOVING EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	12/01/2016	\$34.12	\$10.91	\$10.89	\$0.00	\$55.92

<b>Classification</b>	<b>Effective Date</b>	<b>Base Wage</b>	<b>Health</b>	<b>Pension</b>	<b>Supplemental Unemployment</b>	<b>Total Rate</b>
TUNNEL WORK - COMPRESSED AIR <i>LABORERS (COMPRESSED AIR)</i> For apprentice rates see "Apprentice- LABORER"	12/01/2016	\$48.58	\$7.60	\$14.75	\$0.00	\$70.93
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) <i>LABORERS (COMPRESSED AIR)</i> For apprentice rates see "Apprentice- LABORER"	12/01/2016	\$50.58	\$7.60	\$14.75	\$0.00	\$72.93
TUNNEL WORK - FREE AIR <i>LABORERS (FREE AIR TUNNEL)</i> For apprentice rates see "Apprentice- LABORER"	12/01/2016	\$40.65	\$7.60	\$14.75	\$0.00	\$63.00
TUNNEL WORK - FREE AIR (HAZ. WASTE) <i>LABORERS (FREE AIR TUNNEL)</i> For apprentice rates see "Apprentice- LABORER"	12/01/2016	\$42.65	\$7.60	\$14.75	\$0.00	\$65.00
VAC-HAUL <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	12/01/2016	\$33.54	\$10.91	\$10.89	\$0.00	\$55.34
WAGON DRILL OPERATOR <i>LABORERS - ZONE 1</i>	06/01/2017	\$37.60	\$7.60	\$14.15	\$0.00	\$59.35
	12/01/2017	\$38.45	\$7.60	\$14.15	\$0.00	\$60.20
	06/01/2018	\$39.40	\$7.60	\$14.15	\$0.00	\$61.15
	12/01/2018	\$40.35	\$7.60	\$14.15	\$0.00	\$62.10
	06/01/2019	\$41.35	\$7.60	\$14.15	\$0.00	\$63.10
	12/01/2019	\$42.35	\$7.60	\$14.15	\$0.00	\$64.10
	For apprentice rates see "Apprentice- LABORER"					
WASTE WATER PUMP OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2017	\$46.38	\$10.00	\$15.25	\$0.00	\$71.63
	12/01/2017	\$47.38	\$10.00	\$15.25	\$0.00	\$72.63
	For apprentice rates see "Apprentice- OPERATING ENGINEERS"					
WATER METER INSTALLER <i>PLUMBERS &amp; GASFITTERS LOCAL 12</i>	03/01/2017	\$52.69	\$11.32	\$15.46	\$0.00	\$79.47
	For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"					
<b>Outside Electrical - East</b>						
CABLE TECHNICIAN (Power Zone) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i> For apprentice rates see "Apprentice- LINEMAN"	09/03/2017	\$27.14	\$7.75	\$1.81	\$0.00	\$36.70
CABLEMAN (Underground Ducts & Cables) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i> For apprentice rates see "Apprentice- LINEMAN"	09/03/2017	\$38.45	\$7.75	\$9.53	\$0.00	\$55.73
DRIVER / GROUNDMAN CDL <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i> For apprentice rates see "Apprentice- LINEMAN"	09/03/2017	\$31.66	\$7.75	\$9.44	\$0.00	\$48.85
DRIVER / GROUNDMAN -Inexperienced (<2000 Hrs) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i> For apprentice rates see "Apprentice- LINEMAN"	09/03/2017	\$24.88	\$7.75	\$1.75	\$0.00	\$34.38
EQUIPMENT OPERATOR (Class A CDL) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i> For apprentice rates see "Apprentice- LINEMAN"	09/03/2017	\$38.45	\$7.75	\$13.61	\$0.00	\$59.81
EQUIPMENT OPERATOR (Class B CDL) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i> For apprentice rates see "Apprentice- LINEMAN"	09/03/2017	\$33.92	\$7.75	\$10.21	\$0.00	\$51.88
GROUNDMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i> For apprentice rates see "Apprentice- LINEMAN"	09/03/2017	\$24.88	\$7.75	\$1.75	\$0.00	\$34.38
GROUNDMAN -Inexperienced (<2000 Hrs.) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i> For apprentice rates see "Apprentice- LINEMAN"	09/03/2017	\$20.35	\$7.75	\$1.61	\$0.00	\$29.71

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
JOURNEYMAN LINEMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/03/2017	\$45.23	\$7.75	\$16.61	\$0.00	\$69.59

**Apprentice - LINEMAN (Outside Electrical) - East Local 104**

**Effective Date - 09/03/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$27.14	\$7.75	\$3.31	\$0.00	\$38.20
2	65	\$29.40	\$7.75	\$3.38	\$0.00	\$40.53
3	70	\$31.66	\$7.75	\$3.45	\$0.00	\$42.86
4	75	\$33.92	\$7.75	\$5.02	\$0.00	\$46.69
5	80	\$36.18	\$7.75	\$5.09	\$0.00	\$49.02
6	85	\$38.45	\$7.75	\$5.15	\$0.00	\$51.35
7	90	\$40.71	\$7.75	\$7.22	\$0.00	\$55.68

**Notes:**

**Apprentice to Journeyworker Ratio:1:2**

TELEDATA CABLE SPLICER <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	01/01/2016	\$28.98	\$4.25	\$3.12	\$0.00	\$36.35
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TELEDATA LINEMAN/EQUIPMENT OPERATOR <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	01/01/2016	\$27.31	\$4.25	\$3.07	\$0.00	\$34.63
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TELEDATA WIREMAN/INSTALLER/TECHNICIAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	01/01/2016	\$27.31	\$4.25	\$3.07	\$0.00	\$34.63
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TREE TRIMMER <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	01/31/2016	\$18.51	\$3.55	\$0.00	\$0.00	\$22.06
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This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is not on the ground. This classification does not apply to wholesale tree removal.

TREE TRIMMER GROUNDMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	01/31/2016	\$16.32	\$3.55	\$0.00	\$0.00	\$19.87
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This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is on the ground. This classification does not apply to wholesale tree removal.

**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, 4:6, 5:7, 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, 5:8, 6:9, 6:10, 7:11, 8:12, 8:13, 9:14, 10:15, 10:16, etc.



CERTIFICATE OF NON-COLLUSION

The undersigned certifies under penalties of perjury that this bid or proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club or other organization, entity, or group of individuals.

\_\_\_\_\_  
(Signature of individual submitting bid or proposal)

\_\_\_\_\_  
(Name of individual submitting bid or proposal)

\_\_\_\_\_  
Name of Business

\_\_\_\_\_  
Date

\_\_\_\_\_  
Pursuant to M.G.L. Chapter 62C, Section 49A, I certify under the penalties of perjury that I have complied with all laws of the commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

\_\_\_\_\_  
Social Security Number or  
Federal Identification Number

\_\_\_\_\_  
Signature of Individual or Responsible  
Corporate Officer and Title

**NON-COLLUSION FORMS  
MUST BE SIGNED AND  
SUBMITTED WITH BID**

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 in the Work; that all employees to be employed at the worksite shall have successfully completed a course in construction safety and health approved by OSHA (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 shall comply fully with all laws and regulations applicable to awards made subject to MGL, Chapter 149 Section 44A .

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Signature: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

01000 -- GENERAL CONDITIONS

1.1 SUMMARY

- A. The General Contractor is responsible for ensuring that the building construction is performed in accordance with the Town of Arlington, MA approved plans and that the work conforms to all applicable governing body regulations, including, but not limited to the conditions of approval as stated by the Planning Board, Design Review Board, and other Town Departments.
- B. The Owner will insure the building and materials stored on site to cover costs of loss due to fire, vandalism, or theft during the construction process.
- C. The General Contractor will carry and pay for all Workman's Compensation, insurance and liability insurance. It will be the responsibility of the General Contractor to ensure that all workers on the site are covered by Workman's Compensation Insurance whether they are under the General Contractor's direct employ, a contract laborer, or a Sub-Contractor. Refer to section 00805 for additional insurance requirements.
- D. The building is to be completed in accordance with the plans and specifications. All site work, concrete, masonry, steel, carpentry, finishes, painting, plumbing and heating, electrical, and fire protection are to be completed unless otherwise specified.
- E. The General Contractor is responsible for completion of all sub-contract work and for payment to the sub-contractors. The General Contractor shall furnish all labor and materials, tools and equipment, obtain all necessary permits, and provide for all compensation and liability insurance to protect the Owner and as required by law. Refer to section 00805 for additional insurance requirements.
- F. All building material and construction shall comply with applicable provisions of the Zoning by law, Building Code of the Commonwealth of Massachusetts, Plumbing, Electrical Codes, and all other Federal, State and Municipal ordinances and regulations governing work in Sturbridge, MA.
- G. All labor and material used in the project shall conform to good practice standards as herein specified.
- H. The General Contractor shall allow the Owner to inspect the work at all times. If any materials or workmanship are found not to meet the standards of standard building practice, the G.C. shall remove them upon receiving notice from the Owner/Architect in writing and replace such work at his own expense.
- I. No changes to the original plans and specifications may be made without the written consent of the Owner/Architect. **ABSOLUTELY NO SUBSTITUTIONS OR EQUIVALENTS WILL BE ALLOWED WITHOUT THE ARCHITECT'S OR OWNER'S WRITTEN APPROVAL. THE ARCHITECT/OWNER MAY REJECT A PROPOSED SUBSTITUTION FOR ANY REASON.**
- J. The General Contractor is responsible for securing and paying for all permits, utility company fees, and other governing agency fees up through receipt of an occupancy permit.
- K. All work will be guaranteed against defects in material and labor for one year after project acceptance by the Owner.

## **Town of Arlington-NFI Kitchen Renovation**

**August 28, 2017**

23 Maple Street, Arlington MA 02476

Siemasko + Verbridge

- L. The General Contractor will make the finished project clean and ready for occupancy. All glass and frames shall be cleaned, labels removed, floors washed and vacuumed and the project area free from debris and trash. All specialized building materials to be protected in accordance with manufacturer's written recommendations. The project area and site shall be kept free from debris and trash. No debris, natural or otherwise, will be scattered around the site in an effort to "lose the material" without written approval by the Owner.
  - M. These documents do not specifically address construction safety. Safety, care of adjacent properties during construction, and compliance with applicable safety regulations are the responsibility of the General Contractor.
  - N. The General Contractor is responsible for maintaining the construction site in a clean and protected state at the end of the construction operations each day.
  - O. This project is located in a high-visibility neighborhood. Extra special care should be taken not to disturb the neighbors' quality of life. This includes containment of dust, trash, and noise as much as possible. Do not park on or otherwise use the neighbors' property.
  - P. General Contractor is responsible for compliance with all local conditions of approval, including Planning Board Site Plan Review and Design Review Board Review approvals.
- END OF SECTION

23 Maple Street, Arlington MA 02476  
Siemasko + Verbridge

01010 -- SUMMARY OF WORK

GENERAL

1.1 SUMMARY

- A. This project consists of a renovation of existing laundry and kitchen facility for a group home. All finishes, appliances and fixtures to be replaced in-kind with some re-arrangement of appliance locations.

1. Construction type: 5B
2. Occupancy type: R2 Transient Residential Sleeping
3. Project includes: (Architectural, Plumbing, Electrical)

B. Project requirements:

1. Existing site conditions and restrictions:
  - a. Protect adjacent buildings during demolition and construction operations.
  - b. Provide police details as required by the Town of Sturbridge and secure permits to close roads/sidewalks, etc. as necessary to execute the work.
  - c. Follow all local, state and national regulations regarding hazardous waste disposal.
2. Requirements for construction schedule, and sequence of work:
  - a. Construction scheduling and sequencing is the responsibility of the Contractor in conjunction with the Owner's requirements.
3. Previous or concurrent work by Owner or others: none
4. Items provided and/or installed by the Owner: none
5. Items provided by Owner, installed by Contractor: none
6. Early occupancy by Owner: not required
7. Apply for, obtain, and pay for all permits required for the work. Submit two copies each of all permits, inspection reports, and certificates of compliance to Owner and Architect. Comply with all applicable building codes and rules of other governing regulatory agencies.
8. Verify field dimensions before ordering fabrications or products to fit in place. Notify Architect of existing conditions and dimensions that differ from those shown in the Drawings.
9. Unless specifically noted otherwise, the subject of all imperative sentences in the Specifications is the Contractor. For example, "Provide and install . . ." means "Contractor shall provide and install"
10. Provide narrative and coordinate with the Town of Sturbridge, DPW describing sewer work and proposed solutions to new loads on sanitary waste.

END OF SECTION

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01025 -- SCHEDULE OF VALUES

GENERAL

1.1 SUMMARY

- A. Unless otherwise stated in the Agreement, provide a detailed breakdown of the Contract Sum as a Schedule of Values that is allocated to each part of the Work.
- B. Before submitting the first application for payment, submit a proposed Schedule of Values to the Owner.
- C. Provide copies of subcontracts and other data acceptable to the Owner to substantiate the sums described.

END OF SECTION

01040 -- COORDINATION

1.1 GENERAL REQUIREMENTS

- A. Include GENERAL CONDITIONS and SUPPLEMENTARY CONDITIONS as part of this Section.
- B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with trades affecting, or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.1 SECTION INCLUDES

- A. Coordination of elements of the Work.
- B. Coordination of Contract Closeout.

1.2 COORDINATION REQUIREMENTS

- A. The General Contractor shall coordinate scheduling, submittals, and work of the various sections of specifications and subcontractors to ensure efficient and orderly sequence of installation of construction elements, with provisions for accommodating items to be installed later.
- B. Meetings: In addition to progress meetings specified in Section 01200, hold coordination meetings and pre-installation conferences with personnel and subcontractors to assure coordination of work.

1.3 COORDINATION OF SUBMITTALS

- A. The General Contractor shall schedule and coordinate submittals specified in Section 01300, SUBMITTALS.
- B. The General Contractor shall coordinate the work of various Sections having interdependent responsibilities for installing, connecting to, and placing in service required equipment and services.
- C. The General Contractor shall coordinate requests for substitutions to assure compatibility of specifications, of operating elements, and effect on space requirements and work of other Sections.

1.4 COORDINATION OF ELEMENTS OF THE WORK

- A. Before commencing any work, the General Contractor shall prepare and submit a sequence of operations for all work under this Contract as stipulated in Section 01300, SUBMITTALS for approval by the Architect.
- B. If, in the judgment of the Architect, continued work under the approved sequence of operations may interfere with the progress of the Work, the Architect may direct the General Contractor to accelerate, interrupt, or cease work at particular points. The General Contractor shall make reasonable changes in the sequence of operations to accommodate these directions at no additional cost to the Owner.
- C. The General Contractor shall be responsible for the proper fitting of all work and the coordination of the operations of all trades, subcontractors, materials and equipment engaged upon the Work. He shall guarantee each of his subcontractors the dimensions which they may require for the fitting of their work to all surrounding work and shall do or cause the subcontractors to do all cutting, fitting, adjusting and patching necessary to make the several parts of the Work come together properly and to fit the Work to receive that of other contractors.
- D. The General Contractor shall give his personal supervision to the Work or have a competent superintendent on the Work at all times during the progress of the Work to ensure the proper coordination and expediting of the Work.
- E. The General Contractor shall lay out the Work, and be responsible for all lines, elevations, and measurements of the building, grading, paving and other work executed under the Contract. He shall exercise proper precaution to verify the dimensions shown on the Drawings before laying out the Work and will be held responsible for any error resulting from his failure to exercise such precaution.
- F. The General Contractor shall be in charge of the entire Work and shall be responsible for the prompt coordination of all trades, including his own forces and his subcontractors, as well as the Owner's separate operations, and become fully familiar with all work required under the Contract.
- G. Care shall be given to the proper scheduling, delivery, and installation of items to be built into rough construction which will affect the latter portions of the Work, such as anchors, pipe sleeves, inserts, conduit, pipes, lugs, clips, brackets, braces, hangers, bolts, miscellaneous metal and similar items. These items are not necessarily specified under the trade Section under which they are to be installed. The General Contractor shall ascertain that all are properly installed in their correct locations at the proper time so as to prevent cutting and patching of finished work.
- H. The General Contractor shall be fully responsible for coordination of general construction work with that of subcontractors for plumbing, sanitary, electrical, heating and ventilation, and other specialized trades. He shall investigate, together with the subcontractors involved, the routing of pipes, ductwork, and conduit with particular attention to interference of structural members, other pipes, ducts, and conduit cuts, head room conditions, door and window openings and swings, pipe chases, and similar features of the building which may affect installation and proper functioning of such items.
- I. Changes in design location which may be necessary in the routing of pipes and ducts, or in the location of any mechanical, electrical or other equipment, shall be anticipated and made prior to installation. Additional compensation will not be allowed for costs incurred as a result of the General Contractor's failure to anticipate the necessity for such changes.



- J. There shall be no change or variation in ceiling height, wall layout, shaft, chase, furring or other dimensions shown on Drawings, without the specific written approval of the Architect.
- K. The General Contractor's responsibility for the coordination of all work under the Contract shall be complete, and shall extend to all modifications in the Work, whether or not such modifications entail a change in the Contract Price. Where the Contract Documents allow an optional material or method of performing a portion of the Work, or where the General Contractor is ultimately allowed or directed to perform a part of the Work using a substitute material or method, the General Contractor shall provide all other coordination and additional work that such change necessitates, without any additional costs to the Owner.

1.1 COORDINATION OF CONTRACT CLOSEOUT

- A. The General Contractor shall coordinate the completion and cleaning of the work of separate subcontractors in preparation for Substantial Completion of portions of the Work designated for partial Owner occupancy.
- B. After Owner occupancy of premises, coordinate access to the site by various subcontractors for correction of defective or unfinished work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.
- C. Assemble and coordinate closeout submittals specified in Section 01700, CONTRACT CLOSEOUT.

END OF SECTION

01200 PROJECT MEETINGS

1.1 GENERAL REQUIREMENTS

- A. Include GENERAL CONDITIONS and SUPPLEMENTARY CONDITIONS as part of this Section.
- B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with trades affecting, or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.2 SECTION INCLUDES

- A. Pre-construction meetings
- B. Administration of progress meetings

1.3 RELATED SECTIONS

- A. Section 01040 – COORDINATION
- B. Section 01300 – SUBMITTALS
- C. Individual Specifications Sections: Pre-installation conferences.

1.4 MEETINGS

- A. The Architect will schedule pre-construction organizational meetings, weekly project meetings, specially called meetings throughout the progress of the Work, and post-construction meetings.
- B. All of these meetings shall be attended by the representatives of the General Contractor, Owner, and the Architect. Consultants and subcontractors shall attend as requested by the Architect.

1.5 PRE-CONSTRUCTION ORGANIZATIONAL MEETINGS

- A. Immediately following award of Contract, the Architect will call one or more preliminary organizational meetings during which detailed procedures will be worked out for submission and review of Shop Drawings and samples, format and extent of the construction schedule and schedule of values, format and methods for progress payment requisitions, channels of communication between the Owner, Architect, and the General Contractor's personnel, and other routines to be followed during construction.

1.6 PROGRESS MEETINGS

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- A. The Architect will call together, weekly and at other reasonable times as designated by the Architect, representatives of the General Contractor who shall meet at their site, to report on the condition of the work under their charge, or on any other matters pertinent to the conduct of the Work. Subcontractors shall attend such meetings at the request of the Architect. The progress of the work may allow a meeting to be skipped as determined by the Architect.
- B. The Architect will take the minutes of such meetings and distribute copies to the Owner and the General Contractor. The General Contractor shall distribute the meeting notes to all subcontractors.
- C. The General Contractor's representative and each subcontractors' representative attending such meetings shall be the job superintendent or other responsible party approved by the Architect. Such representatives shall be empowered to make, at these meetings, definite decisions binding upon their respective employers regarding all matters pertaining to the work under this Contract.
- D. The General Contractor shall furnish the Owner and the Architect, in writing, the names, addresses, and telephone numbers of General Contractor's and principal subcontractors' personnel to be contracted in the event of an after hours emergency at the site. The General Contractor shall also maintain a similar list readily visible from the outside of the field office.

END OF SECTION

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01300 – SUBMITTALS

PART 1 -- GENERAL

1.1 GENERAL REQUIREMENTS

- A. Examine all other Sections of the Specification for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- B. Coordinate work with trades affecting, or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under Contract.

1.2 SECTION INCLUDES

- A. Construction Progress Schedule
- B. Shop Drawings, Product Data and Samples
- C. Progress Photographs
- D. Schedule of Values
- E. Certificates of Compliance
- F. Field Samples
- G. Patterns and Colors

1.3 RELATED SECTIONS

- A. Section 01010 – SUMMARY
- B. Section 01027 – APPLICATIONS FOR PAYMENT
- C. Section 01700 – CONTRACT CLOSEOUT
- D. Section 01600 – MATERIALS AND EQUIPMENT

1.4 CONSTRUCTION PROGRESS SCHEDULE

- A. Within 30 days after execution of the General Contract, the Contractor shall submit to the Owner through the Architect a Progress Schedule. This Progress Schedule shall be in the form of a Critical Path Diagram designed to indicate the rate of progress and the necessary dates of all significant events which will insure Substantial Completion of the Work within the time specified.
- B. The Progress Schedule shall be established by the Contractor in collaboration with a qualified programmer skilled and experienced in construction programming of this type. Electronic data-processing equipment shall be used as required. The CPM schedule shall be presented in a form acceptable to the Architect. The schedule shall be brought up to date no less often than once each month by the same personnel or firm that prepared the original. Receipt of updated schedule shall be a condition prerequisite to Architect's approval of application for monthly payment.
- C. Arrange schedule to show graphically major sequences for coordinating work; lead times required (including preparation and review of submittals); float time allowed; all major categories of work and critical minor work units affecting overall work sequence. Include also phased work; Owners moving in of furniture; site restrictions; seasonal variations; environmental controls and similar provisions of the Contract Documents.
- D. Show significant work stages for each category of unit of work including letting of subcontracts; submittals; purchases; mock-ups; fabrication; sample testing; adjusting and balancing; curing; start-up and placement into and operation. Include specifically items which are not direct cost of work in place such as coordination drawings; temporary facilities; close out procedures and the like.

- E. Distribution: Provide three (3) copies of each schedule to Architect. Provide additional copies on a need-to-know basis to subcontractors, fabricators and others. At least one copy shall be available in the field office. Each update shall be similarly distributed.
- F. All work in establishing and maintaining the CPM Schedule shall be included in the Contract Sum.
- G. The Contractor shall perform the Work in accordance with the approved CPM Schedule. If any work is found not to be on schedule during any regular review of the Work, the Contractor shall immediately advise the Architect in writing of action proposed to bring the work up to schedule, and shall submit a revised CPM Diagram indicating such action, together with a typed list of revisions.
- H. If, in any regular review of the work, the amount of complete Work in place is less than 90% of the Work in place required by the Progress Schedule, the Owner may, at his option, require the Contractor to accelerate the progress of the work, without additional cost to the Owner, by increasing the work force or the hours of work or by other reasonable means approved by the Architect.
- I. Prepare also a graphic construction progress schedule in the form of a horizontal bar chart for submission with the Payment Application.
  - a. Provide separate horizontal bar for each trade or operation.
  - b. Horizontal time scale: Identify the first work day of each week
  - c. Scale and spacing: Allow space for notations and future revisions
  - d. Minimum sheet size: 8 1/2" by 11"
  - e. Show the complete sequence of construction by activity
  - f. Show the dates for the beginning and completion of each major element of construction.
  - g. Show projected percentage of completion for each item as of the first day of each month.
- J. Show on a bar chart
  - a. Progress of each activity to date of submission.
  - b. Changes since previous submission
- K. Provide a narrative report as needed to define problem areas, anticipated delays, the impact on the schedules, and the effect of recommended corrective action.

#### 1.5 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

- A. Submit Shop Drawings, product data, and samples for all items as required by the specifications and as directed by the Architect.
- B. Schedule: The General Contractor shall prepare and submit for the Architect's approval a schedule of Shop Drawings, product data, and samples required to be submitted for the Work. The schedule shall indicate by trade 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 Architect's approval. The schedule shall allow a minimum of twenty-one (21) days after Architect's receipt of documents for the Architect's review of each submission or re-submission, including consultant's review, plus an allowance for receipt of submittals by the Architect and subsequent distribution by the General Contractor. The Architect will consider requests for a reduced review period on specific submissions.
- C. Notes or other information on the Shop Drawings, labels, transmittals or other items submitted which are contrary to provisions of the Contract Documents shall be deemed to be addressed to the General Contractor, applicable subcontractor, material men or other

- parties involved, and shall have no force or effect with respect to this Contract, even though the sample is approved by the Architect. In particular the terms “By Others”, N.I.C.”, or other words of similar meaning and import on submissions shall not be deemed to imply that the referenced items are to be omitted from this Contract.
- D. Substitutions: Refer to section 01600, MATERIAL AND EQUIPMENT for additional requirements pertaining to substitutions. All proposed substitutions shall be accompanied by a “Substitution Request Form” on which the contractor shall state that:
- a. The proposed substitution does not affect dimensions indicated on Drawings
  - b. The Contractor making the request for the substitution shall pay the costs of changes to the building design, including engineering design, detailing and all additional construction costs caused by the requested substitution.
  - c. The proposed substitution will have no adverse affect on other trades, the construction schedule, or specified warranty requirements.
  - d. Maintenance and service parts are locally available for the proposed substitution.
  - e. The function, appearance and the quality of the proposed substitution are equal or superior to the specified item.
- E. Certificates of Compliance: The General Contractor shall submit certificates of compliance along with the associated Shop Drawings, product data and samples required for each product. Submit on copy of each certificate on 8-1/2 inch by 11 inch white paper. The Architect will retain the certificates of compliance; no approval reply is intended.

#### 1.6 SHOP DRAWINGS AND PRODUCT DATA

- A. To receive consideration by the Architect, Shop Drawings and product data shall be accompanied by a letter of transmittal and each shall contain the following information:
- a. Project identification
  - b. Architect’s name
  - c. Date of preparation of submission, and revision if applicable
  - d. Shop Drawing number and title of item the drawing refers to.
  - e. Architect’s drawing numbers and specifications paragraph number used as a reference in preparing shop drawings
  - f. Contractor’s and subcontractor’s name
  - g. Names of person or firm preparing drawings
  - h. Statement or stamp of approval by the General Contractor, which shall signify that he has seen, and examined the drawing and that requirements of the General Conditions have been complied with.
- B. Shop drawings and product data relating to various units comprising a proposed assembly shall be submitted simultaneously so that said units may be checked individually and as an assembly.
- C. All shop drawings and product data shall be submitted to the architect though the General Contractor. Drawings or product data submitted directly from subcontractors, manufacturers or vendors, or directly to the Architect’s consultants, will be returned to the Contractor without action.

#### 1.7 PRODUCT DATA

- A. Submit five (5) copies of each of standard manufactured items in the form of manufacturer's product data (catalog sheets), showing illustrated cuts of the items to be furnished, scale and details, sizes, dimensions, performance characteristics, capacities, and other pertinent information, accompanied by an appropriate transmittal form with specific reference to the applicable paragraph in the Specifications. Such sheets will be marked either "accepted" or "Rejected", and two copies of each will be returned to the General Contractor. Rejected submittals shall be resubmitted in the same manner until acceptance is obtained.
- B. Indicate clearly on such printed matter which of several items is being submitted for approval.
- C. If catalog cuts of standard manufactured items show different types, options, finishes, performance requirements, and other variations, those features that the Contractor proposes to furnish shall be clearly circled or otherwise indicated, and all irrelevant diagrams, notes, or other information deleted or canceled. If any variations from the catalog description are proposed or required, such variations shall be clearly noted on the cut by the Contractor. Catalog cuts of wiring diagrams will not be acceptable.
- D. Patterns and Colors: The General Contractor shall submit accurate color charts and pattern charts to the Architect for his review and selection whenever a choice of color or pattern of a product is indicated in the Contract Documents.

#### 1.8 SHOP DRAWINGS

- A. For drawings marked "Rejected", or "Revise – Resubmit" the Architect will keep a print on file. Such prints shall be used for record purposes and for comparison with subsequent resubmissions. One print will be retained by the Architect, one print will be issued to the Clerk of the Works and any remaining prints will be returned to the General Contractor.
- B. Drawings marked "accepted as Noted", shall be treated as approved Drawings. The Architect's comments shall be considered part of the original Drawings. Should the Contractor disagree with such comments, he shall so notify the Architect in writing within fourteen (14) days after receipt of such Drawings and before commencing work on the items in question. Failing this, the Contractor shall be deemed to have accepted full responsibility for implementing such comments at no additional cost to the Owner.
- C. For drawings marked "accepted or "accepted as noted", the Architect will keep one print, one print will be issued to the Clerk of the Works, and one print will be furnished to the applicable consultants, if any. The transparency and any remaining prints will be returned to the General Contractor.
- D. Shop Drawings shall clearly indicate all details, sectional views, arrangements, working and erection dimensions, kinds and quality of materials and their finishes, and other information necessary for proper checking and for fabrication and installation of the items, and shall include all information required for making connections to other work.
- E. If any information on previously submitted Shop Drawings, aside from notations made by the Architect, is revised in any way, such revision shall be circled or otherwise graphically brought to the Architect's attention. If approved Drawings are subsequently revised, they shall be resubmitted to the Architect with all revisions clearly marked for the Architect's attention. Whenever drawings are revised, the latest revision shall be circled or otherwise indicated to distinguish it clearly from all previous revisions (and from the information on the original Drawing)

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- F. Should the Architect, in checking Shop Drawings, make changes which the Contractor deems will increase the Contract Price, the General Contractor shall so inform the Architect in writing within fourteen (14) days following receipt of the checked shop drawings and prior to starting fabrication of the item or items. Failing this, the Contractor shall be deemed to have waived all claims for extra compensation for the work involved.
- G. The General Contractor shall be responsible for obtaining and distributing copies of approved Shop Drawings to his subcontractors and material suppliers needing such information, at no additional cost to the owner.
- H. The General Contractor shall keep on site, in good order, a complete up-to-date set of all approved Shop Drawings.

### 1.9 SAMPLES

- A. Before submitting samples, consult with Architect to verify that samples will be required and to determine whether samples are to be submitted to the Architect's office, field, or other location.
- B. Samples shall be submitted in triplicate, unless otherwise specified or directed by the Architect.
- C. The Architect will prepare a master color schedule indicating required color, finish, pattern, material, texture, and other pertinent information in connection with interior and exterior finishes.
- D. To facilitate the preparation of such schedule, the Contractor shall submit, within forty-five (45) days following date of award of contract, unless otherwise extended by the Architect, the names of the manufacturers whose products he proposes to use within the framework of the specifications, wherever color, finish, pattern, texture or other related information is a consideration, e.g., paint, resilient flooring, acoustical ceiling tile, and other items, for which the above properties affect the design.
- E. Color chips shall be submitted for all items having color unless otherwise directed or approved by the Architect. Upon the expiration of such 45-day period, the architect will proceed with color selection and preparation of final color schedule.
- F. The architect will select the colors and finishes of a manufacturer within the framework of the specifications for each item where the contractor fails to submit the name of a specific manufacturer within the allotted time and the Contractor shall provide such materials without additional compensation.
- G. Samples may be submitted to Architect directly from manufacturers, vendors, suppliers, subcontractors, or others, but a separate transmittal letter shall be submitted through the General Contractor in each such case.
- H. Approved samples of major or expensive items or assemblies, if in good condition and meeting all requirements of the Contract, may be properly marked for identification and used in the work, provided that all shipping and handling charges are paid by the Contractor.
- I. Each sample shall have a label indicating the material represented, its place of origin, and the names of the producer, the Architect, the General Contractor, the subcontractor, and the building or Work for which the material is intended. Samples shall be marked to indicate the drawing numbers or specifications paragraph requiring the materials represented.



- J. Approval of samples for color, texture, and other aesthetic qualities shall not be construed as approval of other characteristics.
- K. Field Samples: Provide field samples of finishes at site as required by individual specification Sections. Install sample complete and finished. Acceptable samples in place may be retained in completed work.

**1.10 PROGRESS PHOTOGRAPHS**

- A. The General Contractor shall furnish and deliver two (2) color prints each of four (4) exposures take at the site on the date work is begun and four (4) views on the first day of each subsequent month.
- B. Additional photos of all slabs after installation of reinforcing steel and accessories prior to placing of concrete shall be taken.
- C. Locations and angle of the view shall be as directed by the Architect. No aerial photos will be required. The final set of photographs shall be taken within three (3) days of the date of Substantial Completion, or on such other date as the Architect may direct.
- D. The Architect may order more or fewer views for various submissions without a charge in the Contract Price, provided the average number of views per submission does not change.

**1.11 SCHEDULE OF VALUES**

- A. Information Required:
  - a. Submit Schedule of Values in accordance with requirements of the General Conditions and as further specified herein.
  - b. The value of each line item shall represent the value of work associated with such item.
  - c. In preparing the Schedule, each subdivision or classification of the Work shall be identified by code number, referring to each individual Section (or Sub-Section where applicable) of the Specifications.
  - d. Attached to the Schedule of Values shall be a list of the names, addresses (and whether individual, partnership or corporation) of each Subcontractor or Sub-Subcontractors who is to perform all or any part of each subdivision. In the event any Subcontractors and Sub-Subcontractors are not known at the time said schedule is prepared, an amended or supplementary list containing the names of the Subcontractors and Sub-Subcontractors involved and indicating their division of the Work shall be furnished to the Architect as soon as the information is available. A code number for identification on requisitions shall be used to identify the Contractor, each of the Subcontractors and subordinate Subcontractors, and shall be shown in each requisition where any part of the Work performed by the Contractor, such Subcontractor, Sub-Subcontractors or material men is incorporated in the amount of the requisition for which payment is requested.
  - e. The schedule of Values shall be arranged in vertical columns identified with titles, including Names of Items, Original Amounts, Percent Completed to Date, Previous Payments, Current Requests, Balance Not Yet Requested and Retained Amounts. A summary of the total amount due to date and the amount of the five percent retained shall be included in the statement which shall be provided by the

General Contractor. A separate sheet shall be included with each requisitions showing status of work covered by approved Change Orders. The schedule shall be revised if later found by the Architect to be inaccurate.

- f. Submit to the Owner such schedules of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data as the Owner may request concerning work performed or to be performed under this Contract.

B. Schedule Requirements: The general Contractor shall:

- a. Submit to the Architect two copies of the Schedule of Values within 10 days of receipt of Notice to Proceed.
- b. Upon request by the Architect, support values given with data that will substantiate their correctness
- c. Submit quantities of designated materials for materials stored on which payment is expected to be made.
- d. Use Schedule of Values only as basis for Contractor's Application for Payment.

C. Preparing Schedules of Values:

- a. Itemize separate line item cost for work required by each Section of the Specifications. Sections shall be further subdivided into separate line items under each section as required by the Architect.
- b. Make sum total costs of all items listed in schedule equal to total Contract Sum.

D. Review and Resubmittal: After review by Architect, revise and resubmit schedules as required. Resubmit revised schedules in same manner.

#### 1.12 COMMUNICATION

- A. During Construction, provide submittals through e-mail and the internet as much as possible. Submittals should be in Adobe PDF Format.

END OF SECTION

SECTION 01400  
QUALITY CONTROL

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PART1-GENERAL

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1.1 GENERAL REQUIREMENTS

- A. Examine all other Sections of the Specifications for requirements which affect work of this Section Whether or not such work is specifically mentioned in this Section.
- B. Coordinate work with trades affecting, or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.2 SECTION INCLUDES

- A. Administrative and procedural requirements for quality control services.
- B. Assignment of responsibilities.
- C. Required submittals

1.3 RELATED SECTIONS

- A. Section 01300 – SUBMITTALS
- B. Section 01600 – MATERIALS AND EQUIPMENT
- C. Section 01041 – COORDINATION
- D. Section 01045 – CUTTING AND PATCHING

1.4 SCOPE OF SERVICES

- A. Quality control services include inspections, tests and related actions, including reports, performed by independent agencies, governing authorities, and the General Contractor. They do not include Contract enforcement activities performed by the Architect.
- B. Inspection and testing services are required to verify compliance with requirements specified or indicated. These services do not relieve the General Contractor of responsibility for compliance with Contract Document requirements.
- C. Requirements of this section relate to customized fabrication and installation procedures, not production of standard products.
- D. Specific quality control requirements for individual construction activities are specified in the Sections that specify those activities. Those requirements, including inspections and tests, cover production of standard products as well as customized fabrication and installation procedures.
- E. Inspections, tests and related actions specified are not intended to limit the General Contractor's quality control procedures that facilitate compliance with Contract Document requirements.

- F. Requirements for the General Contractor to provide quality control services required by the Architect, owner, or authorities having jurisdiction shall not be limited by provisions of this Section.

#### 1.5 GENERAL CONTRACTOR'S RESPONSIBILITIES

- A. The General contractor shall provide inspections, tests, and similar quality control services specified in individual specification sections and those required by governing authorities, except where provided by another identified entity and not by the general contractor.
- B. Costs for such quality control services shall be included in the contract sum.
- C. The General Contractor shall employ and pay an independent agency, to perform specified quality control services.
- D. Retesting: The General Contractor is responsible for retesting where results of required inspections, tests, or similar services prove unsatisfactory and do not indicate compliance with contract documents.
- E. Cost of retesting construction revised or replaced by the General Contractor is the General Contractor's responsibility where required tests were performed on original construction.

#### 1.6 ASSOCIATED SERVICES

- A. The General Contractor shall cooperate with all agencies performing required inspections, tests and similar services and shall provide reasonable auxiliary services as required.
- B. Notify the agency sufficiently in advance of operations to permit assignment of personnel. Auxiliary services required of the Contractor include but are not limited to:
  - a. Providing access to the work and furnishing incidental labor and facilities necessary to facilitate inspections and tests.
  - b. Taking adequate quantities of representative samples of materials that require testing or assisting the agency in taking samples.
  - c. Providing facilities for storage and curing of test samples and delivery of samples to testing laboratories.
  - d. Providing the agency with a preliminary design mix proposed for use for materials mixes that require control by the testing agency.
  - e. Security and protection of samples and test equipment at the project site.

