SPECIFICATIONS

PROJECT:

SHALOM HOUSE
385 Cumberland Avenue
Portland, Maine

OWNER:

SHALOM HOUSE, INC.
106 Gilman Street
Portland, Maine 04102

ARCHITECT:

SHIELDS ARCHITECTURE
216 Range Road
Cumberland, Maine 04021

Signatures:

Architect _____

Owner _____

Contractor _____

MaineHousing _____

Construction Lender _____

Construction Set
11/9/11

SECTION 00100

INDEX TO PROJECT MANUAL

Section:

Division 1- General Requirements

Division 2 – Site Work

Division 3- Concrete

Division 4 - Masonry

Division 5 – Metals

Division 6 - Wood & Plastics

Division 7 - Thermal & Moisture Protection

Division 8 - Doors & Windows

Division 9 - Finishes

Division 10 - Specialties

Division 11 – Equipment

Division 12 - Furnishings

Not Used

Division 13 – Special Construction

Division 14 – Conveying Systems

Division 15 – Mechanical

Division 16 – Electrical

END OF SECTION

SECTION 00400

SIGNATURE PAGE

Owner: _____ Date: _____

Architect: _____ Date: _____

Contractor: _____ Date: _____

Maine State Housing Authority: _____ Date: _____

Construction Lenders Representative: _____ Date: _____

END OF SECTION

SECTION 00600

Alternates

ALTERNATES

4.01 GENERAL DESCRIPTION

A. Alternate #1 is an add alternate to remove existing aluminum siding and provide and install vinyl siding – see keyed note #23 on Drawing A-4 and keyed note #24 on Drawing A-5.

Add Alternate #1 **$_____**

B. Alternate #2 is an add alternate to provide and install blown-in cellulose insulation in the existing exterior walls of the building – see keyed note #24 on Drawing A-4 and keyed note #25 on Drawing A-5.

Deduct Alternate #2 **$_____**

AIA® Document A201™ – 2007 Instructions

General Conditions of the Contract for Construction

GENERAL INFORMATION

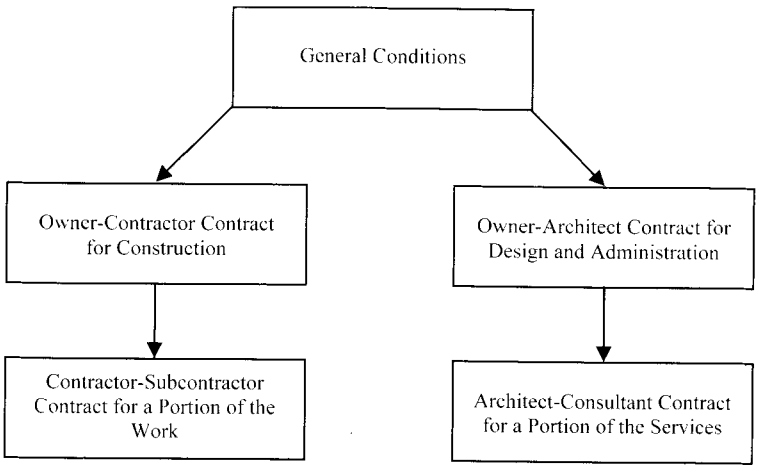
Purpose. AIA Document A201–2007, a general conditions form, is considered the keystone document of the Conventional (A201) Family of Documents because it provides the terms and conditions under which the Owner, Contractor and Architect will work together during the building construction process. When adopted into an Owner-Contractor agreement, A201–2007 provides an essential component of the construction contract. In addition, A201–2007 is incorporated by reference into the Owner-Architect and Contractor-Subcontractor agreements in the A201 Family, thus establishing a common basis for the primary and secondary relationships on the typical medium to large size, or complex (involving fast track scheduling or multiple bid packages) construction project.

For smaller or less complex construction projects, document users should consider using A107™–2007, Agreement Between Owner and Contractor for Projects of a Limited Scope. For single family residential projects, or even smaller and less complex commercial projects, users may wish to consider A105™–2007, Agreement Between Owner and Contractor for a Residential or Small Commercial Project.

Related Documents. A201–2007 is incorporated by reference into three AIA Owner-Contractor agreements, A101™–2007, A102™–2007, and A103™–2007; into A401™–2007, Agreement Between Contractor and Subcontractor; and into two AIA Owner-Architect agreements, B101™–2007 and B103™–2007. A201–2007 may be adopted by indirect reference into the Architect-Consultant agreement when the prime Agreement between the Owner and Architect adopts A201–2007 and it is in turn adopted into the Architect-Consultant agreement, AIA Document C401™–2007. Such incorporation by reference is a valid legal drafting method, and documents so incorporated are generally interpreted as part of the respective contract.

The Contract Documents, including A201–2007, record the Contract for Construction between the Owner and the Contractor. The other Contract Documents are the Owner-Contractor agreement, Supplementary Conditions, Drawings, Specifications, and Modifications. Although the AIA does not produce standard documents for Supplementary Conditions, Drawings or Specifications, a variety of model and guide documents are available, including AIA's MASTERSPEC and AIA Document A503™–2007, Guide for Supplementary Conditions.

As mentioned above and diagrammed below, A201–2007 is a vital document used to allocate the proper legal responsibilities of the parties.



On construction projects, contractual relationships are created between owners, architects, architects' consultants, contractors, subcontractors, sub-subcontractors, and others down through the multiple tiers of participants. If custom-crafted agreements were written in isolation for each of those contractual relationships, the problems of overlaps and gaps in the numerous participants' responsibilities could lead to mass confusion and chaos. To prevent and solve this problem, the construction industry commonly uses standardized general conditions, such as AIA Document A201–2007, for coordinating those many relationships on the project by its adoption into each contract.

The AIA expends significant time and resources in the development of A201 and its related agreements to provide coordinated linkages in the tiers of legal relationships. AIA documents related to A201 are crafted with common phrasing, uniform definitions and a consistent, logical allocation of responsibilities down through the tiers of relationships. Together these documents are known as the Conventional (A201) Family of Documents, and are listed below:

A101™–2007, Agreement Between Owner and Contractor (Stipulated Sum)
A102™–2007, Agreement Between Owner and Contractor (Cost Plus Fee, with GMP)
A103™–2007, Agreement Between Owner and Contractor (Cost Plus Fee, without GMP)
A401™–2007, Agreement Between Contractor and Subcontractor
A503™–2007, Guide for Supplementary Conditions
A701™–1997, Instructions to Bidders
B101™–2007, Agreement Between Owner and Architect
B103™–2007, Agreement Between Owner and Architect for a Large or Complex Project
B201™–2007, Architect's Services: Design and Construction Contract Administration
B209™–2007, Architect's Services: Construction Contract Administration
B503™–2007, Guide for Amendments to AIA Owner-Architect Agreements, and
C401™–2007, Agreement Between Architect and Consultant

The A201 Family is augmented by a number of standard contract administration documents (G-series) used generally for processing payments to the Contractor and formalizing changes in the Work.

The AIA publishes two other general conditions documents that parallel A201–2007, one for the Construction Management-Adviser Family of Documents, AIA Document A201™CMa–1992, and the other for the Interiors Family of Documents, AIA Document A251™–2007.

Dispute Resolution—Mediation and Arbitration. This document contains provisions for mediation and arbitration of claims and disputes. Mediation is a non-binding process, but is mandatory under the terms of this document. Arbitration is no longer mandatory under the terms of the 2007 Conventional (A201) Family of Documents but may be selected in the Owner-Contractor agreement. If arbitration is selected as the method of binding dispute resolution, that selection is binding in most states and under the Federal Arbitration Act. In a minority of states, arbitration provisions relating to future disputes are not enforceable but the parties may agree to arbitrate after the dispute arises. Even in those states, under certain circumstances (for example, in a transaction involving interstate commerce), arbitration provisions may be enforceable under the Federal Arbitration Act.

The AIA does not administer dispute resolution processes. To submit disputes to mediation or arbitration or to obtain copies of the applicable mediation or arbitration rules, call the American Arbitration Association at (800) 778-7879, or visit their Web site at www.adr.org.

Why Use AIA Contract Documents. AIA contract documents are the product of a consensus-building process aimed at balancing the interests of all parties on the construction project. The documents reflect actual industry practices, not theory. They are state-of-the-art legal documents, regularly revised to keep up with changes in law and the industry—yet they are written, as far as possible, in everyday language. Finally, AIA contract documents are flexible: they are intended to be modified to fit individual projects, but in such a way that modifications are easily distinguished from the original, printed language.

Use of Non-AIA Forms. If a combination of AIA documents and non-AIA documents is to be used, particular care must be taken to achieve consistency of language and intent among documents.

Standard Forms. Most AIA documents published since 1906 have contained in their titles the words "Standard Form." The term "standard" is not meant to imply that a uniform set of contractual requirements is mandatory for AIA members or others in the construction industry. Rather, the AIA standard documents are intended to be used as fair and balanced baselines from which the parties can negotiate their bargains. As such, the documents have won general acceptance within the construction industry and have been uniformly interpreted by the courts. Within an industry spanning 50 states—each free to adopt different, and perhaps contradictory, laws affecting that industry—AIA documents form the basis for a generally consistent body of construction law.

Use of Current Documents. Prior to using any AIA Contract Document, users should consult www.aia.org or a local AIA component to verify the most recent edition.

Reproductions. This document is a copyrighted work and may not be reproduced or excerpted from without the express written permission of the AIA. There is no implied permission to reproduce this document, nor does membership in The American Institute of Architects confer any further rights to reproduce this document.

This document is intended for use as a consumable—that is, the original document purchased is to be consumed in the course of its use. This document may not be reproduced for project manuals. If a user wishes to include a sample or samples of this document in a project manual, the normal practice is to purchase a quantity of the preprinted forms, binding one in each of the manuals.

Unlike many other AIA Contract Documents, AIA Document A201–2007 does not include the AIA's express written permission to reproduce copies of the document. The AIA will not permit reproduction of this document or its language, except upon written request and receipt of written permission from the AIA.

Rights to reproduce the document may vary for users of AIA software. Licensed AIA software users should consult the End User License Agreement (EULA).

To report copyright violations of AIA Contract Documents, e-mail The American Institute of Architects' legal counsel, copyright@aia.org.

CHANGES FROM THE PREVIOUS EDITION

AIA Document A201–2007 revises the 1997 edition of A201 to reflect changes in construction industry practices and the law. Comments and assistance in this revision were received from numerous individuals and organizations, including those representing owners, architects, engineers, specifiers, general contractors, subcontractors, independent insurance agents, sureties, attorneys and arbitrators.

A number of substantial changes have been made to A201–2007. The principal changes are described below:

Article 1. A definition of Instruments of Services is now added and the ownership and use of drawings, specifications and other instruments of services is further clarified. Additionally, the parties are now required to establish necessary protocols to govern the electronic transmission of data. This article also adds Initial Decision Maker as a defined term (refer to Article 15).

Article 2. Following commencement of the Work, the Contractor may only require the Owner to provide reasonable evidence that adequate financial arrangements have been made if certain enumerated conditions (of a type that would cause the Contractor to have concerns about the Owner's ability to meet its financial obligations) exist.

Article 3. Since 1997, many construction projects have suffered delays due the discovery of burial grounds, archaeological sites, and wetlands. New Section 3.7.5 addresses the Owner's and Contractor's responsibilities in the event these are not noted on the Contract Documents, but discovered during construction. Section 3.3.1 now clarifies the extent of the Owner's responsibility for the costs associated with Owner-required means and methods of construction. Also, new requirements for the Contractor to notify the owner of its proposed superintendent are set out in Section 3.9.

Article 4. This article is revised to coordinate with changes to the 2007 AIA Owner-Architect agreements that incorporate A201–2007 and is now re-titled "Architect." The process for making, deciding and resolving Claims is substantially revised and is relocated from Article 4 to a new Article 15.

Article 7. Section 7.3.9 is now revised to provide a more efficient process for making payments to the Contractor for changes to the Work completed under Construction Change Directives.

Article 9. New Section 9.5.3 allows the Owner to issue joint checks, if the Architect withholds certification for payment as a result of the Contractor's failure to make payments properly to the Subcontractors or to lower tier subcontractors and suppliers. Section 9.5.3 now grants the Owner authority to request written evidence from the Contractor that the Contractor has properly paid the Subcontractors, etc.

Article 10. New Section 10.3.5 now adds a reciprocal indemnity provision whereby the Contractor indemnifies the Owner for costs and expenses related to hazardous materials the Contractor brings to the site and negligently handles, except where such costs and expenses are due to the Owner's fault or negligence.

Article 11. This article deletes the optional Project Management Protective Liability insurance added in 1997 to cover vicarious liability for construction operations. To diminish the costs to the Project team of third-party claims, a new

Section 11.1.4 requires the Contractor to add the Owner, Architect and Architect's consultants as additional insureds on its commercial liability coverage for claims caused by the Contractor's negligence during the Contractor's operations. The Contactor is also required to add the Owner as an additional insured on its commercial liability coverage for claims caused by the Contractor's negligence during the Contractor's completed operations.

Article 13. Section 13.5.1 now makes the Owner responsible for the costs of tests when applicable codes, such as the International Building Code, prohibit the Owner from delegating the costs. Section 13.7, establishing the time period in which the Owner and Contractor must bring Claims, is amended to more closely follow state statutes of limitations and repose and to require compliance with state law.

Article 15. New Article 15 consists of revised Claims and Disputes language from Article 4 of A201™–1997. Article 15 introduces the concept of an Initial Decision Maker (IDM). Unlike the 1997 edition, A201–2007 allows for Claims to be decided initially by someone other than the Architect. The Owner and the Contractor have an opportunity to identify an IDM other than the Architect in the Owner-Contractor agreement. If the Owner and Contractor do not select a third party IDM, however, the Architect will serve as the IDM, thus maintaining its traditional role as the initial decider of Claims. For most Claims, a decision by the IDM remains a condition precedent to proceeding to mediation. As in A201–1997, mediation is a condition precedent to the method of binding dispute resolution selected in the Owner-Contractor agreement. While arbitration is no longer mandatory in the 2007 Conventional (A201) Family of Documents, Article 15 sets forth the requirements for arbitration if it is the selected method of binding dispute resolution. Unlike in the 1997 edition, however, A201–2007 allows for consolidation of arbitrations and joinder of necessary third parties.

USING A201–2007

Modifications. Particularly with respect to professional or contractor licensing laws, building codes, taxes, monetary and interest charges, arbitration, indemnification, format and font size, AIA Contract Documents may require modification to comply with state or local laws. Users are encouraged to consult an attorney before completing or modifying a document.

In a purchased paper AIA Contract Document, necessary modifications may be accomplished by writing or typing the appropriate terms in the blank spaces provided on the document, or by attaching Supplementary Conditions, special conditions or referenced amendments.

Modifications directly to purchased paper AIA Contract Documents may also be achieved by striking out language. However, care must be taken in making these kinds of deletions. Under NO circumstances should standard language be struck out to render it illegible. For example, users should not apply blocking tape, correction fluid or Xs that would completely obscure text. Such practices may raise suspicion of fraudulent concealment, or suggest that the completed and signed document has been tampered with. Both parties should initial handwritten changes.

Using AIA software, modifications to insert information and revise the standard AIA text may be made as the software permits.

By reviewing properly made modifications to a standard AIA Contract Document, parties familiar with that document can quickly understand the essence of the proposed relationship. Commercial exchanges are greatly simplified and expedited, good faith dealing is encouraged, and otherwise latent clauses are exposed for scrutiny.

AIA Contract Documents may not be retyped or electronically scanned. Retyping can introduce typographic errors and cloud legal interpretation given to a standard clause. Furthermore, retyping and electronic scanning are not permitted under the user's limited license for use of the document, constitute the creation of a derivative work and violate the AIA's copyright.

Cover Page

Project. The Project should be identified with the same name, and location or address as set forth in the Owner-Contractor agreement.

Owner. The Owner should be identified using the same legal name and the address as set forth in the Owner-Contractor agreement.

Architect. Similarly, the Architect should be identified using the same legal name and the address as set forth in the Owner-Contractor agreement.

AIA® Document A201™ – 2007

General Conditions of the Contract for Construction

for the following PROJECT:
(Name and location or address)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

THE OWNER:
(Name, legal status and address)

THE ARCHITECT:
(Name, legal status and address)

TABLE OF ARTICLES

Init.

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INDEX

(Topics and numbers in bold are section headings.)

ARTICLE 1 GENERAL PROVISIONS

§ 1.1 BASIC DEFINITIONS

§ 1.1.1 THE CONTRACT DOCUMENTS

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement 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 the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding requirements.

§ 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. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 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 and by separate contractors.

§ 1.1.5 THE DRAWINGS

The Drawings are the graphic and pictorial portions of the Contract Documents 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, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 INSTRUMENTS OF SERVICE

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 INITIAL DECISION MAKER

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2 and certify termination of the Agreement under Section 14.2.2.

§ 1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

§ 1.2.1 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 indicated results.

§ 1.2.2 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.

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

§ 1.3 CAPITALIZATION

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 INTERPRETATION

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.

§ 1.5 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and will retain all common law, statutory and other reserved rights, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers shall not own or claim a copyright in the Instruments of Service. 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 or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are authorized to use and reproduce the Instruments of Service provided to them solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers may not use the Instruments of Service on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect's consultants.

§ 1.6 TRANSMISSION OF DATA IN DIGITAL FORM

If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall endeavor to establish necessary protocols governing such transmissions, unless otherwise already provided in the Agreement or the Contract Documents.