#### 1.7 DUTIES OF THE TESTING AGENCY

- A. The independent testing agency engaged to perform inspections, sampling and testing of materials and construction specified in individual specification Sections shall cooperate with the Architect and General Contractor in performance of its duties, and shall provide qualified personnel to perform required inspections and tests.
- B. The agency shall notify the Architect and General Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services

- C. The agency is not authorized to release, revoke, alter or enlarge requirements of the Contract Documents, or approve or accept any portion of the Work.
- D. The agency shall not perform any duties of the General Contractor.
- E. The General Contractor is responsible for scheduling times for inspections, tests, taking samples, and similar activities.

1.8 SUBMITTALS

- A. The Contractor’s independent testing agency shall submit a certified written report of each inspection, test or similar service, to the Architect, through the General Contractor, in duplicate. Submit additional copies of each written report directly to the governing authority, when the Architect so directs.
- B. Report data: Written reports of each inspection, test or similar service shall include, but not be limited to:
  - a. Date of issue
  - b. Project title and number
  - c. Name, address and telephone number of testing agency
  - d. Dates and locations of samples or inspections
  - e. Names of individuals making the inspection or test
  - f. Designation of the work and test method
  - g. Identification of product and specification section
  - h. Complete inspection or test data
  - i. Test results and an interpretation of test results
  - j. Ambient conditions at the time of sample taking and testing
  - k. Comments or professional opinion as to whether inspection or tested work complies with Contract Document requirements.
  - l. Name and signature of laboratory inspector
  - m. Recommendations on retesting

1.9 QUALIFICATIONS FOR SERVICE AGENCIES

- A. Engage inspection and testing services agencies including independent testing laboratories, which are prequalified as complying with “recommended Requirements for Independent Qualification” by the American Council of Independent Laboratories , and which Specialize in types of inspections and tests to be performed.
- B. Each independent inspection and testing agency engage on the project shall be authorized by authorities having jurisdiction to operate in the State in which the Project is located.

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PART 3 – EXECUTION

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3.1 REPAIR AND PROTECTION

- A. Upon completion of inspection, testing, sample-taking and similar services for quality control, repair damaged construction and restore substrates and finishes to eliminate deficiencies, including deficiencies in visual qualities of exposed finishes. Comply with Contract Documents requirements for “Cutting and Patching.”
- B. Protect construction exposed by or for quality control service activities, and protect repaired construction.
- C. Repair and protection is the General Contractor’s responsibility, regardless of the assignment of the responsibility for inspection, testing, or similar services.

END OF SECTION

01500 -- TEMPORARY FACILITIES

PART 1 – GENERAL

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1.1. GENERAL REQUIREMENTS

- A. Include GENERAL CONDITIONS and SUPPLEMENTARY CONDITIONS as part of this section.
- B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with trades affecting, or affected by work of this section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.2. SECTION INCLUDES

- A. Temporary facilities and services
- B. Temporary water
- C. Weather Protection
- D. Temporary heating and ventilating
- E. Temporary electricity and lighting
- F. Temporary telephone service
- G. Temporary sanitary facilities
- H. Temporary fire protection
- I. Temporary stairs, etc.
- J. Temporary enclosures
- K. Hoisting equipment and machinery
- L. Staging and scaffolding
- M. Maintenance of access
- N. Protection of work, property and the public
- O. Construction of fence
- P. Noise control
- Q. Dust control
- R. Water control
- S. Cleaning during construction
- T. Pollution control
- U. Project signs
- V. Temporary offices
- W. Removal

1.3. RELATED REQUIREMENTS

- A. Section 01700 – CONTRACT CLOSEOUT
- B. Section 01040 – PROJECT COORDINATION
- C. Section 01045 – CUTTING AND PATCHING

1.4. TEMPORARY FACILITIES AND SERVICES

- A. General Contractor shall be responsible for arranging and providing temporary facilities and general services as specified herein and as otherwise required for proper and expeditious prosecution of work. Except as otherwise specified, the General Contractor shall pay costs for all temporary facilities and general services until date of Substantial Completion of the Work established by the Architect and shall remove same at completion of work.

- B. All such services and facilities shall comply with applicable Federal, State, and Local regulations.
- C. General Contractor shall make all connections to existing services and sources of supply, shall provide all necessary installations, labor, materials and equipment, in a manner subject to the approval of the architect and the Owner, shall remove temporary installations and conditions when no longer required, and shall restore the services and sources of supply to proper operating condition as approved by the Architect.
- D. Discontinuance of any temporary service prior to the completion of any portions of the Work shall not render the Owner liable for any additional cost resulting there from.
- E. Should a change in location of any temporary equipment be necessary in order for the Work to progress properly, General Contractor shall remove and relocate such equipment as required without additional cost to the Owner.
- F. General Contractor should provide a separate staging area for separation of waste.

1.5. TEMPORARY WATER

- A. General Contractor shall make connections to existing municipal water supply system to provide potable water for construction purposes, shall pay all connection fees (if any) and shall pay the cost of all water used for all trades.
- B. All temporary pipe lines and connections from permanent water lines, both outside and within the building, necessary for the use of General Contractor and his subcontractors shall be installed, protected, and maintained at the expense of the General Contractor.
- C. In addition to temporary lines and connections, the Contractor, if required by the Owner, shall at the Contractor's expense install a temporary meter in a frost proof box in a location near connection point and in a manner approved by the Architect.
- D. Provide an adequate supply of drinking water from approved sources of acceptable quality, satisfactorily cooled, for the General Contractor's employees and those of his subcontractors. Where required, furnish drinking water in suitable containers and provide single-service cups for use of employees. Drinking water dispensers shall be conveniently located in building where work is in progress.

1.6. WEATHER PROTECTION

- A. It is the intent of these specifications to require that the General Contractor provide temporary enclosures and heat to permit construction to be carried on during the months of November to March. These specifications are not to be construed as required enclosures or heat for operations that are not economically feasible to protect, in the judgment of the Architect. Included in the preceding category of operations which are not economically feasible to protect, without limitation, are such items as site work, excavation, steel erection, erection of certain "exterior" wall panels, roofing, and similar operation.
- B. The General Contractor shall be responsible for the weather protection work specified in Section 04200, MASONRY, which is stipulated to be work of the General Contractor.
- C. "Weather Protection" shall mean the temporary protection of that work adversely affected by moisture, wind and cold, by covering, enclosing and/or heating. This protection shall provide adequate working areas during the months of November through March as determined by the Architect and consistent with the approved construction schedule to permit the continuous progress of all work necessary to maintain an orderly

- and efficient sequence of construction operations. The General Contractor shall furnish and install all “weather protection” material and be responsible for all costs, including heating, required to maintain a minimum temperature of 40 degrees F, at the working surface. This provision does not supersede any specific requirements for methods of construction, curing of the materials or the applicable Contract Articles set forth in the GENERAL CONDITIONS with regard to performance obligations of the General Contractor.
- D. Within 30 calendar days after award of Contract, the General Contractor shall submit in writing to the Architect for approval, three copies of his proposed methods for “weather protection.”
- E. Installation of weather protection and heating devices shall comply with all safety regulations including provisions for adequate ventilation and fire protection devices. Heating devices which may cause damage to finish surfaces shall not be used.
- 1.7. TEMPORARY HEATING AND VENTILATING
- A. Within 20 calendar days after the commencement of work under this Contract, the General Contractor shall submit in writing to the Architect for approval, three (3) copies of his method and time schedule for heating during construction which shall occur with his general progress schedule.
- B. Temporary weather-tight enclosures and temporary heating shall be provided by the Contractor as required during construction to make the building (s) weather-tight and to protect work from freezing and frost damage. All costs of closing in buildings, and all costs of temporary heat shall be paid for by the General Contractor until acceptance of building by Owner. Temperatures shall be continuously maintained as specified in Sections of specifications but not less than 50 degrees f, nor more than 75 degrees F.
- C. After the building or portion thereof is completely enclosed by either permanent construction or substantial temporary materials having resistance comparable to the specified permanent construction, the general Contractor shall provide and pay for temporary heating in areas of building where work is being conducted until the new heating system is accepted by the Owner.
- D. Furnish and install one accurate recording Fahrenheit thermometer at a place designated by the Architect, and not less than one additional, accurate, non-recording thermometer for every 5000 square feet of floor space, located as directed by the architect in order to determine that the specified temperatures are being maintained. Furnish daily to the Project Representative three copies of a certified statement of temperature recorded every 3 hours.
- E. When work has progressed sufficiently for installation of glazing, General Contractor may, if approved by Architect, use glazed windows in place of temporary enclosures. Permanent windows shall be protected against damage from mortar, cement, plaster, etc., and from damage by other trades; and upon completion of Work, shall be thoroughly cleaned, damaged component parts including glass shall be satisfactorily repaired or replaced, and windows left in perfect condition.
- F. Where building systems are inoperable, temporary heating shall be by smokeless portable unit heaters, steam generators, or forced warm air heaters (UL, Factory Mutual, and Fire Marshall approved), located outside the building or vented to the outside. General Contractor shall pay for fuel, maintenance and attendance required in connection with temporary heat. Surfaces, interior or exterior, damaged by use of these space heaters shall be replaced by new materials or be refinished to the satisfaction of the Architect without additional cost to the Owner. Use of oil-burning “salamanders” is forbidden and



- nonvented open flame heaters will not be permitted inside after the building is closed in. Do not use propane-fueled heaters inside the building or near stockpiles of combustible materials.
- G. When new heating system, or suitable portion thereof, is in operating condition, such system may be used for temporary heating, provided that the General Contractor obtains written approval of Architect and Owner. Approval for use of permanent air-handling facilities for construction heating purposes will not be given until all dust making trades such as demolition, concreting, plaster, masonry, and the like have been completed. Filters shall be in place and properly maintained. Immediately prior to acceptance of the structure by the Owner, all filters shall be replaced, or in the case of cleanable filters, properly cleaned. Approval to use the new heating system for temporary heat shall not constitute acceptance of the heating system by Owner.
  - H. Make periodic inspections of the equipment and controls to insure proper operation of systems, as conditions require, and report any failings. Installation and operation of weather protection and heating devices shall comply with all safety regulations including provision for adequate ventilation and fire protection.
  - I. Upon conclusion of temporary heating period, Contractor shall remove temporary piping, temporary radiators, other equipment and pay all costs in connection with repairing damage caused by installation or removal of temporary heating equipment and shall thoroughly clean and recondition those parts of permanent heating system used for temporary services.
  - J. Provide adequate ventilation as required to keep temperature of building within 10 degrees of ambient outdoor temperature when such ambient temperature exceeds 70 degrees f., and to prevent accumulation of excess moisture in building. Permanent air conditioning or ventilation systems may be used for this purpose, subject to filter replacement requirement as above.

#### 1.8. TEMPORARY ELECTRICITY AND LIGHTING

- A. The General Contractor shall make arrangements as required with the local electric company for temporary electric service, pay expenses in connection with the installation, operations, and removal thereof, and pay cost of energy consumed by all trades.
- B. Provide power distribution as required throughout new structure. Termination of power distribution shall be at one location in each major section of building, approximately at center. Termination shall be provided complete with circuit breakers, disconnect switches and other electrical devices as required to protect power supply system. Submit plan showing electrical distribution locations for Architect's approval.
- C. Temporary lighting system shall be furnished, installed and maintained by General Contractor as required to satisfy minimum requirements of safety and security. Temporary lighting systems shall afford general illumination in building areas and supply not less than one (1) watt per square foot of floor area for illumination in areas of building where work is being performed. Provide adequate outdoor lighting to illuminate staging, stockpiles, trenches, projections, etc., to the satisfaction of the Architect, and general illumination throughout adequate for watchmen and emergency personnel.
- D. Safety: Temporary equipment and wiring for power and lighting shall be in accordance with applicable provisions of governing codes. Temporary wiring shall be maintained in safe manor and utilized so as not to constitute hazard to persons or property.
- E. When permanent electrical power and lighting systems are in operating condition they may be used for temporary power and alighting for construction purposes, provided that

General Contractor obtains written approval of Architect and Owner. If permanent lighting fixtures are used for temporary light, provide new light bulbs before final acceptance of the Work. Approval to use the new lighting system for temporary light shall not constitute acceptance of the lighting system by Owner.

- F. At completion of construction work, or at such time as General Contractor makes use of permanent electrical installation, temporary wiring, lighting and other temporary electrical equipment and devices shall be removed by General Contractor.

1.9. TEMPORARY TELEPHONE SERVICE

- A. The general Contractor shall make arrangements with the local telephone company and shall provide direct line telephone service at the construction site. Service shall include
  - a. One direct line instrument in Field Office for the General Contractor, with suitable electronic answering machine.
  - b. One direct line instrument in Field Office of the Architect's Project Representative, with suitable electronic answering machine.
  - c. One facsimile transmitting and receiving line direct to General Contractor's Field Office.
  - d. Other instruments at the option of the General Contractor, or as required by regulations.
  - e. Each subcontractor shall make his own arrangements for telephone service.
- B. Pay for the installation and removal of temporary telephone and for all calls and fixed charges in connection therewith.
- C. Temporary telephone services shall be maintained until Substantial Completion of the Work.

1.10. TEMPORARY SANITARY FACILITIES

- A. The General Contractor shall provide adequate temporary sanitary facilities, with chemical type toilets and temporary lighting, rented from and serviced by an approved company, as necessary for all persons engaged on the Work. Provide the quantity and types of toilet fixtures and facilities required by the State Building Code and the State Plumbing Code.
- B. Permanent new toilet facilities shall not be used by any construction workers.
- C. Temporary toilets shall be erected in location approved by the Architect, shall be maintained by the General Contractor in a clean and orderly condition in compliance with all local and State health requirements, and shall be removed at Substantial Completion of the Work.

1.11. TEMPORARY FIRE PROTECTION

- A. The General Contractor shall provide and maintain adequate temporary fire extinguishers or other effective means of extinguishing fire, ready for instant use, distributed around the project and in and about temporary inflammable structures during construction of the work.
- B. Gasoline and other flammable liquids shall be stored in and dispensed from UL listed safety containers in conformance with National Board of Fire Underwriters' recommendations. Storage shall not be within the building.

- C. Tarpaulins used during construction work shall be made of material which is resistant to fire, water and weather. Tarpaulins shall have UL approval and comply with S-CCC-D-746.
- D. Torch cutting and welding operations performed by subcontractors shall have approval of General Contractor before such work is started and chemical extinguisher shall be available within sight and not over ten (10) feet from location where such work is in progress.
- E. Do not light fires in or about premises.

1.12. TEMPORARY STAIRS AND LADDERS

- A. The General Contractor shall furnish and maintain all temporary stairs, ladders, ramps, scaffolds, runways, chutes, etc. as required for the proper execution of the work, unless specifically indicated to be provided under other Sections.
- B. All such apparatus, equipment and construction shall meet all requirements of Federal, State and local laws applicable thereto.
- C. As soon as permanent stairs are erected, the General Contractor shall provided temporary protective treads, handrails, and shaft protection.

1.13. TEMPORARY ENCLOSURES

- A. The General Contractor shall provide temporary weather tight enclosure of exterior walls for successive areas of the building as the Work progresses, to provide acceptable working conditions as stipulated under "WEATHER PROTECTION" in this section. To provide weather protection for interior materials, to allow for effective temporary heating, and to prevent entry of unauthorized persons:
  - a. Provide temporary exterior doors with self closing hardware and padlocks. Permanent door enclosures shall not be used as temporary enclosures.
  - b. Other enclosures shall be removable as necessary for work and for handling of materials.
- B. Relocate temporary enclosures as required by the progress of construction or work requirements, and to accommodate legitimate requirements of Owner and subcontractors employed at the site.
- C. Completely remove temporary materials, equipment and services when construction needs can be met by use of permanent construction without probable damage or at Substantial Completion of the project.
- D. Provide temporary enclosures as necessary to allow masonry work to proceed as scheduled during the months of November through March inclusive.

1.14. HOISTING EQUIPMENT AND MACHINERY

- A. Unless otherwise specified as the work of a particular Filed Sub-Bid Section, 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.
- B. Subcontractors' material and/or equipment delivered to the designated hoisting area shall be hoisted by the General Contractor's equipment, except that which is specifically required to be hoisted by the subcontractors themselves and is so stated in the applicable Section of the specifications.

- C. All cost for hoisting operating services shall be borne by the General Contractor unless specifically indicated otherwise in the Contract Documents.
- D. Permit no materials to be passed through the finished openings of exterior walls, without first providing protection to the opening there for of a type as approved by the Architect. Be responsible, and bear all costs for repair and/or replacement of damaged work caused thereby.
- E. Provide openings in walls and roofs as required for passage of materials and equipment in a timely manner, and close in such openings when no longer needed.

1.15. STAGING AND SCAFFOLDING

- A. Unless otherwise specified all staging and scaffolding, exterior and interior, required to be over eight (8) 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 during the construction of the building in accordance with existing trade agreements.
- B. Staging and scaffolding shall be of approved design, erected and removed by experience stage builders and shall have all accident prevention devices required by Federal, State and local laws.

1.16. TEMPORARY USE OF ELEVATORS

- A. Make arrangements with Elevator Subcontractor for temporary use of elevators, if required, during construction period, and for normal use by all trades and subcontractors.
- B. Make arrangement for provision of temporary cab enclosures, cars, car switches, gat contacts, power, signaling devices, lights, etc., and all necessary operating and safety devices, temporary hoistway entrances, and hoistway doors, temporary protection of hoistway openings, protection of permanent hoistway entrances and other installed finished work, and all such other items as are necessary to permit temporary operation in accordance with local, state and national codes.
- C. Arrange with Elevator Subcontractor for all necessary maintenance of elevators during period of temporary operation and for restoration of elevators to their original, perfect condition with guarantees as specified. All costs in connection with temporary operation of elevators shall be paid by the Contractor.
- D. Do not abuse, overload, or otherwise damage elevators in temporary use for construction purposes.

1.17. MAINTENANCE OF ACCESS

- A. The General Contractor shall provide and maintain for the duration of the Contract, means of access to, around and within the site, as shown on the Contract Drawings, for vehicular traffic and authorized personnel. This means of access shall be constructed to sustain the weight of equipment customarily engaged for use in construction projects of this type and magnitude.
- B. The General Contractor shall, without additional compensation from the Owner, furnish labor and materials as may be required from time to time to maintain this access in an acceptable condition as determined by the Architect.

- 1.18. PROTECTION OF WORK, PROPERTY AND THE PUBLIC
- A. The General Contractor shall construct barricades and protective facilities required for the protection of the public in accordance with local, State, and Federal regulations. Furnish and install all signs, lights, reflectors, and all such protection facilities as may be required.
  - B. The General Contractor shall hold the Owner harmless from all claims arising from the use of public streets, sidewalks, and adjoining premises for construction purposes.
  - C. The General Contractor shall keep all access roads and walks clear of debris, materials, construction plant and equipment during construction operations. Repair streets, drives, curbs, sidewalks, fences, poles and the like where disturbed during construction and leave them in as good condition after completion of the Work as before operations started.
    - a. Provide ways and means to control the flow of water from every source which may cause delay or damage during construction operations.
    - b. Protect all planting, landscaping, trees and site improvements in the areas of site work and construction work.
  - D. The General Contractor shall be responsible for the maintenance of construction barriers and traffic barriers in order to maintain traffic over, through, or around the Work with the maximum of safety and practical convenience to such traffic during the life of the Contract, and whether or not work has been suspended temporarily. The General Contractor shall take all precautions for preventing injuries to person or damage to property to or about the work
    - a. Work shall be carried on and barriers erected in such a manner as to provide safe passage at all times for public travel and with least obstruction to traffic. The General Contractor shall provide and maintain at his own expense in a safe and passable condition such temporary bypasses as created by the barriers as may be necessary to accommodate both pedestrian and vehicular traffic.
    - b. Maintain all legally required means of egress, and do not erect barriers which interfere with, or obstruct such means of egress.
    - c. Where new construction, alteration, or repair work coincides with the present traveled way, the General Contractor shall carry on his work so that the travel will not be obstructed.
  - E. Whenever gale or high winds are forecast, the General Contractor shall take proper measures to secure all loose material, equipment other items which could blow about and be damaged or cause damage to other work. No such loose items shall be left unsecured at end of the working day. Particular attention shall be taken with scaffolding and items placed or stored on roofs or within the structure prior to being enclosed.
  - F. Take all required measure to protect the Work at all times against fire, storm, theft, vandalism and other losses.
  - G. The General Contractor shall be wholly responsible for patrolling and protecting the Work under construction and the materials stored on the site; and shall reimburse the Owner for any losses, damages or injury not compensated by insurance, except those directly caused by the Owner, his agents or his employees.
  - H. Breakage of Glass: General Contractor shall be responsible for correcting all breakage of glass furnished under this Contract from any cause whatsoever, until the Work is accepted by the Owner. All broken glass shall be promptly and properly replaced with identical materials. Unless the glass has been broken by the owner or his representatives, or by other separate prime Contractors, the cost for replacement of glass shall be borne by the General Contractor.

- I. Remove all snow and ice which may impede the work, damage the finishes or materials, be detrimental to workmen, or impede trucking, delivery or moving of materials at the job site, or prevent adequate drainage of the site or adjoining areas.

1.19. CONSTRUCTION FENCE

- A. Provide a construction fence to enclose work and storage areas as indicated on the Drawings.
- B. Construction fence shall be 8 feet high and of chain link construction with green vinyl coating, erected in a substantial manner, straight, plumb and true as approved by the Architect.
- C. At least two (2) heavy duty gates shall be built into fence at approved locations, well cross-braced and hung on heavy strap hinges with proper post and hook for double gates. Provide heavy hasps and padlocks for each gate. Provide six (6) sets of keys to Owner to facilitate emergency access by Owners security forces, police and Fire Departments and the architect.
- D. Construction fence shall remain in accordance with local ordinances and shall be removed at such time before final completion as the Architect directs. Restore site to acceptable condition after removing fence.
- E. Provide one (1) firemen's key vault at each gate for fire department emergency access. Vault shall be as specified in MISCELLANEOUS SPECIALTIES Section.

1.20. NOISE CONTROL

- A. General Contractor shall develop and maintain a noise-abatement program and enforce strict discipline over all personnel to keep noise to a minimum.
- B. Execute construction work by method and by use of equipment which will reduce excess noise.
  - a. Employ construction methods and equipment which will produce the minimum amount of noise.
  - b. Equip air compressors with silencers, and power equipment with mufflers.
  - c. Handle vehicular traffic and scheduling to reduce noise.
- C. Control use of electronic entertainment devices so that ordinary conversation is completely intelligible ten (10) feet from such devices. Failure to control such noise will be cause for prohibiting such devices on site.

1.21. DUST CONTROL

- A. The General Contractor shall maintain the construction site, stockpiles, access, detour, and haul roads, staging and parking area used for the Work free of dust which would cause a hazard or nuisance to those at site or adjacent sites.
- B. Provide positive method and apply dust control materials to minimize raising dust from demolition and other construction operations, and provide positive means to prevent air-borne dust from dispersing into the atmosphere.
- C. Trucks hauling debris shall be covered and wet down as required. Spillage on city streets shall be cleaned up immediately.

1.22. WATER CONTROL

- A. The General Contractor shall provide methods to control surface and ground water to prevent damage to the Project and the site, and to prevent detrimental effects on adjoining properties.
- B. Provide, operate and maintain hydraulic equipment of adequate capacity to control surface and ground water at all times.
- C. Dispose of drainage water in a manner to prevent flooding, erosion, and other damage to any portion of the site or to adjoining sites.

1.23. PEST CONTROL

- A. General Contractor shall provide control and abatement of interfering or harmful plant growth, bacteria, fungi and insects.
- B. Employ methods and use materials which will not adversely affect conditions at the site or on adjoining properties.
- C. Should the use of pesticides be considered necessary, submit a copy of the proposed program to Owner, with a copy to Architect. Clearly indicated:
  - 1. The nuisance to be controlled.
  - 2. The area or areas to be treated.
  - 3. The pesticides to be used, with copy of manufacturer's printed instructions
  - 4. The pollution prevention measures to be employed.
- D. Use of any pesticide shall be in full accordance with the manufacturer's printed instructions and recommendations and with local and state environmental regulations.

1.24. CLEANING DURING CONSTRUCTION

- A. General Requirements
  - 1. Execute cleaning during progress of the Work, as required by General Conditions and as herein specified
  - 2. Maintain premises and public properties 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.
  - 3. Prohibit overloading of trucks to prevent spillage on access and haul routes.
  - 4. Refer to Sections of the Specifications for cleaning of specific products or work.
- B. Safety and Disposal Requirements:
  - 1. Standards: Maintain project in accordance with state Building Code and local ordinances.
  - 2. Hazards Control
    - i. Store volatile wastes in covered metal containers, and remove from premises.
    - ii. Prevent accumulation of wastes which create hazardous conditions.
    - iii. Provide adequate ventilation during use of volatile or noxious substances.
  - 3. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws
    - i. Do not burn or bury rubbish and waste materials on project site.
    - ii. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
  - 4. During construction the General Contractor shall:

- i. Execute cleaning to ensure that the building, the site, and adjacent properties are maintained free from accumulations of waste materials and rubbish and windblown debris resulting from construction operations.
- ii. Provide on-site containers for collection of waste materials, debris and rubbish.
- iii. Remove waste materials, debris and rubbish from the site periodically and dispose of at legal disposal areas. Provide documentation that waste materials, debris and rubbish was legally disposed of.
- iv. Handle materials in a controlled manner with as few handlings as possible. Do not drop or throw materials from heights.
- v. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet newly painted surfaces.

1.25. POLLUTION CONTROL

- A. Provide methods, means and facilities required to prevent contamination of soil, water or atmosphere by the discharge of noxious substances from construction operations.
- B. Provide equipment and personnel, perform emergency measures required to contain any spillage, and to remove contaminated soils or liquids. Excavate and legally dispose of any contaminated earth off-site, and replaced with suitable compacted fill and topsoil.
- C. Take special measure to prevent harmful substances from entering public waters. Prevent disposal of wastes, effluents, chemicals, and other such substances adjacent to streams, or in sanitary or storm sewers.
- D. Provide systems for control of atmosphere pollutants
  - 1. Prevent toxic concentrations of chemicals
  - 2. Prevent harmful dispersal of pollutants into the atmosphere.

1.26. PROJECT SIGN

- A. General Contractor shall provide one (1) project sign, as designed by the Architect, 4 feet by 8 feet in surface area, displaying names and addresses of (1) the Owner, (2) the Architect, (3) the General Contractor, (4) such other information as the Owner may require, and (5) a drawing or photographic image of the new facilities or other graphic image. Design, text, images, and lettering will be provided by the Architect at a later date.
- B. General Contractor shall provided directional signs as the Architect shall determine are required to properly control construction traffic at the site.
- C. Signs shall be of APA A-C EXT grade plywood, 3/4" inch thick, supported by posts not less than 4" x 4" each, with adequate bracing. Paint all surfaces of signs with two coats of exterior grade paint before lettering and graphics are applied.
- D. Other signs and advertisements shall not be displayed on the premises without the approval of the Architect.

1.27. TEMPORARY OFFICES

- A. The General Contractor shall provide a suitable field office at the site for his own use.

1.28. REMOVAL

- A. The general Contractor shall remove temporary materials, equipment, services, and construction debris prior to Substantial Completion of the Work.



**Town of Arlington-NFI Kitchen Renovation**

**August 28, 2017**

23 Maple Street, Arlington MA 02476

Siemasko + Verbridge

- B. The General Contractor shall clean and repair damage cause by installation or use of temporary facilities. Restore existing facilities used during construction to Specified or to original condition.

END OF SECTION

01600 MATERIALS AND EQUIPMENT

PART 1 – GENERAL

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1.1. GENERAL REQUIREMENTS

- A. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- B. Coordinate work with trades affecting, or affected by work of this Section. Cooperate with such trades as to assure the steady progress of all work under the Contract.

1.2. SECTION INCLUDES

- A. Material and equipment incorporated into the Work.
- B. Manufacturer's instructions.
- C. Transportation and handling
- D. Storage and protection
- E. Product standards
- F. Substitutions
- G. Systems demonstration

1.3. RELATED SECTIONS

- A. Section 01300 – SUBMITTALS
- B. Section 01700 – CONTRACT CLOSEOUT

1.4. MATERIAL AND EQUIPMENT INCORPORATED INTO THE WORK

- A. Comply with specifications and referenced standards as a minimum requirement.
- B. Comply with size, make, type and quality specified, as shown on the Drawings, or specifically approved in writing by the Architect.
- C. Manufactured and Fabricated Products:
  - a. Design, fabricate and assemble in accordance with the best engineering and shop practices.
  - b. Manufacture like parts of duplicated units to standard size and gauges to be interchangeable
  - c. Two or more items of the same kind shall be identical and by the same manufacturer.
  - d. Products shall be suitable for service conditions
  - e. Equipment capacities, sizes and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing.
- D. Do not use material or equipment for any purpose other than for which it is designed or is specified.

1.5. MANUFACTURER'S INSTRUCTIONS

- A. When Contract Documents required that installation of works shall comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation, including two (2) copies to the Architect. Maintain one (1) set of complete instruction at the job site during installation and until completion.
- B. Handle, install, connect, clean, condition and adjust products in strict accordance with such instructions and in conformity with specified requirements.

- C. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with Architect for further instructions. Do not proceed with work without clear instructions.
- D. Perform work in accordance with manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.
- E. Owner to own surplus of finish materials: 5% of all items.

#### 1.6. TRANSPORTATION AND HANDLING

- A. Arrange deliveries of products in accordance with construction schedules, coordinated to avoid conflict with work and conditions at the site.
- B. Deliver products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.
- C. Immediately on delivery, inspect shipment to assure compliance with requirements of Contract Documents and approved submittals, and to verify that products are properly protected and undamaged.
- D. Provide equipment and personnel necessary to handle products by method that will prevent soiling or damage to products or packaging.

#### 1.7. STORAGE AND PROTECTION

- A. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible:
  - a. Store products subject to damage by the elements in weathertight enclosures.
  - b. Maintain temperature and humidity within the ranges required by manufacturer's instructions.
- B. Exterior Storage:
  - a. Store fabricated products above the ground, on blocking or skids, to prevent soiling or staining. Cover products which are subject to deterioration with impervious sheet coverings. Provide adequate ventilation to avoid condensation.
  - b. Store loose granular materials in a well drained area on solid surfaces to prevent mixing with foreign matter.
- C. Arrange storage in a manner to provide easy access for inspection. Make periodic inspections of stored products to assure that products are maintained under specified conditions, and free from damage and deterioration.
- D. Protection After Installation: Provide substantial coverings as necessary to protect installed products from damage from traffic and subsequent construction operations. Remove when no longer needed.

#### 1.8. PRODUCT STANDARDS

- A. Products include material, equipment and systems.
- B. Any product specified by reference to the number, symbol or title of a standard, such as Commercial Standard, Federal Specification, ASTM Standard, ANSI Standard, trade association standard, or similar standard, shall comply with the requirements of the latest issue of such standard or revision thereof.

- C. Standards referred to, except as modified by the Contract documents, shall have full force and effect as though printed in the specifications.
- D. All manufactured articles, materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditions in accordance with the manufacturer's printed instructions, unless otherwise specified.

1.9. SUBSTITUTIONS

- A. Substitutions of products shall comply with the requirements and procedures specified herein.
- B. The Contract Documents are intended to produce a building of consistent character and quality of design. All components of the building including visible items of mechanical and electrical equipment have been selected to have a coordinated design in relation to the overall appearance of the building. The Architect will judge the design and appearance of proposed substitutes on the basis of their suitability in relation to the overall design of the Work, as well as for their intrinsic merits. The Architect will not approve as equal to materials specified proposed substitutions which, in his opinion, would be out of character, obtrusive, or otherwise inconsistent with the character or quality of design of the Work. In order to permit coordinated design of color and finished, the Contractor shall, if required by the Architect, furnish the substituted material in any color, finish, texture or pattern which would have been available from the manufacturer originally specified, at no additional cost to the owner.
- C. Specific reference in the Specifications to any product, material or process by name, make or catalogue number shall be interpreted as establishing a standard of quality. An item will be considered "equal" to the item so named or described if (1) it is at least equal in quality, durability, appearance, strength and design; (2) it will perform at least equally the function imposed by the general design for the Work; and (3) it conforms substantially, even with deviations, to the detailed requirements for this item in the specification.
- D. If the General Contractor proposed to use a material which, while suitable for the intended use, deviates in any way from the detailed requirements of the Contract Documents, he shall inform the Architect of the nature of such deviations at the time the material is submitted for approval, and shall request written approval of the deviation from the requirements of the Contract Documents.
- E. In requesting approval of deviations or substitutions, the General Contractor shall provide, upon request, evidence leading to a reasonable certainty that the proposed substitution or deviation will provide a quality or result at least equal to that otherwise attainable. If, in the opinion of the Architect, the evidence presented by the General Contractor does not provide a sufficient basis for such reasonable certainty, the Architect may reject such substitution or deviation without further investigation.
- F. Any additional cost, less or damage arising from the substitution of any material or any method for those original specified shall be borne by the General Contractor, notwithstanding approval or acceptance of such substitution by the Owner or the Architect, unless such substitution was made at the written request or direction of the Owner or the Architect.

1.10. SYSTEM DEMONSTRATION

**Town of Arlington-NFI Kitchen Renovation**

**August 28, 2017**

23 Maple Street, Arlington MA 02476

Siemasko + Verbridge

- A. Prior to final inspection, demonstrate operation of each system to the Architect and Owner's personnel.
- B. Instruction Owner's personnel in operation, adjustment, and maintenance of equipment and systems, using the operation and maintenance data as the basis of instruction.

END OF SECTION

01720 - RECORD DOCUMENTS

PART 1 – GENERAL

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1.1. GENERAL REQUIREMENTS

- A. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this section.
- B. Coordinate work with trades affecting, or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under the contract.

1.2. REQUIREMENTS INCLUDED

- A. Maintenance of submittal of record documents and samples.
- B. Recording of information.

1.3. RELATED REQUIREMENTS

- A. Section 01300 – SUBMITTALS: Shop Drawings, product data , and samples
- B. Section 01700 – CONTRACT CLOSEOUT: Closeout procedures.
- C. Individual Specifications Sections: Manufacturer’s certificates and certificates of Inspection

1.4. MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Maintain at the site for Owner one record copy of
  - a. Contract Drawings
  - b. Specifications
  - c. Addenda
  - d. Change Orders and other modifications to the Contract
  - e. Reviewed Shop Drawings, product data, and samples.
  - f. Field test records
  - g. Inspection Certificates
  - h. Manufacturer’s certificates
- B. Store record documents and samples in Field Office apart from documents used for construction. Provide files, racks, and secure storage for Record Documents and Samples
- C. Label and file Record Documents and samples in accordance with Section number listings in Table of Contexts of this Project Manual. Label each document “PROJECT RECORD” in neat, large printed letters.
- D. Maintain Record Documents in a clean, dry and legible condition. Do not use Record Documents for construction purposes.
- E. Keep Record Documents and samples available for inspection by Architect.

1.5. RECORDING

- A. Record information on a set of black line opaque drawings, and in a copy of the Project Manual provided by Owner.
- B. Provide felt tip marking pens, maintaining separate colors for each major system, for recording information.

- C. Record information concurrently with construction progress. Do not conceal any work until required information is recorded.
- D. Contract Drawings and Shop Drawings: Legibly mark each item to record actual construction, including:
  - 1. Measured depths of elements of foundation in relation to finish first floor datum.
  - 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referred to permanent surface improvements.
  - 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of construction.
  - 4. Field changes of dimension and detail
  - 5. Changes made by Modifications
  - 6. Details not on original Contract Drawings.
  - 7. References to related Shop Drawings and modifications.
- E. Specifications: Legibly mark each item to record actual construction, including:
  - 1. Manufacturer, trade name, and catalog number of each product actually installed, including optional items and substitute items. Changes made by Addenda and Modifications.
- F. Other Documents: Maintain manufacturer's certifications, inspection certifications, and field test records required by individual specifications Sections

1.6. SUBMITTALS

- A. At Contract Closeout, deliver Record Documents and Samples as specified in section 01700.
- B. Transmit with Cover Letter in duplicate, listing:
  - 1. Date.
  - 2. Project title and number.
  - 3. Contractor's name, address, and telephone number.
  - 4. Number and title of each Record Document.
  - 5. Signature of Contractor or authorized representative.

END OF SECTION

SECTION 06100  
ROUGH CARPENTRY

PART1-GENERAL

1.01 GENERAL REQUIREMENTS

- A. Part A and Division 1 of Part B are hereby made a part of this section.

1.02 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. Wood framing, plywood, particleboard, blocking and nailers.
  2. Nails, bolts and fasteners for securing items of rough carpentry.
  3. Engineered wood framing systems.
  4. Flexible self-adhered membrane flashing.
  5. Wood Decking
  6. All other rough carpentry items as required to complete the work of the Contract not otherwise specified to be furnished and installed under the other trade sections of the Specifications.
  7. Exterior wall sheathing.

1.03 QUALITY ASSURANCE

- A. Lumber Standard: Comply with PS-20, except as otherwise indicated.
- B. Shop-fabricate carpentry work to the extent feasible and where shop fabrication will result in better workmanship than feasible for on-site fabrication.
- C. Factory-mark each piece of lumber and plywood with type, grade, mill and grading agency, except on its marking from surfaces to be exposed with transparent finish, or without finish.