ARTICLE 2 OWNER

§ 2.1 GENERAL

§ 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. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor within fifteen days after receipt of a written request, information 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.

§ 2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

§ 2.2.1 Prior to commencement of the Work, the Contractor may request in writing that the Owner provide reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. Thereafter, the Contractor may only request such evidence if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) a change in the Work materially changes the Contract Sum; or (3) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due. The Owner shall furnish such evidence as a condition precedent to commencement or continuation of the Work or the portion of the Work affected by a material change. After the Owner furnishes the evidence, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.2 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, 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.

§ 2.2.3 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. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.2.4 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.2.5 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.3 OWNER'S RIGHT TO STOP THE WORK

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to 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, except to the extent required by Section 6.1.3.

§ 2.4 OWNER'S RIGHT TO CARRY OUT THE WORK

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of written notice from the Owner to commence and continue 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 Change Order shall be issued deducting from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect or failure. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect. 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 GENERAL

§ 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 Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 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 or entities other than the Contractor.

§ 3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.2.3, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall make Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 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, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to the Owner and Architect and shall not proceed with that portion of the Work without further written instructions from the Architect. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any loss or damage arising solely from those Owner-required means, methods, techniques, sequences or procedures.

§ 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 or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed 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.

§ 3.4.2 Except in the case of minor changes in the Work authorized by the Architect in accordance with Sections 3.12.8 or 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 WARRANTY

The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.6 TAXES

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that 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, NOTICES AND COMPLIANCE WITH LAWS

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 CONCEALED OR UNKNOWN CONDITIONS

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 21 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor in writing, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may proceed as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 ALLOWANCES

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct,

but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents:

.1 Allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;

.2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and

.3 Whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 SUPERINTENDENT

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. 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, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the name and qualifications of a proposed superintendent. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to the proposed superintendent or (2) that the Architect requires additional time to review. Failure of the Architect to reply within the 14 day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

§ 3.10.2 The Contractor shall prepare a submittal schedule, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, and shall submit the schedule(s) for the Architect's approval. The Architect's approval shall not unreasonably be delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 DOCUMENTS AND SAMPLES AT THE SITE

The Contractor shall maintain at the site for the Owner one copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and one copy of 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 as a record of the Work as constructed.

§ 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 that 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. Their purpose is to demonstrate the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve and submit to the Architect Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect's approval 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 (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the 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 approval 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. In the absence of such written notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. The Contractor shall not be required to provide professional services in violation of applicable law. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled

to rely upon the adequacy, accuracy and completeness of the services, certifications and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review, approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance and design criteria specified in the Contract Documents.

§ 3.13 USE OF SITE

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.14 CUTTING AND PATCHING

§ 3.14.1 The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting and patching shall be restored to the condition existing prior to the cutting, fitting and patching, unless otherwise required by 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 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 waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 ACCESS TO WORK

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

§ 3.17 ROYALTIES, PATENTS AND COPYRIGHTS

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and 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, or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner or Architect. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or 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 expenses, 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), but only to the extent caused by the 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 that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 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 Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

ARTICLE 4 ARCHITECT

§ 4.1 GENERAL

§ 4.1.1 The Owner shall retain an architect lawfully licensed to practice architecture or an entity lawfully practicing architecture in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 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.

§ 4.1.3 If the employment of the Architect is terminated, the Owner shall employ a successor architect as to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 4.2 ADMINISTRATION OF THE CONTRACT

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, except as provided in Section 3.3.1.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and report to the Owner (1) known deviations from the Contract Documents and from the most recent construction schedule submitted by the Contractor, and (2) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or any other persons or entities 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 with each other through the Architect about matters arising out of or relating to the Contract. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the

Work in accordance with Sections 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 or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. 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 the obligations under Sections 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 approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may authorize minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; 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 pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, 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.

§ 4.2.11 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 in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 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 both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions rendered in good faith.

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

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

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.

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§ 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 may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to any such proposed person or entity or (2) that the Architect requires additional time for review. Failure of the Owner or Architect to reply within the 14-day period 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.

§ 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. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time 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 substitute a Subcontractor, person or entity previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 SUBCONTRACTUAL RELATIONS

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, including the responsibility for safety of the Subcontractor's Work, which the Contractor, by these Documents, assumes toward the Owner and Architect. 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 that may be at variance with the Contract Documents. Subcontractors will 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 Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor in writing; and

.2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon such assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 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 in Article 15.

§ 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 construction schedules. The Contractor shall make any revisions to the construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, separate contractors and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces, the Owner shall be deemed to be subject to the same obligations and to have the same rights that apply to the Contractor under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6 and Articles 10, 11 and 12.

§ 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 acknowledgment that the Owner's or separate contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a separate contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a separate contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or separate contractors as provided in Section 10.2.5.

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

§ 6.3 OWNER'S RIGHT TO CLEAN UP

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, the Owner may clean up and the Architect will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 GENERAL

§ 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.

§ 7.2 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 The change in the Work;
.2 The amount of the adjustment, if any, in the Contract Sum; and
.3 The extent of the adjustment, if any, in the Contract Time.

§ 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 prior to agreement on 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 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

.1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
.2 Unit prices stated in the Contract Documents or subsequently agreed upon;
.3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
.4 As provided in Section 7.3.7.

§ 7.3.4 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed in a proposed Change Order or Construction Change Directive so 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.

§ 7.3.5 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.

§ 7.3.6 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement 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.

§ 7.3.7 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the method and the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.7 shall be limited to the following:

.1 Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance;

.2 Costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;

.3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;

.4 Costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work; and

.5 Additional costs of supervision and field office personnel directly attributable to the change.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 MINOR CHANGES IN THE WORK

The Architect has 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 will be effected by written order signed by the Architect and shall be binding on the Owner and Contractor.

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.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 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 and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance.

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

§ 8.3 DELAYS AND EXTENSIONS OF TIME

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner or Architect, or 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 beyond the Contractor's control; or by delay authorized by the Owner pending mediation and arbitration; or by other causes that the Architect determines may justify delay, then the Contract Time shall be extended by Change Order 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 Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 CONTRACT SUM

The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.2 SCHEDULE OF VALUES

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit to the Architect, before the first Application for Payment, a schedule of values allocating the entire Contract Sum to the various portions of the Work and prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 9.3 APPLICATIONS FOR PAYMENT

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. 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 shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or material supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 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 the costs of applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the

Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

§ 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 Section 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 evaluation of the Work and the data comprising the Application for Payment, that, to the best of the Architect's knowledge, information and belief, the Work has progressed to the point indicated and that 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 correction of minor deviations from the Contract Documents 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 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 Section 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 Section 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 withhold a Certificate for Payment or, because of subsequently discovered evidence, 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 for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- **.1** defective Work not remedied;
- **.2** third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;
- **.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 a separate contractor;
- **.6** reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- **.7** repeated 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.

§ 9.5.3 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or material or equipment suppliers to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Architect will reflect such payment on the next Certificate for Payment.

§ 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 The Contractor shall pay each Subcontractor no later than seven days after receipt of payment from the Owner the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and material and equipment suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay or to see to the payment of money to a Subcontractor, except as may otherwise be required by law.

§ 9.6.5 Contractor payments to material and equipment suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 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.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors and suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, shall create any fiduciary liability or tort liability on the part of the Contractor for breach of trust or shall entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.7 FAILURE OF PAYMENT

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 or awarded by binding dispute resolution, 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 appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 SUBSTANTIAL COMPLETION

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage applying to such Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of 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 when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer as required under Section 11.3.1.5 and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 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 the Contractor's 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 on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 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.

§ 9.10.4 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.

§ 9.10.5 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.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 SAFETY PRECAUTIONS AND PROGRAMS

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 on 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; and

.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.

§ 10.2.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and 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 (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3, except damage or loss attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 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 permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 INJURY OR DAMAGE TO PERSON OR PROPERTY

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, 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 discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 HAZARDOUS MATERIALS

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner and Architect in writing.

§ 10.3.2 Upon receipt of the Contractor's written notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shut-down, delay and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, 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), except to the extent that such damage, loss or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall indemnify the Owner for the cost and expense the Owner incurs (1) for remediation of a material or substance the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall indemnify the Contractor for all cost and expense thereby incurred.

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§ 10.4 EMERGENCIES

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 Article 15 and Article 7.

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 such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations and completed 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' compensation, disability benefit and other similar employee benefit acts that 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;

.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;

.7 Claims for bodily injury or property damage arising out of completed operations; and

.8 Claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18.

§ 11.1.2 The insurance required by Section 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

§ 11.1.3 Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies required by this Section 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. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment as required by Section 9.10.2 and thereafter upon renewal or replacement of such coverage until the expiration of the time required by Section 11.1.2. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness.

§ 11.1.4 The Contractor shall cause the commercial liability coverage required by the Contract Documents to include (1) the Owner, the Architect and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations.

§ 11.2 OWNER'S LIABILITY INSURANCE

The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

§ 11.3 PROPERTY INSURANCE

§ 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 written on a builder's

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risk "all-risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract Modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. 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 Section 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 11.3 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project.

§ 11.3.1.1 Property insurance shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's and Contractor's services and expenses required as a result of such insured loss.

§ 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 that 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 in writing, then the Owner shall bear all reasonable costs properly attributable thereto.

§ 11.3.1.3 If the property insurance requires deductibles, the Owner shall pay costs not covered because of such deductibles.

§ 11.3.1.4 This property insurance shall cover portions of the Work stored off the site, and also portions of the Work in transit.

§ 11.3.1.5 Partial occupancy or use in accordance with Section 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

§ 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.

§ 11.3.4 If the Contractor requests in writing that insurance for risks other than those described herein or other special causes of loss be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be charged to the Contractor by appropriate Change Order.

§ 11.3.5 If during the Project construction period the Owner insures properties, real or personal or both, at 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 Section 11.3.7 for damages caused by fire or other causes of loss 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 Section 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, and that its limits will not be reduced, until at least 30 days' prior written notice has been given to the Contractor.

§ 11.3.7 WAIVERS OF SUBROGATION

The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors described in Article 6, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to this Section 11.3 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors described in Article 6, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

§ 11.3.8 A loss insured under the Owner's property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 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 Sub-subcontractors in similar manner.

§ 11.3.9 If required in writing by a party in interest, the Owner as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Owner's duties. The cost of required bonds shall be charged against proceeds received as fiduciary. 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 as determined in accordance with the method of binding dispute resolution selected in the Agreement between the Owner and Contractor. If after such loss no other special agreement is made and unless the Owner terminates the Contract for convenience, replacement of damaged property shall be performed by the Contractor after notification of a Change in the Work in accordance with Article 7.

§ 11.3.10 The Owner as fiduciary 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 is made, the dispute shall be resolved in the manner selected by the Owner and Contractor as the method of binding dispute resolution in the Agreement. If the Owner and Contractor have selected arbitration as the method of binding dispute resolution, the Owner as fiduciary shall make settlement with insurers or, in the case of a dispute over distribution of insurance proceeds, in accordance with the directions of the arbitrators.

§ 11.4 PERFORMANCE BOND AND PAYMENT BOND

§ 11.4.1 The Owner shall have the right to require the Contractor to 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.

§ 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 authorize a copy to be furnished.

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 requested in writing by the Architect, be uncovered for the Architect's examination 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 that the Architect has not specifically requested to examine 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 at the Owner's expense. If such Work is not in accordance with the Contract Documents, such costs and the cost of correction shall be at the Contractor's expense 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 BEFORE OR AFTER SUBSTANTIAL COMPLETION

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 AFTER SUBSTANTIAL COMPLETION

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, 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 Section 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. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.4.

§ 12.2.2.2 The one-year period for correction of Work 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 completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that 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 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 that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 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

If the Owner prefers to accept Work that 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

The Contract shall be governed by the law of the place where the Project is located except that, if the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 SUCCESSORS AND ASSIGNS

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to covenants, agreements and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate such assignment.

§ 13.3 WRITTEN NOTICE

Written notice shall be deemed to have been duly served if delivered in person to the individual, to 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 or by courier service providing proof of delivery 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 there under, 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 shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities. 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 that the Architect may be present for such procedures. The Owner shall bear costs of (1) tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded, and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating their cost to the Contractor.

§ 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 Section 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 that the Architect may be present for such procedures. Such costs, except as provided in Section 13.5.3, shall be at the Owner's expense.

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

§ 13.5.4 Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.5.5 If the Architect is to observe tests, inspections or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

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

§ 13.6 INTEREST

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at such rate as the parties may agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

§ 13.7 TIME LIMITS ON CLAIMS

The Owner and Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in the Agreement within the time period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all claims and causes of action not commenced in accordance with this Section 13.7.

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 consecutive days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

- **.1** Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- **.2** An act of government, such as a declaration of national emergency that requires all Work to be stopped;
- **.3** Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- **.4** The Owner has failed to furnish to the Contractor promptly, upon the Contractor's request, reasonable evidence as required by Section 2.2.1.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, repeated suspensions, delays or interruptions of the entire Work by the Owner as described in Section 14.3 constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, including reasonable overhead and profit, costs incurred by reason of such termination, and damages.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive 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 repeatedly 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 Section 14.1.3.

§ 14.2 TERMINATION BY THE OWNER FOR CAUSE

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- **.1** repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- **.2** fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
- **.3** repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- **.4** otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the above reasons exist, the Owner, upon certification by the Initial Decision Maker that sufficient cause exists to justify such action, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

.1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;

.2 Accept assignment of subcontracts pursuant to Section 5.4; and

.3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 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, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages 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 Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 SUSPENSION BY THE OWNER FOR CONVENIENCE

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay or interruption as described in Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

.1 that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or

.2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall

.1 cease operations as directed by the Owner in the notice;

.2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and

.3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 CLAIMS

§ 15.1.1 DEFINITION

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim.

§ 15.1.2 NOTICE OF CLAIMS

Claims by either the Owner or Contractor must be initiated by written notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker.

Claims by either party must be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3 CONTINUING CONTRACT PERFORMANCE

Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents. The Architect will prepare Change Orders and issue Certificates for Payment in accordance with the decisions of the Initial Decision Maker.

§ 15.1.4 CLAIMS FOR ADDITIONAL COST

If the Contractor wishes to make a Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.5 CLAIMS FOR ADDITIONAL TIME

§ 15.1.5.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, written notice as provided herein shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ 15.1.5.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction.

§ 15.1.6 CLAIMS FOR CONSEQUENTIAL DAMAGES

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

.1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and

.2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.6 shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 INITIAL DECISION

§ 15.2.1 Claims, excluding those arising under Sections 10.3, 10.4, 11.3.9, and 11.3.10, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim arising prior to the date final payment is due, unless 30 days have passed after the Claim has been referred to the Initial Decision Maker with no decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of such request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of an initial decision, demand in writing that the other party file for mediation within 60 days of the initial decision. If such a demand is made and the party receiving the demand fails to file for mediation within the time required, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 MEDIATION

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.6 shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 ARBITRATION

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing 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.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 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.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 CONSOLIDATION OR JOINDER

§ 15.4.4.1 Either party, at its sole discretion, may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Either party, at its sole discretion, may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as the Owner and Contractor under this Agreement.

AIA® Document A312™ – 1984 Instructions

Performance Bond and Payment Bond

GENERAL INFORMATION

Purpose. AIA Document A312 is a new document which combines two separate bonds into one form. This is not a single combined Performance and Payment Bond. It is customary to issue these two bonds simultaneously and to pay one premium for both. The separate procurement of one bond without the other will normally not reduce the premium.

The Performance Bond is an assurance by the Contractor and the Contractor's Surety that the work will be performed and completed in accordance with the terms of the Construction Contract. The Payment Bond is an assurance by the Contractor and the Contractor's Surety that labor and materials bills incurred in connection with the Construction Contract will be paid. This assurance is limited by the amount of each bond.

Normally, these bond forms are prepared for execution by the Surety or the Surety's agent.

Related Documents.

A201™, General Conditions of the Contract for Construction
A201™CMa, General Conditions of the Contract for Construction, Construction Manager-Adviser Edition
A201™SC, General and Federal Supplementary Conditions of the Contract for Construction
A275™, General Conditions of the Contract for Furniture, Furnishings and Equipment
A501™, Recommended Guide for Competitive Bidding Procedures and Contract Awards for Building Construction
A511™, Guide for Supplementary Conditions
A511™CMa, Guide for Supplementary Conditions, Construction Manager-Adviser Edition
A701™, Instructions to Bidders
A775™, Invitation and Instructions for Quotation for Furniture, Furnishings and Equipment

Use of Non-AIA Forms. Unlike most AIA documents, the A312 is not interlinked by reference to the other AIA documents. It is a general form which may be used with any appropriate non-AIA document.

Use of Current Documents. Prior to using any AIA Contract Document, users should consult www.aia.org or a local AIA component to verify the most recent edition.

Credits. AIA Document A312 was prepared as a service to the construction and surety industries through the joint efforts of The Surety Association of America, The Engineers Joint Contract Documents Committee, The Associated General Contractors of America and The American Institute of Architects.

COMPLETING A312–1984

Modifications. Particularly with respect to professional or contractor licensing laws, building codes, taxes, monetary and interest charges, arbitration, indemnification, format and font size, AIA Contract Documents may require modification to comply with state or local laws. Users are encouraged to consult an attorney before completing or modifying a document.

In a purchased paper AIA Contract Document, necessary modifications may be accomplished by writing or typing the appropriate terms in the blank spaces provided on the document, or by attaching Supplementary Conditions, special conditions or referenced amendments.