1.04 RELATED WORK UNDER OTHER SECTIONS

- A. Finish exterior carpentry – Section 06200
- B. Furnishing and installation of Metal Doors and Frames – Section 08100
- C. Furnishing and installation of Wood Doors – Section 08210
- D. **Metal studs and gypsum board construction – Section**
- E. Wood Strip Flooring
- F. Building Insulation – Section 07200
- G. EFDM Membrane Roofing – Section 07511
- H. Concrete Formwork- Section 03100
- I. **Kitchen Casework**
- J. Metal Fabrications – Section 05500
- K. **Building Specialties – Section**
- L. Unit Masonry – Section 04220
- M. Flashing and Sheet Metal – Section 07620
- N. Roof Hatch – Section 07720
- O. Metal Standing Seam Roofing – Section 07500

1.05 SUBMITTALS

- A. General: Refer to Section 01300 – Submittals and Substitutions for submittal provisions and procedures.
- B. Affidavits: Submit affidavits from the supplier indicating the species, grade, and moisture content of framing lumber.
- C. Wood Treatment Data

1. Submit chemical treatment manufacturer's instructions for proper use of each type of treated materials.
2. Pressure Treatment: Type specified, include certification by treating plant stating chemicals and process used, net amount of salts retained and conformance with applicable standards.
3. For water-born preservations, included statement that moisture content of treated materials was reduced to a maximum of 15% prior to shipment to project site.
4. Fire-Retardant Treatment: Type specified, include certification by treating plant stating chemicals and process used and conformance with applicable standards.

#### 1.06 GUARANTEE/WARRANTY

- A. Attention is direction to the provisions of the General Conditions regarding the guarantees/warranties for the work.
- B. Manufacturers shall provide their standard guarantees/warranties for work under this Section. However, such guarantees/warranties shall be in addition to and not in lieu of all other liabilities which the manufacturers, the Contractor and the Subcontractors may have by law or by other provisions of the Contract Documents.

#### 1.07 REFERENCES

- A. National standards references herein are included to establish recognized quality only. Equivalent quality and testing standards will be acceptable subject to their timely submission, review and acceptance by the Architect.

#### 1.08 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Keep rough carpentry work dry during delivery, storage and installation, and until finish is applied and building is enclosed. Provide for air circulation in stacks of lumber and plywood.

#### 1.09 JOB CONDITIONS

- A. Coordination: Fit carpentry work to other work; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking grounds and similar supports to allow proper attachment of other work.

#### 1.10 REFERENCED STANDARDS

- A. American Plywood Assoc. (APA), P. O. Box 11700, Tacoma, WA 98411, (206) 565-6600.
  - 1. PRP 108: Performance Standards and Policies for Structural
- B. American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, (610) 832-9585:
  - 1. A 153: Zinc Coating (Hot-Dip) of Iron and Steel Hardware.
  - 2. E 84: Test Method for Surface Burning Characteristics of Building Materials. g
- C. American Wood Preservers' Assoc. (AWPA), P.O. Box 286, Woodstock, MD 21163-0286, (410) 465-3169:
  - 1. C20: Structural Lumber – Fire-Retardant Treatment by Pressure Process.
  - 2. C27: Plywood – Fire Retardant Treatment by Pressure Process.
- D. National Particleboard Assoc. (NPA), 18928 Premiere Ct., Gaithersburg, MD 20879, (301) 670-0604:
  - 1. NPA 8: Voluntary Standard for Formaldehyde Emission From Particleboard.
  - 2. NPA 9: Voluntary Standard for Formaldehyde Emission From Medium Density Overlay Fiberboard (MDF).
- E. National Wood Window and Door Assoc. (NWWDA), 1400 E. Touhy Ave., #G54, Des Plaines, IL 60018 (708) 299-5200, (800) 223-2301:
  - 1. I.S. 4: Industry Standard for Water-Repellent Preservative Treatment for Millwork.
- F. Redwood Inspection Service (RIS ), 405 Enfrente Dr., Suite 200, Novato, CA 94949, (415) 382-0662:
  - 1. Standard Specifications for Grades of California Redwood.

- G. Southern Pine Inspection Bureau (S PIB), 4709 Scenic Highway, Pensacola, FL 32504, (904) 434-2611:
  - 1. Southern Pine Inspection Bureau Grading Rules.
- H. Underwriters Laboratories (UL), 333 Pfingsten Rd., Northbrook, IL 60062, (708) 272-8800.
  - 1. Fire Resistance Directory.
- I. Product Standard of NBS (U.S. Department of Commerce), Government Printing Office, Washington, DC 20402, (202) 783-3238:
  - 1. PS 1: U.S. Product Standard for Construction and Industrial Plywood.
  - 2. PS 20: American Softwood Lumber Standard.
- J. West Coast Lumber Inspection Bureau (WCLIB), P.O. Box 23145, Portland, OR 97281, (503) 639-0651:
  - 1. Standard Grading Rules for West Coast Lumber, No. 16.
- K. Western Wood Products Assoc. (WWPA), Yeon Building, 522 SW 5<sup>th</sup> Ave., Portland, OR 97204-2122, (503) 224-3930:
  - 1. Western Lumber Grading Rules.
- L. Wood Moulding and Millwork Producers Association, 507 First Street, Woodland, CA 95695 (916) 661-9591:
  - 1. WM 4: General Requirements for Wood Moulding.
  - 2. WM 7: WM/Series Wood Moulding Patterns.

## PART2-PRODUCTS

### 2.01 GRADING REQUIREMENTS

- A. Lumber Grading: Comply with “Simplified Practice Recommendations PS-20, American Softwood Lumber Standards” by U.S. Department of Commerce, and with the applicable lumbermen’s association rules under which each species of lumber is produced.

- B. Plywood Grading: Plywood: Conform to the requirements of Product Standard PS-1, and bear applicable APA grade trademarks.
- C. Grade Marking: Factory mark each piece of lumber and plywood with the official grade mark of the appropriate or authorized inspection service under whose rules the lumber is graded.
- D. Sizes and Patterns: Provide lumber which is dress S4S and worked to such patterns as shown or specified, Dimensions on drawings designate the nominal undressed size of the item.

## 2.02 MOISTURE CONTENT

- A. Except for blocking adjacent to finish millwork, moisture content shall not exceed 15% for lumber unless otherwise specified. Moisture content for blocking adjacent to millwork shall not exceed 7%.

## 2.03 MATERIALS

### A. Lumber General

1. Exposed Boards: Where boards will be exposed in the finished work, provide the following:
  - a. Where painted finish is indicated, provide Southern Pine, No. 2 Boards (SPIB), or Douglas Fir Construction Boards (WCLB or WWPA).
  - b. Where transparent finish is indicated provide kiln dried select heart grade hardwood of species indicated.
2. Hardwood lumber shall conform to the standard rule for grading hardwood lumber as adopted by the National Hardwood Lumber Association. Hardwood shall be new dressed four sides and have a moisture content not exceeding 11%.
3. Concealed Boards: Where boards will be concealed by other work, provide lumber of the following species and grade:

- B. Inspection Agencies: Inspection agencies and the abbreviations used to reference them with lumber grades and species include the following:

1. RIS – Redwood Inspection Service.
2. SPIB – Southern Pine Inspection Bureau.

3. WCLIB – West Coast Lumber Inspection Bureau.
  4. WWPA – Western Wood Products Association
- C. Framing lumber 1 ½ inches or greater actual thickness, except studs in non-bearing walls and partitions: WWPA Structural Grade Hem/Fir, Grade-stamped S-DRY, and having Fb equal 1200 psi, and E equal 1,700,000 or better.
- D. Studs of actual 1 ½ inches or greater thickness, in non-bearing walls and partitions: No. 2 Eastern Hemlock, Hem/Fir, or Eastern Spruce, Grade-stamped S-DRY.
- E. Plywood
1. Concealed Plywood: Where plywood will be concealed by other work, provide Interior Type plywood C- D Plugged Grade, unless otherwise specified.
    - a. For backing panels for electrical or telephone equipment, provide fire-retardant treated Standard grade plywood with exterior glue. To be installed by the general contractors.
  2. Plywood Sheathing: C/D EXT-APA with exterior glue, not less than ½” thick at walls, nor less than ¾” thick at roofs, soffits and fascias.
  3. Plywood backing for laminated plastic
    - a. Provide thickness indicated.
    - b. Provide 5-ply veneer core rotary cut, paint grade gum or birch veneer.
- F. Building felt shall conform to ASTM D226 for No. 15 and No.30 non-perforated asphalt-saturated felt.
- G. Plywood Sub-Flooring: Shall be ¾” thick Douglas Fir or other approved species of exterior plywood with exterior glue, Grade C/D plugged and touch sanded.
- H. Engineered wood framing systems shall be the size and the type indicated as manufactured by “Boise Cascade” P O Box 50, Boise, Idaho, or Tros Joist, 200 E Mallard Drive, Boise Idaho, or approved equal.
- I. **Exterior rated wall sheathing sub-floor material.**

## 2.04 WOOD TREATMENT

- A. Preservative treatments: All wood nailers, furring and other concealed lumber in direct contact with masonry, concrete or ground shall be pressure treated.
- B. Preservative Treatment: Where lumber is indicated as “Treated Wood” or “Treated”. Or is specified herein to be treated, comply with the applicable requirements of the American Wood Preservers Bureau (AWPB), standard P-15 Federal Specification T T-W-571, AWPB Commodity Standards as applicable, and American Wood Preservers Bureau of Standards LP-2 and LP-22. Mark each treated item to comply with AWPB Quality Mark requirements for the specified requirements.
1. Pressure-treat above ground items with water-borne preservatives complying with AWPB LP-2. After treatment, kiln-dry to a maximum moisture content of 15%. Treat indicated items and the following:
    - a. Wood cants, nailers, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers and waterproofing.
    - b. Wood blocking, furring, stripping similar concealed members in contact with masonry or concrete.
  2. Treatment shall be “Osiose K- 33” by Osiose Wood Preserving Co., Wolmanized Pressure-Treatment by Arch Wood Protection, Inc., or equal. The amount of preservative injected into the wood for above ground use shall be .25 pound per cubic foot of wood and .40 for ground contact, as determined by assay in accordance with AWPB Standard C-2.
  3. All wood shall be accompanied upon delivery with a Certificate of Treatment from the Society of American Wood Preservers, certifying the kind of preservative and the net retention of the preservative in pounds per cubic foot.
  4. Brush-coat surfaces of lumber sawed or cut after treatment with same preservative used at plant.
  5. Creosote products shall not be considered suitable for this project.
- C. Fire retardant treatment: where lumber and plywood are indicated as fire-retardant (FRTW), or are specified herein to be treated, comply with the applicable requirements for performance specifications in Section 45.2.8.1. NFPA 5000, Section 3.3.99 or NFPA 101 and Section 3.3.2 of NFPA 703, Standard for Fire-Retardant Treated Wood and Fire-Retardant Coatings for Building Materials tested in accordance with ASTM E-84 Standard Test Method of Surface Burning Characteristics of Building Materials of UL723 Standard for Test for Surface

Burning Characteristics of Building Materials, with a listed flame spread index of 25 or less.

- D. Complete fabrication of treated items prior to treatment, wherever possible. If cut after treatment, coat cut surfaces with heavy brush coat of same chemical used for treatment. Inspect each piece of lumber or plywood after drying and discard damaged or defective pieces.

#### 2.05 FLEXIBLE SELF-ADHERED MEMBRANE FLASHING

- A. Provide cross laminated, butyl rubber based adhesive backed high density self-adhering polyethylene membrane, 30 mils thick, 34" wide. Acceptable products include:

1. W.R. Grace – “Vycor Ultra” or approved equal.

#### 2.06 SILICONE SEALANTS

- A. Dow “790 Silicone Sealant”
- B. GE Silicones; SilPruf LM SCS2700
- C. Tremco; Spectrum 1.
- D. Pecora Corporatin; 864.

#### 2.07 BOLTS AND FASTENINGS

- A. For non-specified nailers and blowing in excess of 7/8 in ch thick: 3/8" diameter, unless otherwise indicated on the Drawings or specified herein, galvanized steel anchor bolts or expansion bolts, as applicable of sufficient length to penetrate masonry or concrete a minimum of six (6) inches. Space bolts not more than 12 inches on centers and stagger lines of bolts as far as practicable.
- B. Bolts for lumber and furring 7/8 inch actual thickness or less: Galvanized steel bolts, at least 1/4" diameter of the most appropriate types and lengths for the particular application, and provided with all required galvanized washers and nuts. Space and stagger bolts as specified above.
  1. Bolts, nuts, studs and rivets shall conform to Fed. Spec. F F-B-571a and FF-B-575, as applicable.



2. Expansion shields shall conform to Fed. Spec. FF-S-325. Shields shall be accurately recessed and, unless otherwise indicated, shall not be less than 2-1/2 inch into concrete or masonry. Devices of Groups IV, V, VI and VII shall not be used in sizes greater than 2/8 inch unless otherwise indicated.
  3. Lag screws or lag bolts shall conform to Fed. Spec. FF-B-561b.
  4. Toggle bolts shall conform to Fed. Spec. FF-B-561b.
- C. Nails: Spiked nails shall conform to Fed. Spec. FF-N-105a. Nails for plywood secured to wood shall be ring or angular type. Nails for exterior use shall be hot dipped galvanized.
- D. Steel Plates and Shapes: ASTM A36, galvanized.
- E. Ground Anchorage: Wood plugs or nailing blocks are not acceptable for fastening grounds, furring, etc. to concrete or masonry. Hardened steel nails, expansion screws, toggle bolts, metal plugs, or metal inserts, as most appropriate for each type of masonry or concrete construction shall be used.
- F. Explosive Driven Fastenings: Fed. Spec. FF-P-395 or GGG-D-777. Explosive or power driven fastenings may be used only when approved by the Architect.
- G. Glue for exterior work: waterproof type. Glue for interior work: water resistant type.
- H. Joist hangers and framing connectors: Standard galvanized Type A manufactured by Heckman Building Products, Gang-Nal Specialties Corporation, Simpson, Teco or equal.
- I. Screws: For attaching nailers and plywood to metal deck- non-corroding coated type self-tapping screws.

## 2.08 PRIMER

- A. Grace “WB Primer” or equal.

## PART3–EXECUTION

### 3.01 CONDITION OF SUBSTRATES

- A. Examine the substrates and supporting structure and the conditions under which the carpentry work is to be installed. Do not proceed with the installation until satisfactory conditions have been corrected.

### 3.02 PROTECTION

- A. Do such work as is necessary to cover and protect all finishes and other work from damage during construction. Provide and maintain temporary substantial wood handrails around all openings through floors, and provide temporary traffic-supporting coverings for window openings until permanent items are installed thereover.

### 3.03 TEMPORARY FACILITIES

- A. Finish, install, and maintain in weatherproof condition until permanent enclosure items are installed, substantial temporary enclosures of weatherproof construction for all openings in the exterior walls of the building, as required to provide proper installation conditions for all trades engaged in the work. Remove temporary enclosures only when permanent enclosures will be immediately installed thereafter.

### 3.04 GENERAL INSTALLATION OF ROUGH CARPENTRY WORK

#### A. General

1. Closely coordinate the installation of the rough carpentry work with the work of other trades responsible for the installation of interfacing or overlaying materials, so as not to delay the work of the related trades.
2. Erect all rough carpentry work plumb, level, and true with tight, close fitting joints, securely attached and braced to surrounding construction, all in a first class workmanlike manner. Counterbore for bolt heads, nuts, and washers where required to avoid interference with other materials. Bear complete responsibility for structural integrity connections, and anchorage of all rough carpentry work.
3. Use as long lengths as practicable for wood nailers, blockings, and curbs, to minimize number of joints, and attach the members with the types, and spacings, of fasteners specified herein.
4. Discard units of materials with defects which might impair the quality of the work, and units which are too small to fabricate the work with minimum joints or the optimum joint arrangement.

5. Securely attach carpentry work to substrates by anchoring and fastening as shown or as required by recognized standards.

B. Wood Grounds, Nailers and Blocking

1. Provide wherever shown and where required for screeding or attachment of other work. Form to shapes as shown and cut as required for true line and level of work to be attached. Coordinate location with other work involved.
2. Attach to substrates as required to support applied loading. Countersink bolts and nuts flush with surfaces, unless otherwise shown. Building into masonry during installation of masonry work. Where possible, anchor to formwork before concrete placement.
3. Provide permanent grounds of dressed, preservative treated, keybevelled lumber not less than 1 ½" wide and of the thickness required to bring face of ground to exact thickness of finish material involved.
4. A minimum of two bolts for each length of nailer. Bolts shall not be installed within 4" of the ends of nailers or curbs. End joints shall be mitered and intermediate joints shall be spliced. Counterbore wood so that nut and ends of bolts are recessed below the surface of the wood.

3.05 STRUCTURAL FRAMING

- A. Provide framing members of sizes and on spacings shown, and frame openings as shown, or if not shown, comply with recommendations of "Manual for House Framing" and "National Forest Products Association (NFPA)". Do not splice structural members between supports.
- B. Anchor and nail as shown, and to comply with "Recommended Nailing Schedule" of "Manual for House Framing" and "National Design Specifications for Wood Construction" published by NFPA.
- C. Double studs at sides of all openings. Build up wood lintels as required. Use 2" x 4" studs where not otherwise indicated. Sills and plates shall be same size as studs where not otherwise indicated.
- D. Where filling in at existing wood construction, match existing framing and sizes to provide continuity and flushness of finished surfaces. Shim as required.
- E. Cuts and bore holes in girders, beams and joints shall not be deeper than one-fifth the beam or girder depth more than two inches in diameter and shall not be

located nearer to the end of the span than three times the beam depth nor within the center third of the span unless reinforced to meet stress calculations.

- F. All structural members shall be connected and fastened at their junction with connectors, bolts, lag screws, spikes, nails, straps or other approved devices or as detailed.
- G. Plates which are used to support joists shall be double, the same width as the supporting studs and each not less than two inches thick.
- H. Joists and beams framing into girders shall be anchored, untied or nailed to secure continuity. The ends of all beams and joists resting on girders shall bear not less than four inches or shall be supported in approved metal stirrups or on clips or ribbon strips not less than two by three inches in size. Beams and joists framing from opposite sides shall lap not less than six inches and shall be securely bolted or spiked together. When framing end to end, all joists, beams and girders shall be secured together by metal ties, straps or dogs.
- I. Joists of solid or built-up beams and girders shall be made over column or pier supports when constructed as simple spans. When constructed of multiple joists as continuous girders, the joints shall be broken in adjoining joists and all joints shall be located between one-sixth and one-quarter the span length from supports and shall be securely nailed or otherwise bolted together in an approved manner.

### 3.06 JOISTS

- A. Provide framing of sizes and spacings shown. Install with crown edge up and support ends of each member with not less than 3 ½ inches of bearing on wood or metal. Attach to wood bearing members by toe-nailing or metal connectors. Frame to wood supporting members with wood ledgers as shown, or if not shown, with metal connectors.
- B. Joists shall be doubled under all partitions parallel to joists and under headers and trimmers at stairs. Headers and joists shall be connected by approved metal fittings or securely spiked together.
- C. Joists bearing on wood plates shall be toe-nailed to the plates with one 10d nail on each side or fastened with suitable zinc-coated anchors made especially for such purpose.
- D. Joists lapped over girders or bearing partitions shall be nailed together with two 10d nails and toe-nailed to girder or plate with one 10d on each side of the pair.
- E. Provide bridging between joists where nominal depth-to-thickness ratio exceed 4, at intervals of 8 feet. Use bevel cut 1"x 3" or 2"x 3" wood bracing, double-

crossed and nailed to both ends to joists, or use solid wood bridging 2 inch thick by depth of joist, end nailed to joist.

### 3.07 BLOCKING AND NAILERS

- A. Blocking, nailers and framing not otherwise specified; fasten lumber to concrete, masonry and wood with bolts of sufficient length to extend at least six inches into concrete or masonry, where practicable. Space bolts not over 18 inches on centers. Stagger lines of bolts or nails at members wider than nominal 3 ½" width. Use not less than two bolts per piece of nailer. Counterbore nailers so that nuts and ends of bolts are recessed below top surface. Install wood shims behind nailers and blocking against concrete and masonry as required to assure completely true surface.
- B. Install all wood blocking required to provide anchorage for other materials. Form to shape and sizes as indicated or as required to accomplish the particular installation. Form blocking of minimum 2 inch thick nominal material.
- C. Where blocking is required in conjunction with structural steel work, bolt blocking to steel with hot dip galvanized countersunk bolts, washers and nuts.
- D. Form blocking in conjunction with roofing to shapes as detailed. Anchor with countersunk bolts, washers and nuts. Fasten blocking to ridges of metal decks, not troughs.
- E. Wedge, anchor and align blocking to provide a rigid and secure installation of both blocking and other work related thereto.
- F. Provide all wood blocking not provided under another Section.

### 3.08 PLYWOOD INSTALLATION

- A. Plywood subflooring: Install plywood over framing with face grain running perpendicular to framing, using ribbons of adhesive on framing members and specified nails spaced a maximum of 6 inches on centers along panel edges and 10 inches on centers over intermediate framing members. Terminate all edges over a framing member. Leave 1/16" spacing at all edges and end joints and ¾" at walls and other vertical surfaces. Shim under plywood sub flooring as required to ensure true level surface of the finish flooring. End joints shall be staggered and located over the center lines of supports. Apply #15 felt over sub-flooring to receive ½" plywood.
- B. Plywood wall sheathing: Use treated plywood, nailed 6" o.c. at edges and 12" o.c. in field along wood studs. Use self-tapping corrosion resistant drywall screws

with same spacing at metal studs. All joints shall occur over studs. Use full pieces set with long dimension vertical. Leave 1/16" between adjacent pieces.

- C. Plywood roof sheathing: Install plywood with face grain running perpendicular to main nailers or ribs using specified fasteners spaced 6 inches on centers along panel edges, and 12 inches on centers in the field, or as otherwise approved. Leave 1/16" spacing at ends, and 1/8" at long edges.
- D. Panel Boards: Provide framing and 2/4" exterior grade fire-retardant treated (non-hygroscopic) plywood for electrical panels. Where not otherwise indicated panels shall be 48"x 48" with 2"x4" vertical supports full height of wall.

### 3.09 WOOD STRAPPING AND FURRING

- A. Double-nail strapping and furring at all bearing points. Space nailing not more than 12 inches on centers. Use masonry nails or concrete nails as applicable, for securing strapping to masonry and concrete, respectively.
- B. Provide all free-standing, suspended, solid-anchored and other types of wood furring required for receipt alignment and complete installation of finishing materials.
- C. Space furring members as required. Provide headers and other nailing members within furring framework. Install wit faces true to line and plumb, using wood shims as necessary.
- D. Install furring into position by whatever means necessary to provide a secure, rigid and correct installation. As necessary, use nailing plugs, power-actuated anchors, toggle bolts, washers and nuts and similar fastenings.
- E. Execute furring with kiln-dried, unwarped materials.

### 3.10 WOOD GROUNDS

- A. Install permanent and temporary wood grounds as indicated for proper execution of work of all trades. Remove temporary grounds when they are no longer required.
- B. Except as otherwise required for special locations, form grounds of kiln-dried softwood, 1 1/2" wide and of thickness to properly align related items of work. Securely fasten grounds into position by means of power-actuate fasteners, annealed wire, nails, bolts or other methods that will provide maximum results.
- C. Coordinate locations, sizes and fastening of grounds with work of other trades. When grounds are to provide backing for fastening of grilles, registers, fixtures,

louvers and similar items of work, exercise care in installation of grounds to provide for correct installations of those other items of work.

### 3.11 ROOF NAILERS, EDGE STRIPS, CURBS AND CANTS

- A. Wood members shall be of the sizes and configurations indicated on the Drawings and not less than 3 ½ inches wide, unless otherwise indicated on the Drawings.
- B. Surface-applied nailers for roof shall be 3 ½ inches wide and of thickness indicated or required. Nailers shall be spaced as indicated on the Drawings.
- C. Roof edge strips and nailers shall be installed at perimeter of roof, around openings through roof and where roofs abut walls, curbs and other vertical surfaces.
- D. Nailers adjacent to roof insulation shall be of same thickness as insulation.
- E. Curbs: Provide adequate curbs for skylights and other roof penetrations as detailed or as required.
- F. Fasteners shall not penetrate lower flutes of steel deck left exposed to view.

### 3.12 SHEATHING

- A. Do all wood sheathing of walls and roof required for the Work. Build cants as indicated.
- B. Apply building felt over plywood and gypsum wall sheathing using corrosion-resistant staples and completely covering all surfaces. Lap edges 6" shingle-fashion, but do not seal.
- C. Apply roof sheathing where indicated, using non-corroding coated type screws.
- D. Roof penetrations shall not be made prior to commencement of roofing work. Locate penetrations from inside after installation of roof deck and coordinate penetrations with Section 07500.

END OF SECTION 06100

SECTION 06220  
INTERIOR FINISH CARPENTRY

PARTONE-GENERAL

1.01 GENERAL REQUIREMENTS

- A. Part A and Division 1 of Part B are hereby made a part of this section
- B. Examine all conditions as they exist at the project prior to submitting a bid for the work of this Section

1.02 SUMMARY

- A. Work Included: provide labor, materials and equipment necessary to complete the work of this Section, and without limiting the generality thereof includes:
  - 1. All rough hardware, including nails, screws, bolts, attachment clips and brackets in conjunction with finish carpentry work.
  - 2. Interior standing and running trim.
  - 3. Interior frames and jambs.
  - 4. Stairwork and rails.
  - 5. Flush wood paneling and wainscots.
  - 6. Interior ornamental work.
  - 7. Wood cabinets (built-in) Custom.
  - 8. Plastic-laminate cabinets (built-in).
  - 9. Plastic-laminate countertops.
  - 10. Solid-surfacing-material countertops.
  - 11. Closet shelving (walk-ins).
  - 12. Shop finishing of interior woodwork.



B. Items to be installed only: install the following items as furnished by designated sections:

1. Metal doors and frames in existing wall construction: Section 08100 – Metal Doors and Frames
2. Install hardware in new metal door and frames : Section 08700 – Finish Hardware

C. Related sections include the following:

1. Section 06100 “Rough Carpentry” for wood furring, blocking, shims, and hanging strips required for installing woodwork and concealed within other construction before woodwork installation
2. Section 07951 “Sealants and Caulking”
3. Section 09670 “Wood Flooring”
4. Section 07150 “Vapor Barriers and Dampproofing”

### 1.03 DEFINITIONS

- A. Interior architectural woodwork includes wood furring, blocking, shims, and hanging strips for installing woodwork items unless concealed within other construction before woodwork installation.
- B. Rough carriages for stairs are a part of interior architectural woodwork. Platform framing, headers, partition framing, and other rough framing associated with stairwork are specified in Division 06 Section "Rough Carpentry."

### 1.04 SUBMITTALS

- A. General: refer to section 01300 – Submittals for submittal provisions and procedures
- B. Action submittals
1. Product Data: For each type of product indicated, including cabinet hardware and accessories, handrail brackets, and finishing materials and processes.
  2. Product Data: For panel products, high-pressure decorative laminate, adhesive for bonding plastic laminate, solid-surfacing material, cabinet

hardware and accessories, handrail brackets, and finishing materials and processes.

- a. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.
3. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
    - a. Show details full size.
    - b. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
    - c. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets, soap dispensers, and other items installed in architectural woodwork.
    - d. Show veneer leaves with dimensions, grain direction, exposed face, and identification numbers indicating the flitch and sequence within the flitch for each leaf.
    - e. Apply WI-certified compliance label to first page of Shop Drawings.
  4. Samples for Initial Selection:
    - a. Shop-applied transparent finishes.
    - b. Shop-applied opaque finishes.
    - c. Plastic laminates.
    - d. PVC edge material.
    - e. Thermoset decorative panels.
    - f. Solid-surfacing materials.
  5. Samples for Verification:
    - a. Lumber with or for transparent finish, not less than 5 inches (125 mm) wide by 24 inches (600 mm) long, for each species and cut, finished on 1 side and 1 edge.
    - b. Veneer leaves representative of and selected from flitches to be used for transparent-finished woodwork.
    - c. Veneer-faced panel products with or for transparent finish, 8 by 10 inches (200 by 250 mm), for each species and cut. Include at least one face-veneer seam and finish as specified.
    - d. Lumber and panel products with shop-applied opaque finish, 50 sq. in. (300 sq. cm) for lumber and 8 by 10 inches (200 by 250 mm) for panels, for each finish system and color, with 1/2 of exposed surface finished.

- e. Plastic laminates, 8 by 10 inches (200 by 250 mm), for each type, color, pattern, and surface finish, with 1 sample applied to core material.
- f. Thermoset decorative-panels, 8 by 10 inches (200 by 250 mm), for each type, color, pattern, and surface finish, with edge banding on 1 edge.
- g. Solid-surfacing materials, 6 inches (150 mm) square.
- h. Corner pieces as follows:
  - 1) Cabinet-front frame joints between stiles and rails, as well as exposed end pieces, 18 inches (450 mm) high by 18 inches (450 mm) wide by 6 inches (150 mm) deep.
  - 2) Miter joints for standing trim.
- i. Exposed cabinet hardware and accessories, one unit for each type and finish.

C. Information Submittals

- 1. Qualification Data: for fabrication
- 2. Product Certificates: for each type of product, signed by product manufacturer
- 3. Woodwork Quality Standard Compliance Certificates: AWI Quality Certification Program certificates
- 4. Wood treatment data as follows including chemical treatment manufacturer's instructions for handling, storing, installation, and finishing of treated materials:
  - a. For each type of preservative treated wood product include certification by treating plant stating type of preservative solution and pressure process used, net amount of preservative retained, and compliance with applicable standards.
  - b. For water-borne treated products include statement that moisture content of treated materials was reduced to levels indicated prior to shipment to Project Site.
  - c. For fire-retardant-treated wood products include certification by treating plant that treated materials comply with specified standard and other requirements.
  - d. Material test reports from qualified independent testing laboratory indication and interpreting test results relative to compliance of fire-retardant-treated wood products with requirements indicated.
  - e. Warranty of chemical treatment manufacturer for each type of treatment

D. Shop Drawings: submit shop drawings of all running finish and other millwork items. Shop drawings shall indicate the materials and species, arrangement, full size profiles of moldings, thickness, size of parts, construction, fastenings, blocking, clearances, assembly and erection details, applied finishes and surfacing, built-in hardware, and necessary connections to work with other trades.

E. Samples

1. Each type of solid hardwood and softwood stock specified, 6 in. lengths, of sufficient number to indicate the variation of color and grain.
2. Other materials upon request by the Architect.

F. Affidavits: submit data from supplier indicating the species, grade, and moisture content of lumber and the grade, thickness and type of plywood supplied.

#### 1.05 GUARANTEE / WARRANTY

A. Attention is directed to the provisions of the Conditions of the Contract regarding guarantees/warranties of the work

B. Manufacturers shall provide their standard guarantees/warranties for work under this Section. However, such guarantees/warranties shall be in addition to and not in lieu of all other liabilities which the manufacturers, the Contractor and the Subcontractors may have by law or by other provisions of the Contract Documents.

#### 1.06 INTENT

A. It is not the intent of this Specification to define the types, sizes, or installation methods for each item of millwork. Methods of installation, joinery, sizes, types of finish, and other information pertaining to the casework, millwork and other items of required finish shall be installed in accordance with the detailing on the Drawings for the specific areas involved, unless otherwise specified herein. Grades and types of finish shall be as specified under this Section.

#### 1.07 QUALITY ASSURANCE

A. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have a record of successful in-service performance. Shop is a certified participant in AIA's Quality Certification Program.

- B. Installer Qualifications: Fabricator of products and Certified participant in AWI's Quality Certification Program.
- C. Source Limitations: Engage a qualified woodworking firm to assume undivided responsibility for production of interior architectural woodwork with sequence-matched wood veneers and wood doors with face veneers that are sequence matched with woodwork and transparent-finished wood doors that are required to be of same species as woodwork.
- D. Quality standard: unless otherwise indicated, comply with AWI's "Architectural Woodwork Quality standards" for grades of interior architectural woodwork indicated for construction, finishes, installation and other requirements.
  - 1. Provide AWI Quality Certification Program labels and certificates indicating that woodwork, including installation, complies with requirements of grades specified.
- E. Fire-Test-Response Characteristics: where fire-retardant materials or products are indicated, provide materials and products with specified fire-test response characteristics as determined by testing identical products per test method indicated by UL,ITS, or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify with appropriate markings of applicable testing and inspecting agency in the form of separable paper label or, where required by authorities having jurisdiction, imprint on surfaces of materials that will be concealed from view after installation.
- F. Mockups: build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
  - 1. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- G. Pre-installation Conference: conduct conference at Project site to comply with requirements in Division 01

#### 1.07 REFERENCES

- A. National standards referenced herein are included to establish recognized quality only. Equivalent quality and testing standards will be acceptable subject to their timely submission, review and acceptance by the Architect.
- B. Refer to Section 01029 – Definitions and Standards for schedule of references.

#### 1.08 DELIVERY, STORAGE, AND HANDLING

- A. Delivery and Storage: keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Stack lumber as well as plywood and other panels. Provide for air circulation within and around stacks and under temporary coverings including polyethylene and similar materials
- B. Do not deliver finish carpentry until environmental conditions meet requirements specified for installation areas. If finish carpentry must be stored in other than installation areas, store only in areas where environmental conditions meet requirements specified for installation areas.

#### 1.09 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.
- B. Environmental Conditions: Obtain and comply with finished carpentry manufacturer's and installer's coordinated advice for optimum temperature and humidity conditions for finish carpentry during its storage and installation.
- C. Field Measurements: Where woodwork is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
  - 1. Locate concealed framing, blocking, and reinforcements that support woodwork by field measurements before being enclosed, and indicate measurements on Shop Drawings.
  - 2. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating woodwork without field measurements. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

#### 1.10 COORDINATION

- A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that interior architectural woodwork can be supported and installed as indicated.

- B. Hardware Coordination: Distribute copies of approved hardware schedule specified in Division 08 Section "Door Hardware (Scheduled by Describing Products)" to fabricator of architectural woodwork; coordinate Shop Drawings and fabrication with hardware requirements.

#### 1.11 ENVIRONMENTAL CONDITIONS

- A. Do not install woodwork in any space until wet work in such space is dry to the satisfaction of the installer, and only when the building's mechanical system can maintain the relative humidity and temperature so that the woodwork will not be damaged by excessive changes.

### PARTTWO-PRODUCTS

#### 2.01 WOODWORK FABRICATORS

- A. Available Fabricators: Subject to compliance with requirements, fabricators offering interior architectural woodwork that may be incorporated into the Work include, but are not limited to, the following:
- B. Fabricators: Subject to compliance with requirements, provide interior architectural woodwork by one of the following:

#### 2.02 MATERIALS

- A. General: Provide materials that comply with requirements of AWI's and W I's quality standard for each type of woodwork and quality grade specified, unless otherwise indicated.
  - 1. Surfaces and Patterns: provide lumber surfaced 4 sides [S4S] and worked to profiles shown.
  - 2. Moisture Content: Kiln-dry lumber to the moisture content recommended by the AWI Section 100-G-3.
- B. Wood Species and Cut for Transparent Finish: white oak, plain sawn or sliced.
- C. Trim and Rails: for trim in form of boards and worked products, provide lumber complying with the following requirements.
  - 1. Species: if not otherwise indicated, use, poplar; WWPA

- a. Grade: B or better
    - b. Finish grade: prime
  - 2. Textured: surface (smooth).
  - 3. Lumber for Painted Finish: Glued-up lumber or solid lumber stock
- D. Wood Molding Patterns: for stock molding patterns included in Wood Molding and Millwork Produces Association WM 7 and graded under WM 4, provide the following grade based on finish indicated and fabricated from species specified:
- 1. Moldings for Painted Finish: P-Grade
  - 2. Patterns: closet poles shall be rounds; AWI 7821: 1-1/2" x 1-1/2"
- E. Boards for Exposed Conditions
- 1. Species: any wood species listed by PS 20
  - 2. Moisture Content: Kiln -Dry, KD 15 or MC 15 (15 percent maximum moisture content).
  - 3. Grade: No. 1, 1 common, construction heart, or select merchantable boards.
- F. Wood Products: Comply with the following:
- 1. Recycled Content of Medium -Density Fiberboard and Particleboard: Postconsumer recycled content plus one-half of preconsumer recycled content not less than percent.
  - 2. Low-Emitting Materials: Composite wood products shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
  - 3. Hardboard: AHA A135.4.
  - 4. Medium-Density Fiberboard: ANSI A208.2, Grade MD, made with binder containing no urea formaldehyde.
  - 5. Particleboard: ANSI A208.1, Grade M-2, made with binder containing no urea formaldehyde.



6. Particleboard: Straw-based particleboard complying with requirements in ANSI A208.1, Grade M-2, except for density.
  7. Softwood Plywood: DOC PS 1, Medium Density Overlay.
  8. Veneer-Faced Panel Products (Hardwood Plywood): HPVA HP-1, made with adhesive containing no urea formaldehyde.
- G. Decorative Panels: Particleboard or medium-density fiberboard finished with thermally fused, melamine-impregnated decorative paper complying with LMA SAT-1.
1. Provide PVC or polyester edge banding complying with LMA EDG-1 on components with exposed or semiexposed edges.
- H. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or, if not indicated, as required by woodwork quality standard.
1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering highpressure decorative laminates that may be incorporated into the Work include, but are not limited to, the following:
  2. Manufacturer: Subject to compliance with requirements, provide high-pressure decorative laminates by one of the following:
    - a. See drawings.
- I. Solid-Surfacing Material: Homogeneous solid sheets of filled plastic resin complying with ISSFA-2.
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:
  2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. See drawings.
  3. Colors and Patterns: As selected by Architect from manufacturer's full range.