Modifications directly to purchased paper AIA Contract Documents may also be achieved by striking out language. However, care must be taken in making these kinds of deletions. Under NO circumstances should standard language be struck out to render it illegible. For example, users should not apply blocking tape, correction fluid or Xs that would completely obscure text. Such practices may raise suspicion of fraudulent concealment, or suggest that the completed and signed document has been tampered with. Both parties should initial handwritten changes.

Using AIA software, modifications to insert information and revise the standard AIA text may be made as the software permits.

By reviewing properly made modifications to a standard AIA Contract Document, parties familiar with that document can quickly understand the essence of the proposed relationship. Commercial exchanges are greatly simplified and expedited, good faith dealing is encouraged, and otherwise latent clauses are exposed for scrutiny.

AIA Contract Documents may not be retyped or electronically scanned. Retyping can introduce typographic errors and cloud legal interpretation given to a standard clause. Furthermore, retyping and electronic scanning are not permitted under the user's limited license for use of the document, constitute the creation of a derivative work and violate the AIA's copyright.

General. These instructions apply equally to the Performance Bond and to the Payment Bond. Both bonds require identical information on them, but each bond must be executed separately. Even though the A312 Document contains both bonds, they are still very separate bonds. The completion of one bond (e.g., the Performance Bond) is not sufficient to bind the parties to the other (e.g., the Payment Bond). Users should be careful not to mix one bond with the other. A common mistake is to fill in the cover page of the Performance Bond and to sign the signature page of the Payment Bond. In such a case, it is likely that neither bond will become binding.

TITLE PAGE OF EACH BOND

Identification of Parties. The Contractor and Surety should be identified along with the Owner the Owner's Representative and the Agent or Broker. It is especially important that the Contractor and Surety be identified by using their full legal names and addresses, including the legal status of the parties: sole proprietorship, general partnership, joint venture, unincorporated association, limited partnership, corporation (general or professional), etc. The identification of the Owner's Representative and the Agent or Broker is for information only, since they are not parties to the bond agreement.

Description of the Construction Contract. The Construction Contract should be described by date and amount and by the official name and location of the Project as used in the Construction Contract. The amount of the Construction Contract should be in both written and numerical form.

Bond Amount. The dollar amount of the bond should be in both written and numerical form. Frequently, each bond (the Performance Bond and Payment Bond) will be written to equal individually 100 percent of the Construction Contract Amount.

Bond Date. This date should not be earlier than the date of the Construction Contract which is adopted by reference.

EXECUTING THE BONDS

Each bond must be separately signed by the Contractor and the Surety on the title page of each bond. Additional space is provided on the last page of each bond for the signatures of additional parties. The parties executing (signing) the bond should indicate their company, print their name and title, and impress the corporate seal, if any. Where appropriate, attach a copy of the resolution or bylaw authorizing the individual to act on behalf of the firm or entity. Evidence of authority to sign on behalf of each party should be obtained. As to the Surety, this usually takes the form of a power of attorney issued by the surety company to the agent who signs on its behalf.

AIA® Document A312™ – 1984

Performance Bond

CONTRACTOR
(Name

SURETY
Name, legal status and principal place of business):

OWNER *(Name, legal status and address):*

Any singular reference to Contract, Surety, Owner or other party shall be considered plural where applicable.

CONSTRUCTION CONTRACT
Date:

Amount:

Description: *(Name and location)*

BOND
Date: *(Not earlier than Construction Contract Date)*

Amount:

Modifications to this Bond: ☐None ☐ See Section 13

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	

(Any additional signatures appear on the last page)

(FOR INFORMATION ONLY - Name, address and telephone)
AGENT or **BROKER**:

OWNER'S REPRESENTATIVE *(Architect, Engineer or other party):*

§ 1 The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

§ 2 If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except to participate in conferences as provided in Section 3.1.

§ 3 If there is no Owner Default, the Surety's obligation under this Bond shall arise after:
§ 3.1 The Owner has notified the Contractor and the Surety at its address described in Section 10 below that the Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with the Contractor and the Surety to be held not later than fifteen days after receipt of such notice to discuss methods of performing the Construction Contract. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default; and

§ 3.2 The Owner has declared a Contractor Default and formally terminated the Contractor's right to complete the contract. Such Contractor Default shall not be declared earlier than twenty days after the Contractor and the Surety have received notice as provided in Section 3.1; and

§ 3.3 The Owner has agreed to pay the Balance of the Contract Price to the Surety in accordance with the terms of the Construction Contract or to a contractor selected to perform the Construction Contract in accordance with the terms of the contract with the Owner.

§ 4 When the Owner has satisfied the conditions of Section 3, the Surety shall promptly and at the Surety's expense take one of the following actions:
§ 4.1 Arrange for the Contractor, with consent of the Owner, to perform and complete the Construction Contract; or

§ 4.2 Undertake to perform and complete the Construction Contract itself, through its agents or through independent contractors; or

§ 4.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and the contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Section 6 in excess of the Balance of the Contract Price incurred by the Owner resulting from the Contractor's default; or

§ 4.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

- **.1** After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, tender payment therefor to the Owner; or
- **.2** Deny liability in whole or in part and notify the Owner citing reasons therefor.

§ 5 If the Surety does not proceed as provided in Section 4 with reasonable promptness, the Surety shall be deemed to be in default on this Bond fifteen days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Section 4.4, and the Owner refuses the payment tendered or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

§ 6 After the Owner has terminated the Contractor's right to complete the Construction Contract, and if the Surety elects to act under Section 4.1, 4.2, or 4.3 above, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. To the limit of the amount of this Bond, but subject to commitment by the Owner of the Balance of the Contract Price to mitigation of costs and damages on the Construction Contract, the Surety is obligated without duplication for:
§ 6.1 The responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

§ 6.2 Additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Section 4; and

§ 6.3 Liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

§ 7 The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators or successors.

§ 8 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 9 Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 10 Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the signature page.

§ 11 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted here from and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 12 DEFINITIONS

§ 12.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

§ 12.2 Construction Contract: The agreement between the Owner and the Contractor identified on the signature page, including all Contract Documents and changes thereto.

§ 12.3 Contractor Default: Failure of the Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Construction Contract.

§ 12.4 Owner Default: Failure of the Owner, which has neither been remedied nor waived, to pay the Contractor as required by the Construction Contract or to perform and complete or comply with the other terms thereof.

§ 13 MODIFICATIONS TO THIS BOND ARE AS FOLLOWS:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL
Company: *(Corporate Seal)*

Signature: _____

Name and Title:

Address:

SURETY
Company: *(Corporate Seal)*

Signature: _____

Name and Title:

Address:

AIA® Document A312™ – 1984

Payment Bond

CONTRACTOR
(Name, legal status and address):

SURETY
(Name, legal status and principal place of business):

OWNER *(Name, legal status and address):*

Any singular reference to Contract, Surety, Owner or other party shall be considered plural where applicable.

CONSTRUCTION CONTRACT
Date:

Amount:

Description: *(Name and location)*

BOND
Date: *(Not earlier than Construction Contract Date)*

Amount:

Modifications to this Bond: ☐None ☐ See Section 16

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	

(Any additional signatures appear on page 4)

(FOR INFORMATION ONLY - Name, address and telephone)

AGENT or **BROKER:**

OWNER'S REPRESENTATIVE *(Architect, Engineer or other party):*

§ 1 The Contractor and the Surety, jointly and severally bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference.

§ 2 With respect to the Owner, this obligation shall be null and void if the Contractor:
§ 2.1 Promptly makes payment, directly or indirectly, for all sums due Claimants, and

§ 2.2 Defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity whose claim, demand, lien or suit is for the payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, provided the Owner has promptly notified the Contractor and the Surety (at the address described in Section 12) of any claims, demands, liens or suits and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety, and provided there is no Owner Default.

§ 3 With respect to Claimants, this obligation shall be null and void if the Contractor promptly makes payment, directly or indirectly, for all sums due.

§ 4 The Surety shall have no obligation to Claimants under this Bond until:
§ 4.1 Claimants who are employed by or have a direct contract with the Contractor have given notice to the Surety (at the address described in Section 12) and sent a copy, or notice thereof, to the Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.

§ 4.2 Claimants who do not have a direct contract with the Contractor:

- **.1** Have furnished written notice to the Contractor and sent a copy, or notice thereof, to the Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials were furnished or supplied or for whom the labor was done or performed; and
- **.2** Have either received a rejection in whole or in part from the Contractor, or not received within 30 days of furnishing the above notice any communication from the Contractor by which the Contractor has indicated the claim will be paid directly or indirectly; and
- **.3** Not having been paid within the above 30 days, have sent a written notice to the Surety (at the address described in Section 12) and sent a copy, or notice thereof, to the Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to the Contractor.

§ 5 If a notice required by Section 4 is given by the Owner to the Contractor or to the Surety, that is sufficient compliance.

§ 6 When the Claimant has satisfied the conditions of Section 4, the Surety shall promptly and at the Surety's expense take the following actions:
§ 6.1 Send an answer to the Claimant, with a copy to the Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.

§ 6.2 Pay or arrange for payment of any undisputed amounts.

§ 7 The Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

§ 8 Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any Construction Performance Bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and the Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

§ 9 The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.

§ 10 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 11 No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the work or part of the work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Section 4.1 or Section 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 12 Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the signature page. Actual receipt of notice by Surety, the Owner or the Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.

§ 13 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 14 Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.

§ 15 DEFINITIONS

§ 15.1 Claimant: An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

§ 15.2 Construction Contract: The agreement between the Owner and the Contractor identified on the signature page, including all Contract Documents and changes thereto.

§ 15.3 Owner Default: Failure of the Owner, which has neither been remedied nor waived, to pay the Contractor as required by the Construction Contract or to perform and complete or comply with the other terms thereof.

§ 16 MODIFICATIONS TO THIS BOND ARE AS FOLLOWS:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	
Address:		Address:	

MaineHousing
Maine State Housing Authority

FINAL CERTIFICATE AND LIEN RELEASE
for
CONTRACTORS / SUBCONTRACTORS / VENDORS

Any subcontractor who supplied material or labor with a value greater than or equal to $2,000 or any material supplier who supplied materials with a value greater or equal to $10,000 must complete this form.

PROJECT _____
ADDRESS _____
_____

Contract/Subcontract Date: _____
Contract/Subcontract Amt: $ _____
Contract/Subcontract for (trade) _____

1. The undersigned certifies that there is due and payable under the above contract a final payment of $_____.

2. The undersigned certifies that all work required under this contract has been performed in accordance with the terms of the contract and was completed on _____, 20__.

3. The undersigned certifies that, except as set forth above, there are no unpaid claims for materials, supplies or equipment and no claims of laborers or mechanics for unpaid wages arising out of the performance of the contract.

4. The undersigned releases any and all claims, other than for the final payment set forth above, arising under or by virtue of the contract and agrees to indemnify the Maine State Housing Authority and the owner against any such claims.

5. The undersigned has attached to this certificate all manufacturers' and suppliers' written guarantees and warranties covering materials and equipment furnished under the contract.

Contractor:_____ Date:_____

Signature:_____

State of Maine

County of _____, ss. Date:_____

Personally appeared the above-named _____ and gave oath to the foregoing.

Before me,

_____

Name
Notary Public of Maine/Attorney-at-Law
My Commission Expires:_____

MaineHousing
Maine State Housing Authority

OWNER/AGENCY CERTIFICATE OF COMPLETION

Owner(s): _____

_____

_____

Property Address: _____

_____

MaineHousing
Project No. _____ Number of Units _____

The undersigned Owner(s) certifies as follows:

1. The loan funds I have received from the Maine State Housing Authority to undertake property improvements have now been appropriately spent.

2. The improvements for which I used the money have been completed to my satisfaction and are the same improvements listed in Exhibit "A" of the Rehab Escrow or as listed in the Technical Services Document Sign Off, except as amended with the prior written consent of the Maine State Housing Authority.

3. The attached List of Tenants and Income is complete and accurate as of this date. (List all units, if vacant so note)

The undersigned Owner(s) swears under penalty of law that he/she/they have read and understood this Certificate and that to the best of his/her/their knowledge and belief it is true.

OWNER:

By: _____ Date: _____
Name:

By: _____ Date: _____
Name:

APPROVAL BY Maine State Housing Authority:

By: _____ Date: _____

MAINE STATE HOUSING AUTHORITY USE ONLY

Final Escrow Draw occurred on: _____ (Date) Remaining Escrow Funds _____

Recommended Initial Annual Inspection _____ (Mo. / Yr.) Remaining Funds to: _____

MaineHousing
Maine State Housing Authority

Project:
Address:
Project No.

CONSTRUCTION SERVICES
FINAL COMPLETION CHECKLIST

1	*	Date	Architect	Certificate of Substantial Completion (AIA document normally prepared by architect)
2	*		Arch/Owner	Architects Certificate of Punch list Completion (MSHA Document or letter from Design Professional)
3	*		Contractor	Elevator License (if applicable)
4	*		Contractor	Fire Alarm system Test Report and Sign-off by System Manufacturer's Rep
5	*		Contractor	Sprinkler Test Report/Sign-off by qualified installer and SFMO permit signed-off by "RMS"
6	*		Contractor	Certificate of Occupancy from local municipality
7	**		Contractor	Electrical Permit Sign-off by state or local electrical inspector
8	**		Contractor	Plumbing Permit Sign-off by state or local plumbing inspector
9	*		Architect	Certificate of Completion of Design Professional (**MSHA Document**)
10	*		All	Incomplete Work Escrow in the Amount of: $
11	*		Contractor	Requisition for all items not identified on Incomplete Work Escrow list (item #10)
12	*		Contractor	Lien Releases (typically using **MSHA's Contractors Final Certificate and Release Form**)
13	*		Contractor	O & M manuals (deliver to Owner) *as applicable*
14	*		Contractor	Warranty information to Owner (e.g. Roofing, Boilers.) *as applicable*
15	*		Contractor	As-built drawings (deliver to Owner, copy to MSHA)
16	*		Owner	As-built survey with MSHA Certification (may be waived if work did not increase building footprint)
17	*		Contractor	State Fire Marshal Inspection and Plan of Correction (if required)
18	*		Owner	Owner/Agency Certificate of Completion (**MSHA Doc.**)
19	NR		Contractor	Evidence of satisfactory Lead Based Paint Clearance testing (not required for new construction)
20	*		Contractor	Consent of Surety to release of final payment
21	*		Contractor	Blower Door Test
22	*		Owner	Commissioning Report
23	*		Owner	Green Std #10 Educational Materials (approved by Asset Management Division, MaineHousing)

* Required NR Not Required ** Required unless covered under local Certificate of Occupancy

Construction Services has received and reviewed the documents outlined above and find them suitable to satisfy closeout/completion requirements per Construction Services requirements:

/Construction Analyst :	Date:
Don McGilvery/Construction Services Manager :	Date:

SECTION 01045

CUTTING AND PATCHING

1. GENERAL

1.1 REFERENCES

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this Section.

B. Divisions 2 through 16.

1.2 DESCRIPTION OF WORK

A. Definition: "Cutting and patching" includes cutting into existing construction to provide for the installation or performance of other work and subsequent fitting and patching required to restore surfaces to their original condition. This section does not apply to new work that has been installed as part of the Work.

B. Structural Work: Do not cut-and-patch structural work in a manner resulting in a reduction of load-carrying capacity or load/deflection ratio.

C. Operational/Safety Limitations: Do not cut-and-patch operational elements and safety components in a manner resulting in decreased performance, shortened useful life, or increased maintenance.

D. Visual/Quality Limitations: Do not cut-and-patch work exposed to view (exterior and interior) in a manner resulting in noticeable reduction of aesthetic qualities and similar qualities, as judged by the Architect.

E. Limitation on Approvals: The Architect/Engineer's approval to proceed with cutting and patching does not waive right to later require removal/replacement of work found to be cut-and-patched in an unsatisfactory manner, as judged by the Architect.

F. Materials marked to be removed and reused shall be repaired as necessary to maintain their existing condition. When repair is not sufficient, existing materials shall be disposed of and new materials installed to match existing materials.

G. Refer to other sections of these specifications for specific cutting and patching requirements and limitations applicable to individual units of work.

H. Unless otherwise specified, requirements of this Section apply to Mechanical and Electrical work. Refer to Divisions 15 and 16 for additional requirements and limitations on cutting and patching of mechanical and electrical work.

1.3 QUALITY ASSURANCE

A. Refer to Section 01631, Products and Substitutions, for general provisions covering product selection, substitutions, material storage and installation.

B. Refer to Section 01400, Quality Control Services, for provisions for testing and inspections.

C. Refer to specific Specification Section covering subject in question for quality assurance requirements.

1.4 SUBMITTALS

A. Issue submittals in accordance with Section 01300, Submittals.

B. Refer to specific Specification Section covering subject in question for submittal requirements.

2. PRODUCTS

2.1 GENERAL

A. Use materials for cutting and patching that are identical to existing materials. If identical materials are not available, or cannot be used, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials for cutting and patching that will result in equal-or-better performance characteristics.

B. Fire-stopping:

1. Seal openings in fire-rated walls and floors to make a tight fit with penetrating items, using appropriate non-combustible filler material. to provide a rating equivalent to wall/floor assemble.