## 2.03

## FIRE-RETARDANT-TREATED MATERIALS

- A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this Article that are acceptable to authorities having jurisdiction and with fire-test-response characteristics specified.
4. Do not use treated materials that do not comply with requirements of referenced woodworking standard or that are warped, discolored, or otherwise defective.
  5. Use fire-retardant-treatment formulations that do not bleed through or otherwise adversely affect finishes. Do not use colorants to distinguish treated materials from untreated materials.
  6. Identify fire-retardant-treated materials with appropriate classification marking of UL, U.S. Testing, Timber Products Inspection, or another testing and inspecting agency acceptable to authorities having jurisdiction.
  7. No corrosion of metal fasteners results from their contact with treated wood.
- B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Comply with performance requirements of AWPA C 20 (lumber) and AWPA C27 (plywood). Use the following treatment type:
1. Exterior Type: Organic-resin-based formulation thermally set in wood by kiln drying.
  2. Interior Type A: Low-hygroscopic formulation.
  3. Mill lumber after treatment within limits set for wood removal that do not affect listed fire-test response characteristics, using a woodworking plant certified by testing and inspecting agency.
  4. Mill lumber before treatment and implement special procedures during treatment and drying processes that prevent lumber from warping and developing discolorations from drying sticks or other causes, marring, and other defects affecting appearance of treated woodwork.
  5. Kiln-dry materials before and after treatment to levels required for untreated materials.
- C. Fire-Retardant Particleboard: Panels complying with the following requirements, made from softwood particles and fire-retardant chemicals mixed together at time of panel manufacture to achieve flamespread index of 25 or less and smoke-developed index of 25 or less per ASTM E 84.
1. For panels 3/4 inch (19 mm) thick and less, comply with ANSI A208.1 for Grade M-2 except for the following minimum properties: modulus of

rupture, 1600 psi (11 MPa); modulus of elasticity, 300,000 psi (2070 MPa); internal bond, 80 psi (550 kPa); and screw-holding capacity on face and edge, 250 and 225 lbf (1100 and 1000 N), respectively.

2. For panels 13/16 to 1-1/4 inches (20 to 32 mm) thick, comply with ANSI A208.1 for Grade M-1 except for the following minimum properties: modulus of rupture, 1300 psi (9 MPa); modulus of elasticity, 250,000 psi (1720 MPa); linear expansion, 0.50 percent; and screw-holding capacity on face and edge, 250 and 175 lbf (1100 and 780 N), respectively.
3. Product: Subject to compliance with requirements, provide "Duraflake FR" by Weyerhaeuser.

D. Fire-Retardant Fiberboard: Medium-density fiberboard panels complying with ANSI A208.2, made from softwood fibers, synthetic resins, and fire-retardant chemicals mixed together at time of panel manufacture to achieve flame-spread index of 25 or less and smoke-developed index of 200 or less per ASTM E 84.

1. Product: Subject to compliance with requirements, provide "Medite FR" by SierraPine Ltd.; Medite Div.

#### 2.04 CABINET HARDWARE AND ACCESSORIES

- A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets, except for items specified in Division 08 Section "Door Hardware (Scheduled by Describing Products)."
- B. Butt Hinges: 2-3/4-inch (70-mm), 5-knuckle steel hinges made from 0.095-inch- (2.4-mm-) thick metal, and as follows:
  1. Semiconcealed Hinges for Flush Doors: BHMA A156.9, B01361.
  2. Semiconcealed Hinges for Overlay Doors: BHMA A156.9, B01521.
- C. Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, 170 degrees of opening, selfclosing.
- D. Back-Mounted Pulls: BHMA A156.9, B02011.
- E. Wire Pulls: Back mounted, solid metal. To be selected by Interior Designer.
- F. Catches: Magnetic catches. See bathroom /kitchen elevations for mag. lock locations. Rev-A-Lock or equal.

- G. Adjustable Shelf Standards and Supports: BHMA A156.9, B04102; with shelf brackets, B04112.
- H. Shelf Rests: BHMA A156.9, B04013; metal, two-pin type with shelf hold-down clip.
- I. Drawer Slides: BHMA A156.9, B05091.
  - 1. Standard Duty (Grade 1, Grade 2, and Grade 3): Side mounted and extending under bottom edge of drawer; full-extension type; epoxy-coated steel with polymer rollers.
  - 2. Heavy Duty (Grade 1HD-100 and Grade 1HD-200): Side mounted; full - extension type; zincplated steel ball-bearing slides.
  - 3. Trash Bin Slides: Grade 1HD-100; for trash bins not more than 20 inches (500 mm) high and 16 inches (400 mm) wide.
- J. Door Locks: BHMA A156.11, E07121.
- K. Drawer Locks: BHMA A156.11, E07041.
- L. Grommets for Cable Passage through Countertops: 2-inch (51-mm) OD, match top, molded-plastic grommets and matching plastic caps with slot for wire passage.
  - 1. Product: Subject to compliance with requirements, provide "SG series" by Doug Mockett & Company, Inc.
- M. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.
  - 1. Satin Chromium Plated: BHMA 626 for brass or bronze base; BHMA 652 for steel base.
  - 2. Bright Chromium Plated: BHMA 625 for brass or bronze base; BHMA 651 for steel base.
  - 3. Satin Stainless Steel: BHMA 630.
- N. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.

## 2.05 MISCELLANEOUS MATERIALS

- A. Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber, kiln dried to less than 15 percent moisture content.
- B. Furring, Blocking, Shims, and Hanging Strips: Fire-retardant-treated softwood lumber, kiln dried to less than 15 percent moisture content.
- C. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.
- D. Handrail Brackets: Extruded from stainless steel with wall flange drilled for exposed anchor and with support arm for screwing to underside of rail. Sized to provide 1-1/2-inch (38-mm) clearance between handrail and wall.
- E. Adhesives, General: Adhesives shall not contain urea formaldehyde. Moisture resistant, complying with Federal Specification MMM-A-125, Type 11 or MMM-A-188 Type I, II, or III: Type best suited for the purpose.
- F. Low-Emitting Materials: Adhesives shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- G. VOC Limits for Installation Adhesives: Installation adhesives shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
  - 1. Wood Glues: 30 g/L.
  - 2. Multipurpose Construction Adhesives: 70 g/L.
  - 3. Contact Adhesive: 250 g/L.
- H. Adhesive for Bonding Plastic Laminate: Unpigmented contact cement.
- I. Fasteners
  - 1. Wood screws: Federal Specification FF-S-11, type, size, material and finish as required for the condition of use.
  - 2. Nails: Federal Specification FF-N-105, type, size, material and finish as required for the condition of use.

- a. Nails, screws, and other anchoring devices of type, size, material, and finish required for application indicated to provide secure attachment, concealed where possible.
- b. Countersink nails, fill surface flush, and sand where face nailing is unavoidable.

## 2.06 FABRICATION, GENERAL

- A. Do all fabrication from field measurement with provision for scribing as required to meet built-in conditions.
- B. Coordinate the work of this Section with the work of other trades
- C. Fabricate units in largest practicable sections. Assemble in the shop for trial fit, disassemble for shipment and reassemble with concealed fasteners.
- D. Maintain relative humidity and temperature during fabrication, storage and finishing operations matching that of the areas of installation.
- E. Details indicate the type and quality of construction. Modifications to conform to manufacturer's standards will be considered providing they comply with the Contract Documents, maintain the profiles shown and subject to acceptance by the Architect.
- F. Reinforcing shown in minimum. Provide additional reinforcing as required to ensure a rigid assembly. Exposed surfaces shall be free from dents, tool marks, warpage, buckle, glue and open joints, or other defects affecting serviceability or appearance. Accurately fit all joints, corners and miters. Conceal all fasteners. Make threaded connections up tight to that threads are entirely concealed.
- G. All joints shall be tapered and formed to conceal shrinkage. Miters, 4 in. or more from heel to point, shall be glued and locked. Dowels, splines and tenons shall be made to a driving fit. All jointing shall be made in accordance with the recognized quality standards and as approved by the Architect for appearance. All butt joints shall be attached to blocking.
- H. All work shall be trued with perfectly level, horizontal and plumb vertical lines. Insofar as possible all finish woodwork shall be assembled in the shop. All joints shall be glued and doweled, and where required, shall be reinforced with countersunk wood screws of the proper size. No corrugated fasteners, metal splines, metal corner reinforcing, or other patented fastenings devices shall be used without the Architect's approval.
- I. Welding shall be of adequate strength and durability with joints tight and flush, smooth and clean. All exposed surfaces shall be ground and finished flush, free of

weld marks. Welds or brazes on finished surfaces shall be indistinguishable from parent metal.

- J. Edge treatment of exposed to view edges of plywood shall be surface applied unless indicated to be let-in.
- K. Interior Woodwork Grade: Unless otherwise indicated, provide Custom -grade interior woodwork complying with referenced quality standard.
- L. 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.
- M. Sand fire-retardant-treated wood lightly to remove raised grain on exposed surfaces before fabrication.
- N. 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 3/4 Inch (19 mm) Thick or Less: 1/16 inch (1.5 mm).
  - 2. Edges of Rails and Similar Members More Than 3/4 Inch (19 mm) Thick: 1/8 inch (3 mm).
  - 3. Corners of Cabinets and Edges of Solid-Wood (Lumber) Members and Rails: 1/16 inch (1.5 mm).
- O. Complete fabrication, including assembly, finishing, 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.
  - 1. Notify Architect seven days in advance of the dates and times woodwork fabrication will be complete.
  - 2. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting. Verify that various parts fit as intended and check measurements of assemblies against field measurements indicated on Shop Drawings before disassembling for shipment.
- P. Shop-cut openings to maximum extent possible to receive hardware, appliances, plumbing fixtures, 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.

1. Seal edges of openings in countertops with a coat of varnish.

Q. Install glass to comply with applicable requirements in Division 08 Section "Glazing" and in GANA's "Glazing Manual." For glass in wood frames, secure glass with removable stops.

## 2.07 INTERIOR STANDING AND RUNNING TRIM FOR TRANSPARENT FINISH

A. Grade: Custom. Install with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available. Cope at returns and miter at corners to produce tight-fitting joints. Use scarf joints for end-to-end joints.

B. Wood Species and Cut: Match species and cut indicated for other types of transparent-finished architectural woodwork located in same area of building, unless otherwise indicated. White oak.

1. Provide split species on trim that faces areas with different wood species, matching each face of woodwork to species and cut of finish wood surfaces in areas finished.

C. For trim items wider than available lumber, use veneered construction. Do not glue for width.

D. For rails wider or thicker than available lumber, use veneered construction. Do not glue for width or thickness.

E. Backout or groove backs of flat trim members and kerf backs of other wide, flat members, except for members with ends exposed in finished work.

F. Assemble casings in plant except where limitations of access to place of installation require field assembly.

G. Assemble moldings in plant to maximum extent possible. Miter corners in plant and prepare for field assembly with bolted fittings designed to pull connections together.

## 2.08 INTERIOR STANDING AND RUNNING TRIM FOR OPAQUE FINISH

A. Grade: Custom.



- B. Wood Species: Eastern white pine, sugar pine, or western white pine.
- C. Backout or groove backs of flat trim members and kerf backs of other wide, flat members, except for members with ends exposed in finished work.
- D. Assemble casings in plant except where limitations of access to place of installation require field assembly.
- E. Assemble moldings in plant to maximum extent possible. Miter corners in plant and prepare for field assembly with bolted fittings designed to pull connections together.

#### 2.09 INTERIOR ORNAMENTAL WORK FOR TRANSPARENT FINISH

- A. Interior ornamental work for transparent finish includes the following:
  - 1. All stain grade wood. White maple.
- B. Grade: Custom.
- C. Wood Species and Cut: Match species and cut indicated for other types of transparent-finished architectural woodwork located in same area of building, unless otherwise indicated.

#### 2.10 INTERIOR ORNAMENTAL WORK FOR OPAQUE FINISH

- A. Interior ornamental work for opaque finish includes the following:
  - 1. All paint grade wood.
- B. Wood Species: Any closed-grain hardwood, Eastern white pine, sugar pine, or western white pine.

#### 2.11 PLASTIC-LAMINATE CABINETS

- A. Grade: Custom.
- B. AWI Type of Cabinet Construction: Flush overlay as indicated.
- C. WI Construction Type: Type I, multiple self-supporting units rigidly joined together.

- D. WI Door and Drawer Front Style: Reveal overlay.
- E. Reveal Dimension: 1/2 inch (13 mm).
- F. Laminate Cladding for Exposed Surfaces : High-pressure decorative laminate complying with the following requirements:
  - 1. Horizontal Surfaces Other Than Tops: Grade HGS.
  - 2. Vertical Surfaces: Grade HGS.
  - 3. Edges: Grade HGS.
- G. Materials for Semiexposed Surfaces:
  - 1. Surfaces Other Than Drawer Bodies: High-pressure decorative laminate, Grade VGS.
    - a. Edges of Plastic-Laminate Shelves: PVC edge banding, 0.12 inch (3 mm) thick, matching laminate in color, pattern, and finish.
    - b. For semiexposed backs of panels with exposed plastic-laminate surfaces, provide surface of high-pressure decorative laminate, Grade VGS.

## 2.17 PLASTIC-LAMINATE COUNTERTOPS

- A. Grade: Custom.
- B. High-Pressure Decorative Laminate Grade: HGS.
- 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. As indicated by manufacturer's designations.
  - 2. Match Architect's sample.
  - 3. As selected by Architect from manufacturer's full range in the following categories:
    - a. Solid colors, matte finish.
    - b. Solid colors with core same color as surface, gloss/matte finish – Selected by Interior Designer.

- c. Wood grains, matte finish.
  - d. Patterns, matte finish.
- D. Grain Direction: Parallel to cabinet fronts.
  - E. Edge Treatment: Lumber edge for transparent finish matching wood species and cut on cabinet surfaces.
  - F. Core Material: Particleboard made with exterior glue.
  - G. Core Material at Sinks: Particleboard made with exterior glue.
  - H. Backer Sheet: Provide plastic-laminate backer sheet, Grade BKL, on underside of countertop substrate.
  - I. Paper Backing: Provide paper backing on underside of countertop substrate.

#### 2.18 SOLID-SURFACING-MATERIAL COUNTERTOPS

- A. Grade: Custom.
- B. Solid-Surfacing-Material Thickness: 3/4 inch (19 mm).
- C. Colors, Patterns, and Finishes: Provide materials and products that result in colors of solid-surfacing material complying with the following requirements:
  - 1. As selected by Architect from manufacturer's full range.
- D. Fabricate tops in one piece, unless otherwise indicated. Comply with solid-surfacing-material manufacturer's written recommendations for adhesives, sealers, fabrication, and finishing.
  - 1. Fabricate tops with shop-applied edges of materials and configuration indicated.
  - 2. Fabricate tops with loose backsplashes for field application.
- E. Install integral sink bowls in countertops in shop.
- F. Drill holes in countertops for plumbing fittings and soap dispensers in shop.

#### 2.19 CLOSET SYSTEMS

- A. Provide ClosetMaid wire shelving or plastic laminate shelves in other section shown on Drawings (or equal).

## 2.20 STORAGE/JANITOR CLOSETS

- A. Provide melamine shelving in widths shown on drawings with appropriate adjustable brackets and wall hangers. Color: to be selected by Architect from full standard colors.

## 2.21 CLOSET AND UTILITY SHELVING

- A. Grade: Custom.
- B. Shelf Material: 3/4 -inch (19-mm) veneer-faced panel product with veneer edge banding.
- C. Cleats: 3/4-inch (19-mm) thermoset decorative panel.
- D. Wood Species: Match species indicated for other types of transparent-finished architectural woodwork located in same area of building, unless otherwise indicated.

## 2.22 SHOP FINISHING

- A. Grade: Provide finishes of same grades as items to be finished.
- B. General: Finish architectural woodwork at fabrication shop as specified in this Section. Defer only final touchup, cleaning, and polishing until after installation.
- C. General: Shop finish transparent-finished interior architectural woodwork at fabrication shop as specified in this Section. Refer to Division 09 painting Sections for finishing opaque-finished architectural woodwork.
- D. General: Drawings indicate items that are required to be shop finished. Finish such items at fabrication shop as specified in this Section. Refer to Division 09 painting Sections for finishing architectural woodwork not indicated to be shop finished.
- E. Finishing Materials: Products shall comply with the testing and product requirements of the California Department of Health Services "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

- F. Shop Priming: Shop apply the prime coat including backpriming, if any, for transparent-finished items specified to be field finished. Refer to Division 09 painting Sections for material and application requirements.
- G. Preparation for Finishing: Com ply with referenced quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing architectural woodwork, as applicable to each unit of work.
1. Backpriming: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of woodwork. Apply two coats to back of paneling and to end-grain surfaces. Concealed surfaces of plastic-laminate-clad woodwork do not require backpriming when surfaced with plastic laminate, backing paper, or thermoset decorative panels.
- H. Transparent Finish:
1. Grade: Custom.
  2. Staining: Match approved sample for color.
  3. Wash Coat for Stained Finish: Apply wash-coat sealer to woodwork made from closed-grain wood before staining and finishing.
  4. Open Finish for Open-Grain Woods: Do not apply filler to open-grain woods.
  5. Filled Finish for Open-Grain Woods: After staining (if any), apply paste wood filler to open-grain woods and wipe off excess. Tint filler to match stained wood.
    - a. Apply wash-coat sealer after staining and before filling.
  6. Sheen: Semigloss, 46-60 gloss units measured on 60-degree gloss meter per ASTM D 523.
- I. Opaque Finish:
1. Grade: Custom.
  2. Color: As selected by Architect from manufacturer's full range.
  3. Sheen: Satin, 31-45 gloss units measured on 60-degree gloss meter per ASTM D 523.

## PARTTHREE-EXECUTION

### 3.01 PREPARATION

- A. Before installing architectural woodwork, examine shop-fabricated work for completion and complete work as required, including removal of packing and backpriming.
- B. Examine substrates for compliance with requirements for installation tolerances and other conditions affecting installation and performance of finish carpentry. Do not proceed with installation until unsatisfactory conditions have been corrected.
- C. Clean substrates of projections and substances detrimental to application
- D. Condition finish carpentry to average prevailing humidity conditions in installation areas before installation for a minimum of 24 hours unless longer conditioning recommended by manufacturer.

### 3.02 INSTALLATION

- A. General
  - 1. Installation of woodwork specified in this Section 06220 shall meet with the requirements set forth under Architectural Woodwork Quality Standard for “Premium Grade” and the additional requirements specified herein whichever is more stringent.
  - 2. Coordinate installation with the work of other trades to ensure exact fit and perfect alignment. Verify dimensions before proceeding and obtain measurements at job site for work required to be accurately fitted to other construction.
- B. Grade: Install woodwork to comply with requirements for the same grade specified in Part 2 for fabrication of type of woodwork involved.
- C. Assemble woodwork and complete fabrication at Project site to comply with requirements for fabrication in Part 2, to extent that it was not completed in the shop.
- D. 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).
- E. Scribe and cut woodwork to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.

- F. Fire-Retardant-Treated Wood: Handle, store, and install fire-retardant-treated wood to comply with chemical treatment manufacturer's written instructions, including those for adhesives used to install woodwork.
- G. 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.
- H. 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 96 inches (2400 mm) long, except where shorter single-length pieces are necessary. Scarf running joints and stagger in adjacent and related members. Install trim after drywall joint finishing operations are completed.
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.
  2. Install wall railings on indicated metal brackets securely fastened to wall framing.
  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).
- I. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.
1. Install cabinets with no more than 1/8 inch in 96-inch (3 mm in 2400-mm) sag, bow, or other variation from a straight line.
  2. Maintain veneer sequence matching of cabinets with transparent finish.
  3. Fasten wall cabinets through back, near top and bottom, at ends and not more than 16 inches (400 mm) o.c. with No. 10 wafer-head screws sized for 1-inch (25-mm) penetration into wood framing, blocking, or hanging strips.
- J. 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 1/8 inch in 96-inch (3 mm in 2400-mm) sag, bow, or other variation from a straight line.
3. Secure backsplashes to tops with concealed metal brackets at 16 inches (400 mm) o.c. and to walls with adhesive.
4. Caulk space between backsplash and wall with sealant specified in Division 07 Section "Joint Sealants."

K. Touch up finishing work specified in this Section after installation of woodwork. Fill nail holes with matching filler where exposed.

L. Refer to Division 09 Sections for final finishing of installed architectural woodwork not indicated to be shop finished.

### 3.03 INSTALLATION OF WOOD DOORS AND FINISH HARDWARE

A. Finish hardware shall be furnished under Section 08710 – Finish Hardware and shall be received, checked, stored and installed under this Section.

### 3.04 ADJUSTING AND CLEANING

A. Repair damaged and defective woodwork, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.

B. Clean, lubricate, and adjust hardware.

C. Clean woodwork on exposed and semi-exposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.

END OF SECTION 06220



SECTION 07150  
VAPOR BARRIERS, WATERPROOFING & DAMPPROOFING

PARTONE-GENERAL

1.01 GENERAL REQUIREMENTS

- A. Part A and Division 1 of Part B are hereby made a part of this section

1.02 DESCRIPTION

- A. Liquid dampproofing
- B. Elastic sheet vapor barriers.
- C. Building paper
- D. Perimeter, wall insulation (supporting backfill) and under slab rigid insulation.

1.03 RELATED SECTIONS INCLUDE THE FOLLOWING:

- A. Division 3 Section “Concrete” for vapor barrier/insulation under slabs-on-grade.
- B. Standards: Comply with standards specified in this Section and as listed in Section 01085.
- C. Qualifications of manufacturer: Use products for the work of this Section produced by manufacturers regularly engaged in manufacture of similar items and with a history of successful production acceptable to the Architect.
- D. Qualifications of installers: Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- E. Membrane inspections: Make all required notifications, and secure all required inspections by the manufacturer of the approved materials to facilitate issuance of the specified waterproof membrane guarantee.

- F. Obtain elastic sheet vapor barrier materials from only one manufacturer. Obtain each dampproofing material from only one manufacturer. Submit manufacturer's specifications for approval.

#### 1.04 JOB CONDITIONS

- A. Proceed with vapor barrier work only after substrate construction and penetrating work have been completed.
- B. Weather Conditions: proceed with a vapor barrier work only when weather conditions comply with manufacturer's recommendations and will permit the materials to be applied in accordance with the recommendations.
- C. Proceed with dampproofing work only after substrate construction and penetrating work have been completed.

#### 1.05 SUBMITTALS

- A. General: Comply with provisions of Section 01300.
- B. Manufacturer's data: Within 35 calendar days after award of the Contract, submit:
  - 1. Complete materials list of all items proposed to be furnished and installed under this Section.
  - 2. Manufacturer's specifications and other data required to demonstrate compliance with the specified requirements.
  - 3. Samples of materials proposed for use in the work of this Section.
  - 4. Two copies of two year guarantee for waterproofing and associated work listed in this Section, agreeing to repair or replace waterproofing and its installation if it leaks water, deteriorates excessively, or otherwise fails to perform as required due to failures of materials or workmanship.
  - 5. Manufacturer's recommended installation procedures. The manufacturer's recommended installation procedures, when approved by the Architect, will become the basis for inspecting and accepting or rejecting actual installation procedures used on the Work.
- C. Product Data: For each type of product indicated.
- D. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency for insulation products.

## 1.06 PRODUCT HANDLING

- 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. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.
- C. Delivery and storage: Deliver all materials to the job site in their original unopened containers with all labels intact and legible at time of use. Store in strict accordance with the manufacturer's recommendations as approved by the Architect.
- D. Protect insulation materials from physical damage and from deterioration by moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.

## PARTTWO-PRODUCTS

### 2.01 MANUFACTURERS

- A. In other Part 2 articles where the titles below introduce lists, the following requirements apply to product selection.
  - 1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.
  - 2. Products: Subject to compliance with requirements, provide one of the products specified.
  - 3. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.
  - 4. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

### 2.02 VAPOR BARRIER

- A. Polyethylene Vapor Retarders: ASTM D 4397, 6 mils (0.15 mm) thick, with maximum permeance rating of 0.13 perm (7.5 ng/Pa x s x sq. m).

- B. Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by vapor-retarder manufacturer for sealing joints and penetrations in vapor retarder.
- C. Vapor-Retarder Fasteners: Pancake-head, self-tapping steel drill screws; with fender washers.
- D. Single-Component Nonsag Urethane Sealant: ASTM C 920, Type I, Grade NS, Class 25, Use NT related to exposure, and Use O related to vapor-barrier-related substrates.

#### 2.03 EXTRUDED POLYSTYRENE (XPS) INSULATION BOARD

- A. Foamular extruded polystyrene (XPS) insulation and protection board. For mular Insul-Drain by Owens Corning.
- B. Miscellaneous Materials
  - 1. General: Provide adhesives, tapes, flashings, and accessories as recommended by the vapor barrier manufacturer, to maintain the vapor rating for the entire barrier. Comply with fire and flame spread ratings, as required for the vapor barrier work. All other materials, not specifically described but required for a complete and proper installation of the work of this Section, shall be new, first quality of their respective kinds, and as selected by the Contractor subject to the approval of the Architect.

#### 2.04 MONOLITHIC ASPHALT DAMPPROOFING

- A. Dampproofing: Shall be a general purpose, non-fibred, emulsion dampproofing. Manufacture with refined asphalt emulsifiers and selected clay fillers. Dampproofing shall not burn or support combustion in a liquid state. Dampproofing shall be odorless and have no fumes.
  - 1. Dampproofing shall meet the following requirements
    - a. ASTMD-11E7 type II
    - b. ASTMD-1227 type III, class 1
    - c. SS-R-1781
    - d. MIL-R-3472A
- B. Dampproofing shall be Karnak #100 non fibred emulsion as manufactured by Karnak, 300 Central Ave, Clark, NJ 07066, or approved equal.

- C. Building Paper shall be unperforated, asphalt saturated, rag felt weighing 15 lbs per 100 square feet.

## PART THREE – EXECUTION

### 3.01 INSPECTION

- A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to the proper and timely completion of the Work. Do not proceed until unsatisfactory conditions have been corrected.

### 3.02 EXISTING CONDITIONS

- A. Proceed with the work of this Section only after curbs, blocking, nailer strips, piping, conduit, and other projections through the substrate construction are complete, after all framing of openings is complete, and when existing and forecasted weather conditions will permit the work to be performed in accordance with the manufacturer's recommendations, the established procedures, and the construction schedule.

### 3.03 PREPARATION OF SURFACES

- A. Locate all holes, joints, and cracks; point them flush with mortar, and cut off or grind off all high spots.

### 3.04 INSTALLATION - VAPOR BARRIERS

- A. Examine the substrate and the conditions under which vapor barrier work is to be performed. Do not proceed with installation until satisfactory conditions have been corrected.
- B. Clean the substrate of projections and substances detrimental to the work; comply with recommendations of the vapor barrier manufacturer.
- C. Interfacings: Where work interfaces with that of other trades, coordinate activities.

### 3.05 INSTALLATION DAMPPROOFING

- A. General: Surface should be free of oil, grease, dirt, laitance and adhesive-inhibiting materials. Dry surfaces should be dampened with water before

application of the coating. Repair all cracks and holes with Emulsion mastic before applying the surface coating.

- B. Application: Dampproofing may be applied by brush, roller, or spray equipment. Dampproofing is applied in two coats, allow the first coat to dry. Coating should be continuous and free of pin-holes or holidays. Cover all slots, joints and grooves and apply into all chases and corners.

### 3.06 PERFORMANCE REQUIREMENTS

- A. It is required that the dampproofing be water-resistant and not deteriorate in excess of limitation published by the manufacturer.

### 3.07 INSTALLATION OF PERIMETER AND UNDER-SLAB INSULATION

- A. On vertical surfaces, set insulation units in adhesive applied according to manufacturer's written instructions. Use adhesive recommended by insulation manufacturer.
  - 1. If not otherwise indicated, extend insulation a minimum of 24 inches (610 mm) below exterior grade line.
- B. On horizontal surfaces, loosely lay insulation units according to manufacturer's written instructions. Stagger end joints and tightly abut insulation units.

### 3.08 INSTALLATION OF VAPOR RETARDERS

- A. General: Extend vapor retarder to extremities of areas to be protected from vapor transmission. Secure in place with adhesives or other anchorage system as indicated. Extend vapor retarder to cover miscellaneous voids in insulated substrate, including those filled with loose-fiber insulation.
- B. Seal vertical joints in vapor retarders over framing by lapping not less than two wall studs. Fasten vapor retarders to wood framing at top, end, and bottom edges; at perimeter of wall openings; and at lap joints. Space fasteners 16 inches (400 mm) o.c.
- C. Before installing vapor retarder, apply urethane sealant to flanges of metal framing including runner tracks, metal studs, and framing around door and window openings. Seal overlapping joints in vapor retarders with vapor-retarder tape according to vapor-retarder manufacturer's written instructions. Seal butt joints with vapor-retarder tape. Locate all joints over framing members or other solid substrates.

- D. Firmly attach vapor retarders to metal framing and solid substrates with vapor-retarder fasteners as recommended by vapor-retarder manufacturer.
- E. Seal joints caused by pipes, conduits, electrical boxes, and similar items penetrating vapor retarders with vapor-retarder tape to create an airtight seal between penetrating objects and vapor retarder.
- F. Repair tears or punctures in vapor retarders immediately before concealment by other work. Cover with vapor-retarder tape or another layer of vapor retarder.

3.09 PROTECTION

- A. Protect installed insulation and vapor retarders from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 07150

SECTION 07200  
BUILDING INSULATION

PARTONE-GENERAL

1.01 GENERAL REQUIREMENTS

- A. Part A and Division 1 of Part B are hereby made a part of this section

1.02 SUMMARY

- A. Provide all building insulation required for this work, but not necessarily limited to:
1. Perimeter wall insulation (supporting backfill).
  2. Concealed building insulation.
  3. Air sealing.
  4. Vapor retarders.
  5. Thermafiber safig.
  6. Fire rated polyurethane foam.
  7. Sound attenuation batt insulation.
- B. Related Sections include the following:
1. Division 7 Section 07150 Vapor Barriers and Dampproofing for vapor barrier/insulation under slabs-on-grade and wall insulation supporting backfill.
  2. Division 6 Section "Sheathing" board sheathing over wood and metal framing.
  3. Division 7 Section 07511 EPDM Membrane Roofing for insulation specified as part of roofing construction.



4. Division 9 Section 09260 Gypsum Board Assemblies for installation in metal-framed assemblies of insulation specified by referencing this Section.
5. Division 6 Section 06100 Rough Carpentry.
6. Division 3 Section 03320 Cast-In-Place Concrete.

### 1.03 DEFINITIONS

- A. Mineral-Fiber Insulation: Insulation composed of rock-wool fibers, slag-wool fibers, or glass fibers; produced in boards and blanket with latter formed into batts (flat-cut lengths) or rolls.

### 1.04 SUBMITTALS

- A. Manufacturer's Data
  1. Submit manufacturer's specification and installation instructions for insulation required. Include data substantiating that the materials comply with specified requirements.
- B. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency for insulation products.
- C. Research/Evaluation Reports: For foam-plastic insulation.

### 1.05 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type of building insulation through one source from a single manufacturer.
- B. Fire-Test-Response Characteristics: Provide insulation and related materials with the fire-test-response characteristics indicated, as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.
  1. Surface-Burning Characteristics: ASTM E 84.
  2. Fire-Resistance Ratings: ASTM E 119.

3. Combustion Characteristics: ASTM E 136 for mineral wool type insulation.
- C. Thermal Conductivity: The thicknesses shown are for the thermal conductivity – L value @ 75 degrees F.

#### 1.06 DELIVERY, STORAGE, AND HANDLING

- A. Protect insulation materials from physical damage and from deterioration by moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.
- B. Protect plastic insulation as follows:
1. Do not expose to sunlight, except to extent necessary for period of installation and concealment.
  2. Protect against ignition at all times. Do not deliver plastic insulating materials to Project site before installation time.
  3. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.
- C. Replacements
1. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

#### 1.07 JOB CONDITIONS

- A. Do not proceed with the installation of insulation under slabs until the work which follows (and which conceals the insulation) is ready to be performed.

### PARTTWO-PRODUCTS

#### 2.01 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.
2. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

## 2.02 GLASS-FIBER BLANKET INSULATION

### A. Manufacturers:

1. CertainTeed Corporation.
2. Guardian Fiberglass, Inc.
3. Johns Manville.
4. Knauf Fiber Glass.
5. Owens Corning.

### B. Unfaced, Glass-Fiber Blanket Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.

### C. Where glass-fiber blanket insulation is indicated by the following thicknesses, provide blankets in batt or roll form with thermal resistances indicated:

1. 3-1/2 inches (89 mm) thick with a thermal resistance of 13 deg F x h x sq. ft./Btu at 75 deg F (2.3 K x sq. m/W at 24 deg C). R-13 in exterior walls.
2. 5-1/2 inches (140 mm) thick with a thermal resistance of 19 deg F x h x sq. ft./Btu at 75 deg F (3.3 K x sq. m/W at 24 deg C).
3. 6-1/2 inches (165 mm) thick with a thermal resistance of 19 deg F x h x sq. ft./Btu at 75 deg F (3.3 K x sq. m/W at 24 deg C).
4. 10 inches (254 mm) thick with a thermal resistance of 30 deg F x h x sq. ft./Btu at 75 deg F (5.2 K x sq. m/W at 24 deg C).

## 2.03 SLAG-WOOL-FIBER/ROCK-WOOL-FIBER BLANKET INSULATION

- A. Available Manufacturers:
  - 5. Thermafiber – Basis of design (4”).
  - 6. Fibrex Insulations Inc.
  - 3. Owens Corning.
  
- B. Unfaced, Slag-Wool-Fiber/Rock-Wool-Fiber Blanket Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.
  
- C. Where slag-wool-fiber/rock-wool-fiber blanket insulation is indicated by the following thicknesses, provide blankets in batt form with thermal resistances indicated:
  - 1. 1-1/2 inches (38 mm) thick with a thermal resistance of 6 deg F x h x sq. ft./Btu at 75 deg F (1 K x sq. m/W at 24 deg C).
  - 2. 3-1/2 inches (89 mm) thick with a thermal resistance of 13 deg F x h x sq. ft./Btu at 75 deg F (2.3 K x sq. m/W at 24 deg C).
  - 3. 4 inches (101 mm) thick with a thermal resistance of 16 deg F x h x sq. ft./Btu at 75 deg F (2.8 K x sq. m/W at 24 deg C).
  - 4. 5-1/4 inches (133 mm) thick with a thermal resistance of 19 deg F x h x sq. ft./Btu at 75 deg F (3.3 K x sq. m/W at 24 deg C).
  - 5. 6 inches (152 mm) thick with a thermal resistance of 22 deg F x h x sq. ft./Btu at 75 deg F (3.9 K x sq. m/W at 24 deg C).

2.04 RIGID MINERAL WOOL INSULATION BOARD

- A. By Roxul, R-7.5 min.

2.05 EXTRUDED POLYSTYRENE (XPS) INSULATION BOARD

- A. Foamular extruded polystyrene (XPS) insulation and protection board. For mular Insul-Drain by Owens Corning.

2.06 SOUND ATTENUATION BATT INSULATION

- A. Shall be manufacturer's standard product designed specifically for sound attenuation, made of mineral wool. Installed full stud or void width as shown. Insulation shall be un-faced glass fiber acoustical insulation complying with ASTM C 665, Type I.
- B. In all sound isolating partitions and floor/ceiling spaces where so indicated on the Drawings, provide 3-1/2" thick sound attenuation batts in each of the stud cavities stud cavities and, where so indicated on the Drawings, in the ceiling plenum space over the room. All batts for this portion of the Work shall be unfaced.

## 2.07 VAPOR RETARDERS

- A. Polyethylene Vapor Retarders: ASTM D 4397, 6 mils (0.15 mm) thick, with maximum permeance rating of 0.13 perm (7.5 ng/Pa x s x sq. m).
- B. Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by vapor-retarder manufacturer for sealing joints and penetrations in vapor retarder.
- C. Vapor-Retarder Fasteners: Pancake-head, self-tapping steel drill screws; with fender washers.
- D. Single-Component Nonsag Urethane Sealant: ASTM C 920, Type I, Grade NS, Class 25, Use NT related to exposure, and Use O related to vapor-barrier-related substrates.

## 2.08 AUXILIARY INSULATING MATERIALS

- A. All other materials, not specifically described but required for a complete and proper installation of the work of this Section, shall be as selected by the Contractor subject to the approval of the Architect.
- B. Mechanical anchors type and size as recommended by the insulation manufacturer for the type of application shown and condition of substrate.
- C. Adhesive for Bonding Insulation: Product with demonstrated capability to bond insulation securely to substrates indicated without damaging insulation and substrates.

## PARTTHREE-EXECUTION

### 3.01 EXAMINATION

A. Inspection

1. Examine the areas and conditions under which work of this Section will be installed. Correct conditions detrimental to proper and timely completion of the Work. Do not proceed until unsatisfactory conditions have been corrected.
2. Examine substrates and conditions, with Installer present, for compliance with requirements of Sections in which substrates and related work are specified and for other conditions affecting performance.
  - a. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Clean substrates of substances harmful to insulation or vapor retarders, including removing projections capable of puncturing vapor retarders or of interfering with insulation attachment.

3.03 INSTALLATION, GENERAL

- A. Comply with insulation manufacturer's written instructions applicable to products and application indicated.
- B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed at any time to ice, rain, and snow.
- C. Extend insulation in thickness indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- D. Water-Piping Coordination: If water piping is located within insulated exterior walls, coordinate location of piping to ensure that it is placed on warm side of insulation and insulation encapsulates piping.
- E. For preformed insulating units, provide sizes to fit applications indicated and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units to produce thickness indicated unless multiple layers are otherwise shown or required to make up total thickness.

3.04 INSTALLATION OF PERIMETER AND UNDER-SLAB INSULATION

- A. On vertical surfaces, set insulation units in adhesive applied according to manufacturer's written instructions. Use adhesive recommended by insulation manufacturer.
  - 1. If not otherwise indicated, extend insulation a minimum of 24 inches (610 mm) below exterior grade line.
- B. On horizontal surfaces, loosely lay insulation units according to manufacturer's written instructions. Stagger end joints and tightly abut insulation units.