2. Acceptable filler materials include:
   a. Concrete
   b. Cementitious proprietary product: Zonolite Firestop ZF-1
   c. Blanket-type mineral-fiber or ceramic-fiber insulation (glass-fiber insulation is not acceptable)
   d. Fire-resistant sealant: Domtar Fire-Halt, Dow Corning Fire Stop, Hilti CS 240 Firestop, or Nelson CLK or CMP

e. Fire-resistant silicone foam: Dow Corning RTV Foam Penetration Seal System, Hilti CB 120 Adhesive Filling and Sealing Foam, Tremco Fyre-Sil
f. Flexible intumescent strip wrapped around pipe penetrations: Dow Corning Fire Stop Intumescent Wrap, Hilti CS 24720 Intumescent Wrap, Nelson RSW, Tremco TREMstop WS
g. Intumescent fibrous material enclosed in a polyethylene envelope: Nelson PLW, Tremco TREMstop PS
h. Pliable intumescent putty: Nelson FSP Flameseal, Tremco TREMstop WBM
i. Water-based intumescent fire-protective coating for electrical cables: Nelson CTG

3. Neatly patch and seal exposed-to-view openings, using sealants, tooled mortar joints, escutcheons, or flanged collars, as appropriate.

3. EXECUTION

3.1 INSPECTION

A. Before cutting, examine surfaces to be cut and patched and conditions under which the work is to be performed. If unsafe or otherwise unsatisfactory conditions are encountered, take corrective action before proceeding with the work.

3.2 TEMPORARY SUPPORT

A. To prevent failure provide temporary support of work to be cut.

3.3 PROTECTION

A. Protect other work during cutting and patching to prevent damage. Provide protection from adverse weather conditions for that part of the project that may be exposed during cutting and patching operations. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

3.4 PERFORMANCE

A. Employ skilled workmen to perform cutting and patching work. Except as otherwise indicated or as approved by the Architect/Engineer, proceed with cutting and patching at the earliest feasible time and complete work without delay.

B. Cutting:
1. Cut the work using methods that are least likely to damage work to be retained or adjoining work. Provide dust barriers to prevent dust from entering existing building beyond immediate work area. Where possible, review proposed procedures with the original installer; comply with original installer's recommendations.

2. In general, where cutting is required, use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut through concrete and masonry using a cutting machine such as a carborundum saw or core drill to insure a neat hole. Cut holes and slots neatly to size required with minimum disturbance of adjacent work. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces. Temporarily cover openings when not in use.

3. Comply with requirements of applicable sections of Division 2 where cutting and patching requires excavating and backfilling.

4. By-pass utility services such as pipe and conduit, before cutting, where such utility services are shown or required to be removed, relocated or abandoned. Cut-off conduit and pipe in walls or partitions to be removed. After by-pass and cutting, cap, valve or plug and seal tight remaining portion of pipe and conduit to prevent entrance of moisture or other foreign matter.

C. Patching:

1. Patch with seams which are durable and as invisible as possible. Comply with specified tolerances for the work.

2. Where feasible, inspect and test patched areas to demonstrate integrity of work.

3. Restore exposed finishes of patched areas and where necessary extend finish restoration into retained adjoining work in a manner which will eliminate evidence of patching and refinishing.

4. Where removal of walls or partitions extends one finished area into another finished area, patch and repair floor and wall surfaces in the new space to provide an even surface of uniform color and appearance. If necessary to achieve uniform color and appearance, remove existing floor and wall coverings and replace with new materials.

5. Where patch occurs in a smooth painted surface, extend final paint coat over entire unbroken surface containing patch, after patched area has received prime and base coat.

6. Patch, repair or rehang existing ceilings as necessary to provide an even plane surface of uniform appearance.

3.5 MAINTENANCE OF TRAFFIC, ACCESS, AND UTILITIES

A. Throughout progress of work, do not interfere with use of or means of access and egress for tenants. Do not interfere with adjoining tenants in same building. Do not close or otherwise obstruct sidewalks, streets or means of egress without obtaining permission to do so.

B. Maintain accessibility from street at all times to any fire hydrants within construction area. Ensure that utilities serving adjacent buildings remain in service.

END OF SECTION

SECTION 01300

SUBMITTALS, MEETINGS AND RECORD DOCUMENTS

1. GENERAL

1.1 PRE-CONSTRUCTION MEETING

A. Architect will schedule a pre-construction meeting within 10 days of issuance of Notice to Proceed, to be attended by the owner, Maine State Housing Authority, Construction Lenders Representative, all project managers, Contractor's field superintendent, and representatives of major sub-contractors. At this time, Contractor shall make specified pre-construction submittals including following:

1. Typed list of sub-contractors with addresses and telephone numbers.
2. Certificates of insurance.
3. Approved construction schedule. See General Conditions, Paragraph 3.10.
4. Schedule of values.
5. Building permit and similar start-up authorization or certificates.

B. Pre-construction meeting agenda will include following:

1. Processing application for payment.
2. Processing and distribution of submittals.
3. Maintenance of record documents.
4. Procedure for field changes, change estimates, change orders, etc.
5. Site and building security.
6. Location and maintenance of temporary storage areas, field offices, vehicular parking and access, waste disposal, etc.
7. Safety and first-aid procedures.
8. Date and time for regular bi-weekly coordination and progress meeting (to be coordinated with monthly application for payment).

1.2 CONSTRUCTION SCHEDULE

A. Refer to General Conditions, Paragraph 3.10, for general provisions concerning construction progress schedule. Schedule shall show activities, itemized according to specification Section, and be organized in bar-chart or graph form so as to show both projected and actual progress of work.

B. Arrange schedule to indicate required sequencing of units, and to show time allowances for submittals, inspections, and similar time margins.

C. Show critical submittal dates related to each time bar, or prepare a separate coordinated listing of critical submittal dates.

D. Show phases of work within each time bar for major elements which involve purchase lead-time, fabrication, seasonal treatment, mockups, testing, or similar phases as well as installation.

E. Submit updated schedule monthly, together with application for payment.

1.3 SCHEDULE OF VALUES

A. Refer to General Conditions, Paragraph 9.2 for general provisions concerning schedule of values.

B. For these submittals, use AIA Document G702/703, Application and Certificate for Payment.

C. Use specifications Sections as listed in Table of Contents as basis for format for listing costs.

D. Itemize separately general cost items, such as bonds and allowances.

E. Itemize change orders separately as they are approved.

1.4 MEETINGS AND REPORTING

A. Contractor shall conduct general progress and coordination meetings at least once each month, attended by a representative of each primary entity engaged for performance of work. Record discussions and decisions, and distribute copies to those attending and others affected, including Architect/Engineer.

B. Date and time of at least one regular monthly progress and coordination meeting shall be determined at the pre-construction meeting. Timing of this monthly meeting shall be coordinated with payment requests.

1.5 APPLICATION FOR PAYMENT

A. Refer to General Conditions, Paragraph 9.3, for general provisions concerning applications for payment.

B. Use AIA Form G702/703, fully completed and executed.

C. Submit a minimum of five copies of all except two copies of waiver and required documentation.

1.6 SHOP DRAWINGS, PROJECT DATA, SAMPLES

A. Refer to General Conditions, Product Data and Samples, paragraph 3.12, for general provisions covering this type of submittal.

B. Coordinate the preparation and processing of work-related submittals with the performance of the work. Coordinate each separate submittal with other submittals and related activities that require sequential activity. Coordinate the submittal of different units of interrelated work so that one submittal will not be delayed by the necessity of reviewing a related submittal.

C. Architect Review:

1. Allow ten working days for the Architect initial processing of each submittal. Allow one week for reprocessing each submittal. No extension of time will be authorized because of failure to transmit submittals to the Architect sufficiently in advance of the work.

2. The Architect will stamp each submittal to be returned with a uniform, self-explanatory action stamp, appropriately marked and executed to indicate the status of the submittal.

D. Mark each submittal with a permanent label for identification. Provide project name, date, name of Architectr, name of Contractor, number and title of appropriate specification section and similar definitive information. Provide a space on the label for Contractors and Architect review markings.

E. Package each submittal appropriately for transmittal and handling. Send each submittal from the Contractor to the Architect and other destinations using AIA Transmittal Form G810.

F. Provide additional copies of submittals required by governing authorities that are in addition to copies specified for submittal to the Architect/Engineer.

G. Where it is necessary to provide intermediate submittals between the initial and final submittals, provide and process intermediate submittals in the same manner as for initial submittals.

H. Submit as follows:

1. Shop drawings (original drawings prepared by Contractor or sub-contractor illustrating fabrication, layout, erection details, etc.): six prints, or one reproducible transparency and one opaque print, to Architect.

2. Manufacturers' specifications, installation instructions, charts, schedules, catalogs, brochures, etc.: number of copies required by Contractor for distribution, plus one copy for Architect's retention.

3. Samples: one sample to Architect only, unless otherwise specified.

4. In submitting shop drawings and product data to Architect, use separate transmittals for material in different specification Sections, with applicable specification Section clearly numbered.

I. Architect will review submittals within ten working days, measured from date of receipt by Architect until date of mailing. Contractor shall promptly make corrections and resubmit when so directed. Where submittal is marked "Approved as Noted" or similar, assume that all items are approved other than those to which specific exception is taken. Do not delay fabrication, assembly and delivery pending receipt of entirely "Approved" submittal.

J. Distribute approved submittals to job site and record document files, and to suppliers and sub-contractors as required. Samples not designated by Contractor for incorporation into Work shall be kept on file until job completion. Any sample not reclaimed within 30 days after job completion will be considered unclaimed, and will be disposed of as directed by Architect.

1.7 PROJECT RECORD DOCUMENTS

A. Keep on file at job site one complete set of up-to-date Contract Documents, including drawings and specifications, addenda, shop drawings and product data, testing data, change orders, field orders, and other modifications. Documents shall be neatly and securely stored in files or on racks, clearly indexed by trade activity or specification Section, and shall not be used for construction purposes.

B. Legibly mark significant field changes such as following, using colored pencils or felt-tipped pens:

1. Drawings: locations of concealed utilities, field changes of dimension and detail, changes resulting from change order or field order, and details not on original drawings.

2. Specifications: manufacturer and model number of equipment actually installed.

3. Shop drawings and manufacturers' literature: changes made after Architect's review.

C. At completion of Work, deliver completed record documents to Architect. Final payment for Project will not be made until Architect reviews and approves these documents.

1.8 SUBSTANTIAL COMPLETION

A. Refer to General Conditions, Article 9, Substantial Completion, for general provision concerning substantial Completion.

B. Following issuance by Architect/Engineer of Certificate of Substantial Completion, Contractor may submit special payment request, provided the following have been completed:

1. Obtain permits, certificates of inspection and other approval and releases by governing authorities, required for Owner's occupancy and use of project.
2. Submit warranties and similar documentation.
3. Submit maintenance manuals and provide instruction of Owner's operational/maintenance personnel.
4. Complete final cleaning of the work.
5. Submit record documents.
6. Submit listing of work to be completed before final acceptance.

C. Following completion of the following requirements, final payment request may be submitted:

1. Complete work listed as incomplete at time of substantial completion, or otherwise assure Owner of subsequent completion of individual incomplete items.
2. Settle liens and other claims, or assure Owner of subsequent settlement.
3. Submit proof of payment on fees, taxes and similar obligations.
4. Transfer operational, access, security and similar provisions to Owner; and remove temporary facilities, tools and similar items.
5. Completion of requirements specified in "Project Closeout" section.
6. Obtain consent of surety for final payment.

END OF SECTION

SECTION 01400

QUALITY CONTROL SERVICES

1. GENERAL

1.1 DESCRIPTION

A. Quality control services include inspections and tests performed by independent agencies and governing authorities, as well as by the Contractor.

B. Inspection and testing services are intended to determine compliance of the work with requirements specified.

C. Specific quality control requirements include the following:
Concrete footing and foundation wall strength testing.

1.2 RESPONSIBILITIES

A. Except where indicated as being the Owner's responsibility, quality control services are the Contractor's responsibility, including those specified to be performed by an independent agency and not by the Contractor.

B. The Contractor shall employ and pay an independent agency, testing laboratory or other qualified firm to perform quality control services specified.

C. The Owner will engage and pay for services of an independent agency to perform the inspections and tests that are specified as Owner's responsibilities.

D. Where results of inspections or tests do not indicate compliance with contract document, retests are the Contractor's responsibility.

E. The Contractor shall cooperate with independent agencies performing inspections or tests. Provide auxiliary services as are reasonable. Auxiliary services include:

1. Provide access to the work.
2. Assist taking samples.
3. Deliver samples to test laboratory.

1.3 COORDINATION

A. The Contractor and independent test agencies shall coordinate the sequence of their activities. Avoid removing and replacing work to accommodate inspections and tests. The Contractor is responsible for scheduling times for inspections and tests.

1.4 QUALIFICATIONS FOR SERVICE AGENCIES

A. Engage inspection and test service agencies which are prequalified as complying with "Recommended Requirements for Independent Laboratory Qualification" by the American Council of Independent Laboratories.

B. Each agency shall be employed with the approval of the Architect/Engineer.

1.5 SUBMITTALS

A. Notify the Architect/Engineer of the testing schedule.

B. Submit a certified written report of each inspection test or similar service, in duplicate to the Architect/Engineer. Submit additional copies of each report to governing authority, when the authority so directs.

1.6 REPORT DATA

A. Written inspection or test reports shall include:

1. Name of testing agency or test laboratory.
2. Dates and locations of samples, tests or inspections.
3. Names of individuals present.
4. Complete inspection or test data.
5. Test results.
6. Interpretations.
7. Recommendations.

B. Reports shall be provided to the Architect/Engineer in a timely manner.

1.7 REPAIR AND PROTECTION

A. Upon completion of inspection or testing repair damaged work and restore substrates and finishes. Comply with requirements for "Cutting and Patching".

END OF SECTION

SECTION 01500

TEMPORARY FACILITIES

1. GENERAL

1.1 DESCRIPTION OF REQUIREMENTS: Provide temporary services and facilities ready for use when first needed to avoid delay in the work. Maintain, expand and modify as needed. Do not remove until no longer needed, or replaced by authorized use of permanent facilities.

1.2 USE CHARGES: Usage charges for temporary services or facilities are not chargeable to the Owner or Architect/Engineer.

1.3 REGULATIONS: Comply with requirements of local laws and regulations governing construction and local industry standards, in the installation and maintenance of temporary services and facilities.

1.4 STANDARDS: Comply with the requirements of NFPA Code 241, "Building Construction and Demolition Operations", the ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition", and the NECA National Joint Guideline NJG-6 "Temporary Job Utilities and Services".

1.5 INSPECTIONS: Inspect and test each service before placing temporary utilities in use. Arrange for inspections and tests by governing authorities, and obtain certifications and permits for use.

1.6 SUBMITTALS: Submit copies of reports and permits required or necessary for installation and operation, including reports of tests, inspections and meter readings performed on temporary utilities, and permits and easements necessary for installation, use and operation.

1.7 MATERIALS AND EQUIPMENT

A. Provide materials and equipment that are suitable for the intended use.

B. Provide new materials and equipment for temporary services and facilities; if acceptable to the Architect/Engineer, used materials and equipment that are undamaged may be used.

1.8 INSTALLATION

A. Use qualified tradesmen for installation.

B. Locate temporary services and facilities where they will serve the project adequately and result in minimum interference with the work.

1.9 TEMPORARY UTILITY INSTALLATION

A. Engage, or make arrangements if necessary with, the local utility company to make connections to existing service.

B. Arrange with the companies and existing users for an acceptable time when service can be interrupted to make connections.

C. Establish a service implementation and termination schedule. As early as possible change to use of permanent service, to enable removal of the temporary utility and eliminate possible interference with completion of the work.

D. Provide adequate capacity at each stage of construction. Prior to availability at the site, provide, trucked-in services for start up of construction operations.

E. Obtain and pay for easements required to bring temporary utilities to the site, where the Owner's easement cannot be utilized for that purpose.

1.10 ELECTRIC POWER SERVICE

A. Provide weathertight, grounded temporary electrical service-entrance and distribution system, with ground-fault circuit interrupters and ground-fault interrupter features of proper types, sizes, electrical ratings and characteristics to fulfill project requirements.

B. Comply with applicable requirements of NEMA, NECA and UL standards and governing regulations.

C. Install temporary lighting of adequate illumination levels to perform the work specified.

D. Comply with NEC pertaining to installation of temporary wiring service and grounding. Provide meters, transformers, and overcurrent protective devices at main distribution panel for power and light circuitry. Provide disconnects for equipment circuits.

1.11 POWER DISTRIBUTION SYSTEM

A. Provide circuits of proper sizes, characteristics, and ratings for each use indicated.

B. Install wiring overhead, and risers vertically where least exposed to damage.

C. Provide rigid steel conduit to protect wiring on grade, floors, decks or other areas exposed to possible damage.

D. Provide 20 amp, 4-gang receptacle outlets, equipped with ground-fault circuit interrupters, reset button and pilot light, spaced that a 100 foot extension cord can reach

each area of work. Use only grounded extension cords; use "hard- service" cords where exposed to abrasion and traffic.

E. Provide warning signs at power outlets that are other than 110/120 volt. Provide outlets of proper NEMA configuration to prevent insertion of 110/120 volt plugs into higher voltage outlets.

1.12 TEMPORARY LIGHTING

A. Provide general service incandescent lamps of wattage required for adequate illumination.

B. Protect lamps with guard cages or tempered glass enclosures, where exposed to breakage.

C. Provide exterior type fixtures where exposed to weather or moisture.

D. Provide one 200-watt incandescent lamp per 1000 square feet of floor area for general construction lighting, one 100-watt incandescent lamp every 50 feet in corridors, and one lamp per story, located to illuminate each landing and flight in stairways.

E. Install temporary lighting to fulfill security and protection requirements, without having to operate the entire temporary lighting system.