### 3.05 INSTALLATION OF GENERAL BUILDING INSULATION

- A. Apply insulation units to substrates by method indicated, complying with manufacturer's written instructions.
- B. Install mineral-fiber insulation in cavities formed by framing members according to the following requirements:
  - 7. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill cavity, provide lengths that will produce a snug fit between ends.
  - 8. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
  - 9. Maintain 3-inch (76-mm) clearance of insulation around recessed lighting fixtures.
  - 4. For metal-framed wall cavities where cavity heights exceed 96 inches (2438 mm), support unfaced blankets mechanically.
- C. Stuff glass-fiber loose-fill insulation into miscellaneous voids and cavity spaces where shown. Compact to approximately 40 percent of normal maximum volume equaling a density of approximately 2.5 lb/cu. ft. (40 kg/cu. m).

### 3.06 INSTALLATION OF VAPOR RETARDERS

- A. General: Extend vapor retarder to extremities of areas to be protected from vapor transmission. Secure in place with adhesives or other anchorage system as indicated. Extend vapor retarder to cover miscellaneous voids in insulated substrates, including those filled with loose-fiber insulation.
- B. Seal vertical joints in vapor retarders over framing by lapping not less than two wall studs. Fasten vapor retarders to wood framing at top, end, and bottom edges;

at perimeter of wall openings; and at lap joints. Space fasteners 16 inches (400 mm) o.c.

- C. Before installing vapor retarder, apply urethane sealant to flanges of metal framing including runner tracks, metal studs, and framing around door and window openings. Seal overlapping joints in vapor retarders with vaporretarder tape according to vapor-retarder manufacturer's written instructions. Seal butt joints with vapor-retarder tape. Locate all joints over framing members or other solid substrates.
- D. Firmly attach vapor retarders to metal framing and solid substrates with vapor-retarder fasteners as recommended by vapor-retarder manufacturer.
- E. Seal joints caused by pipes, conduits, electrical boxes, and similar items penetrating vapor retarders with vapor-retarder tape to create an airtight seal between penetrating objects and vapor retarder.
- F. Repair tears or punctures in vapor retarders immediately before concealment by other work. Cover with vapor-retarder tape or another layer of vapor retarder.

### 3.07 VERIFICATION

- A. Upon completion of the installation in each area, visually inspect and verify that all insulation is complete and properly installed.

### 3.08 PROTECTION

- A. Protect installed insulation and vapor retarders from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 07200



SECTION 07620  
FLASHING AND SHEET METAL

PART1-GENERAL

1.01 GENERAL REQUIREMENTS

- A. Part A and Division 1 of Part B area hereby made a part of this SECTION.
- B. Examine all conditions as they exist at the project prior to submitting a bid for the work of this section.

1.02 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment not specifically described in other sections necessary to complete the work of this Section required to relevant penetration of water through exterior shell of the building, including but not limited to the following:
  - 1. Sheet metal flashing and trim of the following applications:
    - a. Formed wall/bulkhead flashing and trim.
    - b. Formed sheet metal roof edge/cap flashing and trim.
  - 2. 20 oz. Zinc Coated copper sheet materials for the following applications:
    - a. Formed vent pipe collars, flashings and trim.
  - 3. Stainless steel sheet materials for the following applications:
    - a. Flashings/counterflashings at roof/wall joints as shown on the drawings.
  - 4. Self-adhered membrane flashings and underlayments:
    - a. Flashings and underlayments as shown on the drawings in conjunction with roofing and wall systems.
- B. Related Work: The following items are not included in this Section and will be performed under the designated Sections:

1. Section 06100 – Rough Carpentry for wood nailers, curbs, and blocking.
2. Section 07150 – Waterproofing, dampproofing for field-applied sheet metal flashing sealants.
3. Section 07511 - EPDM Membrane Roofing – for installation of flashing in conjunction with wall panel systems.
4. Section 07720 – Roof Hatch – for installation of flashing in conjunction with roof hatch systems.
5. Section 07500 – Metal Standing Seam Roofing.
6. Section 07800 – Joint Fillers for Field Applied Sheet Metal Flashing & Trim.

#### 1.03 PERFORMANCE REQUIREMENTS

- A. General: Install sheet metal flashing and trim to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing, rattling, leaking, and fastener disengagement.
- B. Fabricate and install roof edge flashing and copings capable of resisting the following forces required by Code according to recommendations in FMG Loss Prevention Data Sheet 1-49.
- C. Thermal Movements: Provide sheet metal flashing and trim that allow for thermal movements resulting from the maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, hole elongation, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Provide clips that resist rotation and avoid shear stress as a result of sheet metal and trim thermal movements. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
  1. Temperature Change (Range): 120 deg F, ambient; 180 deg F material surfaces.
- D. Water Infiltration: Provide sheet metal flashing and trim that do not allow water infiltration to building interior.

#### 1.04 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: Show layouts of sheet metal flashing and trim, including plans and elevations. Distinguish between shop and field-assembled work. Include the following:
1. Identify material, thickness, weight, and finish for each item and location in Project.
  2. Details for forming sheet metal flashing and trim, including profiles, shapes, seams, and dimensions.
  3. Details for fastening, joining, supporting and anchoring sheet metal flashing and trim, including fasteners, clips, cleats, and attachments to adjoining work.
- C. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below:
1. Formed Sheet Metal Flashing: 12 inches long. Include fasteners, cleats, clips, closures and other attachments for each type of metal flashing.
  2. Trim: 12 inches long. Include fasteners and other exposed accessories.
  3. Self-adhered membrane flashing: 12 inch by 12 inch sample.
  4. Details of expansion joint covers, including showing direction of expansion and contraction.
  5. Accessories: Full-size Sample.
- D. Mock-up Panels: Provide a “mock-up” as part of the flashing and sheet metal installation in area and size as designated on the drawings. Once approved, the mock-up will be used as a standard of quality for the installation for the remainder of the project.
1. Approval of mockups is for the other material and construction qualities specifically approved by Architect in writing.

## 1.05 QUALITY ASSURANCE

- A. Formed Sheet Metal Flashing and Trim Standard: Comply with SMACNA's "Architectural Sheet Metal Manual." Conform to dimensions and profiles shown unless more stringent requirements are indicated.
- B. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01.
  - 1. Meet with the Architect, Installer, and installers whose work interfaces with or affects sheet metal flashing and trim including installers of roofing materials, roof accessories, unit skylights, and roof-mounted equipment.
  - 2. Review methods and procedures related to sheet metal flashing and trim.
  - 3. Examine substrate conditions for compliance with requirements, including flatness and attachment to structural members.
  - 4. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

#### 1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver sheet metal flashing materials and fabrications undamaged. Protect sheet metal flashing and trim materials fabrications during transportation and handling.
- B. Unload, store, and install sheet metal flashing materials and fabrications in a manner to prevent bending, warping, twisting, and surface damage.
- C. Stack materials on platforms or pallets, covered with suitable weathertight and ventilated covering. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage.

#### 1.07 COORDINATION

- A. Coordinate installation of sheet metal flashing and trim with interfacing and adjoining construction to provide a leakproof, secure, and noncorrosive installation.

### PART 2—PRODUCTS

#### 2.01 SHEET METALS

- A. Aluminum Sheet: ASTM B 209, Alloy 3003, 3004, 3105, or 5005. Thickness as specified in this Section. Tempur suitable for forming and structural performance required, but not less than H14, finished as follows:
1. High-Performance Organic Finish: AA-C12C42R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: a cid-chromate-fluoride-phosphate conversion coating; Organic Coating: as specified below). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
    - a. Fluoropolymer 2-Coat System : Manufacturer's standard 2-coat, thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color top coat. Color top coat containing not less than 70 percent polyvinylidene fluoride resin by weight, with a minimum total dry film thickness of 1.5 mil; complying with AAMA 2605, except as modified as follows:
      - 1) Humidity Resistance: 1000 Hrs
      - 2) Salt-Spray Resistance: 1000 Hrs
    - b. Color: As selected by Architect from manufacturer's full range of colors. Two colors will be selected for flashings.
    - c. Kynar Finish Aluminum-Parapet cap, vertical reglets, and other exposed area. ASTM A653/A653M. 90Z (Z22) coating designation, structural quality.
- B. Stainless-Steel Sheet: ASTM A 240/A 240M, Type 304, with No. 2D dull, cold rolled finish. Thickness as specified in this Section.
- C. Zinc Coated Copper: ASTM B101 20 ounces in sheet sizes as required for fabrication of roof scuppers and associated flashings as indicated on the Drawings.

## 2.02 UNDERLAYMENT MATERIALS

- A. Polyethylene Sheet: 6 mil (0.15 mm) thick complying with ASTM D4399.
- B. Felts: ASTM D 226, Type II – 30#, asphalt-saturated organic felt, nonperforated.
- C. Self-adhering membrane flashing/underlayment.
1. Acceptable Manufacturers: "Grace Ultra" as manufactured by Grace Construction Product, Cambridge, MA "CCW WIP 300HT" as manufactured by Carlisle Coatings and Waterproofing Incorporated, Wylie, Texas or approved equal.

2. Materials: Cold-applied, self-adhering membrane composed of high density, cross laminated polyethylene film coated on one side with a layer of butyl rubber adhesive. An embossed, slip-resistant surface is provided on the polyethylene. Membrane shall conform to the following physical properties:

Property	Value	Test Method
Thickness, Membrane	30 mil (0.76 mm)	ASTM D3767 method A
Tensile Strength, Membrane	250 psi (1720 kN/m <sup>2</sup> )	ASTM D412 (Die C modified)
Elongation, Membrane	250%	ASTM D412 (Die C modified)
Low Temperature Flexibility	Unaffected @ -20F (-29C)	ASTM D1970
Adhesion to Plywood	3.0 lbs/in. width (525 N/m)	ASTM D903
Permeance (max)	0.005 Perms (2.9 ng/m <sup>2</sup> sPa)	ASTM E96
Material Weight Installed (max)	0.22 lb/ft <sup>2</sup> (1.1kg/m <sup>2</sup> )	ASTM D461

### 2.03 MISCELLANEOUS MATERIALS

- A. General: Provide materials and types of fastener, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation.
- B. Fasteners: Woods crews, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads.
1. Exposed Fasteners: Heads matching color of sheet metal by means of plastic caps or factory-applied coating.
  2. Fasteners for Flashing and Trim: Blind fasteners or self-drilling screws, gasketed, with hex washer head.
  3. Blinder Fasteners: High-strength aluminum or stainless-steel rivets.
  4. Spikes and Ferrules: Same material as gutter; with spike with ferrule matching internal gutter width.

- C. Solder for Stainless Steel: ASTM B 32, Grade Sn60, with acid flux of type recommended by stainless-steel sheet manufacturer.
- D. Sealing Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealing tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape.
- E. Elastomeric Sealant: ASTM C920, electromeric polyurethane polymer sealant; of type, grade, class, and use classification required to seal joints in sheet metal trim and remain water tight.
- F. Low Modulus Silicone Sealant: ASTM C 920, low modulus, high performance, one part, moisture curing silicone joint sealant; of Type S, Grade NS, Class 100/50, and Use Classifications required to seal joints in sheet metal flashing and trim and remain watertight.
- G. Butyl Sealant: ASTM C 1311, single component, solvent butyl rubber sealant, polyisobutylene plasticized, heavy bodied for hooked-type expansion joints with limited movement.
- H. Epoxy Seam Sealer: Two-part, noncorrosive, aluminum seam-cementing compound, recommended by aluminum manufacturer for exterior nonmoving joints, including riveted joints.
- I. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.
- J. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required for application.

#### 2.04 FABRICATION, GENERAL

- A. General: Custom fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated. Shop fabricate items where practicable. Obtain field measurements for accurate fit before shop fabrication. Contractor shall coordinate the flashing requirements of the window and door manufacturer, siding, exterior insulation and finish systems.
- B. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.

- C. Fabricate sheet metal flashing and trim without excessive oil canning, buckling, and tool marks and true to line and levels indicated, with exposed edges folded back to form hems.
  - 1. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.
  - 2. Seams for Other Than Aluminum: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.
- D. Sealed Joints: Form non-expansion but movable joints in metal to accommodate elastomeric sealant to comply with SMACNA recommendations.
- E. Expansion Provisions as indicated on the Drawings: Where lapped or bayonet-type expansion provisions in the Work cannot be used, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with elastomeric sealant concealed within joints. Expansion covers shall be as shown on the Drawings.
- F. Conceal fasteners and expansion provisions where possible on exposed -to-view sheet metal flashing and trim, unless otherwise indicated.
- G. Fabricate cleats and attachment devices from same materials as accessory being anchored or from compatible, noncorrosive metal.
  - 1. Thickness: As recommended by SMACNA's "Architectural Sheet Metal Manual" for application but not less than thickness of metal being secured.

## 2.05 ROOF DRAINAGE SHEET METAL FABRICATIONS

- A. Parapet Scuppers: Fabricate scuppers of dimensions required with closure flange trim to exterior, 4-inch- (100-mm-) wide wall flanges to interior, and base extending 4 inches (100 mm) beyond cant or tapered strip into field of roof.

## 2.06 SHEET METAL FABRICATIONS

- A. Formed Sheet Metal Roof Edge Flashing (Gravel Stop) and Fascia/Wall/Coping Caps: Fabricate in minimum 96-inch-long, but not exceeding 10-foot-long, sections with ¼ inch space between sections for expansion. Furnish with 6-inch-wide joint cover plates at joint locations.
- B. Apron, Step, Cricket, and Backer Flashing: Fabricate from the following material:



1. Kynar Finish Aluminum: 0.03202 inch (0.8 mm) thick.
- C. Drip Edges: Fabricate from the following material:
1. Kynar Finish Aluminum: 0.0320 inch (0.8 mm) thick.
  2. Prepainted, Metallic-Coated Steel: 0.0217 inch (0.55 mm) thick.
- D. Eave, Rake, Ridge, and Hip Flashing: Fabricate from the following material:
1. Kynar Finish Aluminum: 0.0320 inch (0.8 mm) thick.
- E. Base Flashing: Fabricate from the following material:
1. Kynar Finish Aluminum: 0.040 inch (1.0 mm) thick.
- F. Counterflashing: Fabricate from the following material:
1. Kynar Finish Aluminum: 0.0320 inch (0.8 mm) thick.
- G. Roof-Penetration Flashing: Fabricate from the following material:
1. Zinc-coated copper 0.0187 thick.
- H. Joint Style: Butt, with 1/4" space and 6 inch cover plate.
- I. Formed Sheet Metal Wall/Roof Flashings: Fabricate from the following material:
1. Stainless Steel: 0.050 inch thick.

## 2.07 FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of a butting 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.

## PART3-EXECUTION

### 3.01 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions and other conditions affecting performance of work.
  - 1. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
  - 2. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.02 INSTALLATION, GENERAL

- A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
  - 1. Torch cutting of sheet metal flashing and trim is not permitted.
- B. Metal Protection: Where dissimilar metals with contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by fabricator or manufacturers of dissimilar metals.
  - 1. Coat side of stainless-steel sheet metal flashing and trim with bituminous coating where flashing and trim will contact wood, ferrous metal, or cementitious construction.
  - 2. Underlayment: Where installing metal flashing directly on cementitious or wood sheet substrates, install a course of felt underlayment and cover with slip or install a course of polyethylene underlayment.
  - 3. Bed flanges in thick coat of asphalt roofing cement where required for waterproof performance.
- C. Install exposed sheet metal flashing and trim without excessive oil canning, buckling, and tool marks.

- D. Install sheet metal flashing and trim true to line and levels indicated. Provide uniform, neat seams with minimum exposure of solder, welds, and elastomeric sealant.
- E. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
1. Space cleats not more than 12 inches apart. Anchor each cleat with two fasteners.
- F. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Provide expansion joints as indicated on the Drawings with expansion joint covers. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently watertight, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with elastomeric sealant concealed within joints.
- G. Fasteners: Use fasteners of sizes that will penetrate substrate not less than 1-1/4 inches for nails and not less than 3/4 inch for wood screws.
1. Galvanized or Prepainted, Metallic -Coated Steel: Use stain less-steel fasteners.
  2. Aluminum: Use aluminum or stainless-steel fasteners.
  3. Stainless Steel: Use stainless steel fasteners.
  4. Copper: Use copper or stainless-steel fasteners.
- H. Seal joints with elastomeric sealant as required for watertight construction.
1. Where sealant-filled joints are used, embed hooked flanges of joint members not less than 1 inch into sealant. Form joints to completely conceal sealant. When ambient temperature at time of installation is moderate, between 40 and 70 deg F set joint members for 50 percent movement either way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below 40 deg F.
  2. Prepare joints and apply sealants to comply with requirements in Section 07980 – JOINT SEALANTS.

- I. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-rolled edges of sheets to be soldered to a width of 1-1/2 inches except where pre-rolled surface would show in finished Work.
1. Do not solder aluminum sheet.
  2. Stainless-Steel Soldering: Pre-rolled edges of uncoated sheets to be soldered using solder recommended for stainless steel and phosphoric acid flux.
  3. Promptly wash off acid flux residue from metal after soldering.
  4. Do not use open-flame torches for soldering. Heat surfaces to receive solder and flow solder into joints. Fill joints completely. Completely remove flux and spatter from exposed surfaces.
- J. Aluminum Flashing: Rivet or weld joints in uncoated aluminum where necessary for strength.

### 3.03 ROOF DRAINAGE SYSTEM INSTALLATION

- A. Parapet Scuppers: Install scuppers where indicated through parapet. Continuously support scupper, set to correct elevation, and seal flanges to interior wall face, over cants or tapered edge strips, and under roofing membrane.
1. Anchor scupper closure trim flange to exterior wall and seal or solder to scupper.
  2. Loosely lock front edge of scupper with conductor head.
  3. Seal or solder exterior wall scupper flanges into back of conductor head.

### 3.04 ROOF FLASHING INSTALLATION

- A. General: Install sheet metal roof flashing and trim to comply with performance requirements, sheet metal manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, set units true to line, and level as indicated. Install work with laps, joints, and seams that will be permanently watertight.
- B. Pipe or Post Counterflashing: Install counterflashing umbrella with close-fitting collar with top edge flared for [elastomeric] [butyl] sealant, extending a minimum of 4 inches (100 mm) over base flashing. Install stainless-steel draw band and tighten.

- C. Counterflashing: Coordinate installation of counterflashing with installation of base flashing. Insert counterflashing in reglets or receivers and fit tightly to base flashing. Extend counterflashing 4 inches over base flashing. Lap counterflashing joints a minimum of 4 inches and bed with elastomeric sealant.
  - 1. Secure in a waterproof manner by means of snap-in installation and sealant.
  
- D. Roof-Penetration Flashing: Coordinate installation of roof-penetration flashing with installation of roofing and other items penetrating roof. Install flashing as follows:
  - 1. Seal with elastomeric sealant and clamp flashing to pipes penetrating roof except for flashing on vent piping.

### 3.04 WALL FLASHING INSTALLATION

- A. General: Install sheet metal wall flashing and self-adhered membrane flashing/underlayment to intercept and exclude penetrating moisture according to SMACNA (Architectural Sheet Metal Manual) recommendations and as indicated on the Drawings. Coordinate installation of wall flashing with installation of wall-opening components such as windows, doors, and louvers.

### 3.05 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
- B. Clean and neutralize flux materials. Clean off excess solder and sealants.
- C. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed. On completion of installation, clean finished surfaces, including removing unused fasteners, metal filings, pop rivet stems, and pieces of flashing. Maintain in a clean condition during construction.
- D. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 07620

SECTION 08210  
WOOD DOORS

PART1–GENERAL

1.01 GENERAL REQUIREMENTS

- A. Part A and Division 1 of Part B are hereby made a part of this section

1.02 SUMMARY

- A. Furnish and install the following items to complete the work of this Section:

1. Furnish and install all interior wood doors required for the work, including flush solid core and hollow core wood doors, and paneled wood doors, labeled where required
2. All associated hardware necessary for complete installation
3. The extent of the door work is shown on the drawings
4. Specific location of door types is indicated on the Drawings. Where door scheduled are shown they are provided for convenience, but door indications on the drawings shall govern.
5. Factory fitting wood doors to frames and factory machining for hardware

- B. Related Sections include the following:

1. Division 6 Section 06200 Finish Carpentry for wood door frames
2. Division 8 Section 08710 Finish Hardware

1.03 SUBMITTALS

- A. General: comply with the provisions of Section 01300

- B. Product Data:

1. Complete materials list showing all items proposed to be furnished and delivered under this Section
  2. Sufficient data to demonstrate that all such items meet or exceed the specified requirements
  3. A copy of the guarantee proposed to be furnished
  4. For each type of door, include details of core and edge construction and trim for openings
- C. 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 mortises and holes for hardware
  2. Indicate dimensions and locations of cutouts

#### 1.04 QUARANTEE

- A. Upon delivery of the doors of this Section to the job site, and as a condition of their acceptance, deliver to the Architect two copies of an agreement written to the door manufacturer's standard form, signed by the door manufacturer and the Contractor agreeing to replace or repair defective doors which have warped (bow, cup, or twist) or which show photographing of construction below in wood veneer faces, as defined in NWWDA Standard Door Guarantees. The guarantee shall also include refinishing and reinstalling which may be required due to repair or replacement of defective doors. Guarantee shall be in effect for a period of two years following data of acceptance

#### 1.05 QUALITY ASSURANCE

- A. Qualifications of manufacture: all wood doors shall bear the NWWDA seal of approval and stamp. Fire doors shall also bear the UL label for the designated rating
- B. Source Limitations: Obtain wood doors through one source from a single manufacturer
- C. Quality Standard: Comply with NWWDA I.S.1-A, "Architectural Wood Flush Doors."

- D. Pre-installation Conference: conduct conference at Project site to comply with requirements in Division 1 Section 01200 Project Meetings

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of referenced standard and manufacturer's written instructions
- B. Protection:
  - 1. Protect the materials of this Section during transit, storage, and handling to prevent deterioration, damage, and soiling
  - 2. Package each door at the factory in a separate heavy paper-type carton. Mark each carton for location to correspond with opening number on the Drawings
- C. Replacements: in the event of damage, immediately make all repairs and replacements necessary to approval of the Architect and at no additional cost to the Owner

1.07 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

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. **Hardboard Faced Doors:**
    - a. **Masonite Corp. – Basis of Design**
    - b. **Craftmaster**



## 2.02 DOOR CONSTRUCTION, GENERAL

- A. Doors for Opaque Finish: wood doors shall be of the sizes, types, and designs shown on the Drawings
  - 1. Adhesives and bonds: use only adhesives and bonds conforming to NWWDA I.S.-1 standards, type II, for interior wood doors. Adhesives shall be non-staining
  - 2. Grade: economy
  - 3. Faces for interior doors: sound grade birch for opaque paint finish

## 2.03 SOLID-CORE DOORS

- A. Interior veneer faced doors:
  - 1. Core: Particleboard or other manufacturer's standard
  - 2. Construction: Three plies with stiles and rails bonded to core, then entire unit abrasive planed before faces are applied

## 2.04 HOLLOW CORE DOORS

## 2.05 FABRICATION

- A. Fabricate doors in sizes indicated for Project-site fitting or factory fit doors to suit frame opening sizes indicated, with the following uniform clearances and bevels, unless otherwise indicated:
  - 1. Comply with clearance requirements of referenced quality standard for fitting
- B. Comply with final hardware schedules, door frame Shop Drawings, and hardware templates
- C. Glazed openings: factory-glaze the doors where called for on the drawings, providing glass and glazing in accordance with the requirements specified in Section 08800

## PART3-EXECUTION

### 3.01 EXAMINATION

- A. Examine doors and installed door frames 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 Division 8 Section 08710 Finish Hardware
- B. Manufacturer's Written Instructions: Install doors to comply with manufacturer's written instructions, referenced quality standard, and as indicated
- C. Job-Fitted Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors. Machine doors for hardware. Seal cut surfaces after fitting and machining
  - 1. Clearances: Provide 1/2 inch (13 mm) at heads, jambs, and between pairs of doors. Provide 1/8 inch (3.2 mm) from bottom of door to top of decorative floor finish or covering. Where threshold is shown or scheduled, provide 3/8 inch (9.6 mm) from bottom of door to top of threshold
  - 2. Bevel non-fire-rated doors 1/8 inch in 2 inches (3-1/2 degrees) at lock and hinge edges
- D. Factory-Fitted Doors: Align in frames for uniform clearance at each edge
- E. Field-Finished Doors: Refer to the following for finishing requirements:
  - 1. Division 9 Section "Painting."

### 3.03 ADJUSTING

- A. Operation: Rehang 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 if work complies with requirements and shows no evidence of repair or refinishing

END OF SECTION 08210

SECTION 08710  
DOOR HARDWARE  
(SCHEDULED BY NAMING PRODUCTS)

PART1-GENERAL

1.01 GENERAL REQUIREMENTS

- A. Part A and Division 1 of Part B are hereby made a part of this section

1.02 DESCRIPTION OF WORK

- A. This Section includes the following:
1. Work to be furnished only: furnish the following items for installation by the designated Sections
  2. Finish hardware necessary for swinging and folding and other doors to the extent as indicated herein and on the Drawings. The hardware shall include screws, bolts, expansion shields and other devices needed for the proper application of the finish hardware – Section 06200 Finish Carpentry. The extent of finish hardware is shown on the hardware schedule and specified herein, and shall include furnishing and installing the following:
    - a. Door knobs, butts, set locks, bolts, cylinder locks, keys, exit devices, etc.
    - b. Silencers, stops, closers, kick plates, thresholds, weather strips, sweeps, handicapped modifications, and other items scheduled
    - c. Furnish all necessary templates and schedules required to fabricate doors, frames and all work incidental thereto
    - d. The Contractor shall be responsible for the quality of hardware hereinafter specified as required to complete the job

1.03 RELATED WORK

- A. The following items of work are not included in this Section and will be performed under the designated Sections:

1. Furnish metal doors and frames: Section 08100 Standard Steel Doors and Frames
2. Furnishing wood doors and frames Section 08210
3. Finishing of doors and frames: Section 09900 Painting
4. Electric field door hardware
5. Cylinders for doors specified in other Sections
6. Division 8 Section 08100 Standard Steel Doors and Frames for astragals provided as part of a fire-rated labeled assembly and for door silencers provided as part of the time

#### 1.04 REFERENCES

- A. NFPA-80: Fire Doors and Windows (Current Edition)
- B. NFPA-101: Life Safety Code (Current Edition)
- C. DHI: Installation Guide (Current Edition)
- D. DHI: Keying Terminology (Current Edition)
- E. ANSI / BHMA: Standards (Current Edition)
- F. Massachusetts Building Code (Current Edition)
- G. Massachusetts Architectural Access Board (Current Edition)

#### 1.05 SUBMITTALS

- A. Make submittals in accordance with Section 01300
- B. Submit Six (6) copies of a typed hardware schedule including catalog cuts in the scheduling format recommended by DHI (Keying Terminology). The Architect's approval will not relieve the Contractor of the responsibility of providing all required hardware needed to complete the project. This should be done after keying meeting has been held with Owner's representative. Submit keying schedule using the reference manual from DHI

- C. Upon request from the Architect, submit one (1) sample of each proposed hardware item to be used in this project. All samples remain the property of the supplier and will be returned after completion of the project
- D. Furnish templated needed by door and frame manufacturer to enable proper machining for the required template hardware
- E. Product Data: include installation details, material descriptions, dimensions of individual components and profiles, and finishes
- F. Shop Drawings: details of electrified door hardware, including the following:
  - 1. Wiring Diagrams: Detail wiring for power, signal, and control systems and differentiate between manufacturer-installed and field-installed wiring. Include the following:
    - a. System schematic
    - b. Point-to-point wiring diagram
    - c. Riser diagram
    - d. Elevation of each door
  - 2. Detail interface between electrified door hardware and fire alarm, access control and security system
- G. Samples: For exposed door hardware of each type indicated below, in specified finish, full size. Tag with full description for coordination with the Door Hardware Schedule. Submit samples before, or concurrent with, submission of the final Door Hardware Schedule
  - 1. Door Hardware: As follows:
    - a. Hinges
    - b. Pivots
    - c. Locks and latches
    - d. Bolts
    - e. Exit devices
    - f. Cylinders and keys
    - g. Operating trim

- h. Closers
- i. Stops and holders
- j. Protective trim
- k. Door gasketing
- l. Thresholds
- m. Miscellaneous items
- n. As requested by Architect

- 2. Samples will be returned to Contractor. Units that are acceptable and remain undamaged through submittal, review, and field comparison process may, after final check of operation, be incorporated into the Work, within limitations of keying requirements

H. 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
  - h. Description of each electrified door hardware function, including location, sequence of operation, and interface with other building control systems

- 1) Sequence of Operation: Include description of component functions that occur in the following situations: authorized person wants to enter; authorized person wants to exit; unauthorized person wants to enter; unauthorized person wants to exit
4. Submittal Sequence: Submit initial draft of final schedule along with essential Product Data to facilitate the fabrication of other work that is critical in the Project construction schedule. Submit the final Door Hardware Schedule after Samples, Product Data, coordination with Shop Drawings of other work, delivery schedules, and similar information has been completed and accepted
- I. Keying Schedule: Prepared by or under the supervision of supplier, detailing Owner's final keying instructions for locks. Include schematic keying diagram and index each key set to unique door designations
- J. Product Certificates: Signed by manufacturers of electrified door hardware certifying that products furnished comply with requirements
  1. Certify that door hardware approved for use on types and sizes of labeled fire doors complies with listed fire door assemblies
- K. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, indicating current products comply with requirements
- L. At the completion of the project, supply the owner with two (2) copies if an Owner's Operation and Maintenance Manual as specified in Division 1. The manual shall consist of a hard cover (3) ring binder with the project name listed on the front. Included will be:
  1. A final copy of the approved and as built hardware schedule
  2. A final copy of the approved keying schedule
  3. Catalog cuts for each item used in the project
  4. Parts list and numbers for each item used
  5. Maintenance instructions for all items
  6. Name, address and phone number of local representative for each item used
- M. Warranties: special warranties specified in this Section



1.06 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. Manufacturer's model numbers listed in sets are to establish the standard quality. Similar items listed by one of the other listed manufacturer's that conforms to the quality standard, may be accepted upon prior approval by Architect provided require the data and physical samples are submitted in accordance with Section 01300
- C. Hardware supplier must be engaged in regularly contracting work and be staffed to expedite the work. The firm shall have been furnishing finishing hardware on similar projects in the vicinity of this project for no less than five (5) years. The firm shall also employ a Licensed Architectural License Consultant (AHC) or a person with proper documented qualifications acceptable and approved by the Architect, to inspect periodically and direct detailing, setting, applying of architectural grade finish hardware
  - 1. Electrified Door Hardware Supplier Qualifications: An experienced door hardware supplier who has completed projects with electrified door hardware similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance, and who is acceptable to manufacturer of primary materials
    - a. Engineering Responsibility: Prepare data for electrified door hardware, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project
  - 2. Scheduling Responsibility: Preparation of door hardware and keying schedules. The correct scheduling of all hardware including degree of swing of doors with closers, size of holders and closers, shall be the responsibility of the hardware supplier. He shall be responsible for and see to it that no overhead door hardware extends below 6'-8" from finish floor
- D. 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. The contractor is responsible for hiring this consultant

1. Electrified Door Hardware Qualifications: Experienced in providing consulting services for electrified door hardware installations
- E. Source Limitations: Obtain each type and variety of door hardware from a single manufacturer, unless otherwise indicated
1. Provide electrified door hardware from same manufacturer as mechanical door hardware, unless otherwise indicated. Manufacturers that are listed to perform electrical modifications, by a testing and inspecting agency acceptable to authorities having jurisdiction, are acceptable
- F. Regulatory Requirements: Comply with provisions of the following:
1. Where indicated to comply with accessibility requirements, comply with Americans with Disabilities Act (ADA) , "Accessibility Guidelines for Buildings and Facilities (ADAAG)," and 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
    - b. Door Closers: Comply with the following maximum opening-force requirements indicated:
      - 1) Interior Hinged Doors: 5 lbf (22.2 N) applied perpendicular to door
      - 2) Sliding or Folding Doors: 5 lbf (22.2 N) applied parallel to door at latch
      - 3) Fire Doors: Minimum opening force allowable by authorities having jurisdiction
    - c. Thresholds: Not more than 1/2 inch (13 mm) high. Bevel raised thresholds with a slope of not more than 1:2
  2. NFPA 101: Comply with the following for means of egress doors:
    - a. Latches, Locks, and Exit Devices: Not more than 15 lbf (67 N) to release the latch. Locks shall not require the use of a key, tool, or special knowledge for operation
    - b. Door Closers: Not more than 30 lbf (133 N) to set door in motion and not more than 15 lbf (67 N) to open door to minimum required width
    - c. Thresholds: Not more than 1/2 inch (13 mm) high

3. Electrified Door Hardware: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction
- G. Fire-Rated Door Assemblies: Provide door hardware for assemblies 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
- H. Keying Conference: Conduct conference at Project site to comply with requirements in Division 1 Section 01200 Project Meetings. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including, but not limited to, the following:
1. Function of building, flow of traffic, purpose of each area and degree of security required
  2. Preliminary key system schematic diagram
  3. Requirements for key control system; i.e. interchangeable lock sets
  4. Address for delivery of keys
- I. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings." Review methods and procedures related to electrified door hardware including, but not limited to, the following:
1. Inspect and discuss electrical roughing-in and other preparatory work performed by other trades
  2. Review sequence of operation for each type of electrified door hardware
  3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays
  4. Review required testing, inspecting, and certifying procedures

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Hardware shall be delivered to the job site in the manufacturer's original packages
- B. Inventory door hardware on receipt and provide secure lock-up for door hardware delivered to Project site

- C. 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
- D. Provide a clean, dry, locked and lighted room with shelves exclusively used to store hardware. A delivery document shall be signed by both the distributor representative and an authorized representative of the Contractor after verification of the quantities delivered
- E. Use all means necessary to protect materials of this Section before, during, and after delivery to the job site and to protect the work and materials of all other trades
- F. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner
- G. Deliver keys to manufacturer of key control system

1.08 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
- B. Electrical System Roughing-in: Coordinate layout and installation of electrified door hardware with connections to power supplies, fire alarm system, access control system and building control system

1.09 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
  - D. Warranty Period for Electromagnetic Locks: Five years from date of Substantial Completion
  - E. Warranty Period for Manual Closers: 10 years from date of Substantial Completion

#### 1.10 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
- B. Furnish 6 extra screws or fasteners of each type, size and of the same finish used in this project
- C. Furnish one extra closer adjustment tool

### PART2-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. Door Hardware Schedule is used to indicate design intent only. Supplier, in concert with his architectural hardware consultant, is responsible for a complete project and code compliance
  1. Door Hardware Sets: Provide quantity, item, size, finish or color indicated, and products equivalent in function and comparable in quality to named products
  2. Sequence of Operation: Provide electrified door hardware function, sequence of operation, and interface with other building control systems indicated

B. Designations: Requirements for design, grade, function, finishing, 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

## 2.02 HARDWARE ABBREVIATIONS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. HA = Hager (hinges & trim)
2. IV = Ives (flush bolts, coordinator's)
3. SC = Schlage (locks and keying)
4. LC = LCN (closers)
5. NA = National Guard Products (gasketing)
6. RO = Rockwood Mfg (floor stops)
7. SA = Sargent (self-locking patio door hardware)
8. SN = Securitron (self-locking patio door hardware)
9. PE = Pemko (auto door bottoms & thresholds)
10. LO = Locknetics (door contacts & power supplies)
11. VO = Von Duprin (exit devices & electric strikes)
12. HAF=Haeefele Sliding Pocket Door Hardware

B. Template Requirements: Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template-produced units

END OF SECTION 08710



LOUVERS AND VENTS  
SECTION 08900

PART1-GENERAL

1.01 GENERAL REQUIREMENTS

- A. Part A and Division 1 of Part B are hereby made a part of this section.

1.02 DESCRIPTION OF WORK

- A. This Section includes the following:

- 1. Fixed, extruded-aluminum louvers

- B. Related Sections include the following:

- 1. Division 7 Section 07980 Joint Sealants for sealants installed in perimeter joints between louver frames and adjoining construction
- 2. Division 9 Section 09900 Painting for field painting louvers
- 3. Division 15 Sections for louvers that are a part of mechanical equipment

1.03 DEFINITIONS

- A. Louver Terminology: Definitions of terms for metal louvers contained in AMCA 501 apply to this Section unless otherwise defined in this Section or in referenced standards
- B. Drainable-Blade Louver: Louver with blades having gutters that collect water and drain it to channels in jambs and mullions, which carry it to bottom of unit and away from opening

1.04 SUBMITTALS

- A. Product Data: For each type of product indicated



- B. Shop Drawings: For louvers and accessories . Include plans, elevations, sections, details, and attachments to other Work. Show blade profiles, angles, and spacing
- C. Samples for Initial Selection: For units with factory-applied color finishes
- D. Samples for Verification: For each type of metal finish required

#### 1.05 QUALITY ASSURANCE

- A. Source Limitations: Obtain louvers and vents through one source from a single manufacturer where indicated to be of same type, design, or factory-applied color finish
- B. Welding: Qualify procedures and personnel according to the following:
  - 1. AWS D1.2, "Structural Welding Code--Aluminum."
- C. SMACNA Standard: Com ply with recommendations in SMACNA' s "Architectural Sheet Metal Manual" for fabrication, construction details, and installation procedures

#### 1.06 PROJECT CONDITIONS

- A. Field Measurements: Verify louver openings by field measurements before fabrication and indicate measurements on Shop Drawings
  - 1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish opening dimensions and proceed with fabricating louvers without field measurements. Coordinate construction to ensure that actual opening dimensions correspond to established dimensions

### PART2-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:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Louvers:
  - a. Airline Products Co
  - b. Airolite Company (The)
  - c. American Warming and Ventilating, Inc
  - d. Arrow United Industries
  - e. Carnes Company, Inc
  - f. Cesco Products
  - g. Construction Specialties, Inc
  - h. Dowco Products Group; Safe-Air of Illinois, Inc
  - i. Greenheck
  - j. Industrial Louvers, Inc
  - k. Louvers & Dampers, Inc
  - l. Metal Form Manufacturing Company, Inc
  - m. NCA Manufacturing, Inc
  - n. Nystrom Building Products
  - o. Reliable Products; Hart & Cooley, Inc
  - p. Ruskin Company; Tomkins PLC
  - q. Vent Products Company, Inc

C. In other Part 2 articles where titles below introduce lists, the following requirements apply for product selection:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the products specified
2. Products: Subject to compliance with requirements, provide one of the products specified
3. Basis-of-Design Product: The design for each louver is based on the product named. Subject to compliance with requirements, provide either the named product or a comparable product by one of the other manufacturers specified

## 2.02 MATERIALS

- A. Aluminum Extrusions: ASTM B 221 (ASTM B 221M), alloy 6063-T5 or T-52
- B. Aluminum Sheet: ASTM B 209 (ASTM B 209M), alloy 3003 or 5005 with temper as required for forming, or as otherwise recommended by metal producer for required finish
- C. Aluminum Castings: ASTM B 26/B 26M, alloy 319

- D. Fasteners: Of same basic metal and alloy as fastened metal or 300 Series stainless steel, unless otherwise indicated. Do not use metals that are incompatible with joined materials

- 1. Use types and sizes to suit unit installation conditions

## 2.03 FABRICATION, GENERAL

- A. Assemble louvers in factory to minimize field splicing and assembly. Disassemble units as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation
- B. Maintain equal louver blade spacing, including separation between blades and frames at head and sill, to produce uniform appearance
- C. Fabricate frames, including integral sills, to fit in openings of sizes indicated, with allowances made for fabrication and installation tolerances, adjoining material tolerances, and perimeter sealant joints
  - 1. Frame Type: Channel, unless otherwise indicated
- D. Include supports, anchorages, and accessories required for complete assembly

## 2.04 FIXED, EXTRUDED-ALUMINUM LOUVERS

- A. Horizontal, Sightproof, Drainable-Blade Louver:
  - 1. Basis-of-Design Product: LE-52 as manufactured by American Warming and Ventilating or a comparable product of one of the following:
    - a. Louver Depth: 1½ inches
    - b. Frame and Blade Nominal Thickness: As required to comply with structural performance requirements, but not less than 0.080 inch (2.0 mm) for blades and 0.080 inch (2.0 mm) for frames
    - c. Mullion Type: Exposed

## 2.05 LOUVER SCREENS

- A. General: Provide screen at each open louver
  - 1. Screen Location for Fixed Louvers: Interior face

2. Screening Type: Insect screening
- B. Secure screens to louver frames with stainless-steel machine screws, spaced a maximum of 6 inches (150 mm) from each corner and at 12 inches (300 mm) o.c
- C. Louver Screen Frames: Fabricate with mitered corners to louver sizes indicated
  1. Metal: Same kind and form of metal as indicated for louver to which screens are attached
  2. Finish: Same finish as louver frames to which louver screens are attached
  3. Type: Rewirable frames with a driven spline or insert for securing screen mesh
- D. Louver Screening for Aluminum Louvers:
  1. Insect Screening: Aluminum, 18-by-16 (1.4-by-1.6-mm) mesh, 0.012-inch (0.30-mm) wire

## 2.06 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes
- B. Finish aluminum louvers after assembly

## 2.07 ALUMINUM FINISHES

- A. Finish designations prefixed by AA comply with system established by the Aluminum Association for designating aluminum finishes
- B. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions

## PART3-EXECUTION

### 3.01 EXAMINATION

- A. Examine substrates and openings, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance
  - 1. Proceed with installation only after unsatisfactory conditions have been corrected

### 3.02 INSTALLATION

- A. Locate and place louvers and vents level, plumb, and at indicated alignment with adjacent work
- B. Use concealed anchorages where possible. Provide brass or lead washers fitted to screws where required to protect metal surfaces and to make a weathertight connection
- C. Form closely fitted joints with exposed connections accurately located and secured
- D. Provide perimeter reveals and openings of uniform width for sealants and joint fillers, as indicated
- E. Repair finishes damaged by cutting, welding, soldering, and grinding. Restore finishes so no evidence remains of corrective work. Return items that cannot be refinished in the field to the factory, make required alterations, and refinish entire unit or provide new units
- F. Install concealed gaskets, flashings, joint fillers, and insulation as louver installation progresses, where weathertight louver joints are required. Comply with Division 7 Section 07980 Joint Sealants for sealants applied during louver installation

### 3.03 ADJUSTING AND CLEANING

- A. Clean exposed surfaces of louvers and vents that are not protected by temporary covering, to remove fingerprints and soil during construction period. Do not let soil accumulate until final cleaning
- B. Before final inspection, clean exposed surfaces with water and a mild soap or detergent not harmful to finishes. Thoroughly rinse surfaces and dry
- C. Restore louvers and vents damaged during installation and construction so no evidence remains of corrective work. If results of restoration are unsuccessful, as determined by Architect, remove damaged units and replace with new units

1. Touch up minor abrasions in finishes with air-dried coating that matches color and gloss of, and is compatible with, factory-applied finish coating

END OF SECTION 08900

09050 -- BASIC FINISH MATERIALS AND METHODS

PART 1 -- GENERAL

1.1 WORK

- A. The GENERAL CONDITIONS, as listed on the Table of contents, and applicable parts of Division 1, GENERAL REQUIREMENTS, shall be included in and made a part of this section.
- B. Examine all drawings and all other Sections of the Specifications for requirements therein affecting the work of this trade. Refer to finish plans for all specifications.

1.2 SUMMARY

- A. Section includes:
  - 1. Countertop Information
- B. Section 06200 Finish Carpentry and Millwork

1.2 QUALITY STANDARDS

- A. Provide experienced, well-trained workers competent to complete the work as specified.

1.3 SUBMITTALS

- A. Samples: Submit representative samples of products to be furnished under this Section to Architect for selection and approval, as follows. Delivered materials shall closely match the approved samples.
  - 1. Countertop Materials

1.4 MATERIALS HANDLING

- A. All materials shall be delivered, stored and handled in a manner that they will be fully protected from wetting, staining, chipping, and other damage.

1.5 LEED REQUIREMENTS

- A. Shall comply with all requirements as stipulated in Division 1 Section 01 81 13 Sustainable Design Requirements.
- B. Shall comply with all requirements as stipulated in Division 1 Section 01 74 19 Construction Waste Management

PART 2 -- MATERIALS

2.1 MATERIALS

- A. Wall Coverings:

PART 3 -- EXECUTION

- A. Install per manufacturers requirements.

Bonding agent: Shall pass Greenguard certification.

- A. Latex Portland Cement Mortar: Shall conform to ANSI- A-118.4
- B. Metal Thresholds: Johnsonite. VT-XX-M2 or VT-XX-M6
- C. Organic Mastic: Shall pass Greenguard certification.
- D. Filler: Shall pass Greenguard certification.
- N. Special Adhesive for Glass Tile. Adhesive for Greenguard Certification.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION AND PREPARATION OF SURFACES

- A. Examine all surfaces to receive tile and notify the Architect of any defects in such surface requiring correction. Start of work under this Section shall constitute acceptance of surface conditions and responsibility for satisfactory results.
- B. Work shall commence only after grounds, anchors, plugs, hangers, bucks, electrical and mechanical work to be in or behind tile have been installed. All surfaces shall be dry and clean before setting bed is applied.
- C. Do all necessary preparation of surfaces where previous finishes have been removed to make them suitable to receive new tile work. Scarify, etch or coat glazed wall surfaces to remain to provide suitable base for tile setting.
- D. Apply PVA bonding agent to concrete and concrete masonry surfaces where required for permanent adhesion of setting beds.

#### 3.2 INSTALLATION

- A. Comply with the ANSI standard installation specifications A108.1 through A108.7, except as otherwise indicated. ~~Comply with LEED certification.~~
  - 1. Portland Cement Mortar Set Glazed Wall Tile: ANSI A108.1.
  - 2. Portland Cement Mortar Set Ceramic Mosaic Tile: ANSI A108.2.
  - 3. Dry-Set Portland Cement Mortar Wall and Floor Tile: ANSI A108.5.
- B. Handle, store, mix and apply proprietary setting and grouting materials in compliance with the manufacturer's instructions.



- C. Extend tile work into recesses and under equipment and fixtures, to form a complete covering without interruptions, except as otherwise shown. Terminate work neatly at obstructions, edges and corners without disruption of pattern or joint alignment.
- 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, and fixtures so that plates, collars, or covers overlap tile.
- E. Jointing Pattern
  - 1. Refer to finish plans for tile patterns. Align joints when adjoining tiles on floor, base, walls and trim are the same size. Layout tile work and center tile fields both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths, unless otherwise shown.
- F. Temperature at areas in which ceramic materials are being installed shall be maintained at not less than 50 degrees F for a period of 24 hours prior to commencement of tile work, during tile work, and afterwards until completion of construction. Areas in which tile work is being done shall be closed to traffic until the installation has set.
- G. As far as possible, lay out work so that no tile less than half size occurs. Align joints in wall tile vertically and horizontally except where other patterns are shown or specified. Align joints in floor tile at right angles to each other and straight with walls to conform to patterns selected. Maintain uniform joint width and plane surfaces. Verify locations of accessories before installing tile. Coordinate with plumbing and other trades. Fully tile surfaces behind all surface-mounted items. Provide bull nose tile at all exposed edges of surface mounted items without escutcheon plates or trim and at tops of wainscoats.
- H. Lighting: Install all tile using lighting conditions that will closely approximate the proposed lighting required in the areas involved in order to achieve uniformity in finished work.
- I. Installation of ceramic tile shall be in strict accordance with ANSO Standards, TCA Handbook and manufacturer's instruction.
- J. Alignment: Face misalignment of tile shall not exceed 1/16" in 8 feet in any direction. Mix and apply leveling coat on surface when variation in finished surface plane exceeds 1/8 inch in 8 feet in any direction, and for spot patching of depressions in the receiving surface.
- K. Fit tile closely around pipes running through walls and floors. Pitch floors to drains.
- L. Pattern: Shall be as shown on drawings or as approved. Where not otherwise indicated, align tile joints in both directions. Joints at wall tile shall be as set by tile lugs. Joints at mosaic tile shall be 1/16"
- M. Base: As noted on drawings
- N. Apply PVA bonding agent to concrete and masonry surfaces where required for permanent adhesion of setting beds.

- O. Install divider strips at edge of tile, where abutting surface is non-tile material
- P. Porcelain Tile: Tile may be installed using standard ceramic tile installation methods and materials, as recommended by the Tile Council of America (TCA). Clean with neutral detergent when needed.
- Q. The installation of Johnsonite Carpet Threshold Mouldings should not begin until the work of all other trades has been completed, especially overhead trades. Areas to receive carpet threshold mouldings shall be clean, fully enclosed, weathertight, and maintained at a uniform temperature of at least 65°F for 24 hours before, during, and after the installation is completed. The threshold mouldings and adhesives shall be conditioned in the same manner. The floor surface shall be smooth, flat to within 1/8" in 10 ft., permanently dry, clean and free of all foreign material, such as dust, paint, grease, oils, solvents, curing and hardening compounds, sealers, asphalt, and old adhesive residue. Do not install on exterior surfaces subject to weather. Carpet Threshold Mouldings shall be securely adhered to the floor utilizing the manufacturer's recommended adhesive. Carpet Threshold Mouldings shall be rolled, with a J-hand roller, after installation, to ensure proper bonding.

### 3.3 FLOOR TILE INSTALLATION

- A. Set ceramic floor tile over concrete floors in thin-set Portland cement mortar where indicated.
- B. Setting Bed: Portland cement thin-set mortar shall be mixed thoroughly and applied in strict accordance with manufacturer's recommendations. Minimum thickness of setting bed shall be 1/8". Set tile in accordance with TCA procedure F113 and ANSI A-108.5 and other standards listed.
- C. Rodding and Setting: Set tile into setting bed of fresh thin-set mortar. All tile shall be aligned properly and beat to a true surface. Wood block may be used to tamp tile. Joints shall be straight and not less than 1/16" for ceramic mosaic tile.

### 3.4 WALL TILE INSTALLATION

- A. Set wall tile on gypsum board with organic mastic in accordance with ANSI A-108.4 and other listed standards. Skim coat board with a straight-edged trowel in areas to receive tile. Mask adjacent areas to keep mastic off surfaces to receive finish.
- B. After skim coat has dried, apply adhesive uniformly using notched trowel over areas small enough to be covered with tile before adhesive film over. Do not set tile in adhesive that has film on it, but remove such adhesive and apply fresh mastic.
- C. Press tile into fresh adhesive within manufacturer's specified "open" time but not over thirty (30) minutes, and align carefully with adjacent tile. Remove adhesive from joints to be caulked and grouted.
- D. Install tile in accordance with TCA procedure W-242 and other listed standards as well as applicable requirements previously specified.

### 3.5 WALL TILE INSTALLATION

- A. Set ceramic tile in cementitious thin set mortar over concrete masonry unit and cement backer-board walls where indicated. Use bonding agent as required.
- B. Setting bed: Portland cement thin-set dry mortar shall be mixed thoroughly and applied over walls in accordance with manufacturer's recommendations. Minimum thickness of setting bed shall be 3/32". Set tile in accordance with ANSI A-108.5 and other standards listed. Use TCA detail W-202.
- C. Rodding and Setting: Set tile into setting bed of fresh thin-set mortar. All tile shall be aligned properly and beat to a true surface. Wood block may be used to tamp tile. Joints shall be straight and plumb.
- D. Comply with all applicable requirements specified for floor tile.

### 3.6 CONTROL JOINTS

- A. Provide control joints where floor tiles meet restraining surfaces such as perimeter walls, cove bases, curbs, columns, pipes and the like. Control joints shall not exceed 24'-0" oc. each way in floors, located as directed by Architect. Form control joints in neat, straight lines. Cut tile cleanly and to accurate radius at exposed junctions with pipes, etc. Tile control joints shall be full width of control joint in subsurfaces and same width as grouted joints but not less than 1/4".
- B. Seal control joints that will be exposed in the finished work from subsurface to face of tile with sealant. Use control joint backing as necessary. Keep control joints clear of grout and debris prior to sealing. Apply approved control joint sealant of color to match adjoining grout.

### 3.7 INSTALLATION OF SEALANT

- A. Apply sealant before grouting in accordance with manufacturer's recommendations in joints around all items which penetrate tile at floors and walls; at perimeter joint between wall base and floor tile; in vertical inside corner tile joints on dissimilar structural backing; and in joints between tile and dissimilar materials.
- B. Clean off excess sealant immediately and tool sealant to a smooth, dense, slightly concave materials.
- C. Install sealant at internal vertical corner joints full height where backing walls are of different construction and also where both walls are of steel stud construction.

### 3.8 GROUTING

- A. Do not commence grouting for at least 24 hours after placing of tile. Follow specific instructions of listed standards. Where acid-resting grout is required, mix and apply in accordance with manufacturer's instructions.

- B. Grout shall be prepared waterproof Portland cement grout mix or neat Portland cement with dry cement added as directed by the Architect.
- C. Force maximum grout into joints with trowel of squeegee before grout sets, strike or tool joints to base of cushion and fill all skips and gaps. Do not permit setting bed materials to show through grouted joints. Cure grout joints by maintaining damp condition for three days by sponging down, fog-spraying or other methods approved by the Architect. Allow floors to set 48 hours before permitting ordinary floor traffic.

### 3.9 ADJUST AND CLEAN

#### A. Cleaning

- 1. Clean grout and setting materials from face of tile while materials are workable. Leave tile face clean and free of all foreign matter.
- 2. Unglazed tile may be cleaned with acid solutions only when permitted by the tile and grout manufacturer's printed instructions, but not sooner than 14 days after installation. Protect metal surfaces, cast iron and vitreous plumbing fixtures from effects of acid cleaning. Flush the surface with clean water before and after cleaning.
- 3. Prohibit all foot and wheel traffic from using tiled floors for at least three (3) days, preferable seven (7) days.
- 4. Before final inspection, remove protective coverings and rinse neutral cleaner from all tile surfaces.
- 5. Exercise every reasonable precaution to avoid damage to the work of other trades and repair and damage so caused bearing all expenses therefore. Arrange with the contractor for closing off of all traffic and other work necessary to avoid damage to finished tile surfaces before they are set up.

### 3.10 MAINTENANCE SUPPLY

- A. Provide extra tile material for maintenance purposes. Turn materials over to Owner's representative prior to substantial completion and send copy of signed receipt to Architect.
- B. Provide not less than one (1) extra full box of each color and type of tile used on the project.

END OF SECTION

09900 -- PAINTING AND FINISHING

PART 1 -- GENERAL

1.1 SUBMITTALS AND RELATED DOCUMENTS

- A. Provide manufacturer's specifications and other data to prove compliance with specified requirements.
- B. Following selection of colors by the Architect, submit samples for the Architect's review. Provide samples of each color and gloss for each material. Samples shall be on the material the finish is specified to be applied. Samples shall be approximately 8" x 10" in size. Do not start finish painting until samples are approved and available at job site.
- C. The conditions of the Contract including General Provisions, Supplementary Provisions, and General Requirements, apply to the work specified in this section.
- D. Shall comply with all requirements as stipulated in Division 1 Section 01 81 13 Sustainable Design Requirements.

1.2 JOB CONDITIONS AND DESCRIPTION OF WORK

- A. Strictly follow paint manufacturer's requirements as to temperature, humidity, and condition of work surfaces.
- B. The extent of painting work is shown on the drawings and schedules, and as herein specified.
- C. The work includes the painting and finishing of all interior and exterior exposed items and surfaces throughout the project, not to receive factory finishes as indicated or specified herein.
- D. The term "paint" as used herein means all coating systems materials, which includes primers, emulsions, enamels, stain, sealers and fillers, and other applied materials whether used as prime, intermediate or finish coats.

All colors are to be selected by the Owner.

1.3 PAINT AND RELATED MATERIALS

- A. Provide all materials and tools required for the work
- B. Paints shall be as per paint schedule

1.4 PAINTING NOT INCLUDED

The following categories of work are not included as part of the field applied finish work, or are included in other sections of these specifications.

A. Shop Priming

- 1. Unless otherwise specified, shop priming of new ferrous metal items is included under the various sections for structural steel, miscellaneous metal items, hollow metal work,

and similar items. Also for such fabricated components as shop-fabricated or factory-built mechanical and electrical equipment or accessories.

**B. Pre-Finished Items**

- 1 Unless otherwise indicated, do not include painting when factory finishing or installer-finishing is specified for such new items as acoustic materials, building siding, and finished mechanical and electrical equipment including light fixtures and distribution cabinets, doors and equipment. Touch-up and final finishing required for final product to be part of this Section. Paint for siding touch-up to be provided by siding supplier to match factory finish.

**C. Concealed Surfaces**

1. Unless otherwise indicated, painting is not required on wall or ceiling surfaces in concealed areas and generally inaccessible areas, as applicable to this project.
  - a. Piping, equipment and other such items shall not be painted if concealed in suspended ceilings, etc.

**D. Finished Metal Surfaces**

1. Metal surfaces of anodized aluminum, stainless steel, chromium plate, and similar finished materials will not require finish painting.

**E. Operating Parts and Labels**

1. Moving parts of operating units, mechanical and electrical parts, such as valve and damper operators, linkages, linkages, sensing devices, motor and fan shafts will not require finish painting unless otherwise indicated.
2. Do not paint over any code-required labels, such as Underwriters' Laboratories and Factory Mutual, or any equipment identification performance rating, name or nomenclature plates.

**1.5 QUALITY ASSURANCE**

**A. Paint Coordination**

1. Provide finish coats that are compatible with the prime paints used. Review other sections of these specifications in which prime paints are to be provided to ensure compatibility of the total coatings system for the various substrates. Notify the architect in writing of any anticipated problems using the coating systems as specified with substrates primed by others.

**1.6 DELIVERY AND STORAGE**

- A. Deliver all materials to the job site in original, new and unopened packages and containers bearing manufacturer's name and label, and the following information.

- 1. Color name and number.

## 1.7 PROTECTION

- A. Place paint or solvent soaked rags, waste, or other materials which might constitute a fire hazard in metal containers and remove from premises at the close of each day's work. Take every precaution to avoid damage by fire.
- B. Protect the work of all other trades against damage, marking or injury by suitable covering during the progress of the painting and finishing work. Repair any damage done.

## 1.8 JOB CONDITIONS

- A. Apply water-base paints only when the temperature of surfaces to be painted and the surrounding air temperatures are between 45 degrees F. and 95 degrees F., unless otherwise permitted by the paint manufacturer's printed instructions.
- B. Apply solvent-thinned paints only when the temperature of surfaces to be painted and the surrounding air temperatures are between 45 degrees F. and 95 degrees F., unless otherwise permitted by the paint manufacturer's printed instructions.
- C. Do not apply paint in snow, rain, fog, or mist; or when the relative humidity exceeds 85%; or to damp or wet surfaces; unless otherwise permitted by the paint manufacturer's printed instructions.
- E. Painting may be continued during inclement weather only if the areas and surfaces to be painted are enclosed and heated within the temperature limits specified by the paint manufacturer during application and drying periods.

## PART2-PRODUCTS

### 2.1 MATERIAL QUALITY

- A. Provide only absolutely pure linseed oil, turpentine, shellac, and other like materials that are of the highest quality, with identifying labels intact and seals unbroken. Use no thinners other than those specified by the manufacturer (Benjamin Moore ECO SPEC) and shall comply with VOC Limits as required in Division 1 Section 01 81 13 Sustainable Design Requirements.
- B. Use products of the same manufacturer for succeeding coats.
- C. Provide paints of durable and washable quality. Use paint materials which will withstand normal washing as required to remove pencil marks, ink, ordinary soil, etc. without showing discoloration, loss of gloss, staining, or other damage.

### 2.2 COLORS AND FINISHES

A. Color Pigments: Pure, non-fading, applicable types to suit the substrate and service indicated.

1. Lead content in the pigment, if any, is limited to contain not more than 0.51 lead, as lead metal based on the total non-volatile (dry-film) of the paint by weight.
  - a. This limitation is extended to all interior surfaces and exterior surfaces.

## 2.3 METAL PRIMERS

A. General

1. For metal surfaces not otherwise specified for shop prime painting and for touch-up painting of shop prime coats, provide one of the following metal primers as appropriate for the surface condition and finish coats of the metal and shall comply with VOC Limits as required in Division 1 Section 01 81 13 Sustainable Design Requirements.
  - a. Field touch-up painting shall be in accordance with SSPC-PA 1-64 and shall be of the same kinds and number of coats as applied in the shop.

B. Ferrous Metal Primer

1. Exterior rust inhibitive surfaces to receive:
  - a. Larcoloid zinc chromate primer (Alkyd metal primer) and shall comply with VOC Limits as required in Division 1 Section 01 81 13 Sustainable Design Requirements

C. Ferrous Metal Primers

1. Interior metal surfaces to receive:
  - a. Larcoloid zinc chromate primer (Alkyd metal primer) and shall comply with VOC Limits as required in Division 1 Section 01 81 13 Sustainable Design Requirements

D. Galvanized Metal

1. Acrylic Latex Eggshell Enamel (Benjamin Moore ECO Spec)

## 1.4 FIRE RESISTIVE PAINT

- i. Exposed structural member required to be fire rated as designated on drawings to be painted with Contego Intumescent Latex and shall comply with VOC Limits as required in Division 1 Section 01 81 13 Sustainable Design Requirements.
- ii. Handling Instructions:



1. Do NOT allow this product to freeze. If frozen the intumescent properties of this product may be adversely affected.
2. Do not allow storage temperature to exceed 100 degrees F.
3. If possible, store this product above 65 degrees F for 48 hours prior to application- this will aid you during the application process.
4. Do not reuse opened paint after 48 hours; the curing process has begun and may affect the product's performance.
5. If you wish to set some paint aside for future touch-up work fill a small clean container completely with fresh paint from a 5 gallon bucket after it has been mixed as described in the Application section below and then seal tightly.

C. Application Instructions:

1. Cautions
  - a. Apply only in a well-ventilated environment with adequate respiratory protection as prescribed by OSHA for all latex paints.
  - b. Do not ingest; induce vomiting if this happens.
  - c. Avoid contact with eyes; if this happens flush eyes freely with water until all traces of paint are removed.
  - d. Avoid prolonged contact with skin; paint can be removed with warm water & soap.
2. Application Preparation & Recommended Equipment:
  - a. Very Important: This product must be mixed thoroughly before application. We recommend using a mixing paddle with power drill for a minimum of (3) minutes at highest speed. Concentrate on the bottom of the bucket periodically moving to the middle and top areas. Product is properly mixed when: 1) there are no solids attached to the paddle after mixing at the bottom and 2) the paint shows a uniform consistency when mixed at the surface.
  - b. Do Not dilute or thin this product with any other liquid.
  - c. This product may be applied as any other high quality latex based paint; brush, roller, airless spray- either gravity feed or suction, or compressed air sprayers.
  - d. Surface must be clean, dry, and free of any grease, oils or other contaminants. Previous layers of paint must be solidly adhered to the surface with no flaking, chipping, or cracks. Bare steel should be primed with red oxide primer or its equivalent.
  - e. Spraying is the recommended method of application. The minimum recommended spray setup is 2500 psi with a .015 inch tip. All Contego test applications are performed using a Graco XR5 with a .017 inch tip.
  - f. Optimal application temperature is 85 degrees F; do not attempt application below 55 degrees F.
3. Specific application instructions:
  - a. Coverage: All coverage rates (except steel, below) are expressed on a 'per coat' basis. A single coat is applied at a rate of 130 sq.ft. per gallon. This is equivalent to a wet coat of 12 mil that will cure to a dry coat 7 mil thick.

While under ideal conditions it is possible to apply a single coat of up to 20-22 mil wet, two thin coats are recommended to prevent the possibility of cracking while curing.

- b. Sheetrock (gypsum) OSB (oriented strand board), plywood, structural lumber, and SIPs (structural insulated panels): Required two coats; the second can be applied when the first is dry to the touch. Full curing of both coats takes 72 hours.
- c. Polyurethane foam insulation (PUF): Also requires two coats but special consideration needs to be given to the condition of the foam's surface prior to application. Age, type and method of application affects the surface porosity of PUF. Field testing has show that unless the foam is newly installed and uncut it can absorb a significant quantity of paint. In these cases priming with a quality latex primer/sealer such as Zinnser's Bullseye 123 is recommended.
- d. Structural Steel: A final dry film coating of 70 mil is recommended for adequate protection. Under proper conditions it is possible to achieve this with 6 coats of 20 mil wet. Under less than ideal conditions, it may be necessary to apply more than 6 coats at a lesser thickness until a total of 120 mil wet is achieved. In all cases the next coat may be applied when the prior is dry to the touch.
- e. Top coating is optional. To add color or sheen to surfaces Contego PFB may be top coated using virtually any alkyd, or enamel paint as soon as the intumescent coating is dry to the touch. To toup coat with acrylic or latex spray or roll initial color coat Do Not reroll or touch up until initial color coat is dry. Failure to wait for first color coat application of acrylic/latex to dry may result in the color coat smearing or rolling off the roller. Once first color coat of latex/acrylic is dry apply second coat. Top coating does not reduce intumescent capability. Tinting is possible to pastel shades only. Limit tint to 10% of paint volume.

### PART3-EXECUTION

#### 3.1 CONDITION OF SUBSTRATE

- A. Examine the areas and conditions under which painting work is to be performed. Do not proceed with the work until unsatisfactory conditions have been corrected.
- B. Starting of painting work will be construed as acceptance of the surfaces within any particular area.
- C. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions otherwise detrimental to the formation of a durable paint film.

#### 3.2 SURFACE PREPERATION

- A. General

1. Perform all preparation and cleaning procedures in strict accordance with the paint manufacturer's instructions and as herein specified, for each particular substrate condition.
2. Remove all hardware, hardware accessories, machined surfaces, plates, lighting fixtures, and similar items in place and not to be finish painted, or provide surface-applied protection prior to surface preparation and painting operations. Remove, if necessary, for the complete painting of the items and adjacent surfaces. Following completion of painting of each space of area, reinstall the removed items by workmen skilled in the trades involved.
3. Clean surface treatments. Remove oil and grease with clean cloths and cleaning solvents proper to mechanical cleaning. Program the cleaning and painting so that dust and other contaminants from the cleaning process will not fall in wet, newly painted surfaces.
4. Before applying succeeding coats, primers and undercoats shall be completely integral and shall perform the function for which they are specified. Properly prepare and touch up all scratches, abrasions or other disfigurements and remove any foreign matter before proceeding with the following coat. All spot-priming or spot-coating shall be featheredged into adjacent coatings to produce a smooth and level surface.

**B. Gypsum Drywall**

1. Repair all surface defects in gypsum drywall with drywall joint finishing compound or spackling compound, filled out flush and sanded smooth. Clean all surfaces and taped joints of dust, dirt and other contaminants and be sure they are thoroughly dry before applying paint. Provide a level 5 finish.

**C. Ferrous Metals**

1. Clean and prime bare ferrous metal surfaces, which have not been shop primed, before the surface is damaged by weather or other exposure. After erection is completed touch-up heads of bolts, welded surfaces which are unpainted, and surfaces or areas where the primer has been abraded or otherwise damaged.
2. Prior to application any field coats on shop primed ferrous metal surfaces, remove oil, grease, welding flux residues and other contaminants harmful to painting in accordance with the applicable requirements of SSPC-S P 1-63 "Solvent Cleaning". After solvent cleaning, prepare any bare metal surfaces by removing all stratified rust (rust scale), all loose mill scale, all loose or non-ad-

Inherent rust and detrimental welding deposits by methods specified in SSPC-SP 3-63 "Power Tool Cleaning". Prepare any corroded or abraded surfaces of shopcoated metal by sanding to bare metal.

3. Completely clean and prepare existing ferrous metal surfaces in accordance with the requirements of SSPC-SP 1-63 "Solvent Cleaning" followed by preparation of the entire surface by methods complying with SSPC-SP 3-63 "Power Tool Cleaning".

**D. Galvanized Metals**

1. Clean unpainted galvanized metal surfaces of all oil, grease, and other contaminants in accordance with the applicable requirements of SSPC-SP 1-63 "Solvent Cleaning" and pretreat in accordance with SSPC-PT 2-64 "Cold Phosphate Treatment", prime as scheduled.
2. Prior to application of subsequent coats thoroughly clean all surfaces to ensure the removal of any grease, soil, dust or foreign matter. Take particular care to prevent the contamination of cleaned surfaces with salt, acids, alkali or other corrosive chemicals before prime coating and between subsequent coats of paint.

### 3.3 MATERIALS PREPARATION

#### A. General

1. Mix and prepare painting materials in strict accordance with the manufacturer's directions.
2. Store materials not in actual use in tightly covered containers. Maintain containers used in storage, mixing, and application of paint in a clean condition, free of foreign materials and residue.
3. Stir all materials before application to produce a mixture of uniform density, and as required during the application of the materials. Do not stir any film which may form on the surface into the material. Remove the film and, if necessary, strain the material before using.

### 3.4 APPLICATION

#### A. General

1. Applying paint with brush, roller, spray, or other acceptable practice in accordance with the manufacturer's directions.
  - a. Sprayed paint shall be uniformly applied with suitable equipment.
2. Spread all materials evenly and smoothly without runs, sags, or other defects. Make edges of paint adjoining other materials or colors sharp and clean, without overlapping. Allow sufficient time between coats to ensure proper drying.
3. The number of coats and paint film thickness required is the same regardless of the application method. Do not apply succeeding coats until the previous coat has completely dried. Number of coats to be primer plus two (2) finish coats of type(s) listed on finish schedule.
4. Apply additional coats when undercoats, or other conditions show through the final coat of paint, until the paint film is of uniform finish, color and appearance. Give special attention to insure that all surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a film thickness equivalent to that of flat surfaces.

5. Paint surfaces behind movable equipment and radiation the same as similar exposed surfaces. Paint surfaces behind permanently-fixed equipment with prime coat only.
  - a. "Exposed surfaces" is defined as those areas visible when permanent or built-in fixtures, convactor covers, covers for finned tube radiation, grilles, etc., are in place in areas scheduled to be painted.
6. Paint the back sides of access panels, removable or hinged covers to match the exposed surfaces.
7. Finish exterior doors on tops, bottoms, and side edges the same as the exterior faces, unless otherwise indicated.

E. Prime Coats

1. Recoat primed and sealed walls and ceilings where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no burn-through or other defects due to insufficient sealing.

F. Pigments (Opaque) Finishes

1. Completely cover to provide an opaque, smooth surface of uniform finish, color appearance, and coverage.

G. Brush Application

1. Brush-out and work all brush coats onto the surfaces in an even film. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.
2. Brush apply all primer or first coats, unless otherwise permitted to use mechanical applicators by the manufacturer.

I. Completed Work

1. Match approved samples for color, texture and coverage. Remove, refinish, or repaint work not in compliance with specified requirements as directed by the architect.

3.6 PROTECTION

- A. Protect work of other trades, whether to be painted or not, against damage by the painting and finishing work. Leave all such work undamaged. Correct any damages by cleaning, repairing or replacing and repainting, as acceptable to the architect.
- B. Provide "Wet Paint" signs as required to protect newly painted finishes. Remove temporary protective wrappings provided by other for protection of their work after completion of painting operations.

3.7 CLEAN-UP

- A. During the progress of the work, remove from the site all discarded paint materials, rubbish, cans and rags at the end of each work day.
- B. Upon completion of painting work, clean window glass and other paint spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.
- C. At the completion of work of other trades, touch-up and restore all damaged or defaced painted surfaces.

END OF SECTION

SECTION 09260  
GYPSUM WALL ASSEMBLIES

PART1-GENERAL

1.01 GENERAL REQUIREMENTS

- A. Part A and Division 1 of Part B are hereby made a part of this section.