1.13TEMPORARY TELEPHONES

A. Provide project manager’s and supervisor’s cell phone number to Architect.

1.14 TEMPORARY HEAT

A. Provide temporary heat where needed for performance of work, for curing or drying of recently installed work or for protection of work in place from adverse effects of low temperatures or high humidity.

B. Provide UL or FM tested and labeled heating units known to be safe and without adverse effect upon work in place or being installed. Coordinate with ventilation requirements to produce the ambient condition.

C. Maintain a minimum temperature of 45 deg. F (7 deg. C) in permanently enclosed portions of the building and areas where finished work has been installed.

D. Except where use of the permanent heating system is available and authorized, provide properly vented self-contained LP gas or fuel oil heaters with individual space thermostatic control for temporary heat. Do not use open burning or salamander type heating units.

1.15 SANITARY FACILITIES

A. Sanitary facilities include temporary toilets.

B. Comply with governing regulations including safety and health codes for the type, number, location, operation and maintenance of fixtures and facilities.

C. Supply toilet tissue, paper towels, paper cups and similar disposable materials as appropriate for each facility. Provide covered waste containers for used material.

D. Install single occupant self-contained toilet units of the chemical, aerated recirculation or combustion type, properly vented and fully enclosed with glass fiber reinforced polyester shell. Use of pit-type privies will not be permitted.

E. Provide separate toilet facilities for male and female construction personnel.

F Provide drinking water fountains where and when piped potable water, approved by local authorities, is reasonably accessible from permanent or temporary lines. Otherwise, provide containerized tap-dispenser bottled-water type drinking water units.

1.16 FIRST AID SUPPLIES: Comply with governing regulations and recognized recommendations within the construction industry.

1.17 DEWATERING FACILITIES AND DRAINS

A. Maintain the site, excavations and construction free of water.

B. Dispose of rainwater in a lawful manner which will not result in flooding and project or adjoining property, nor endanger either permanent work or temporary facilities.

1.18 TEMPORARY ENCLOSURE

A. Provide temporary enclosure of materials, equipment, work in progress and completed portions of the Work to provide protection from exposure, foul weather, other construction operations, and similar activities.

B. Provide enclosures where temporary heat is needed and the permanent building enclosure is not completed, and there is no other provision for containment of heat. Coordinate with ventilating and material drying or curing requirements to avoid dangerous conditions.

C. Provide temporary enclosures by installing waterproof, fire- resistant, UL labeled tarpaulins with a flame-spread rating of 15 or less, using a minimum of wood framing. Use translucent nylon reinforced laminated polyethylene tarpaulins to admit the

maximum amount of daylight. Individual openings of 25 square feet or less may be closed with plywood or similar materials.

D. Close openings through the floor or roof decks and other horizontal surfaces with substantial load-bearing wood-framed or similar construction.

1.19 COLLECTION AND DISPOSAL OF WASTES

A. Establish a system for daily collection and disposal of waste materials. Do not hold collected materials longer than 7 days.

B. Handle waste materials that are hazardous, dangerous, or unsanitary separately from other waste by containerizing.

C. Burying or burning of waste materials on the site or washing waste material down sewers will not be permitted.

D. Refer to MSHA Green Building Standards Section 11 R1 for additional requirements including a written construction materials recycling / waste management plan.

1.20 MISCELLANEOUS SERVICES AND FACILITIES

A. Design, construct, and maintain miscellaneous services and facilities as needed to accommodate performance of the work, including temporary stairs, ramps, ladders, staging, shoring, scaffolding, temporary partitions, waste chutes and similar items.

1.21 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Provide a neat and uniform appearance in security and protection facilities acceptable to the Architect/Engineer and the Owner.

B. Maintain site in a safe, lawful and publicly acceptable manner.

C. Take necessary measures to prevent erosion.

D. Except for utilization of permanent fire protection facilities, as soon as available, do not change over to use of permanent facilities until substantial completion.

1.23 TEMPORARY FIRE PROTECTION

A. Until fire protection needs may be fulfilled by permanent facilities, install and maintain temporary fire protection of the types needed to protect against losses.

B. Comply with recommendations of NFPA Standard 10.

C. Locate fire extinguishers where most effective; provide not less than one on each floor at or near each stairwell.

D. Provide type "A" fire extinguishers for temporary offices and spaces where there is minimal danger of electrical or flammable liquid fires, and type "ABC" dry chemical extinguishers elsewhere.

E. Store combustible materials in containers in fire-safe locations.

F. Review fire prevention and protection needs with local fire department officials and establish procedures to be followed in the event of fire. Instruct personnel in procedures and post warnings and information.

G. Maintain unobstructed access to fire extinguishers, temporary fire protection facilities, stairways and other access routes.

H. Prohibit smoking in hazardous areas.

I. Provide supervision of welding operations, combustion type temporary heating units, and similar sources of ignition.

J. At temporary water outlets provide hoses of sufficient length to reach construction areas. Hang hoses with a warning sign, indicating that hoses are for fire protection purposes and are not to be removed.

K. At the earliest feasible date complete installation of the permanent fire protection facility, including connected services, and place into operation and use. Instruct key personnel at the site on how to use facilities which may not be self-explanatory.

1.24 BARRICADES, WARNING SIGNS AND LIGHTS

A. Comply with recognized standards and code requirements for erection of substantial, barricades where needed to prevent accidents.

B. Paint with appropriate colors and warning signs to inform personnel at the site and the public, of the hazard being protected against.

C. Provide lighting where needed, including flashing red lights where appropriate.

1.25 SECURITY ENCLOSURE AND LOCKUP: Where materials and equipment must be temporarily stored, and are of substantial value or attractive for possible theft, provide a secure lockup.

1.26 ENVIRONMENTAL PROTECTION

A. Conduct construction activities, and by methods that comply with environmental regulations, minimize the possibility that air, waterways and subsoil might be contaminated or polluted, or that other undesirable effects might result from the performance of work at the site.

B. Avoid the use of tools and equipment which produce harmful noise.

C. Restrict the use of noise making tools and equipment to hours of use that will minimize complaints.

1.27 OPERATION, TERMINATION AND REMOVAL

A. Limit availability of temporary services and facilities to essential and intended uses to minimize waste and abuse. Do not permit temporary installations to be abused or endangered.

B. Operate and maintain temporary services and facilities in good operating condition and in a safe and efficient manner until removal is authorized. Do not overload services or facilities. Protect from damage by freezing temperatures and similar elements.

C. Do not allow unsanitary conditions, public nuisances or hazardous conditions to develop or persist on the site.

D. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation and similar facilities on a 24- hour basis where required to achieve indicated results and avoid the possibility of damage to the Work or to temporary facilities.

E. Prevent water filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation.

F. Remove each temporary service and facility promptly when need has ended, or when replaced by use of a permanent facility, but no later than substantial completion. Complete, or, if necessary, restore permanent work delayed because of interference with the temporary service or facility. Repair damaged work, clean exposed surfaces and replace work which cannot be repaired.

G. At substantial completion, clean and renovate permanent services and facilities that have been used to provide temporary services and facilities during the construction period.

1.28 PROJECT IDENTIFICATION AND TEMPORARY SIGNS

A. Prepare a 4'x8' project identification sign as per Architect's requirements. Use 3/4" exterior plywood, and exterior grade acrylic latex-base enamel. Install at location indicated by Architect.

B. Support on suitable posts or framing of treated wood or steel. Maintain in a manner which will properly inform the public and persons seeking entrance to the project.

C. Do not permit installation of unauthorized signs that are visible outside the site.

END OF SECTION

SECTION 01631

PRODUCTS AND SUBSTITUTIONS

1. GENERAL

1.1 PROCEDURAL REQUIREMENTS

A. Source Limitations:

1. To the fullest extent possible, provide products of the same generic kind, from a single source, for each unit of work. Where it is not possible to do so, match separate procurements as closely as possible.

2. To the extent that the product selection process is under the Contractor's control, provide products that are compatible with previously selected products.

3. Where standard products are available that comply with specified requirements, provide those standard products that have been used successfully before in similar applications, and that are recommended by the manufacturers for the applications indicated.

1.2 PRODUCT SELECTION LIMITATIONS

A. Product Selections: Comply with the following requirements in the selection of products, materials and equipment:

1. Single Product Name: Where only a single product or manufacturer is named provide the product, or approved equal, unless it is incompatible with existing work, or does not comply with specified requirements or governing regulations.

2. "Or Approved Equal" Provisions": Where products or manufacturers are specified by name provide either the product named, or comply with the requirements for gaining approval of "substitutions" for the use of an unnamed product.

4. Compliance with Standards: Where the specifications require only compliance with an imposed standard, code or regulation, the Contractor has the option of selecting any product that complies with specified requirements provided no product names are indicated.

5. Performance Requirements: Where the specifications require compliance with indicated performance requirements, the Contractor has the option of selecting any product that complies with the specific performance requirements, provided no product names are indicated.

6. Visual Requirements: Where the specifications indicate that a product is to be selected from the manufacturer's standard options, without naming the manufacturer, the Architect/Engineer has the option of making the selection, after the Contractor has determined or selected the manufacturer.

B. Nameplates: Except as otherwise indicated for required labels and operating data, do not permanently attach or imprint manufacturer's or producer's nameplates or trademarks on exposed surfaces of products which will be exposed to view either in occupied spaces or on the exterior of the completed project.

1.3 SUBSTITUTIONS

A. Conditions: The Contractor's requests for substitutions will be considered when they are reasonable, timely, fully documented, and when they qualify under one or more of the following circumstances.

1. The proposed substitution is related to an "or approved equal" or similar provision in the contract documents.

2. The required product cannot be supplied in time for compliance with Contract Time requirements.

3. The required product is not acceptable to governing authorities.

4. The required product cannot be properly coordinated with other materials in the work, or cannot be warranted or insured as specified.

5. The proposed substitution will offer a substantial advantage to the Owner after deducting offsetting disadvantages including delays, additional compensation to the Architect/Engineer for redesign, evaluation and other necessary services, and similar considerations.

B. Submittals: Include the following information, as appropriate, in each request for substitution:

1. Provide complete product documentation, including product data and samples, where appropriate.

2. Provide detailed performance comparisons and evaluation, including testing laboratory reports where applicable.

3. Provide coordination information indicating the effect of the substitution on other work and the time schedule.

4. Provide cost information for the proposed change order.

5. Provide the Contractor's general certification of the recommended substitution.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Receive, store and handle products, materials and equipment in a manner which will prevent loss, deterioration and damage.

B. Schedule deliveries so as to minimize long-term storage at the project site.

END OF SECTION

SECTION 01700

PROJECT CLOSEOUT

1. GENERAL

1.1 DESCRIPTION OF REQUIREMENTS

A. Provisions of this section apply to the procedural requirements for the actual closeout of the Work, not to administrative matters such as final payment or the change over of insurance.

B. Closeout requirements relate to both substantial and final completion of the Work; they also apply to individual portions of completed work as well as the total Work.

C. Specific requirements contained in other sections have precedence over the general requirements contained in this section.

1.2 PROCEDURES AT SUBSTANTIAL COMPLETION

A. Prerequisites: Comply with General Conditions and complete the following before requesting Architect's/Engineer's inspection of the Work, or a designated portion of the Work, for certification of substantial completion.

1. Submit executed warranties, workmanship bonds, maintenance agreements, inspection certificates and similar required documentation for specific units of work, enabling owner's unrestricted occupancy and use.

2. Submit record documentation, maintenance manuals, tools, spare parts, keys and similar operational items.

3. Complete instruction of Owner's operating personnel, and start-up of systems.

4. Complete final cleaning, and remove temporary facilities and tools.

B. Inspection Procedures:

1. Upon receipt of Contractor's request, Architect/Engineer will either proceed with inspection or advise Contractor of prerequisites not fulfilled.

2. Following initial inspection, Architect/Engineer will either prepare certificate of substantial completion, or advise Contractor of work which must be performed prior to issuance of the certificate of substantial completion.

3. The Architect/Engineer will repeat the inspection when requested and assure that the Work has been substantially completed.

4. Results of the completed inspection will form the initial "punch-list" for final acceptance.

1.3 PROCEDURES AT FINAL ACCEPTANCE

A. Reinspection Procedure:

1. The Architect/Engineer will reinspect the Work upon receipt of the Contractor's notice that, except for those items whose completion has been delayed due to circumstances that are acceptable to the Architect/Engineer, the Work has been completed, including punch-list items from earlier inspections.

2. Upon completion of reinspection, the Architect/Engineer will either recommend final acceptance and final payment, or will advise the Contractor of work not completed or obligations not fulfilled as required for final acceptance. If necessary, this procedure will be repeated.

1.4 RECORD DOCUMENTATION

A. Record Drawings:

1. Maintain a complete set of either blue- or black-line prints of the contract drawings and shop drawing for record mark-up purposes throughout the Contract Time.

2. Mark-up these drawings during the course of the work to show both changes and the actual installation for all trades, in sufficient detail to form a complete record for the Owner's purposes. Give particular attention to work which will be concealed and difficult to measure and record at a later date, and work which may require servicing or replacement during the life of the project.

3. Require the entities marking prints to sign and date each mark-up.

4. Bind prints into manageable sets, with durable paper covers, appropriately labeled.

B. Maintenance Manuals:

1. Provide 3-ring vinyl-covered binders containing required maintenance manuals, properly identified and indexed.

2. Include operating and maintenance instructions extended to cover emergencies, spare parts, warranties, inspection procedures, diagrams, safety, security, and similar appropriate data for each system or equipment item.

1.5 GENERAL CLOSEOUT REQUIREMENTS

A. Operator Instructions: Require each Installer of systems requiring continued operation and maintenance by owner's operating personnel, to provide on-location instruction to Owner's personnel, sufficient to ensure safe, secure, efficient, non-failing utilization and operation of systems. Provide instructions for the following categories of work:

1. Mechanical/electrical/electronic systems (not limited to work of Divisions 15 and 16).
2. Live plant materials and lawns.
3. Roofing, flashing, joint sealers.
4. Floor finishes.

B. Final Cleaning: At the time of project close out, clean or reclean the Work to the condition expected from a normal, commercial building cleaning and maintenance program. Complete the following cleaning operations before requesting the Architect/Engineer's inspection for certification of substantial completions.

1. Remove non-permanent protection and labels.
2. Polish glass.
3. Clean exposed finishes.
4. Touch-up minor finish damage.
5. Clean or replace mechanical systems filters.
6. Remove debris.
7. Broom-clean unoccupied spaces.
8. Sanitize plumbing and food service facilities.
9. Clean light fixtures and replace burned-out lamps.
10 Sweep and wash paved areas.
11. Police yards and grounds

END OF SECTION

SECTION 02223

SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Procedures for demolition and removal of existing building elements.
   2. Removal of designated building equipment and fixtures.

1.2 SYSTEM DESCRIPTION

A. The extent of Selective Demolition Work is that Work necessary, and required to facilitate the new construction indicated.

B. Demolition shall be such that all construction, new and existing, can be performed, and completed in accordance with the construction documents.

1.3 QUALITY ASSURANCE

A. Engage only personnel who can demonstrate not less than five years successful experience in Work of similar character.

B. Performance Criteria:
   1. Requirements of Structural Work: Do not cut structural work in a manner resulting in a reduction of load-carrying capacity of load/deflection ratio.
   2. Operational and Safety Limitations: Do not cut operational elements and safety-related components in a manner resulting in a reduction of capacities to perform in a manner intended or resulting in a decreased operational life, increased maintenance or decreased safety.
   3. Visual Requirements: Do not cut work which is exposed on the exterior or exposed in occupied spaces of the building in a manner resulting in a reduction of visual qualities or resulting in substantial evidence of the demolition work judged by the Architect to be cut and patched in a visually unsatisfactory manner.
   4. Loading: Do not superimpose loads at any point upon existing structure beyond design capacity including loads attributable to materials, construction equipment, demolition operations and shoring and bracing.
   5. Vibration: Do not use means, methods, techniques or procedures which would induce vibration into any element of the structure.
   6. Fire: Do not use means, methods, techniques or procedures which would produce any fire hazard unless otherwise approved by Architect.
   7. Water: Do not use means, methods, techniques or procedures which would produce excessive water run-off, and water pollution.
   8. Air Pollution: Do not use means, methods, techniques or procedures which would produce uncontrolled dust, fumes or other damaging air pollution.

1.4 PROJECT SITE

A. The Contractor shall verify all existing conditions and notify the Contracting Officer of discrepancies before proceeding with the Work.

B. Perform the removal, cutting, drilling, etc., of existing work with extreme care, and using small tools in order not to jeopardize the structural integrity of the building.

C. The Contractor shall have full use of the facility during construction.

D. Condition of Structure: The Owner assumes no responsibility for the actual condition of portions of the structure to be demolished.

E. Protection: Make sure that the safe passage of persons around the area of demolition is maintained during the demolition operation. Conduct operations to prevent injury to adjacent buildings, structures, other facilities, and persons.

1.5 PROTECTION OF EXISTING CONSTRUCTION

A. Provide temporary protection of existing construction (floors, roof, and walls) when adjoining new work and in traffic areas.

B. Provide temporary construction, constructed of framing and plywood, to protect existing construction and surrounding surfaces from damage by movement of materials and personnel.

C. The contractor is responsible for all damage to existing structure and shall replace or repair all areas of damage.

D. Repair, replace, or rebuild existing construction as required or as directed which has been removed, altered or disrupted to allow for new construction. Existing construction shall be corrected to match adjacent construction, new or existing.

E. Perform cutting of existing concrete and masonry construction with saws and core drills. Do not use jack-hammers or explosives.

1.6 SHORING AND BRACING

A. Provide temporary shoring of existing construction to allow removal of existing structural elements. Maintain shoring until new structural elements are in place and accepted.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify existing conditions before starting work.

B. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive Work.

C. Report in writing to the Owner prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.

D. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the Owner.

3.2 PREPARATION

A. Temporary Support: Provide adequate temporary support for work to be cut to prevent failure. Do not endanger other work.

B. Provide adequate protection of other work during selective demolition to prevent damage and provide protection of the work from adverse weather exposure.

3.3 PROCEDURE

A. Employ only skilled tradesmen to perform selective demolition.

B. Cut work by methods least likely to damage work to the retained and work adjoining.

C. In general, where physical cutting action is required, cut work with sawing and grinding tools, not with hammering and chopping tools. Core drill openings through concrete and masonry work.

D. Patch with seams which are durable and as invisible as possible. Comply with specified tolerances for the work.

E. Where selective demolition terminates at a surface or finish to remain, completely remove all traces of material selectively demolished, including mortar beds. Provide smooth, even, substrate transition.

3.4 POLLUTION CONTROLS

A. Use temporary enclosures and other suitable methods to limit the amount of dust and dirt rising and scattering in the air to the lowest practical level.

B. Comply with governing authorities pertaining to environmental protection.

C. Clean adjacent portion of the structure and improvement of dust, dirt and debris caused by demolition operations, as directed by the Owner and governing authorities. Return adjacent areas to conditions existing prior to the start of the work.

3.5 DISPOSAL OF DEMOLISHED MATERIALS

A. Collect, recycle, reuse, and dispose of demolished materials per governing regulatory authorities.

3.6 SCHEDULE OF SELECTIVE DEMOLITION

A. Slab on Grade:
   1. Break concrete slab to be removed into portions easily removed, maximum 3 foot dimensions in any side.
   2. Remove all concrete pieces within removed area down to the existing subgrade.

B. Interior Walls and Partitions:
   1. Remove interior wall and partitions indicated on drawings.

C. Provide additional selective demolition as required for indicated new construction.

END OF SECTION

SECTION 02310

GRADING

PART 1 GENERAL

1.01 SECTION INCLUDES

B. Rough grading.

C. Finish grading.

1.02 RELATED SECTIONS

A. Section 02315 - Excavation.

B. Section 02316 - Fill and Backfill: Filling and compaction.

1.03 SUBMITTALS

A. Project Record Documents: Accurately record actual locations of utilities remaining by horizontal dimensions, elevations or inverts, and slope gradients.

1.04 QUALITY ASSURANCE

A. Perform Work in accordance with State of Maine, Department of Transportation standards.

1.05 PROJECT CONDITIONS

A. Protect above- and below-grade utilities that remain.

B. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from grading equipment and vehicular traffic.

PART 2 PRODUCTS

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that survey bench mark and intended elevations for the Work are as indicated.

3.02 PREPARATION

A. Identify required lines, levels, contours, and datum.

B. Stake and flag locations of known utilities.

C. Locate, identify, and protect utilities that remain, from damage.

D. Notify utility company to remove and relocate utilities.

3.03 ROUGH GRADING

A. Remove topsoil from areas to be further excavated, re-landscaped, or re-graded, without mixing with foreign materials.

B. Do not remove topsoil when wet.

C. Remove subsoil from areas to be further excavated, re-landscaped, or re-graded.

D. Do not remove wet subsoil, unless it is subsequently processed to obtain optimum moisture content.

E. When excavating through roots, perform work by hand and cut roots with sharp axe.

F. See Section 02316 for filling procedures.

G. Stability: Replace damaged or displaced subsoil to same requirements as for specified fill.

3.04 SOIL REMOVAL

A. Stockpile topsoil to be re-used on site; remove remainder from site.

B. Stockpile excavated subsoil on site.

C. Stockpiles: Use areas designated on site; pile depth not to exceed 8 feet; protect from erosion.

3.05 FINISH GRADING

A. Before Finish Grading:
   1. Verify building and trench backfilling have been inspected.
   2. Verify subgrade has been contoured and compacted.

B. Remove debris, roots, branches, stones, in excess of 1/2 inch in size. Remove soil contaminated with petroleum products.

C. In areas where vehicles or equipment have compacted soil, scarify surface to depth of 3 inches.

D. Fine grade topsoil to eliminate uneven areas and low spots. Maintain profiles and contour of subgrade.

END OF SECTION

SECTION 02315

EXCAVATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Excavating for building volume below grade and paving.

B. Trenching for utilities outside the building to utility main connections.

1.02 RELATED SECTIONS

A. Section 02310 - Grading: Soil removal from surface of site.

B. Section 02310 - Grading: Grading.

C. Section 02316 - Fill and Backfill: Fill materials, filling, and compacting.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PREPARATION

A. Identify required lines, levels, contours, and datum locations.

B. Locate, identify, and protect utilities that remain and protect from damage.

C. Notify utility company to remove and relocate utilities.

3.02 EXCAVATING

A. Excavate to accommodate new structures and construction operations.

B. Notify Architect of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.

C. Slope banks of excavations deeper than 4 feet to angle of repose or less until shored.

D. Do not interfere with 45 degree bearing splay of foundations.

E. Cut utility trenches wide enough to allow inspection of installed utilities.

F. Hand trim excavations. Remove loose matter.

G. Correct areas that are over-excavated and load-bearing surfaces that are disturbed.

H. Grade top perimeter of excavation to prevent surface water from draining into excavation.

I. Remove excavated material that is unsuitable for re-use from site.

END OF SECTION

SECTION 02316

FILL AND BACKFILL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Filling, backfilling, and compacting for paving and site structures.

B. Backfilling and compacting for utilities outside the building to utility main connections.

C. Filling holes, pits, and excavations generated as a result of removal (demolition) operations.

1.02 REFERENCES

A. AASHTO T 180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54 kg (10-lb) Rammer and a 457 mm (18 in.) Drop; American Association of State Highway and Transportation Officials; 2001 (2004).

B. ASTM D 698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3)); 2000a.

C. ASTM D 1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method; 2000.

D. ASTM D 1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN m/m3)); 2002.

E. ASTM D 2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method; 1994(R 2001).

F. ASTM D 2922 - Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth); 2005.

G. ASTM D 3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth); 2005.

1.03 DEFINITIONS

A. Finish Grade Elevations: Indicated on drawings.

B. Subgrade Elevations: Indicated on drawings.

1.04 PROJECT CONDITIONS

A. Provide sufficient quantities of fill to meet project schedule and requirements. When necessary, store materials on site in advance of need.

B. Verify that survey bench marks and intended elevations for the Work are as indicated.

PART 2 PRODUCTS

2.01 FILL MATERIALS

A. Common Borrow: Conforming to State of Maine Department of Transportation spec.703.18.

B. Granular Fill: Natural stone; washed, free of clay, shale, organic matter.

PART 3 EXECUTION

3.01 EXAMINATION

A. Identify required lines, levels, contours, and datum locations.

3.02 PREPARATION

A. Scarify subgrade surface to a depth of 6 inches to identify soft spots.

B. Cut out soft areas of subgrade not capable of compaction in place. Backfill with general fill.

C. Compact subgrade to density equal to or greater than requirements for subsequent fill material.

D. Until ready to fill, maintain excavations and prevent loose soil from falling into excavation.

3.03 FILLING

A. Fill to contours and elevations indicated using unfrozen materials.

B. Employ a placement method that does not disturb or damage other work.

C. Systematically fill to allow maximum time for natural settlement. Do not fill over porous, wet, frozen or spongy subgrade surfaces.

D. Maintain optimum moisture content of fill materials to attain required compaction density.

E. Granular Fill: Place and compact materials in equal continuous layers not exceeding 6 inches compacted depth.

F. Soil Fill: Place and compact material in equal continuous layers not exceeding 8 inches compacted depth.

G. Slope grade away from building minimum 2 inches in 10 ft, unless noted otherwise. Make gradual grade changes. Blend slope into level areas.

H. Correct areas that are over-excavated.
   1. Other areas: Use general fill, flush to required elevation, compacted to minimum 97 percent of maximum dry density.

I. Compaction Density Unless Otherwise Specified or Indicated:
   1. Under paving, slabs-on-grade, and similar construction: 97 percent of maximum dry density.
   2. At other locations: 95 percent of maximum dry density.

J. Reshape and re-compact fills subjected to vehicular traffic.

END OF SECTION

SECTION 02721

AGGREGATE BASE COURSE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Aggregate base course.

B. Paving aggregates.

1.02 RELATED SECTIONS

A. Section 02310 - Grading: Preparation of site for base course.

B. Section 02316 - Fill and Backfill: Compacted fill under base course.

C. Section 02741 - Bituminous Concrete Paving: Binder and finish asphalt courses.

1.03 PROJECT CONDITIONS

A. Provide sufficient quantities of aggregate to meet project schedule and requirements. When necessary, store materials on site in advance of need.

B. Verify that survey bench marks and intended elevations for the Work are as indicated.

PART 2 PRODUCTS

2.01 MATERIALS

A. Coarse Aggregate Type C: Coarse aggregate, conforming to State of Maine Department of Transportation spec. 703.06 (a).

B. Fine Aggregate: Sand; conforming to State of Maine Department of Transportation spec. 703.05.

2.02 SOURCE QUALITY CONTROL

A. See Section 01400 - Quality Requirements, for general requirements for testing and analysis of aggregate materials.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify substrate has been inspected, gradients and elevations are correct, and is dry.

3.02 INSTALLATION

A. Under Bituminous Concrete Paving:
   1. Place coarse aggregate to a total compacted thickness of 18 inches.
   2. Compact to 95 percent of maximum dry density.

B. Place aggregate in maximum 4 inch layers and roller compact to specified density.

C. Level and contour surfaces to elevations and gradients indicated.

D. Add small quantities of fine aggregate to coarse aggregate as appropriate to assist compaction.

E. Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.

F. Use mechanical tamping equipment in areas inaccessible to compaction equipment.

3.03 CLEAN-UP

A. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.

END OF SECTION

SECTION 02741

BITUMINOUS CONCRETE PAVING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Aggregate base course.

B. Double course bituminous concrete paving.

1.02 RELATED SECTIONS

A. Section 02310 - Grading: Preparation of site for paving and base.

B. Section 02316 - Fill and Backfill: Compacted subgrade for paving.

1.03 REFERENCES

A. AI MS-2 - Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types; The Asphalt Institute; 1994, Sixth Edition.

1.04 QUALITY ASSURANCE

A. Perform Work in accordance with State of Maine Department of Transportation.

B. Mixing Plant: Conform to State of Maine Department of Transportation.

C. Obtain materials from same source throughout.

1.05 ENVIRONMENTAL REQUIREMENTS

A. Do not place asphalt when ambient air or base surface temperature is less than 40 degrees F, or surface is wet or frozen.

PART 2 PRODUCTS

2.01 MATERIALS

A. Aggregate for Base Course: In accordance with State of Maine Department of Transportation.

B. Aggregate for Binder Course: In accordance with State of Maine Department of Transportation.

C. Aggregate for Wearing Course: In accordance with State of Maine Department of Transportation.

D. Fine Aggregate: In accordance with State of Maine Department of Transportation.

2.02 ASPHALT PAVING MIXES AND MIX DESIGN

A. Base Course: State of Maine Highways standards, Type B.

B. Binder Course: State of Maine Highways standards, Type D.

C. Wearing Course: State of Maine Highways standards.

2.03 SOURCE QUALITY CONTROL

A. Test mix design and samples in accordance with AI MS-2.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that compacted subgrade is dry and ready to support paving and imposed loads.

B. Verify gradients and elevations of base are correct.

3.02 BASE COURSE

A. Place and compact base course.

3.03 PREPARATION - PRIMER

A. Apply primer in accordance with manufacturer's instructions.

B. Apply primer on aggregate base or subbase at uniform rate of 1/3 gal/sq yd.

C. Use clean sand to blot excess primer.

3.04 PREPARATION - TACK COAT

A. Apply tack coat in accordance with manufacturer's instructions.

B. Apply tack coat on asphalt or concrete surfaces over subgrade surface at uniform rate of 1/3 gal/sq yd.

3.05 PLACING ASPHALT PAVEMENT - DOUBLE COURSE

A. Place asphalt binder course within 24 hours of applying primer or tack coat.

B. Place wearing course within two hours of placing and compacting binder course.

C. Compact pavement by rolling to specified density. Do not displace or extrude pavement from position. Hand compact in areas inaccessible to rolling equipment.

D. Perform rolling with consecutive passes to achieve even and smooth finish, without roller marks.

3.06 TOLERANCES

A. Flatness: Maximum variation of 1/4 inch measured with 10 foot straight edge.

B. Variation from True Elevation: Within 1/2 inch.

3.10 SCHEDULE

A. Pavement at Parking Areas: Two courses; binder course of 2 inch compacted thickness and wearing course of 1 inch compacted thickness, fog seal coat.

END OF SECTION

SECTION 02765

PAVEMENT MARKINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Parking lot markings.

1.02 RELATED SECTIONS

A. Section 02741 - Bituminous Concrete Paving.

1.03 REFERENCES

A. MPI (APL) - Master Painters Institute Approved Products List; Master Painters and Decorators Association; current edition, www.paintinfo.com.

B. FHWA MUTCD - Manual on Uniform Traffic Control Devices for Streets and Highways; U.S. Department of Transportation, Federal Highway Administration; current edition at http://mutcd.fhwa.dot.gov.

1.04 SUBMITTALS

A. See Section 01300 - Administrative Requirements, for submittal procedures.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver paint in containers of at least 5 gallons accompanied by batch certificate.

B. Store products in manufacturer's unopened packaging until ready for installation.

C. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.06 PROJECT CONDITIONS

A. Do not install products under environmental conditions outside manufacturer's absolute limits.

PART 2 PRODUCTS

2.01 MATERIALS

A. Line and Zone Marking Paint: MPI No. 97 Latex Traffic Marking Paint; color(s) as indicated.
   1. Parking Lots: White

B. Temporary Marking Tape: Preformed, reflective, pressure sensitive adhesive tape in color(s) required; Contractor is responsible for selection of material of sufficient durability as to perform satisfactorily during period for which its use is required.

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Archetype Architects of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Allow new pavement surfaces to cure for a period of not less than 14 days before application of marking materials.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Clean surfaces thoroughly prior to installation.
   1. Remove dust, dirt, and other granular surface deposits by sweeping, blowing with compressed air, rinsing with water, or a combination of these methods.

D. Where oil or grease are present, scrub affected areas with several applications of trisodium phosphate solution or other approved detergent or degreaser, and rinse thoroughly after each application; after cleaning, seal oil-soaked areas with cut shellac to prevent bleeding through the new paint.

E. Establish survey control points to determine locations and dimensions of markings; provide templates to control paint application by type and color at necessary intervals.

F. Temporary Pavement Markings: When required or directed by Archetype Architects, apply temporary markings of the color(s), width(s) and length(s) as indicated or directed.
   1. After temporary marking has served its purpose, remove temporary marking by carefully controlled sandblasting, approved grinding equipment, or other approved method so that surface to which the marking was applied will not be damaged.
   2. At Contractor's option, temporary marking tape may used in lieu of temporary painted marking; remove unsatisfactory tape and replace with painted markings at no additional cost to North Berwick Affordable Housing, LP.

3.03 INSTALLATION

A. Begin pavement marking as soon as practicable after surface has been cleaned and dried.

B. Do not apply paint if temperature of surface to be painted or the atmosphere is less than 50 degrees F or more than 95 degrees F.

C. Apply in accordance with manufacturer's instructions using an experienced technician that is thoroughly familiar with equipment, materials, and marking layouts.

D. Comply with FHWA MUTCD manual (http://mutcd.fhwa.dot.gov) for details not shown.

E. Apply markings in locations determined by measurement from survey control points; preserve control points until after markings have been accepted.

F. Apply uniformly painted markings of color(s), lengths, and widths as indicated on the drawings true, sharp edges and ends.
   1. Apply paint in one coat only.
   2. Wet Film Thickness: 0.015 inch, minimum.
   3. Width Tolerance: Plus or minus 1/8 inch.

G. Parking Lots: Apply parking space lines, entrance and exit arrows, painted curbs, and other markings indicated on drawings.
   1. Mark the International Handicapped Symbol at indicated parking spaces.
   2. Hand application by pneumatic spray is acceptable.

3.04 DRYING, PROTECTION, AND REPLACEMENT

A. Protect newly painted markings so that paint is not picked up by tires, smeared, or tracked.

B. Provide barricades, warning signs, and flags as necessary to prevent traffic crossing newly painted markings.

C. Allow paint to dry at least the minimum time specified by the applicable paint standard and not less than that recommended by the manufacturer.

D. Remove and replace markings that are applied at less than minimum material rates; deviate from true alignment; exceed length and width tolerances; or show light spots, smears, or other deficiencies or irregularities.

E. Remove markings in manner to avoid damage to the surface to which the marking was applied, using carefully controlled sand blasting, approved grinding equipment, or other approved method.

END OF SECTION

SECTION 02930 - TOPSOILING

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

A. 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 WORK INCLUDED

A. Refer to the Drawings for the extent and details of this work.

B. The work of this section consists of all top soiling and related work as shown on the Drawings or required herein and includes, but is not limited to the following:

1. Providing topsoil required for work of this section.

2. Stripping, screening and stockpiling topsoil.

3. Providing additional new topsoil from off-site sources as required to complete work for this section.

1.3 PRODUCT HANDLING

A. Delivery and Storage:

1. Use all means necessary to protect seed from moisture and other contaminants which may adversely effect proper germination.