1.02 DESCRIPTION OF WORK

- A. The extent of the gypsum drywall work and accessories complete in place as shown on the drawings and is hereby defined to include gypsum board work with tape-and-compound joint treatment system known as “drywall finishing” work

- B. This Section includes the following:

1. Fixed, extruded-aluminum louvers

- C. Related Sections include the following:

1. Division 6 Section 06100 Rough Carpentry for wood framing and blocking
2. Division 6 Section 06100 for exterior sheathing installations over framing
3. Division 7 Section 07200 Building Insulation for insulation and vapor retarders installed in gypsum board assemblies
4. Division 7 Section 07950 Sealants and Caulking

1.03 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

1.04 SUBMITTALS

- A. General: comply with provisions of Section 01300
- B. Manufacturer's data: submit:
  - 1. Complete materials list of all items proposed to be furnished and installed under this Section
  - 2. Manufacturers' specifications and other data required to demonstrate compliance with the specified requirements
  - 3. Manufacturers' recommended installation procedures
    - a. The manufacturers' recommended installation procedures, when approved by the Architect, will become the basis for inspecting and accepting or rejecting actual installation procedures used on the work
- C. Shop Drawings: Show locations, fabrication, and recommended installation of control and expansion joints including details of components, and attachments to other units of Work
- D. Samples: For the following products:
  - 1. Trim Accessories: Full-size sample in 12-inch- (300-mm-) long length for each trim accessory indicated
  - 2. Textured Finishes: Manufacturer's standard size for each textured finish indicated and on same backing indicated for Work

#### 1.05 QUALITY ASSURANCE

- A. Standards: comply with standards specified in this Section as listed in Section 01025
- B. Industry Standard: comply with applicable requirements of GA-216 "Application and finishing of Gypsum Board" by the Gypsum Association, except where more detailed or more stringent requirements are indicated including the recommended of the manufacturer
- C. Allowable tolerances: 1/8" offsets between planes of board faces and 1/4" in 8'-0" for plumb, level, warp and bow
- D. Manufacturer: obtain gypsum boards, trim accessories, adhesives, and joint treatment products from a single manufacturer



- E. Qualifications of manufacturer: products used in the work of this Section shall be produced by manufacturer's regularly engage in manufacturer of similar items and with a history of successful production acceptable to the Architect
  - F. Qualifications of installers: use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section
  - G. Fire-Test-Response Characteristics: For gypsum board assemblies with fire-resistance ratings, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction
    - 1. Fire-Resistance-Rated Assemblies: Indicated by design designations from UL's "Fire Resistance Directory" and/or GA-600, "Fire Resistance Design Manual."
  - H. Sound Transmission Characteristics: For gypsum board assemblies with STC ratings, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by a qualified independent testing agency
    - 1. STC-Rated Assemblies: Indicated by design designations from GA-600, "Fire Resistance Design Manual."
  - I. Gypsum Board Finish Mockups: Before finishing gypsum board assemblies, install mockups of at least 100 sq. ft. (9 sq. m) in surface area to demonstrate aesthetic effects and qualities of materials and execution
    - 1. Install mockups for the following applications:
      - a. Surfaces with texture finish
      - b. Surfaces indicated to receive nontextured paint finishes
      - c. Surfaces indicated to receive textured paint finishes
    - 2. Simulate finished lighting conditions for review of mockups
    - 3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion
- 1.06 DELIVERY, STORAGE, AND HANDLING
- A. Deliver materials in original packages, containers, or bundles bearing brand name and identification of manufacturer or supplier

- B. Store materials inside under cover in strict accordance with manufacturer's recommendations and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes. Stack gypsum panels flat to prevent sagging
- C. Replacements: in the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner

1.07 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturers written recommendations, whichever are more stringent
- B. Maintain ambient temperatures at not less than 55 degrees F. for the period for 24 hours before drywall finishing, during installation and until compounds are dry

PART2-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:
    - a. Clark Steel Framing Systems
    - b. Consolidated Systems, Inc
    - c. Dale Industries, Inc. - Dale/Incor
    - d. Dietrich Industries, Inc
    - e. MarinoWare; Division of Ware Ind
    - f. National Gypsum Company
    - g. Scafco Corporation
    - h. Unimast, Inc
    - i. Western Metal Lath & Steel Framing Systems
  - 2. Gypsum Board and Related Products:
    - a. G-P Gypsum Corp
    - b. National Gypsum Company
    - c. United States Gypsum Co

## 2.02 STEEL SUSPENDED CEILING AND SOFFIT FRAMING

- A. Grid Suspension System for Interior Ceilings: ASTM C 645, direct-hung system composed of main beams and cross-furring members that interlock
1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
  2. Products: Subject to compliance with requirements, provide one of the following:
    - a. Armstrong World Industries, Inc.; Furring Systems/Drywall
    - b. Chicago Metallic Corporation; Drywall Furring 640 System
    - c. USG Interiors, Inc.; Drywall Suspension System

## 2.03 STEEL PARTITION AND SOFFIT FRAMING

- A. Components, General: As follows:
1. Comply with ASTM C 754 for conditions indicated
  2. Steel Sheet Components: Complying with ASTM C 645 requirements for metal and with manufacturer's standard corrosion-resistant zinc coating
- B. Steel Studs and Runners: ASTM C 645
1. Minimum Base Metal Thickness: 0.0179 inch (0.45 mm)
  2. Depth: As indicated
- C. Deep-Leg Deflection Track: ASTM C 645 top runner with 2-inch- (50.8-mm -) deep flanges
- D. Proprietary Deflection Track: Steel sheet top runner manufactured to prevent cracking of gypsum board applied to interior partitions resulting from deflection of structure above; in thickness indicated for studs and in width to accommodate depth of studs
1. Available Product: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

2. Product: Subject to compliance with requirements, provide one of the following:
  - a. Delta Star, Inc., Superior Metal Trim; Superior Flex Track System (SFT)
  - b. Metal-Lite, Inc.; Slotted Track
  
- E. Proprietary Fire-stop Track: Top runner manufactured to allow partition heads to expand and contract with movement of the structure while maintaining continuity of fire-resistance-rated assembly indicated in thickness not less than indicated for studs and in width to accommodate depth of studs
  1. Available Product: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
  2. Product: Subject to compliance with requirements, provide one of the following:
    - a. Fire Trak Corp.; Fire Trak attached to studs with Fire Trak Slip Clip
    - b. Metal-Lite, Inc.: The System
  
- F. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated
  1. Minimum Base Metal Thickness: 0.0312 inch (0.79 mm)
  
- G. Cold-Rolled Channel Bridging: 0.0538-inch (1.37-mm) bare steel thickness, with minimum 1/2-inch-(12.7-mm-) wide flange
  1. Depth: 1-1/2 inches (38.1 mm)
  2. Clip Angle: 1-1/2 by 1-1/2 inch (38.1 by 38.1 mm), 0.068-inch- (1.73-mm-) thick, galvanized steel
  
- H. Hat-Shaped, Rigid Furring Channels: ASTM C 645
  1. Minimum Base Metal Thickness: 0.0179 inch (0.45 mm)
  2. Depth: 7/8 inch (22.2 mm)
  
- I. Resilient Furring Channels: 1/2-inch- (12.7-mm-) deep, steel sheet members designed to reduce sound transmission

1. Configuration: Asymmetrical or hat shaped, with face attached to single flange by a slotted leg (web) or attached to two flanges by slotted or expanded metal legs
- J. Cold-Rolled Furring Channels: 0.0538-inch ( 1.37-mm) bare steel thickness, with minimum 1/2-inch- (12.7-mm-) wide flange
1. Depth: As indicated
  2. Furring Brackets: Adjustable, corrugate d-edge type of steel sheet with minimum bare steel thickness of 0.0312 inch (0.79 mm)
  3. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625-inch- (1.59-mm-) diameter wire, or double strand of 0.0475-inch- (1.21-mm-) diameter wire
- K. Z-Shaped Furring: With slotted or nonslotted web, face flange of 1-1/4 inches (31.8 mm), wall attachment flange of 7/ 8 inch (22.2 mm ), minimum bare metal thickness of 0.0179 inch (0.45 mm), and depth required to fit insulation thickness indicated
- L. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates

## 2.04 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
- B. Gypsum Wallboard: ASTM C 36
1. Regular Type:
    - a. Thickness: As indicated
    - b. Long Edges: Tapered
    - c. Location: As indicated – Typically used at interior non-fire-rated walls
  2. Type X and Type C:
    - a. Thickness: As indicated
    - b. Long Edges: Tapered
    - c. Location: As indicated and where required for fire-resistance-rated assembly

- C. Flexible Gypsum Wallboard: ASTM C 36, manufactured to bend to fit tight radii and to be more flexible than standard regular-type panels of the same thickness
1. Thickness: 1/4 inch (6.4 mm)
  2. Long Edges: Tapered
  3. Location: As indicated. Apply in double layer at curved assemblies
- D. Sag-Resistant Gypsum Wallboard: ASTM C 36, manufactured to have more sag resistance than regular type gypsum board
1. Thickness: 1/2 inch (12.7 mm)
  2. Long Edges: Tapered
  3. Location: As indicated; ceiling surfaces; Contractor's option for use at non-fire-rated ceilings for framing at 24" o.c. where 5/8" regular gypsum wall board is to be used
- E. Proprietary, Special Fire-Resistive Type: ASTM C 36, having improved fire resistance over standard Type X
1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
  2. Products: Subject to compliance with requirements, provide one of the following:
    - a. American Gypsum Co.; FireBloc Type C
    - b. G-P Gypsum Corp.; Firestop Type C
    - c. National Gypsum Company; Gold Bond Fire-Shield G
    - d. United States Gypsum Co.; SHEETROCK Brand Gypsum Panels, FIRECODE C Core
  3. Thickness: As indicated
  4. Long Edges: Tapered
  5. Location: Where required for specific fire-resistance-rated assembly indicated

## 2.05 EXTERIOR GYPSUM PANELS FOR CEILINGS AND SOFFITS

- A. Panel Size: Provide in maximum lengths and widths available that will minimize joints in each area and correspond with support system indicated
- B. Exterior Gypsum Soffit Board: ASTM C 931/C 931M, with manufacturer's standard edges
  - 1. Core: 5/8 inch (15.9 mm), Type X
- C. Glass-Mat Gypsum Sheathing Board: ASTM C 1177/C 1177M. (Note: This may be used at contractor's option in lieu of exterior gypsum soffit board above.)
  - 1. Available Product: Subject to compliance with requirements, a product that may be incorporated into the Work includes, but is not limited to, "Dens-Glass Gold" by G-P Gypsum Corp
  - 2. Core: 5/8" (15.9 mm), Type X

## 2.06 TILE BACKING PANELS

- A. Panel Size: Provide in maximum lengths and widths available that will minimize joints in each area and correspond with support system indicated
- B. Water-Resistant Gypsum Backing Board: ASTM C 630/C 630M
  - 1. Core: As indicated
- C. Glass-Mat, Water-Resistant Backing Board: ASTM C 1178/C 1178M. (Note: This may be used at contractor's option in lieu of water-resistant gypsum backing board above.)
  - 1. Available Product: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, "Dens-Shield Tile Backer" manufactured by G-P Gypsum Corp
  - 2. Core: As indicated

## 2.07 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047
  - 1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized steel sheet

2. Shapes:
  - a. Cornerbead: Use at outside corners
  - b. LC-Bead (J-Bead); Use at exposed panel edges
  - c. L-Bead: Use where indicated. Use typically at window head; jamb
  - d. U-Bead: Use where indicated
  - e. Expansion (Control) Joint: Use where indicated and as follows:
    - 1) Ceilings:
      - a) Install control joints in areas exceeding 2,500 s.f.
      - b) Space control joints not more than 50 ft. o.c.
      - c) Install control joints where ceiling framing or furring changes direction.
    - 2) Partitions and Furring:
      - a) Install control joints in partition and wall furring runs exceeding 30 feet
      - b) Space control joints not more than 30 ft. o.c.
      - c) Install control joints in furred assemblies where control joints occur in base exterior walls
  - f. Curved-Edge Cornerbead: With notched or flexible flanges, used at curved openings
3. Hanger wire: use 8 gauge galvanized wire, except at double layer ceiling construction use 1/8" x 1" galvanized steel strap, punched at each end after galvanizing
4. Tie wire: shall be 16- gauge galvanized annealed wire
5. Hanger clips: use manufacturer's standard recommended metal clips suitable for each type of construction. Power driven eye pins will be permitted, but each pin shall be tested after installation for 150 pound load (weight of one workman)

B. Exterior Trim: ASTM C 1047

1. Material: Hot-dip galvanized steel sheet or rolled zinc
2. Shapes:
  - a. Cornerbead: Use at outside corners
  - b. LC-Bead (J-Bead): Use at exposed panel edges



- c. Expansion (Control) Joint: One-piece, rolled zinc with V-shaped slot and removable strip covering slot opening. Use where indicated and per A.2.e above

2.08 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475
- B. Joint Tape:
  - 1. Interior Gypsum Wallboard: Paper
  - 2. Exterior Gypsum Soffit Board: Paper
  - 3. Glass-Mat Gypsum Sheathing Board: 10-by-10-glass mesh
  - 4. Tile Backing Panels: As recommended by panel manufacturer
- C. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats
  - 1. Prefilling: 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 drying-type, all-purpose compound
    - a. Use setting-type compound for installing paper-faced metal trim accessories
  - 3. Fill Coat: For second coat, use drying-type, all-purpose compound
  - 4. Finish Coat: For third coat, use drying-type, all-purpose compound
  - 5. Skim Coat: For final coat of Level 5 finish, use drying-type, all-purpose compound
- D. Joint Compound for Exterior Applications:
  - 1. Exterior Gypsum Soffit Board: Use setting-type taping and setting-type, sandable topping compounds
  - 2. Glass-Mat Gypsum Sheathing Board: As recommended by manufacturer

- E. Joint Compound for Tile Backing Panels:
  - 1. Water-Resistant Gypsum Backing Board: Use setting-type taping and setting-type, sandable topping compounds
  - 2. Glass-Mat, Water-Resistant Backing Panel: As recommended by manufacturer
  - 3. Cementitious Backer Units: As recommended by manufacturer

## 2.09 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. United States Gypsum Co.; SHEETROCK Acoustical Sealant
  - 2. Acoustical Sealant for Concealed Joints:
    - a. Ohio Sealants, Inc.; Pro-Series SC-170 Rubber Base Sound Sealant
    - b. Pecora Corp.; BA-98
    - c. Tremco, Inc.; Tremco Acoustical Sealant
- B. Acoustical Sealant for Exposed and Concealed Joints: Nonsag, paintable, nonstaining, 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
- C. Acoustical Sealant for Concealed Joints: Nondrying, nonhardening, nonskinning, nonstaining, gunnable, synthetic-rubber sealant recommended for sealing interior concealed joints to reduce airborne sound transmission

## 2.10 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations
- B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate

- C. Steel Drill Screws: ASTM C 1002, unless otherwise indicated
  - 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch (0.84 to 2.84 mm) thick
  - 2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer
  
- D. Isolation Strip at Exterior Walls:
  - 1. Asphalt-Saturated Organic Felt: ASTM D 226, Type I (No. 15 asphalt felt), nonperforated
  - 2. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch (3.2 mm) thick, in width to suit steel stud size
  
- E. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool
  - 1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly
  
- F. Thermal Insulation: As specified in Division 7 Section 07200 Thermal Insulation
  
- G. Polyethylene Vapor Retarder: As specified in Division 7 Section 07150 Vapor Barriers and Dampproofing
  
- H. If the approved jointing system requires job-addition of water, use only clean and potable water for the purpose

### PART3-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. Verify that gypsum drywall may be installed in strict accordance with all pertinent codes and regulations, the manufacturers' recommended as approved by the Architect, and the original design

- B. Discrepancies: do not install gypsum drywall until all unsatisfactory conditions have been corrected

### 3.02 PREPARATION

- A. Suspended Ceilings: Coordinate installation of ceiling suspension systems with installation of overhead structure to ensure that inserts and other provisions for anchorages to building structure have been installed to receive ceiling hangers at spacing required to support ceilings and that hangers will develop their full strength
  - 1. Furnish concrete inserts and other devices indicated to other trades for installation in advance of time needed for coordination and construction

### 3.03 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
- D. Extend partition stud system through acoustical ceiling where indicated to the existing substrate above the ceiling
- E. Space studs 16" o.c., except as otherwise indicated
- F. Door frames: install continuous jamb reinforcements at door frames but not less than 2 studs at each jamb. Space jack studs over door frames at same spacing as partition studs
  - 1. Isolate ceiling assemblies where they abut or are penetrated by building structure
  - 2. Isolate partition framing and wall framing 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
  - b. Use proprietary deflection track where indicated
  - c. Use proprietary firestop track where indicated
- G. Do not bridge building control and expansion joints with steel framing or furring members. Frame both sides of joints independently

### 3.04 INSTALLING STEEL SUSPENDED CEILING AND SOFFIT FRAMING

- A. Anchor galvanizing hanger wires to hanger clips attached to structural framing above. Space hangers at no more than 4'-0" intervals along the 1-1/2" channel used as main runners. Main runner spacing shall be as recommended by gypsum board manufacture, but in no more than 4'-0" o.c. Level runners and saddle tie hangers to runners. At double layer ceilings, bolt channel runner to hanger strap. Place runner channels within 6" of walls to support furring channel ends. Keep main runners from contacting walls. Ceiling suspension shall not deflect under dead load more than 1/360 of span in any direction
- B. Furring channels shall be spaced 12" o.c. secured to main runners with standard furring channel clips, or saddle tied to main runners and support members with two (2) strands of 16 gauge galvanized tie wire. Install furring channel clips on alternated sides of main runners. Wire tie furring channel to main runner when clips on alternated sides of main runners. Wire tie furring channel to main runner when clips cannot be alternated. Keep furring channels from contacting abutting walls. At all openings that interrupt main runner or furring channels reinforce grillage with 3/4" cold-rolled channels. See manufacturer's instructions for splicing of long channel runs

### 3.05 INSTALLING STEEL PARTITION AND SOFFIT FRAMING

- A. Install tracks (runners) at floors, ceilings, and structural walls and columns where gypsum board assemblies abut other construction
- 1. Where studs are installed directly against exterior concrete or masonry walls, install asphalt-felt or foam-gasket isolation strip between studs and wall
- B. Installation Tolerance: Install each steel framing and furring member so fastening surfaces vary not more than 1/8 inch (3 mm) from the plane formed by the faces of adjacent framing
- C. Extend partition framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing over frames for doors and openings and

frame around ducts penetrating partitions above ceiling to provide support for gypsum board

1. Cut studs 1/2 inch (13 mm) short of full height to provide perimeter relief
  2. For fire-resistance-rated and STC- rated partitions that extend to the underside of floor/roof slabs and decks or other continuous solid-structure surfaces to obtain ratings, install framing around structural and other members extending below floor/roof slabs and decks, as needed to support gypsum board closures and to make partitions continuous from floor to underside of solid structure
    - a. Terminate partition framing at suspended ceilings where indicated
- D. Install steel studs so flanges point in the same direction and leading edge or end of each panel can be attached to open (unsupported) edges of stud flanges first
- E. Frame door openings to comply with GA-600 and with gypsum board manufacturer's applicable written recommendations, unless otherwise indicated. Screw vertical studs at jambs to jamb anchor clips on doorframes; install runner track section (for cripple studs) at head and secure to jamb studs
1. Install two studs at each jamb, unless otherwise indicated
  2. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch (13-mm) clearance from jamb stud to allow for installation of control joint
  3. Extend jamb studs through suspended ceilings and attach to underside of floor or roof structure above
- F. Frame openings other than door openings the same as required for door openings, unless otherwise indicated. Install framing below sills of openings to match framing required above door heads. With coordination with the drawings, install specified access door where required, anchoring firmly into position and aligning properly to achieve an installation flush with the finished gypsum drywall surface
- G. Z-Furring Members:
1. Erect insulation vertically and hold in place with Z-furring members spaced 24 inches (600 mm) o.c.
  2. Except at exterior corners, securely attach narrow flanges of furring members to wall with concrete stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches (600 mm) o.c.

3. At exterior corners, attach wide flange of furring members to wall with short flange extending beyond corner on adjacent wall surface, screw-attach short flange of furring channel to web of attached channel. At interior corners, space second member no more than 12 inches (300 mm) from corner and cut insulation to fit
  4. Until gypsum board is installed, hold insulation in place with methods as required
- H. Polyethylene Vapor Retarder: Install to comply with requirements specified in Division 7 Section 07200 Thermal Insulation

### 3.06 APPLYING AND FINISHING PANELS, GENERAL

- A. Gypsum Board Application and Finishing Standards: ASTM C 840 and GA-216
- B. Install sound attenuation blankets before installing gypsum panels, unless blankets are readily installed after panels have been installed on one side
- C. Install ceiling board panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in the central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member
- D. Install gypsum panels with face side out. Butt panels together for a light contact at edges and ends with no t more than 1/16 inch (1.5 mm) of open space between panels. Do not force into place
- E. 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
- F. Attach gypsum panels to steel studs so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first
- G. Attach gypsum panels to framing provided at openings and cutouts
- H. Do not attach gypsum panels across the flat grain of wide-dimension lumber, including floor joists and headers. Float gypsum panels over these members using resilient channels, or provide control joints to counteract wood shrinkage
- I. Form control and expansion joints with space between edges of adjoining gypsum panels

- J. Cover both faces of steel stud partition framing 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. (0.7 sq. m) in area
  - 2. Fit gypsum panels around ducts, pipes, and conduits
- K. Isolate perimeter of non-load-bearing gypsum board partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch- (6.4- to 12.7-mm-) wide spaces at these locations, and trim edges with U-bead edge trim where edges of gypsum panels are exposed. Seal joints between edges and a butting structural surfaces with acoustical sealant
- L. Floating Construction: Where feasible, including where recommended in writing by manufacturer, install gypsum panels over wood framing, with floating internal corner construction
- M. STC-Rated Assemblies: Seal construction at perimeters, behind control and expansion joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and manufacturer's written recommendations for locating edge trim and closing off sound-flanking paths around or through gypsum board assemblies, including sealing partitions above acoustical ceilings
- N. Space fasteners in gypsum panels according to referenced gypsum board application and finishing standard and manufacturer's written recommendations
  - 1. Space screws a maximum of 12 inches (304.8 mm) o.c. for vertical applications
- O. Space fasteners in panels that are tile substrates a maximum of 8 inches (203.2 mm) o.c.

### 3.07 PANEL APPLICATION METHODS

- A. Single-Layer Application:
  - 1. On ceilings, apply gypsum panels before wall/partition board application to the greatest extent possible and at right angles to framing, unless otherwise indicated



2. On partitions/walls, apply gypsum panels vertically (parallel to framing), unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints
    - a. Stagger abutting end joints not less than one framing member in alternate courses of board
    - b. At stairwells and other high walls, install panels horizontally, unless otherwise indicated or required by fire-resistance-rated assembly
  3. On Z-furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members
- B. Multilayer Application on Ceilings: Apply gypsum board indicated for base layers before applying base layers on walls/partitions; apply face layers in same sequence. Apply base layers at right angles to framing members and offset face-layer joints 1 framing member, 16 inches (400 mm) minimum, from parallel base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly
- C. Multilayer Application on Partitions/Walls: Apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions
1. Z-Furring Members: Apply base layer vertically (parallel to framing) and face layer either vertically (parallel to framing) or horizontally (perpendicular to framing) with vertical joints offset at least one furring member. Locate edge joints of base layer over furring members
- D. Single-Layer Fastening Methods: Apply gypsum panels to supports with steel drill screws
- E. Multilayer Fastening Methods: Follow fastening method used for fire-rated test assemblies
- F. Curved Partitions:
1. Install panels horizontally and unbroken, to the extent possible, across curved surface plus 12-inch- (300-mm-) long straight sections at ends of curves and tangent to them
  2. Wet gypsum panels on surfaces that will become compressed where curve radius prevents using dry panels. Comply with gypsum board

manufacturers written recommendations for curve radii, wetting methods, stacking panels after wetting, and other preparations that precede installing wetted gypsum panels

3. On convex sides of partitions, begin installation at one end of curved surface and fasten gypsum panels to studs as they are wrapped around curve. On concave side, start fastening panels to stud at center of curve and work outward to panel ends. Fasten panels to framing with screws spaced 12 inches (300 mm) o.c.
4. For double-layer construction, fasten base layer to studs with screws 16 inches (400 mm) o.c. Center gypsum board face layer over joints in base layer, and fasten to studs with screws spaced 12 inches (300 mm) o.c.
5. Allow wetted gypsum panels to dry before applying joint treatment

G. Exterior Soffits and Ceilings: Apply exterior gypsum soffit board panels perpendicular to supports, with end joints staggered and located over supports

1. Install with 1/4-inch (6.4-mm ) open space where panels abut other construction or structural penetrations
2. Fasten with corrosion-resistant screws

H. Tile Backing Panels:

1. Water-Resistant Gypsum Backing Board: Ins tall at all locations where indicated to receive tile
2. Where tile backing panels abut other types of panels in the same plane, shim surfaces to produce a uniform plane across panel surfaces

### 3.08 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 manufacturers written instructions
- B. Control Joints: Install control joints at locations indicated on Drawings. Where required control joints are not indicated, install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect. See 2.7 Trim Accessories
- C. Install metal corner beads at external corners of drywall work

- D. Install metal edge trim whenever corners of drywall would otherwise be exposed or semi-exposed. Provide type with face flange to receive joint compound. Install L-type where work is tightly abutted to other work, and install special kerf-type where other work is kerfed to receive a long leg of L-type trim. Install U-type trim where edge is exposed, revealed, gasketed or sealant-filled (including expansion joints)
- E. Install J-type semi-finishing trim where indicated

### 3.09 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. Prefill 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, for locations indicated:
  - 1. Level 1: Embed tape at joints in ceiling plenum areas, concealed areas, and where indicated, unless a higher level of finish is required for fire-resistance-rated assemblies and sound-rated assemblies
  - 2. Level 2: Embed tape and apply separate first coat of joint compound to tape, fasteners, and trim flanges where panels are substrate for tile
  - 3. Level 3: Embed tape and apply separate first and fill coats of joint compound to tape, fasteners, and trim flanges for surfaces receiving medium or heavy texture finishes or heavy wall-covering
  - 4. **REQUIRED ON THIS PROJECT:** Level 4: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges at panel surfaces that will be exposed to view, unless otherwise indicated.
  - 5. Level 5: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges, and apply skim coat of joint compound over entire surface where indicated

- a. NOTE: Level 5 is not used on this project unless required to cover flaws in substrate workmanship
- E. Glass-Mat Gypsum Sheathing Board: Finish according to manufacturer's written instructions for use as exposed soffit board
- F. Glass-Mat, Water-Resistant Backing Panels: Finish according to manufacturer's written instructions

3.09 FIELD QUALITY CONTROL

- A. Above-Ceiling Observation: Before Contractor installs gypsum board ceilings, Architect will conduct an above-ceiling observation and report deficiencies in the Work observed. Do not proceed with installation of gypsum board to ceiling support framing until deficiencies have been corrected
  - 1. Notify Architect seven days in advance of date and time when Project, or part of Project, will be ready for above-ceiling observation

END OF SECTION 09260

SECTION 09660  
RESILIENT TILE FLOORING

PART1-GENERAL

1.01 GENERAL REQUIREMENTS

- A. Part A and Division 1 of Part B are hereby made a part of this section.

1.02 DESCRIPTION OF WORK

- A. Work included: provide all resilient flooring, complete in place, as indicated on the Drawings, specified herein, or otherwise needed for a complete and proper installation of the work of this Section, including but not limited to the following:

1. Strip (wood look) vinyl flooring
2. Vinyl composition tile (VCT)
3. Resilient wall base and accessories
4. Latex mastic leveling material
5. Adhesives

- B. Related sections include the following:

1.03 SUBMITTALS

- A. General: comply with pertinent provisions of Section 01300

- B. Manufacturers' data: Submit:

1. Complete materials list of all items proposed to be furnished and installed under this Section
2. Manufacturers' specifications and other data required to demonstrate compliance with the specified requirements

3. Submit full-size sample tiles for each type and color required, representative of the expected range of color and pattern variation. Sample submittals will be reviewed for color, texture and pattern only. Compliance with all other requirements is the exclusive responsibility of the Contractor
    - a. Resilient wall base and accessories: manufacturer's standard-size samples, not less than 1 2 inches (300 mm) long, of each resilient product color and pattern required
  4. Manufacturers' recommended methods of installation
    - a. The manufacturers' recommended methods of installation, when approved by the Architect, will become the bases for inspecting and accepting or rejecting actual installation methods used on the Work.
- C. Maintenance data: for resilient products to include in maintenance manuals

#### 1.04 QUALITY ASSURANCE

- A. Sub-contractor shall be familiar with the specified requirements and the methods needed for proper performance of the work of this Section
- B. Provide each type of resilient flooring produced by a single manufacturer, including recommended primers, adhesives and edging strips, as required
- C. Fire-test-response characteristics: provide products identical to those tested for fire-exposure behavior per test method indicated by a testing and inspecting agency acceptable to authorities having jurisdiction

#### 1.05 DELIVERY, STORAGE, AND HANDLING

- A. Delivery and storage: deliver materials to the job site and store in their original unopened containers with all labels intact and legible at time of use, clearly marked to indicate pattern, gauge, lot number and sequence of manufacturer. Store in strict accordance with the manufacturers' recommendations
- B. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F (10 deg C) or more than 90 deg F (32 deg C). Store tiles on flat surfaces

- C. 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
- D. Replacement: in the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner

1.06 PROJECT CONDITIONS

- A. Maintain temperatures within range recommended by manufacturer, but not less than 70 deg F (21 deg C) or more than 95 deg F (35 deg C), in spaces to receive floor tile during the following time periods:
  - 1. 48 hours before installation.
  - 2. during installation
  - 3. 48 hours after installation
- B. After post-installation period, maintain temperatures within range recommended by manufacturer, but not less than 55 deg F (13 deg C) or more than 95 deg F (35 deg C)
- C. Close spaces to traffic during floor covering installation
- D. Close spaces to traffic for 48 hours after floor covering installation
- E. Install resilient products after other finishing operations, including painting, have been completed

1.07 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identification with labels describing contents
  - 1. Floor Tile: Furnish 1 box for every 50 boxes or fraction thereof, of each type, color, and pattern of floor tile installed

2. Resilient Wall Base and Accessories: Furnish not less than 10 linear feet (3 linear m) for every 500 linear feet (150 linear m) or fraction thereof, of each type, color, pattern, and size of resilient product installed

## PART2-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, the products listed in other Part 2 articles
- B. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles

### 2.02 COLORS AND PATTERNS

- A. Colors and Patterns: As selected by Architect from manufacturer's full range. Assume 2 color pattern allowance. (May include border in certain areas)

### 2.03 VINYL FLOOR TILE

- A. Vinyl tile shall be as selected by the owner from standard units as manufactured by Armstrong, Tarkett, Mannington or approved equal
- B. Colors and patterns: provide tile, units with uniformly distributed color and pattern throughout the thickness of the tile . Variation in shades and off pattern matches between containers will not be acceptable
- C. Vinyl composition tile: 12 x 12 x 1/8" thick, with pattern extending through entire thickness of tile in equal concentration, composed of vinyl resins, non-abestos inorganic mineral fillers, and colorfast pigments, in color and patterns as selected by the Architect

### 2.04 VINYL FLOOR PLANKS VP-1

- A. VP-1
  1. Provide Forbo Sustain 11 95 adhesive



2.05 VINYL FLOOR PLANKS VP-2

A. VP-2

1. Provide Forbo Sustain 11 95 adhesive

2.06 RESILIENT WALL BASE RB-1, RB-2. Refer to Drawings

A. Wall Base: ASTM F 1861

1. Johnsonite – Basis of design
2. Armstrong World Industries, Inc
3. Burke Mercer Flooring Products
4. Marley Flexco (USA), Inc.
5. Mondo Rubber International, Inc.
6. Nora Rubber Flooring, Freudenberg Building Systems, Inc.
7. Pirelli Rubber Flooring
8. Roppe Corporation

B. Type: TV (vinyl)

C. Group: I (solid, homogeneous)

D. Style: VBC: cove (with top- set toe). VBS: Straight (to eless). Straight uncovered type when used in conjunction with carpeting, coved type got all other locations

E. Minimum Thickness: 0.125 inch (3.2 mm)

F. Height: **6 inches (152 mm)**

G. Lengths: Cut from coils in manufacturer's standard length only

H. Outside Corners: Job formed

I. Inside Corners: Job formed

J. End stops: matching at exposed ends

K. Surface: Smooth

## 2.07 RESILIENT MOLDING ACCESSORY

A. Description: Joiner for tile and carpet

1. Johnsonite; CTA-XX-A. Material: Rubber. Color selected by Architect
2. Schluter Systems – Schiene – Finish selected by Interior Designer (for units)

B. Material: Rubber

C. Profile and Dimensions: As indicated, or as required based on selected tile and carpet thickness. To be selected by Architect

## 2.08 INSTALLATION MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic cement based formulation provided or approved by resilient product manufacturer for applications indicated

B. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated

1. Use adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
  - a. VCT and Asphalt Tile Adhesives: 50 g/L
  - b. Cove Base Adhesives: 50 g/L
  - c. Rubber Floor Adhesives: 60 g/L

C. Primers: for use for all the various conditions and materials shall be as recommended by manufacturer of each specific material for each specific application

D. All other materials, not specifically described but required for a complete and proper installation of the work of this Section, shall be as recommended by the manufacturer of the resilient materials used, and as approved by the Architect

## PART3-EXECUTION

### 3.01 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances, moisture content, and other conditions affecting performance
  - 1. Verify that finishes of substrates comply with tolerances and other requirements specified and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products
    - a. Surface shall be smooth, level, at the required finish elevation, without more than 3 mm (1/8") in 3 m (10'-0") variation from level or slopes shown
  - 2. Proceed with installation only after unsatisfactory conditions have been corrected

### 3.02 PREPARATION

- A. Prepare substrates according to manufacturer's written recommendations to ensure adhesion of resilient products
- B. Subfloor: prior to start of laying the tile units, broom clean or vacuum all surfaces to be covered and inspect the subfloor. Start of laying tile will indicate acceptance of subfloor conditions and full responsibility for the completed work
  - 1. Use leveling compound as recommended by tile manufacturer for filling small cracks and depressions in subfloors
- C. Concrete Substrates: Prepare according to ASTM F 710
  - 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners
  - 2. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing
  - 3. Moisture Testing:
    - a. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with installation only after substrates have maximum moisture-

vapor-emission rate of 3 lb of water/1000 sq. ft. (1.36 kg of water/92.9 sq. m) in 24 hours

- b. Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing
4. Concrete primer: apply concrete slab primer if recommended by tile manufacturer, prior to application of the adhesive. Apply in compliance with manufacturer's directions
- D. Remove substrate coatings 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
  - E. Access Flooring Panels: Remove protective film of oil or other coating using method recommended by access flooring manufacturer
  - F. Use trowelable leveling and patching compound to fill cracks, holes, and depressions in substrates
  - G. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation
    1. Do not install resilient products until they are same temperature as space where they are to be installed
  - H. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation. After cleaning, examine substrates for moisture, alkaline salts, carbonation, and dust. Proceed with installation only after unsatisfactory conditions have been corrected

### 3.03 TILE INSTALLATION

- A. Install tile only after all finishing operations, including painting, have been completed and permanent heating system is operating. Moisture content of concrete slabs, building air temperature and relative humidity must be within limits recommended by tile manufacturer
- B. Lay out tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter
  1. Lay tiles square with room axis in pattern indicated, unless otherwise shown

- C. Match tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles
- D. Scribe, cut, and fit tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, edgings, door frames, thresholds, and nosing
- E. Extend tiles into toe spaces, door reveals, closets, and similar openings
- F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates. Use chalk or other nonpermanent, nonstaining marking device
- G. Install tiles on covers for telephone and electrical ducts and similar items in finished floor areas. Maintain overall continuity of color and pattern with pieces of tile installed on covers. Tightly adhere tile edges to substrates that abut covers and to cover perimeters
- H. Adhere tiles to flooring substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections

### 3.04 RESILIENT WALL BASE INSTALLATION

- A. Apply wall base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required
- B. Install wall base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned
- C. Tightly adhere wall base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates
- D. Do not stretch wall base during installation
- E. On masonry surfaces or other similar irregular substrates, fill voids along top edge of wall base with manufacturer's recommended adhesive filler material
- F. Job-Formed Corners:
  - 1. Outside Corners: Use straight pieces of maximum lengths possible. Form without producing discoloration (whitening) at bends. Shave back of base

at points where bends occur and remove strips perpendicular to length of base that are only deep enough to produce a snug fit without removing more than half the wall base thickness

2. Inside Corners: Use straight pieces of maximum lengths possible. Form by cutting an inverted Vshaped notch in toe of wall base at the point where corner is formed. Shave back of base where necessary to produce a snug fit to substrate

### 3.05 RESILIENT ACCESSORY INSTALLATION

- A. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of floor coverings that would otherwise be exposed

### 3.06 CLEANING AND PROTECTION

- A. Perform the following operations immediately after completing resilient product installation:
  1. Remove adhesive and other blemishes from exposed surfaces
  2. Sweep and vacuum surfaces thoroughly
  3. Damp-mop surfaces to remove marks and soil
    - a. Do not wash surfaces until after time period recommended by manufacturer
- B. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period. Use protection methods recommended in writing by manufacturer
  1. Apply protective floor polish to horizontal surfaces that are free from soil, visible adhesive, and surface blemishes if recommended in writing by manufacturer
    - a. Use commercially available product acceptable to manufacturer
    - b. Coordinate selection of floor polish with Owner' s maintenance service
  2. Cover products installed on horizontal surfaces with undyed, untreated building paper until Substantial Completion

3. Do not move heavy and sharp objects directly over surfaces. Place hardboard or plywood panels over flooring and under objects while they are being moved. Slide or roll objects over panels without moving panels
- C. Finishing: after completion of the project and just prior to the final inspection of the work, thoroughly clean tile floors and accessories
- D. Apply wax and buff, with the type of wax, number of coats and buffing procedures in compliance with the tile manufacturer's instructions
1. Cleaners and polishers
    - a. Floor cleaner: cleaner shall be a commercial floor cleaner equal to Armstrong C-410, Flintkote floor cleaner, Hillyard's super shine-all, or as approved
    - b. Floor polish: shall be a commercial floor finish equal to Armstrong C415, Flintkote floor finish, Hillyard's poly-kote, or approved

END OF SECTION 09660

SECTION 08500  
EXTERIOR PAINTING/STAINING

PART1–GENERAL

1.01 GENERAL REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 DESCRIPTION OF WORK

- A. The extent of painting work is shown on the drawings and schedules, and as herein specified.
- B. The work includes the painting and finishing of all exterior exposed items and surfaces throughout the project, as indicated or specified herein
  - 1. Provide labor, materials and equipment necessary to complete the work of this Section, and without limiting the generality thereof includes:
    - a. Examine the Specifications and Drawings of all trades and thoroughly be familiar with all provisions regarding painted work included therein
    - b. All priming and preparatory work of surfaces required to be painted, not otherwise primed or prepared under the work of other Sections
- C. The term “paint” as used herein means all coating systems materials, which includes primers, emulsions, enamels, stain, sealers and fillers, and other applied materials whether, used as prime, intermediate or finish coats.
  - 1. All colors to be selected by the owner.

1.03 RELATED WORK IN OTHER SECTIONS

- A. Painting not included



1. The following categories of work are not included as part of the field applied finish work, or are included in other sections of these specifications
  - a. Section 01500 – Temporary Facilities: Construction Facilities and Temporary Controls
    - 1) Staging over eight feet in height
    - 2) Protection of personal belongings
    - 3) The moving of equipment
    - 4) The protection of all surfaces not scheduled for painting
  - b. Installation of new metal doors and frames. Section 06200 – Exterior Finish Carpentry
  - c. Shop Priming
    - 1) Unless otherwise specified, shop priming of new ferrous metal items is included under the various sections for structural steel, miscellaneous metal items, hollow metal work, and similar items. Also for such fabricated components as shop-fabricated or factory-built mechanical and electrical equipment or accessories
  - d. Pre – Finished Items
    - 1) Unless otherwise indicated, do not include painting when factory-finishing or installer-finishing is specified for such new items as acoustic materials, and finished mechanical and electrical equipment including light fixtures and distribution cabinets, aluminum windows, aluminum storefronts and entrances.
  - e. Concealed Surfaces
    - 1) Unless otherwise indicated, painting is not required on foundation walls, walls or ceiling surfaces in concealed areas and generally inaccessible areas, as applicable to this project
      - a) Piping, equipment and other such items shall not be painted if concealed in suspended ceiling etc.
  - f. Finished Metal Surfaces
    - 1) Metal surface of anodized aluminum, stainless steel, chromium plate, and similar finished materials will not

require finish painting, including windows, storefronts and entrances

g. Operating Parts and Labels

- 1) Moving parts of operating units, mechanical and electrical parts, such as valve and damper operators, linkages, sinkages, sensing devices, motor and fan shafts will not require finish painting unless otherwise indicated
- 2) Do not paint over any core required labels, such as Underwriters Laboratories and Factory Mutual, or any equipment identification performance rating, name or nomenclatures plates.