2. Use all means necessary to protect fertilizers, amendments and other materials from moisture and other contaminants which may adversely affect their efficacy.

1.4 JOB CONDITIONS

A. Utilities: Determine location of underground utilities and perform work in a manner which will avoid possible damage. Hand excavate as required. Maintain grade stakes set by others until removal is mutually agreed upon by all parties concerned.

B. Excavation: When conditions detrimental to plant growth are encountered, such as rubble fill, adverse drainage conditions, clay, underground structures or obstructions, notify Architect for direction immediately.

PART 2 - PRODUCTS

2.1 PRODUCTS

A. Topsoil

1. Topsoil stockpiled from on-site stripping may be utilized if in compliance with the requirements for new topsoil.

2. Topsoil that was stripped and stockpiled shall be screened to a maximum stone size of 1/2 in.

B. New Topsoil

1. New Topsoil: Shall be natural, fertile loam typical of cultivated topsoil of the locality, containing not less than 3.5% or more than 8% by weight, of decayed organic matter (humus) as determined by ASTM F-1647.

2. Topsoil shall be taken from a well-drained, arable site, free of subsoil, large stones, earth clods, sticks, stumps, clay lumps, roots or other objectionable, extraneous matter or debris.

3. Topsoil shall be free of Quack-grass rhizomes, *Agropyron Repens*, and the nut-like tubers of Nutgrass, *Cyperus Esculentus*, and all other primary noxious weeds.

4. Topsoil shall have a pH not less than 6.0 or greater than 6.8.

5. Topsoil shall not be delivered or used while in a frozen or muddy condition.

6. Topsoil shall conform to the following particle size distribution, as determined by pipette method in compliance with ASTM F-1632:

Sand	40-60%
Silt	30-40%
Clay	5-20%

PART 3 - EXECUTION

3.1 STRIPPING TOPSOIL

A. Strip all suitable topsoil from areas to be disturbed as shown on the Drawings.

3.2 PREPARATION OF SUBSOIL

A. Prior to spreading topsoil, subsoil should be rough graded to correspond with finish grades as indicated on the Drawings. Subgrade shall slope to allow for subsurface drainage. Depressions shall be filled, and areas which are highly compacted shall be loosened to a depth which is adequate for the passage of gravitational water through the subsoil.

B. After acceptance of subsoil grades, loosen and scarify subgrade material two inches to four inches (2"- 4") deep. Remove stones over two (2") inches, sticks, rubbish, and other deleterious materials which may impede the healthy and vigorous growth of grass. Move no heavy objects or machinery, except as necessary for the spreading of topsoil, over sod and seed beds after preparation of subgrade.

C. Subsoil which becomes compacted due to excessive construction activity shall be loosened as directed by the Architect at no additional cost to the Owner.

3.3 SPREADING OF TOPSOIL

A. Immediately after approval of subgrade, evenly spread and lightly compact approved topsoil to finish grades as indicated on the Drawings. Do not spread topsoil which is in a muddy or frozen condition. Handle no topsoil when in dry or above the plastic limit.

B. When possible, spreading of topsoil shall be performed from the center of the lawn area to the perimeter.

C. Caution should be exercised to minimize or eliminate travel over areas previously covered with topsoil. Topsoil which becomes compacted due to excessive construction activity shall be stripped and re-spread, or loosened as directed by the Architect at no additional cost to the Owner.

3.4 SEED BED PREPARATION

A. The minimum depth of topsoil in all planting areas shall be twelve (12”) inches unless otherwise specified on the Drawings. Contractor is responsible for supplying all topsoil needed from off-site sources if stockpiles are inadequate.

3.8 CLEAN UP

A. Absolutely no debris, fencing or barricades may be left on the site. Excavated material shall be removed as directed. Repair any damage to site or structures to restore them to their original condition, as directed by the Landscape Architect, at no cost to the Owner.

END OF SECTION

SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. Related Documents: Drawings and general provisions of Contract.

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 that of all 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 DESCRIPTION OF WORK:

A. Work included:

Provide labor, materials, and equipment necessary to complete the work of this Section and, without limiting the generality thereof, furnish and include the following:

1. The extent of cast-in-place concrete work is shown on drawings and includes (but not by way of limitation) formwork, reinforcing, cast-in-place concrete, accessories, and casting in of items specified under other Sections of the Specifications or furnished by Owner that are required to be built-in with the concrete.

2. Equipment support pads indicated on mechanical drawings to be installed by the Building Contractor.

1.03 RELATED WORK:

A. Joint Sealants: Section 07900

1.04 QUALITY ASSURANCE:

A. Codes and Standards: Comply with provisions of the following except where more stringent requirements are shown or specified:

1. ACI 213R-79 "Guide for Structural Lightweight Aggregate Concrete."

2. ACI 211.1-81 "Recommended Practice for Selecting Proportions for Normal Heavyweight and Mass Concrete."

3. ACI 212.2 R-81 "Guide for Use of Admixtures in Concrete."

4. ACI 301-72 (Revised 1981) "Specifications for Structural Concrete for Buildings."

5. ACI 302.1 R-80 "Guide for Concrete Floor and Slab Construction."

6. ACI 304-73 "Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete."

7. ACI 304-2 R-71 "Placing Concrete by Pumping Methods."

8. ACI 306 R-78 "Cold Weather Concreting."

9. ACI 308-81 "Standard Practice for Curing Concrete."

10. ACI 309-72 "Recommended Practice for Consolidation of Concrete."

11. ACI 315-80 "Details and Detailing of Concrete Reinforcement."

12. ACI 318-89 "Building Code Requirements for Reinforced Concrete."

13. ACI 347-78 "Recommended Practice for Concrete Formwork."

14. Concrete Reinforcing Steel Institute, "Placing Reinforcing Bars," 1976.

15. ACI 211.2-81 "Standard Practice for Selecting Proportions for Structural Lightweight Concrete."

B. Materials and installed work may require testing and retesting, as directed by the Architect, at any time during progress of work. Allow free access to material stockpiles and facilities. Tests not specifically indicated shall be done at Owner's expense. Retesting of rejected materials and installed work, shall be done at Contractor's expense.

1.05 SUBMITTALS:

A. Shop Drawings:

1. Reinforcement: Submit shop drawings for fabrication, bending and placement of concrete reinforcement. Comply with ACI 315, showing bar schedules, stirrup spacing, diagrams of bent bars and arrangement of concrete reinforcement. Include special reinforcement required at openings through concrete structures.

B. Laboratory Reports: Submit laboratory test reports for concrete materials and mix design.

C. Strength Tests: Provide records of strength tests.

PART 2 - PRODUCTS

2.01 FORM MATERIALS:

A. Forms for Exposed Finish Concrete: Unless otherwise indicated, construct formwork for exposed concrete surfaces with plywood, metal, metal-framed plywood faced or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings. Provide form material with sufficient thickness to withstand pressure of newly-placed concrete without bow or deflection.

1. Use plywood complying with U.S. Product Standard PS-1 "B-B (Concrete Form) Plywood", Class I, Exterior Grade or better, mill-oiled and edge-sealed, with piece bearing legible inspection trademark.

B. Forms for Unexposed Finish Concrete: Form concrete surfaces which will be unexposed in finished structure with plywood, lumber, metal or other acceptable material. Provide lumber dressed on at least 2 edges and one side for tight fit.

C. Form Coatings: Provide commercial formulation form-coating compounds that will not bond with, stain nor adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces.

2.02 REINFORCING MATERIALS:

A. Reinforcing Bars: ASTM A 615, Grade 60, deformed.

2.03 CONCRETE MATERIALS:

A. Portland Cement: ASTM C 150, Type I or Type II, unless otherwise acceptable to Architect. Use one brand of cement throughout project, unless otherwise acceptable to Architect.

B. Normal Weight Aggregates: ASTM C 33. Provide from a single source for exposed concrete. Do not use aggregates containing soluble salts or other substances such as iron sulfides, pyrite, marcasite, or ochre which can cause stains on exposed concrete surfaces.

C. Water: Potable.

D. Air-Entraining Admixture: ASTM C 260.

E. High-Range Water-Reducing Admixture (Super Plasticizer): ASTM C 494, Type F or Type G containing not more than 1% chloride ions.

1. Fiber reinforcing shall be added and distributed prior to incorporation of Super Plasticizer.

F. Normal range water reducing admixture: ASTM C 494 Type A containing no calcium chloride.

G. Accelerating Admixture: ASTM C 494, Type C or E.

H. Calcium Chloride not permitted.

2.04 RELATED MATERIALS:

A. Moisture Barrier: Provide moisture barrier cover over prepared base material as follows:

1. Griffolyn Type-65 manufactured by Reef Industries of Houston, TX

B. Absorptive Cover: Burlap cloth made from jute or kenaf, weighing approximately 9 oz. per sq. yd., complying with AASHTO M182, Class 2.

C. Moisture-Retaining Cover: One of the following, complying with ANSI/ASTM C 171.

1. Waterproof paper.

2. Polyethylene film.

3. Polyethylene-coated burlap.

D. Liquid Membrane-Forming Curing Compound:

1. Liquid type membrane forming curing compound complying with ASTM C 309, Type I, Class A unless other type acceptable to Architect. Curing compound shall not impair bonding of any material to be applied directly to the concrete. Demonstrate the non-impairment prior to use.

E. Preformed Expansion Joint Formers:

1. Bituminous Fiber Type, ASTM D 1751.

2. Felt Void, Poly-Styrene Cap with removable top as manufactured by SUPERIOR.

F. Slab Joint Filler:

1. Multi-component polyurethane sealant (self-leveling type.

2.05 PROPORTIONING AND DESIGN OF MIXES:

A. Prepare design mixes for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301. Use material, including all admixtures, proposed for use on the project. If trial batch method used, use an independent testing facility acceptable to Architect for preparing and reporting proposed mix designs. The testing facility shall not be the same as used for field quality control testing unless otherwise acceptable to Architect.

B. Submit written reports to Architect of each proposed mix for each class of concrete at least 14 days prior to start of work. Do not begin concrete production until mixes have been reviewed by Architect.

C. Proportion design mixes to provide concrete with the following properties:

1. Footings, Frost Walls:
   a. Strength: 3500 psi @28 days, 3/4" aggr.
   b. W/C Ratio: 0.46
   c. Entrained Air: 4% $\pm$ 1%
   d. Slump: 3" $\pm$ 1"

2. Rodent Slabs:
   a. Strength: 3000 psi @28 days, 3/4" aggr.
   b. W/C Ratio: 0.46
   c. Entrained Air: 6% ± 1%
   d. Slump: 3" ± 1"

3. Add air entraining admixture at manufacturers prescribed rate to result in concrete at point of placement having the above noted air contents.
   a. 4% to 8% for maximum 3/4" aggregate.
   b. 3 1/2% to 6 1/2% for maximum 1" aggregate.

D. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor, when characteristics of materials, job conditions, weather, test results, or other circumstances warrant, at no additional cost to Owner and as accepted by Architect. Laboratory test data for revised mix design and strength results must be submitted to and accepted by Architect before using in work.

1. Water may be added at the project only if the maximum specified slump and design mix maximum water/cement ratio is not exceeded.

2. During hot weather, or under conditions contributing to rapid setting of concrete, a shorter mixing time than specified in ASTM C 94 may be required.

2.06 CONCRETE MIXING:

A. Job-Site Mixing: Will not be permitted.

B. Ready-Mix Concrete: Must comply with the requirements of ASTM C 94, and as herein specified. Provide batch ticket for each batch discharged and used in work, indicating project name, mix type, mix time and quantity.

1. During hot weather, or under conditions contributing to rapid setting of concrete, a shorter mixing time than specified in ASTM C 94 may be required by Engineer.
2. When the air temperature is between 85 degrees F. and 90 degrees F., reduce the mixing and delivery time from 1 1/2 hours to 75 minutes, and when the

air temperature is above 90 degrees F., reduce the mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.01 FORMS:

A. Design, erect, support, brace and maintain formwork to support vertical and lateral loads that might be applied until such loads can be supported by concrete structure. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation and position.

B. Design, construct, erect, maintain, and remove forms for cast-in-place concrete work in compliance with ACI 347.

C. Design formwork to be readily removable without impact, shock or damage to cast-in-place concrete surfaces and adjacent materials.

D. Construct forms to sizes, shapes, lines and dimensions shown, and to obtain accurate alignment, location, grades, level and plumb work in finished structures. Provide for openings, offsets, keyways, recesses, moldings, rustication's, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required in work. Use selected materials to obtain required finishes. Solidly butt joints and provide backup at joints to prevent leakage of cement paste.

E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only. Kerf wood inserts for forming keyways, reglets, recesses, and the like to prevent swelling and for easy removal.

F. Provide temporary openings where interior area of formwork is inaccessible for clean out, for inspection before concrete placement and for placement of concrete. Securely brace temporary openings and set tightly to forms to prevent loss of concrete mortar. Locate temporary openings on forms at inconspicuous locations.

G. Chamfer exposed corners and edges as indicated, using wood, metal, PVC or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.

H. Form Ties: Factory-fabricated, adjustable-length, removable or snapoff metal form ties, designed to prevent form deflection, and to prevent spalling concrete surfaces upon removal.

1. Unless otherwise indicated, provide ties so portion remaining within concrete after removal is 1" inside concrete and will not leave holes larger than 1" diameter in concrete surface.

I. Provision for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Determine size and location of openings, recesses, and chases from trades providing such items. Accurately place and securely support items built into forms.

J. Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt or other debris just before concrete is placed. Retighten forms and bracing after concrete placement as required to eliminate mortar leaks and maintain proper alignment.

3.02 PLACING REINFORCEMENT:

A. Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars", for details and methods of reinforcement placement and supports, and as herein specified.

1. Clean reinforcement of loose rust and mill scale, earth, ice, and other materials which reduce or destroy bond with concrete.

2. Accurately position, support and secure reinforcement against displacement by formwork, construction, or concrete placement operations. Locate and support reinforcing by metal chairs, runners, bolsters, spacers and hangers, as required.

3. Place reinforcement to obtain specified coverages for concrete protection within tolerances of ACI-318. Arrange, space and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.

4. Fiber Reinforcing shall be introduced directly into the concrete either at the batch plant or job site at the rate of 1.6 pounds (minimum) per cubic yard. If introduced at the batch plant with the aggregate, no extra mixing time is required. If added at the job site, approximately 3 to 5 minutes mixing at agitating speed is required.

3.03 JOINTS:

A. Construction Joints: Locate and install construction joints, which are not shown on drawings, so as not to impair strength and appearance of the structure, as acceptable to Architect.

1. Provide keyways at least 1-1/2" deep in construction joints in walls, and slabs; accepted bulkheads designed for this purpose may be used for slabs.

2. Roughened surfaces shall be used between walls and footings unless shown otherwise on the drawings. The footing surface shall be roughened to at least an amplitude of 1/4" for the width of the wall before placing the wall concrete.
3. Place construction joints perpendicular to the main reinforcement. Continue reinforcement across construction joints.

4. Joints in slabs on grade shall be located and detailed as indicated on the drawings. If saw-cut joints are required or permitted, cutting shall be timed properly with the set of the concrete: Cutting shall be started as soon as the concrete has been hardened sufficiently to prevent aggregate being dislodged by the saw, and shall be completed before shrinkage stresses become sufficient to produce cracking.

3.04 INSTALLATION OF EMBEDDED ITEMS:

A. General: Set and build into work anchorage devices and other embedded items required for other work that is attached to, or supported by, cast-in-place concrete. Use setting drawings, diagrams, instructions and directions provided by suppliers of items to be attached thereto. Notify other trades to permit installation of their work.

B. Edge Forms and Screed Strips for Slabs: Set edge forms or bulkheads and intermediate screed strips for slabs to obtain required elevations and contours in finished slab surface.

3.05 INSTALLATION OF GROUT

A. Place grout for base plates in accordance with manufacturer's recommendations.

B. Grout below setting plates as soon as practicable to facilitate erection of steel and prior to removal of temporary bracing and guys. If leveling bolts or shims are used for erection grout shall be installed prior to addition of any column load.

C. Pack grout solidly between bearing surfaces and bases or plates to ensure that no voids remain. Finish exposed surfaces, protect installed materials and allow to cure. For proprietary grout materials, comply with manufacturer's instructions.

3.06 PREPARATION OF FORM SURFACES:

A. Coat contact surfaces of forms with a form-coating compound before reinforcement is placed.

B. Thin form-coating compounds only with thinning agent of type, and in amount, and under conditions of form-coating material manufacturer's directions. Do not allow excess form coating to accumulate in forms or to come into contact with concrete surfaces against which fresh concrete will be placed. Apply in compliance with manufacturer's instructions.

3.07 CONCRETE PLACEMENT:

A. Preplacement Review: Footing bottoms, reinforcement and all work shall be subject to review by the Architect. Verify that reinforcing, ducts, anchors, seats, plates and other items to be cast into concrete are placed and securely held. Notify Architect 48 hours prior to scheduled placement and obtain approval or waiver of review prior to placement. Moisten wood forms immediately before placing concrete where form coatings are not used. Be sure that all debris and other foreign matter is removed from forms.

B. General: Comply with ACI 304, and as herein specified.

1. Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as herein specified. Deposit concrete as nearly as practicable to its final location to avoid segregation due to rehandling or flowing.

2. Concrete shall be handled from the mixer to the place of final deposit as rapidly as practicable by methods which will prevent segregation or loss of ingredients and in a manner which will assure that the required quality of the concrete is maintained.