1.04 SUBMITTALS

A. General: Refer to Section 01300 – Submittals for submittal provisions and procedures

B. Manufacturer's Data: Submit

1. Complete materials list of all items proposed to be furnished and installed under this section
2. Manufactures' specifications and other data required to demonstrate compliance with the specified requirements.
3. For information only, submit two copies of manufacture's specifications, including paint analysis and application instructions for each material. Indicate by transmittal that a copy of each manufacturer's instructions has been distributed to the applicator

C. Samples for Verification: for each type of stain system and each color and gloss of topcoat indicated

1. Submit Samples on rigid backing, 8 inches (200 mm ) square
2. Step coats on Sample to show each coat required for system
3. Label each coat of each sample
4. Label each Sample for location and application area

D. Product List:

1. Cross-reference to **paint or stain** system and locations of application areas. Use same designations indicated on Drawings and in schedules
2. Printout of current “MPI Approved Product List” for each product category specified in Part 2, with the proposed product highlighted
3. Indicate compliance with Ozone Transport Commission (OTC) VOC regulations

E. Extra Material

1. Furnish extra materials described below that are from same production run (batch mix) as materials applied and are packaged for storage and identification with labels describing contents
  - a. Quality: furnish an additional 5 percent, but not less than 1 gal. (3.8 L) of each material color applied

F. Submit specifications and complete range of paint manufacturer’s color chip for approval. Nonconformance to specifications and a limited range of color samples shall be considered sufficient reason for rejection of paint manufacturer. Architect shall select colors from any of the specified manufacturer’s color chips including accent colors. Paint manufacturer shall match colors selected exactly with Architects approved color chips. Architect shall determine if match is acceptable. If match is unacceptable, the Painter shall use paint of manufacturer from whose color chip was selected. After approval of paint chips, the Painter shall apply test samples on all surface type to be painted at the job site as listed in Part 2. Sample areas shall match paint chips exactly. If match is unacceptable, paint shall not be used. Repeat this procedure until paint color on all surfaces is acceptable to the Architect

G. Detailed Painting Schedule: submit a “Detailed Painting Schedule” for review by the Architect. Prepare this schedule on the basis of the surfaces, types of paint materials, number of coats required, and list of the brand names of the product of the manufactures proposed for each use. In addition, provide a space for each coat of paint in each room or spaces specified to be painted. This Detailed Painting Schedule will also serve as a record of progress and kept up to date by the Architect, or his duly authorized representative, prior to the application of each succeeding coat; otherwise no credit for such coat will be given and the Painter shall, at no expense to the Owner, recoat the surface area in question

1.05 QUALITY ASSURANCE

A. MPI Standards

1. Products: Complying with MPI standards indicated and listed in "MPI Approved Products List."
2. Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and stain systems indicated.

B. Paint Coordination

1. Provide finish coats that are compatible with the prime paints used. Review other sections of these specifications in which prime paints are to be provided to ensure compatibility of the total coatings systems for the various substrates. Notify the architect in writing of any anticipated problems using the coating system as specified with substrates primed by others

C. Mockups: Apply benchmark samples of each **paint or stain** system indicated and each color and finish selected to verify preliminary selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Architect will select one surface to represent surfaces and conditions for application of each stain system specified in Part 3
  - a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft. (9 sq. m)
  - b. Other Items: Architect will designate items or areas required
2. Final approval of color selections will be based on benchmark samples
  - a. If preliminary color selections are not approved, apply additional benchmark samples of additional colors selected by Architect at no added cost to Owner

D. Provide at least one person who shall be present at all times during execution of the work of this Section, who shall be thoroughly familiar with the specified requirements and the material and methods needed for their execution, and who shall direct all work performed under this Section

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Delivery paint materials to the job site in original containers and packages, bearing the manufacturer's labels, indicating name, type and brand. Unless otherwise directed by the Architect, deliver paints ready-mixed. Order in advance

in large enough quantities and in ample time to facilitate the work. Deliver the materials showing the following information:

1. Name or title of the material
  2. Contents by volume for major constituents
  3. Thinning instructions
  4. Application instructions
- B. Storage of Materials: provide proper storage to prevent damage to, and deterioration of, paint materials. Keep storage space neat, clean and accessible at all times. Protect floors from paint spillage
- C. Store materials not in use in tightly coverage containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C)
1. Maintain containers in clean condition, free of foreign materials and residue
  2. Place paint or solvent soaked rags, waste, or other materials which might constitute a fire hazard in metal containers and remove from premises at the close of each day's work. Take every precaution to avoid damage by fire
- D. Protection: use all means necessary to protect the materials of this Section before, during, and after installation. Protect the work of all other trades against damage, marking or injury by suitable covering during the progress of the painting and finishing work. Repair any damage
- E. The Contractor will provide suitable spaces for use as Mixing Rooms for the storage of materials under this Section. These rooms will have proper ventilation as directed by the Architect and shall be locked at completion of each day's work. Duplicate keys will be furnished to the Painter
- F. The Painter shall not use any Plumbing fixture or pipe for the disposal of waste materials. He shall carry all required water the mixing rooms and legally dump all waste materials in containers outside the building. Remove oily rags and other combustible materials from the site daily
- G. Take necessary precautions to keep fire hazard to a minimum. Provide each storage area with a CO2 or Dry Chemical Type Fire Extinguisher of adequate capacity

- H. Furnish and lay drop cloths in all areas where painting is being done to protect tenant's personal property, floors and all other surfaces from damage during the work
- I. Maintain wrappings or other factory applied protection furnished with finish hardware or other items provided by other trades and installed in areas where painting is required, and if displaced or removed, replace for the duration of painting work
- J. The Painter will be held strictly responsible for any and all damages resulting from his failure to observe these provisions
- K. Replacements: in the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect at no additional cost to the Owner.

#### 1.07 PROJECT CONDITIONS

- A. Apply water-base paints only when the temperature of surfaces to be painted and the surrounding air temperatures are between 45 degrees F. and 95 degrees F., unless otherwise permitted by the paint manufacturer's printed instructions
- B. Apply solvent-thinned paints only when the temperature of surfaces to be painted and the surrounding air temperatures are between 45 degrees F. and 95 degrees F., unless otherwise permitted by the paint manufacturer's printed instructions
- C. Do not apply paint in snow, rain, fog, or mist; or when the relative humidity exceeds 85%; or to damp or wet surfaces; unless otherwise permitted by the paint manufacturer's printed instructions
- D. Painting may be continued during inclement weather only if the areas and surfaces to be painted are enclosed and heated within the temperature limits specified by the paint manufacturer during application and drying periods
- E. Do not paint when air is dust-laden

#### 1.08 EXTRA STOCK

- A. Amount: upon completion of the work of this Section, deliver to the Owner an extra stock from the same production run (batch mix) as material applied, equaling 5% of each color, type, and gloss of paint used on the Work

- B. Packaging: tightly seal each container and clearly label with contents and location used, package ready for storage

## PART2-PRODUCTS

### 2.01 MANUFACTURERS

- A. Design: is based on use of paint products manufactured by Sherwin-Williams Paint Company and the materials of that manufacture is named in the Painting Schedule. Equal products of the listed manufacturers approved in advance by the Architect, may be substituted in accordance with the provisions of Section 01300. Where a question of quality occurs, the Contractor shall submit an affidavit from the material manufacturer stating the quality range of the product to be used, as compared to other top quality products made by the manufacturer. Architect shall have choice of selecting flat, satin, semi-gloss, or gloss finish
  - 1. Available Manufacturers: subject to compliance with requirements, manufacture offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Benjamin Moore & Co. – Basis of Design
    - b. Olympic
    - c. Sherwin-Williams
- B. Before purchasing materials for the work, the Painter shall submit to the Architect a list of the products he proposes to use, and the list shall be satisfactory to the Architect and approved by him before commitment for materials is made
- C. No claim by the Painter concerning the unsuitability of any material specified, nor his ability to produce first class work with same, will be entertained after Contract is signed

### 2.02 GENERAL

- A. Provide only absolutely pure linseed oil, turpentine, shellac, and other like materials that are of the highest quality, with indentifying labels intact and seals unbroken. Use no thinners other than those specified by the manufacturer
- B. Provide paints of durable and washable quality. Use paint materials which will withstand normal washing as required to remove pencil marks, ink, ordinary soil, etc. without showing discoloration, loss of gloss, staining, or other damage
- C. Material Compatibility:

1. Provide materials for use within each stain system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a stain system, provide products recommended in writing by manufacturers of topcoat for use in stain system and on substrate indicated.

D. Colors: As selected by Architect from manufacturer's full range.

## 2.03 METAL PRIMERS

### A. General

1. For metal surfaces, not otherwise specified for shop prime painting and for touch-up painting of shop prime coats, provide one of the following metal primers as appropriate for the surface condition and finish coats of the metal
  - a. Field touch-up painting shall be in accordance with SSPC-PA 1-6 4 and shall be of the same kinds and number of coats as applied in the shop

### B. Ferrous Metal Primer

1. Exterior rust inhibitive surfaces to receive:
  - a. Larcoloid zinc chromate primer (Alkyd metal primer)

### C. Ferrous Metal Primers

1. Interior metal surfaces to receive:
  - a. Larcoloid zinc chromate primer (Alkyd metal primer)

### D. Galvanized Metal

1. Acrylic Latex Eggshell Enamel

## 2.04 APPLICATION EQUIPMENT



- A. General: for application of the approved paint, use only such equipment as is recommended for application of the particular paint by the manufacturer of the particular paint, and as approved by the Architect
- B. Compatibility: prior to actual use of application equipment, use all means necessary to verify that the proposed equipment is actually compatible with the material to be applied and that the integrity of the finish will not be jeopardized by use of the proposed application equipment
- C. Other materials: all other materials not specifically described but required for a complete and proper installation of the work of this Section, shall be new, first-quality of their respective kinds, and as selected by the Contractor subject to the approval of the Architect

### PART3-EXECUTION

#### 3.01 EXAMINATION

- A. Acceptance of the surfaces
  - 1. Inspect all surfaces and assure that they are in proper condition to receive work to be performed under this Section. Any questions as to the proper performance of the various paint systems specified herein shall be brought to the Architect's attention no later than 15 calendar days prior to the date of commencing work, otherwise, the Painting Subcontractor shall assume the responsibility for providing the desired results
  - 2. The commencement of work in any space by the Painting Subcontractor will be construed as acceptance of the surfaces as being satisfactory, any defects to his work resulting from such accepted surfaces shall be corrected by him at his own expense
  - 3. If the existing surfaces cannot be put in proper condition to receive paint by customary cleaning methods, or sanding, furnish and install necessary bonding agents, and/or other preparation required to ensure proper application and performance of the painting and finishing materials, and include the cost for same in the work of this Section
  - 4. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work
  - 5. Maximum Moisture Content of Substrates: when measured with an electronic moisture meter as follows:

- a) Gypsum Board: 12 percent maximum
  - b) Wood: 12 percent maximum
6. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

### 3.02 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and stain systems indicated
- B. Remove all hardware, hardware accessories, machined surfaces, plates, lighting fixtures, and similar items in place and not to be finish painted, or provide surface-applied protection prior to surface preparation and painting operations. Remove, if necessary, for the complete painting of the items and adjacent surfaces. Following completion of painting of each space of area, reinstall the removed items by workmen skilled in the trades involved. If removal is impractical or impossible because of size or weight of the item, provide surface-applied protection before surface preparation and staining
  - 1. After completing staining operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
  - 2. Do not **paint or stain** over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
- C. Clean substrates of substances that could impair bond of stains, including dirt, oil, grease, and incompatible stains and encapsulants. Clean surface treatments. Remove oil and grease with clean cloths and cleaning solvents proper to mechanical cleaning. Program the cleaning and painting so that dust and other contaminants from the cleaning process will not fall in wet, newly painted surfaces
- D. Before applying succeeding coats, primers and undercoats shall be completely integral and shall perform the function for which they are specified. Properly prepare and touch up all scratches, abrasions or other disfigurements and remove any foreign matter before proceeding with the following coat. All spot-priming or spot-coating shall be feathered-edged into adjacent coatings to produce a smooth and level surface
- E. **Gypsum Drywall**

1. Repair all surface defects in gypsum drywall with drywall joint finishing compound or spackling compound, filled out flush and sanded smooth. Clean all surfaces and taped joints of dust, dirt and other contaminants and be sure they are thoroughly dry before applying paint

F. Ferrous Metals

1. Clean and prime bare ferrous metal surfaces, which have not been shop primed, before the surface is damaged by weather or other exposure. After erection is complete touch-up heads of bolts, welded surfaces which are unpainted, and surfaces or areas where the primer has been abraded or otherwise damaged
2. Prior to application any field coats on shop primed ferrous metal surfaces, remove oil, grease, welding flux residues and other contaminants harmful to painting in accordance with the applicable requirements of SSPC-SP 1-63 "Solvent Cleaning." After solvent cleaning, prepare any bare metal surfaces by removing all stratified rust (rust scale), all loose mill scale, all loose or non ad-inherent rust and detrimental welding deposits by methods specified in SSPC-SP 3-63 "Power Tool Cleaning." Prepare any corroded or abraded surfaces of shop-coated metal by sanding to bare metal
3. Completely clean and prepare existing ferrous metal surfaces in accordance with the requirements of SSPC-SP- 1-63 "Solvent Cleaning" followed by preparation of the entire surface by methods complying with SSPC-SP 3-63 "Power Tool Cleaning"

G. Galvanized Metals

1. Clean unpainted galvanized metal surfaces of all oil, grease, and other contaminants in accordance with the applicable requirements of SSPC-SP 1-63 "Solvent Cleaning" and pre-treat in accordance with SSPC-PT 2-64 "Cold Phosphate Treatment," prime as scheduled
2. Prior to application of subsequent coats thoroughly clean all surfaces to ensure the removal of any grease, soil, dust or foreign matter. Take particular care to prevent the contamination of cleaned surfaces with salt, acids, alkali or other corrosive chemicals before prime coating and between subsequent coats of paint

- H. Previously Finished Metal Surfaces: Remove grease, oil, dust and stains and sand smooth areas that have been damaged by scratches and touch up bare metal prior to applying finish coat

### 3.03 MATERIALS PREPARATION

#### A. General

1. Mix and prepare painting materials in strict accordance with the manufacturer's directions. No material shall be changed or thinned in any way except as indicated on the manufacturer's label
2. Store materials not in actual use in tightly covered containers. Maintain containers used in storage, mixing, and application of paint in a clean condition, free of foreign materials and residue
3. Stir all materials before application to produce a mixture of uniform density, and as required during the application of the materials. Do not stir any film which may form on the surface into the material. Remove the film and, if necessary, strain the material before using
4. Tint prime and undercoats approximately to the shade of the final coat but with sufficient variation to distinguish them from the preceding coat

### 3.04 APPLICATION

A. Mix materials thoroughly; stain if necessary before using. Do not adulterate ready-mixed materials except in accordance with manufacturer's printed instructions. If no printed instructions appear on the container, obtain this information in writing from the manufacturer

1. Apply paint with brush, roller, spray, or other acceptable practice in accordance with the manufacturer's directions
  - a. Sprayed paint shall be uniformly applied with suitable equipment
2. **Paint or stain** surfaces behind movable items same as similar exposed surfaces. Before final installation paint surfaces behind permanently fixed items with prime coat only, with special attention to insure that all surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a film thickness equivalent to that of flat surfaces
  - a. "Exposed surfaces" is defined as those areas visible when permanent or built-in fixtures, grilles, etc., are in place in areas scheduled to be painted
3. Paint the back sides of access panels, removable or hinged covers to match the exposed surfaces

4. Finish exterior doors on tops, bottoms, and side edges the same as the exterior faces, unless otherwise indicated
- B. All work shall be performed by skilled mechanics under adequate supervision and in accordance with manufacturer's recommendations and/or as directed by the Architect. Mil thickness of each coat of paint to be not less than the manufacturer's recommendation for the particular type of paint used. Apply **paint or stain** with a brush or other acceptable application, and then wipe off at the proper time to produce the desired effect
- C. All spaces shall be protected before painting is started
- D. All materials shall be applied under the same level of illumination as will be provided for the completed building space, evenly spread, and smoothly flowed on without sags, runs or holidays
- E. Finishing materials shall be free from skins, lumps, and any foreign matter when used and shall be kept well stirred while being applied
- F. Evenly brush or rollout each coat and allow to dry 24 hours before any subsequent coat is applied, unless otherwise recommended by the manufacturer and approved by the Architect
- G. Each coat shall be a different tint from that of the preceding coat. Finish coats shall be the exact shades and textures as selected by the Architect. The finished work shall be free from runs, sags, defective brushing and clogging lines or angles
- H. Apply stains to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks
- I. Prime Coats
  1. Recoat primed and sealed walls and ceilings where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no burn-through or other defects due to insufficient sealing
- J. Pigments (Opaque) Finishes
  1. Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance, and coverage
- K. Transparent (Clear) Finishes

1. On exposed portions, produce a smooth surface film continuity of even luster. Provide a finish free of laps, cloudiness, color irregularity, runs, brush marks, or other surface imperfections

L. Brush Application

1. Brush-out and work all brush coats onto the surfaces in an even film. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable
2. Brush apply all primer or first coats, unless otherwise permitted to use mechanical applicators by the manufacturer
3. Do not apply additional coats until the complete coat has been inspected and approved. Only the inspected and approved coats of paint will be considered in determining the number of coats applied
4. Allow sufficient drying time between coats. Modify the period as recommended by the material manufacturer to suit adverse weather conditions
5. Oil-based and oleo-resinous solvent-type paints shall be considered dry for recoating when the paint feels firm, does not deform or feel sticky under moderate pressure of the thumb, and the application of another coat of paint does not cause lifting or loss of adhesion of the undercoat

M. Spray application

1. Confine spray application to metal framework and similar surfaces where hand brush work would be inferior
2. Whenever spray application is used, apply each coat to provide the equivalent hiding or brush-applied coats. Do not double back with spray equipment for the purpose of building up film thickness of two coats in one pass

N. Completed Work

1. Match approved samples for color, texture and coverage. Remove, refinish, or repaint work not in compliance with specified requirements as directed by the Architect

3.05 PROTECTION

- A. Protect work of other trades, whether to be painted or not, against damage by the painting and finishing work. Leave all such work undamaged. Correct any damages by cleaning, repairing or replacing and repainting, as acceptable to the Architect
- B. Provide “Wet Paint” signs as required to protect newly painted finishes. Remove temporary protective wrappings provided by other for protection of their work after completion of painting operations

### 3.06 FIELD QUALITY CONTROL

- A. Testing of Stain Materials: Owner reserves the right to invoke the following procedure at any time and as often as Owner deems necessary during the period when painting or stains are being applied:
  - 1. Owner will engage the services of a qualified testing agency to sample paint or stain materials being used. Samples of material delivered to Project site will be taken, identified, sealed, and certified in presence of Contractor
  - 2. Testing agency will perform tests for compliance of stain materials with product requirements
  - 3. Owner may direct Contractor to stop applying stains if test results show materials being used do not comply with product requirements. Contractor shall remove non-complying paint or stain materials for Project site, pay for testing, and repaint or paint or restrain surfaces with rejected materials. Contractor will be required to remove rejected materials from previously painted or stained surfaces if, on repainting or restraining with complying materials, the two stains are incompatible

### 3.07 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site
- B. Upon completion of painting work, clean window glass and other paint-spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces
- C. Protect work of other trades against damage from stain application. Correct damage to work or other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition

- D. At completion of construction activities of other trades, touch up and restore damaged or defaces stained surfaces

### 3.08 PROTECTION

- A. Boral Trim:
  - 1. 2 Coats: Exterior oil based solid paint and primer
- B. Siding:
  - 1. Shingles: 2 coats semi-transparent stain
  - 2. Clapboard and shiplap: 2 coats semi-solid stain
- C. Exterior drywall
  - 1. Primer, 2 coats finish, oil based

### 3.09 PAINTING SCHEDULE

- A. General: painting required under this Section is called for on the drawings. Paint types are defined below
- B. Exterior metal, ferrous:
  - 1. Prime coat: Chrome oxide primer #15
  - 2. Second coat: sash and trim primer #248
  - 3. Third coat: stuc-o-life #1300
- C. Exterior metal, galvanized
  - 1. Pretreatment: vinyl wash primer #7113
  - 2. First coat: zinc dust primer #25
  - 3. Second coat: sash and trim primer #248
  - 4. Third coat: stuc-o-life #1300



D. Interior flat wall paint (“FWP”)

1. On concrete, use:
  - a. First coat: pigmented PVA sealer #890
  - b. Second coat: sinwall vinyl later #1700
  - c. Third coat: sinwall vinyl later #1700
2. On gypsum drywall, use:
  - a. First coat: pigmented PVA sealer #890
  - b. Second coat: sinwall vinyl later #1700
  - c. Third coat: sinwall vinyl later #1700

E. Interior semi-gloss enamel (“SG”)

1. On concrete, use:
  - a. First coat: pigmented PVA sealer #890
  - b. Second coat: sinco prime undercoat #975
  - c. Third coat: sinco satin enamel #1800
2. On gypsum drywall, use:
  - a. First coat: pigmented PVA sealer #1770
  - b. Second coat: sinco prime undercoat #975
  - c. Third coat: sinco satin enamel #1800
3. On ferrous metal, use:
  - a. First coat: chrome oxide primer #15
  - b. Second coat: sinco prime undercoat #975
  - c. Third coat: sinco satin enamel #1800

END OF SECTION 09900

SECTION 11450-RESIDENTIAL APPLIANCES

PART 1-GENERAL

1.01 GENERAL REQUIREMENTS

- A. Include GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS, and all applicable Division 1 Specification Sections as part of this Section.
- B. Examine all other Sections of the Specifications for requirements that affect work of this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with trades affecting, or affected by, work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 SUMMARY

- A. This Section includes the following:
  - 1. Refrigerators – GE Appliances or equal
  - 2. Range – GE Appliances or equal
  - 3. Dishwasher – GE Appliances or equal
  - 4. Microwave – GE Appliance or equal
  - 5. Dryer- GE or equal
  - 6. Washer – GE or equal
  - 7. Garbage Disposal – Insinkerator or equal

1.03 SUBMITTALS

- A. Product Data: For each appliance indicated, provide complete operating and maintenance instructions.
- B. Schedule: Submit schedule of appliances, in tabular form, showing size, manufacturer, model number, and features.

1.04 QUALITY ASSURANCE

- A. Product Options: For substitutions, refer to Division 1 Section "Substitutions."

- B. Electrical Appliances: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.
- C. Energy Ratings: Provide residential appliances that carry labels indicating energy cost analysis and efficiency information as required by the Federal Trade Commission.
  - 1. All appliances shall be endorsed by the “Energy Star” program.
- D. UL and NEMA Compliance: Provide electrical components required as part of residential appliances that are listed and labeled by UL and comply with applicable NEMA Standards.

1.05 DELIVERY

- A. Deliver appliances only after utility rough-in is complete and construction in the spaces to receive appliances is substantially complete and ready for installation.
- B. Deliver appliances to the Project site in the manufacturer's undamaged protective packaging.

1.06 WARRANTIES

- A. General Warranty: Special warranties specified in this Article shall not deprive Owner if 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 Warranties: Written warranties, executed by manufacturer of each appliance specified agreeing to repair or replace residential appliances or components that fail in materials or workmanship within specified warranty period.
  - 1. Refrigerator/Freezer: Five-year limited warranty on the sealed refrigeration system.

PART2-PRODUCTS

2.01 PRODUCTSANDMANUFACTURERS

- A. Products: Subject to compliance with requirements, provide one of the appliances indicated in the Residential Appliance Schedule at the end of Part 3.

2.02 RESIDENTIAL APPLIANCES

- A. As specified in the residential appliances Schedule at the end of this specification section.

2.03 FINISHES

- A. Porcelain-Enamel Finish: Provide manufacturer's standard factory-applied porcelain-enamel finish over cleaned and pretreated steel sheet. If no color is indicated, provide white.
  - 1. Color and Gloss: As selected by Architect from manufacturer's full range.

PART3-EXECUTION

3.01 EXAMINATION

- A. Examine roughing-in for plumbing, mechanical, and electrical services, with Installer present, to verify actual locations of services before residential appliance installation.
  - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. General: Comply with manufacturer's written instructions.
- B. Freestanding Equipment: Place units in final locations after finishes have been completed in each area. Verify that clearances are adequate to properly operate equipment.

3.03 ADJUSTING AND CLEANING

- A. Test each item of residential appliances to verify proper operation. Make necessary adjustments.
- B. Verify that accessories required have been furnished and installed.
- C. Remove packing material from residential appliances and leave units in clean condition, ready for operation.

3.04 RESIDENTIAL APPLIANCE SCHEDULE

HANDICAPPED UNITS ONLY (Basis of Design Models)

- A. Refrigerators: GE Model GPS12FGH, (NOTE: 44" MAX TO FREEZER FLOOR)
- B. Electric Cooktop: GE Model: JP328WKWW
- C. Range Hood: Broan Nutone: Model QDE30 WW with ADA mounted controls, Energy Star Compliant. TYPICAL UNITS (Basis of

Design Models)

- D. All appliances provided by Dwyer Kitchenette Manufacturer.

END OF SECTION 11450

SECTION 12370 – CASEWORK

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Refer to “Division 06067 Plastic and Metal Surfacing Materials” for solid surface countertops, solid surface sills, solid surface backsplashes, solid surface shower surrounds and stainless steel backsplashes at ranges.
- C. Refer to “Division 113111 Residential Appliances” for built-in appliances.
- D. Refer to “Division 224100 Residential Plumbing Fixtures”
- E. Refer to “Division 224116 Residential Lavatories and Sinks”.

1.02 SUMMARY

- A. This section includes the following:
  - 1. Kitchen Area Cabinet and Pantry Cabinet
  - 2. Kitchenette Cabinets, Hardware, and Accessories.
  - 3. Solid Surface Counter Tops
  - 4. Solid Surface Kitchen Counter & Backsplash

1.03 DEFINITIONS

- A. Exposed Surfaces: Surfaces visible when drawers and doors are closed, including visible surfaces in open cabinets or behind glass doors.
- B. Semi-Exposed Surfaces: Surfaces behind opaque doors or drawer fronts, including interior faces of doors and interiors and sides of drawers. Bottoms of wall cabinets are defined as 'semiexposed'.
- C. Concealed Surfaces: Surfaces not usually visible after installation, including sleepers, web frames, dust panels, bottoms of drawers, and ends of cabinets installed directly against and completely concealed by walls or other cabinets. Tops of wall cabinets and utility cabinets are defined as "concealed."

- D. RevealOverlay: Door and drawer faces partially cover cabinet frame.
- E. FlushOverlay: Door and drawer faces cover cabinet frame with space between faces sufficient for operating clearance.
- F. Flush: Door and drawer faces flush with cabinet face.

#### 1.04 SUBMITTALS

- A. General: Submit the following according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product data for each casework type specified.
- C. Product data for each hardware type specified.
- D. Shop drawings for casework showing location and size, accessories, profiles, materials, finishes, and filler panels. Include fully dimensioned plans, elevations, and anchorage details to countertop and walls.
- E. Shop drawings for typical countertops showing sizes, shapes, edge and backsplash profiles, cutouts for plumbing fixtures, and methods of joining. For HC accessible kitchens, shop drawings shall show and retractable cutting boards and cutouts for low-mount range hood controls.
- F. Samples for verification purposes in full-size units of each type of material indicated; in sets for each color, texture, and pattern specified, showing the full range of variations expected in these characteristics.
  - 1. 12-inch-square samples of wood with a transparent finish for each species.
  - 2. 12-inch-square samples of veneered plywood with a transparent finish.
  - 3. 12-inch-square samples of each solid surface material specified for countertops.
  - 4. One unit of each type of hardware.
  - 5. Countertop section showing all contours.
- G. Product certificates signed by the manufacturer certifying that materials furnished comply with specified requirements.
- H. Maintenance data for kitchen casework to include in the "Operating and Maintenance Manual" specified in Division 1.

1.05 QUALITY ASSURANCE

- A. Cabinetry: Comply with ANSI/KCMA A161.1.
1. KCMA Certification: Provide kitchen cabinetry and bathroom vanities with Kitchen Cabinet Manufacturers Association (KCMA) "Certified Cabinet" seal affixed in a semiexposed location of each unit, showing compliance with above standard.
  2. Provide urea formaldehyde free materials.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver cabinetry as factory-assembled units, packaged individually.

1.07 PROJECT CONDITIONS

- A. Environmental Conditions: Comply with cabinetry manufacturers' written requirements for temperature and humidity conditions during storage and installation. Do not install cabinetry or casework until these conditions have been attained and stabilized.
- B. Field Measurements: Verify cabinetry and casework dimensions by field measurements. Verify kitchen cabinetry and casework can be installed in compliance with the original design and referenced standards.
- C. Field Measurements: Verify countertop size and shape prior to fabrication by field measurements taken after base units are installed.

PART 2-PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
1. Kitchen Cabinetry:
    - a. Merillat Millwork
    - b. Or Equal
  3. Countertops, Backsplashes, and End-splashes:
    - a. Wilsonart solid surface
    - b. Or Equal



3. PlasticLaminateCountertops:
  - a. Formica Corp.
  - b. Or Equal

2.02 CABINET,COUNTERTOPANDBUILT-INCASEWORKMATERIALS

A. Sizes, dimensions, and thicknesses given are minimum dimensions.

B. GeneralCabinetMaterialStandards:

1. Hardwood Lumber: Kiln dried to 7 percent moisture content.
2. Softwood Lumber: Kiln dried to 10 percent moisture content.
3. Hardwood Plywood: HPVA HP-1. (contains no urea formaldehyde resins)
4. Medium-Density Fiberboard: ANSI A208.2, Grade MD[, made with binder containing no urea formaldehyde].
5. Hardboard: AHA A135.4, Class 1 Tempered.

C. ExposedCabinetMaterials:

1. Exposed Wood Species: Manufacturer's standard domestic hardwood species.
  - a. Select materials for compatible color and grain. Do not use two adjacent exposed surfaces that are noticeably dissimilar in color, grain, figure, or natural character markings.
  - b. Staining and Finish: As selected by Architect from manufacturer's full range.
6. Solid Wood: Clear hardwood lumber of species indicated, free of defects.
7. Plywood: Hardwood plywood with face veneer of species indicated, with Grade A faces and Grade C backs of same species as faces.

D. SemiexposedCabinetMaterials: Unless otherwise indicated, provide the following:

8. Solid Wood: Sound hardwood lumber, selected to eliminate appearance defects. Same species as exposed surfaces.
9. Plywood: Hardwood plywood with GradeC faces and not less than Grade3 backs of same species as faces. Face veneers of same species as exposed surfaces.

E. PlasticLaminateCountertops: High-pressure decorative laminate complying with NEMA LD 3, Grade VGS. (Laminating adhesives used to fabricate on-site and shop-

applied composite wood and agrifiber assemblies shall contain no added urea formaldehyde resins.)

## 2.03 CABINETSTYLES

### A. Kitchen:

1. SolidWoodDrawerandDoorFront: Plastic white, thermofoil
2. FaceStyle: Standard Shaker Style doors models (or equal)
3. Finish: To be selected by Architect from manufacturer's options.

### B.

## 2.04 CABINETFABRICATION

### A. LaminatedMelamineCabinetBoxes: Shall be the following a.

Shall be frameless construction.

- b. Cabinet top, bottom, end panels and shelves shall be constructed of 3/4" [19 mm] thick particle board, 45 pound density, covered in melamine on both sides and exposed edges.
- c. Cabinet backs shall be 1/4" [6 mm] white Masonite covered in melamine on interior surface.
- d. Cabinet components are glued and doweled under pressure for strength and squareness.
- e. Toe boards shall be particleboard with vinyl laminate surface.
- f. Drawer boxes shall be constructed of 1/2" [13 mm] wood. Drawer bottom will be 1/4" [6 mm] plywood.
- g. Hinges shall be fully concealed, six-way adjustable and open 110°.
- h. Cabinets shall conform to ANSI/KCMA A161.1-2000.
- i. Kiln dried solid wood. Mortise and tenon, glued and power nailed. Rails 3/4" x 1 3/4", styles 3/4"x1 3/4", mullion 3/4"x3 1/2"

### B. LaminatedMelamineDoors: Shall be constructed of a 3/4" [19 mm] thick 16-mil laminated medium density fiberboard (MDF). Rigid thermofoil shall be heated and applied with top pressure and bottom vacuum. Thermofoil shall be applied without seams to front and edge surface. The backing shall be white thermo-fused melamine.

- a. Shall be constructed of 3/4" [19 mm] thick particleboard, 45 pound density, with face, back and edges covered in melamine.
- b. Shall not be drilled for handle holes.
- c. Shall be supplied with 4" centered bail handles in a brushed chrome finish.
- d. Color: [Choose from manufacturer's standard colors.]
- e. Style: Shaker Style

- C. ThermofoilDoors:
- a. Shall be constructed of a 3/4" [19 mm] thick 16-mil laminated medium density fiberboard (MDF). Rigid thermofoil shall be heated and applied with top pressure and bottom vacuum. Thermofoil shall be applied without seams to front and edge surface. The backing shall be white thermo-fused melamine.
  - b. Shall conform to ANS/KCMA A161.1-2000, HUD Standards, and shall be GREENGUARD® Indoor Air Quality Certified and GREENGUARD® Indoor Air Quality Certified for Children and Schools.
  - c. Shall not be drilled for handle holes.
  - d. Handles: See Hardware Section
- D. CabinetEndPanels: End panels shall coordinate with cabinet finish and shall be hardwood plywood end panels, 3/4" thick thermofoil decorative end panels. Ends to be rabbeted to receive tops, bottoms and shelves glued and stapled into face frame.
- E. Backs: 1/4" thick exterior hardwood plywood. Securely glued and stapled to ends.
- F. BaseBottoms: 1/2" thick exterior hardwood plywood. Bottoms let into end panels and face frame. Back of floor set on supporting member, glued and fastened.
- G. CabinetTopsandBottoms: 1/2" phenolic hardwood plywood. Top/bottoms let into end panels and face frame, glued and fastened.
- G. InstallationCleats: Wall cabinets have a 3/4" x 3 1/2" solid lumber running full length of cabinet at top and bottom. Base cabinets have a 7 1/2" cleat at the top and 3 1/2" cleat at the bottom.
- H. DoorandDrawerFaces: 3/4" thick, thermofoil face and edges, coordinated with door and drawer front finish
- J. Shelving: 3/4" laminate plywood with melamine (white) face and front edge. For wall and base cabinet shelves, let into dados of end panels.
- K. Drawers: Drawer fronts are same material as doors. Sides, backs and fronts are 3/4" thick wood. Sides are mortised and tenoned into front and back. Drawer bottoms are 1/4" hardwood exterior plywood let into sides, front and back components.
- L. ToeKick: 3/4" x 4 1/2" pressure treated solid wood. Toe kick is inset 3".
- M. Hardware: Hinges: Barrel antique brass finish standard heavy duty semi-concealed 1/2" overlay, wrap around, self closing. Drawer slides are galvanized metal ball-bearing,

mounted on the side rails with metal rear mounted brackets having a minimum of 75 pound load capacity. Bumper pads are white foam.

N. CustomBedComponents:

Furniture Grade Multi-Ply Hardwood plywood with Birch face veneer of, with Grade A faces and Grade C backs of same species as faces. Finish: TBD.

2.06 CABINETHARDWARE

- A. General: Manufacturer's standard units complying with ANSI A156.9, of type, material, size, and finish as selected from manufacturer's standard choices.
- B. For cabinet door pulls and drawer pulls, provide 4" wire pulls and die-cast round knobs by Stanley or Architect- approved equal.

2.07 CABINETACCESSORIES

- A. LazySusan: At blind base cabinets, provide wire, pivoting blind corner Lazy Susan's.
  - 1. Unit shall be heavy-gauge welded steel with nylon coating
  - 2. GC to coordinate and select radius most appropriate for cabinet size according to manufacturer's recommendations.

2.08 PLASTICLAMINATEBUILT-INCASEWORK

- A. General: Comply with KCMA A161.2. Refer to drawings on A-603, A-604, A-611, and A-612 for locations and additional information.
- B. PlasticLaminate: High-pressure decorative laminate complying with NEMA LD 3.
  - 1. Grade: HGS.
  - 2. Color and Pattern: To be selected by Architect from manufacturer full range of premium colors and patterns.
- C. Configuration: Provide plastic-laminated built-ins with the following styles in the locations specified:
  - 1. Bullnose front edge.
  - 2. 4" high integral backsplash and side-splashes.

D. Plastic-LaminateSubstrate: 3/4" plywood.

1. Build up panel thickness to 1-1/2 inches at front, back and ends with additional layers of plywood mounted to top.

### PART3-EXECUTION

#### 3.01 INSTALLATION

- A. Install cabinetry, cabinet accessories, plastic laminate, and solid surfacing according to manufacturer's instructions and recommendations.
- B. Install cabinetry and fabricate casework with no variations in flushness of adjoining surfaces using concealed shims. Where cabinetry or casework abuts other finished work, scribe and cut for accurate fit. Provide filler strips, scribe strips, and moldings in finish to match casework face.
- C. Install casework without distortion so that doors and drawers fit openings properly and are aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete the installation of hardware and accessories as indicated.
- D. Install casework, cabinets and countertop level and plumb to a tolerance of 1/8 inch in 8 feet.
- E. Fasten unit of cabinet/casework to adjacent unit and into structural support members of wall construction with #10 sheet metal or wood screws with washer head or finish washer. No drywall or deck screws will be accepted.
- F. Fasten countertops by screwing through corner blocks in base units into underside of countertop. Spline and glue joints in countertops to achieve a seamless finish surface and provide concealed mechanical clamping of joint.
- G. Apply sealant at all countertop and backsplash joints.

#### 3.02 ADJUSTINGANDCLEANING

- A. Adjust hardware to center doors and drawers in openings and lubricate to provide unencumbered operation.

- B. Clean cabinets and casework on exposed and semi-exposed surfaces. Touch up factory-applied finishes to restore damaged or soiled areas.

END OF SECTION 12370