3. Conveying equipment shall be approved and shall be of a size and design such that detectable setting of concrete shall not occur before adjacent

concrete is placed. Conveying equipment shall be cleaned at the end of each operation or work day. Conveying equipment and operations shall conform to the following additional requirements:

a. Belt conveyors shall be horizontal or at a slope which will not cause excessive segregation or loss of ingredients. Concrete shall be protected against undue drying or rise in temperature. An arrangement shall be used at the discharge end to prevent apparent segregation. Mortar shall not be allowed to adhere to the return length of the belt. Long runs shall be discharged into a hopper or through a baffle.

b. Chutes shall be metal or metal-lined and shall have a slope not exceeding 1 vertical to 2 horizontal and not less than 1 vertical to 3 horizontal. Chutes more than 20 feet long, and chutes not meeting the slope requirements may be used provided they discharge into a hopper before distribution.

c. Pumping or pneumatic conveying equipment shall be of suitable kind with adequate pumping capacity. Pneumatic placement shall be controlled so that segregation is not apparent in the discharged concrete.

d. The loss of slump in pumping or pneumatic conveying equipment shall not exceed 2 inches. Concrete shall not be conveyed through pipe made of aluminum alloy. Standby equipment shall be provided on the site.

e. Tined rakes are prohibited as a means of conveying fiber reinforced concrete.

4. Do not use reinforcement as bases for runways for concrete conveying equipment or other construction loads.

C. Placing Concrete in Forms: Deposit concrete in forms in horizontal layers not deeper than 18 inches and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.

1. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, redoing or tamping. Use equipment and procedures for consolidation of concrete in accordance with ACI recommended practices.

2. Use vibrators designed to operate with vibratory equipment submerged in concrete, maintaining a speed of not less than 8000 impulses per minute and of sufficient amplitude to consolidate the concrete effectively. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than visible effectiveness of machine, generally at points 18 inches maximum apart. Place vibrators to rapidly penetrate placed layer and at least 6 inches into the preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion maintain the duration of vibration for the time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing segregation of mix, generally from 5 to 15 seconds. A spare vibrator shall be kept on the job site during all concrete placing operation.

D. Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until the placing of a panel or section is completed.

1. Consolidate concrete using internal vibrators during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.

2. Bring slab surfaces to correct level with straightedge and strikeoff. Use bull floats or darbies to smooth surface, free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations. Do not sprinkle water on plastic surface.

3. Maintain reinforcing in proper position during concrete placement operations.

E. Cold Weather Placing: Protect concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures, in compliance with ACI 306 and as herein specified.

1. When air temperature has fallen to or is expected to fall below 40 deg.F (4 deg.C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg.F (10 deg.C), and not more than 80 deg.F (27 deg.C) at point of placement.

2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.

3. Do not use calcium chloride, salt and other materials containing antifreeze agents or chemical accelerators.

4. All temporary heat, form insulation, insulated blankets, coverings, hay or other equipment and materials necessary to protect the concrete work from physical damage caused by frost, freezing action, or low temperature shall be provided prior to start of placing operations.

5. When the air temperature has fallen to or is expected to fall below 40 deg.F, provide adequate means to maintain the temperature in the area where concrete is being placed between 50 and 70 deg.F.

F. Hot Weather Placing: When hot weather conditions exist that would seriously impair quality and strength of concrete, place concrete in compliance with ACI 305 and as herein specified.

Cool ingredients before mixing to maintain concrete temperature at time of placement below 90 deg.F. Mixing water may be chilled, or chopped ice may be used to control the concrete temperature provided the water equivalent of the ice is calculated to the total amount of mixing water.

Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that the steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.

Wet forms thoroughly before placing concrete.

Do not use retarding admixtures without the written acceptance of the Architect.

3.08 FINISH OF FORMED SURFACES:

A. Rough Form Finish: For formed concrete surfaces not exposed-to-view in the finish work or by other construction, unless otherwise indicated. This concrete surface shall have texture imparted by form facing material, with tie holes and defective areas repaired and patched and fins and other projections exceeding 1/4 in. in height rubbed down or chipped off.

B. Smooth Form Finish: For formed concrete surfaces exposed-to-view, or that are to be covered with a coating material applied directly to concrete, or a covering material applied directly to concrete, such as waterproofing, damp-proofing, painting or other similar system. This as-cast concrete surface shall be obtained with selected form facing material, arranged orderly and symmetrically with a minimum of seams. Repair and patch defective areas with fins or other projections completely removed and smoothed.

C. Grout Cleaned Finish: Provide grout cleaned finish to scheduled concrete surfaces which have received smooth form finish treatment. Combine one part Portland cement to 1-1/2 parts fine sand by volume and mix with water to consistency of thick paint. Proprietary additives may be used at Contractor's option. Blend standard Portland cement and white Portland cement, amounts determined by trial patches, so that final color of dry grout will closely match adjacent surfaces.

Thoroughly wet concrete surfaces and apply grout to coat surfaces and fill small holes. Remove excess grout by scraping and rubbing with clean burlap. Keep damp by fog spray for at least 36 hours after rubbing.

3.9 CONCRETE CURING AND PROTECTION:

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Protect concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures, in compliance with the requirements of ACI 306 as herein specified.

1. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 7 days.

2. Begin final curing procedures immediately following initial curing and before concrete has dried. Continue final curing for at least 7 days in accordance with ACI 301 procedures. Avoid rapid drying at end of final curing period.

a. Curing shall be continued for at least 7 days in the case of all concrete except high-early-strength concrete for which the period shall be at least 3 days. Alternatively, if tests are made of cylinders kept adjacent to the structure and cured by the same methods, moisture retention measures may be terminated when the average compressive strength has reached 70 percent of the specified strength, f'c. If one of the curing procedures below is used initially, it may be replaced by one of the other procedures any time after the concrete is 1 day old provided

the concrete is not permitted to become surface dry during the transition.

3. When the mean daily temperature is less than 40 deg.F, the temperature of the concrete shall be maintained between 50 and 70 deg.F for the required curing period.

    a. When necessary, arrangements for heating, covering, insulation, or housing the concrete work shall be adequate to maintain the required temperature without injury due to concentration of heat. Combustion heaters shall not be used during the first 24 hours unless precautions are taken to prevent exposure of the concrete to exhaust gases which contain carbon dioxide.
    b. Keep protections in place and intact at least 24 hours after artificial heat is discontinued. Avoid rapid dry-out of concrete due to overheating and avoid thermal shock due to sudden cooling or heating.

    c. Changes in temperature of the air immediately adjacent to the concrete during and immediately following the curing period shall be kept as uniform as possible and shall not exceed 5 deg.F in any 1 hour or 50 deg.F in any 24 hour period.

B. Curing Methods: Perform curing of concrete by moist curing, by moisture-retaining cover curing, by curing compound, and by combinations thereof, as herein specified.

1. Provide moisture curing by following methods:

    a. Keep concrete surface continuously wet by covering with water.

    b. Continuous water-fog spray.

    c. Covering concrete surface with specified absorptive cover, thoroughly saturating cover with water and keeping continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with 4-in. lap over adjacent absorptive covers.

2. Provide moisture-cover curing as follows:

    a. Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3 in. and sealed by waterproof tape or adhesive.

Immediately repair any holes or tears during curing period using cover material and waterproof tape.

3. Provide curing compound to slabs as follows:

a. Apply specified curing and sealing compound to concrete slabs as soon as final finishing operations are complete (within 2 hours). Apply uniformly in continuous operation by power-spray or roller in accordance with manufacturer's directions. Recoat areas subjected to heavy rainfall within 3 hours after initial application. Maintain continuity of coating and repair damage during curing period.

c. Separating compound may be used as a curing medium if applied in accordance with manufacturer's specifications.

C. Curing Formed Surfaces: Cure formed concrete surfaces, including undersides of beams, supported slabs and other similar surfaces by moist curing with forms in place for full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.

D. Protection From Mechanical Injury: During the curing period, the concrete shall be protected from damaging mechanical disturbances, such as load stresses, heavy shock, and excessive vibration. All finished concrete surfaces shall be protected from damage by construction equipment, materials, or methods, by application of curing procedures, and by rain or running water. Self-supporting structures shall not be loaded in such a way as to overstress the concrete.

3.11 REMOVAL OF FORMS:

A. Formwork not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing at not less than 50 deg.F (10 deg.C) for 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form removal operations, and provided curing and protection operations are maintained.

B. Formwork supporting weight of concrete, such as beam soffits, joints, slabs and other structural elements, may not be removed in less than 14 days and until concrete has attained design minimum compressive strength at 28 days. Determine potential compressive strength of in-place concrete by testing field-cured specimens representative of concrete location or members.

C. Form facing material may be removed 4 days after placement only if shores and other vertical supports have been arranged to permit removal of form facing material without loosening or disturbing shores and support.

3.12 REUSE OF FORMS:

A. Clean and repair surfaces of forms to be reused in work. Split, frayed, delaminated or otherwise damaged form facing material will not be acceptable for exposed surfaces. Apply new form coating compound as specified for new formwork.

B. When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close joints. Align and secure joint to avoid offsets. Do not use "patched" forms for exposed concrete surfaces, except as acceptable to Architect.

3.13 MISCELLANEOUS CONCRETE ITEMS:

A. Filling In: Fill in holes and openings left in concrete structures for passage of work by other trades, unless otherwise shown or directed, after work of other trades is in place. Mix, place, and cure concrete as herein specified, to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete work.

3.14 CONCRETE SURFACE REPAIRS:

A. Patching Defective Areas: Repair and patch defective areas with cement mortar immediately after removal of forms, when acceptable to the Architect.

1. Cut out honeycomb, rock pockets, voids over 1/4 inch in any dimension, and holes left by tie rods and bolts, down to solid concrete but in no case to a depth of less than 1 inch. Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water, and brush coat the area to be patched with specified bonding agent. Place patching mortar after bonding compound has dried.
2. For exposed-to-view surfaces, blend white Portland cement and standard Portland cement so that, when dry, patching mortar will match color surrounding. Provide test areas at inconspicuous location to verify mixture and color match before proceeding with patching. Compact mortar in place and strike-off slightly higher than surrounding surface.

B. Repair of Formed Surfaces: Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of Architect. Surface defects, as such, include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets, fins, and other projections on surface and stains and other discolorations that cannot be removed by cleaning. Flush out form tie holes, fill with dry pack mortar or precast cement cone plugs secured in place with bonding agent.

1. Repair concealed formed surfaces, where possible, that contain defects that affect the durability of concrete. If defects cannot be repaired, remove and replace concrete.

2. Correct high areas in unformed surfaces by grinding after concrete has cured at least 14 days.

3. Correct low areas in unformed surfaces during, or immediately after completion of surface finishing operations by cutting out low areas and replacing with fresh concrete. Proprietary patching compounds may be used when acceptable to Architect.

4. Repair defective areas, except random cracks and single holes not exceeding 1 inch in diameter, by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean, square cuts and expose reinforcing steel with at least 3/4 inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding compound. Mix patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact, and finish to blend with adjacent finished concrete. Cure in the same manner as adjacent concrete.

5. Repair isolated random cracks and single holes not over 1 inch in diameter by dry-pack method. Groove top of cracks and cut out holes to sound concrete and clean of dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding compound. Mix dry-pack, consisting of one part Portland cement to 2-1/2 parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for handling and placing. Place dry-pack after bonding compound has dried. Compact dry-pack mixture in place and finish to match adjacent concrete. Keep patched area continuously moist for not less than 72 hours.

6. Use epoxy-based mortar for structural repairs, where directed by the Architect.

7. Repair methods not specified above may be used, subject to acceptance of the Architect.

3.15 QUALITY CONTROL TESTING DURING CONSTRUCTION:

A. The Contractor shall employ a testing laboratory to inspect, sample and test the materials and the production of concrete and to submit test reports. Concrete testing shall be performed by technicians certified by the Maine Concrete Technician Certification Board.

B. Concrete shall be sampled and tested for quality control during placement of concrete shall include the following, unless otherwise directed by Architect.

C. Sampling Fresh Concrete: ASTM C 172.

1. Slump: ASTM C 143; one test for each concrete load at point of discharge and one test for each set of compressive strength test specimens. A slump test must be run prior to the incorporation of the CFP fibers per recommendations of ACI 544.

2. Air Content: ASTM C 231 "Pressure method for normal weight concrete." One for each set of compressive strength test specimens.

3. Concrete Temperature: Test hourly when air temperature is 40 deg.F (4 deg.C) and below, and when 80 deg.F (27 deg.C) and above; and each time a set of compression test specimens are made.

4. Compression Test Specimen: ASTM C 31; one set of 4 standard cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory cured test specimens except when field-cure test specimens are required.

   a. Fiber reinforced concrete test specimens shall be vibrated externally per recommendations ACI 544.

5. Compressive Strength Tests: ASTM C 39; one set for each 100 cu. yds. or fraction thereof, of each concrete class placed in any one day or for each 5,000 sq. ft. of surface area placed; 1 specimen tested at 7 days, 2 specimens tested at 28 days, and 1 specimen retained in reserve for later testing if required.

a. When frequency of testing will provide less than 5 strength tests for a given class of concrete, conduct testing from at least 5 randomly selected batches or from each batch if fewer than 5 used.

b. When total quantity of a given class of concrete is less than 50 cu. yds., strength test may be waived, if in the Architect's judgement, adequate evidence of satisfactory strength is provided.

c. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.

d. Strength level of concrete will be considered satisfactory if averages of sets of three consecutive strength test results equal or exceed specified compressive strength and no individual strength test result falls below specified compressive strength by more than 500 psi.

e. Test results will be reported in writing to Architect and Contractor on the day after tests are made. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials compressive breaking strength, and type of break for both 7-day tests and 28-day tests.

D. Additional Tests: The testing service will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by the Architect. Testing service may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods, as directed. Contractor shall pay for such tests conducted, and any other additional testing as may be required, when unacceptable concrete is verified.

3.16 ENGINEER'S REVIEW

A. The Engineer of Record will conduct periodic reviews of the construction for compliance with the provisions of the Design Documents during the construction period.

B. The General Contractor shall employ a licensed professional engineer to analyze and design modifications and repairs for construction not in conformance with the provisions of the Contract Documents. These modifications and repair details shall be stamped by an engineer licensed to practice in the State of Maine and submitted with calculations for approval by the Engineer of Record. Modifications shall not be made without express written approval.

END OF SECTION

SECTION 04520- BRICK REPOINTING AND REPLACEMENT

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Repointing of brick to brick joints – as indicated on the drawings.
2. Replication of the color, texture and joint profile of the original tinted brick and stone pointing mortar.
3. Removal and replacement with new matching bricks of all spalled, cracked, damaged and missing bricks.
4. Removal of ferrous elements imbedded in masonry wall.
5. Patching of masonry with new or salvaged bricks where ferrous elements have been removed.
7. Rebuilding with original bricks areas of debonded face bricks.

B. 1. On a spot point basis, cut to 3/8” depth or to sound mortar all deteriorated brick mortar joints and repoint with mortar matching existing as closely as possible.
2. Remove and replace all badly spalled, cracked, or deteriorated brick with new brick to match existing as closely as possible.
3. Infill all existing openings as shown on drawings.
4. Wash all masonry surfaces within work area.
5. Clean up and dispose of spent debris properly.

1.02 REFERENCES

A. American Society for Testing and Materials (ASTM):

B. International Masonry Industry All-Weather Council (IMIAC) - Recommended Practices and Guide Specifications for Cold Weather Masonry Construction.

1.03 DEFINITIONS

A. Defective Mortar Joints: Joints in which mortar is missing, loose, spalled, eroded, powdered, broken, hollow, unsound, soft, or weathered more than 3/16 inch (5 mm) from original plane. Sound joints containing fine hairline cracks are excluded.

B. Defective Bricks: Bricks which have cracked, spalled or been previously patched or coated. Any brick that has lost its fire-skin and/or its integrity as a masonry unit.

1.04 DELIVERY, STORAGE AND HANDLING

A. Protect materials from moisture absorption and damage.

1.05 PROJECT CONDITIONS

A. Protection of Work:
1. Cover top of wall with strong waterproof membrane at end of each day or shutdown. Cover partially completed walls when work is not in progress.
2. Extend cover minimum of 24 inches (600 mm) down both sides; hold securely in place.
3. Prevent staining and damage to exposed masonry.
4. Protect sills, ledges, and projections from mortar droppings; remove droppings immediately.

B. Environmental Requirements:
1. Hot weather requirements: If ambient temperature is over 95 degrees F (35 degrees C) or relative humidity is less than 50 percent, protect from direct sun and wind exposure for minimum 48 hours after installation.
2. Cold weather requirements:
a) In accordance with IMIAC requirements.
b) Do not use frozen materials or build upon frozen work.

PART 2 – PRODUCTS

2.01 Materials General

A. Comply with referenced standards and other requirements indicated applicable to each type of material required.

B. Reference in the specifications to materials by trade name is to establish a standard of quality. It is not intended to exclude other manufacturers whose materials that, in the judgment of the Architect or his designated representative, are equivalent to those named based on sample panels.

2.02 Mortar Materials

A. Lime: ASTM C 207, Type S hydrated bag lime
B. Cement: ASTM C 150, Type I or Type II Portland cement. Cement must comply with ASTM C 91, not more than 0.30 % soluble alkali.
C. Sand: ASTM C 144: color, size and type to match existing mortar.

D. Water: Potable, clean and free from deleterious amounts of acids, alkalis and organic matter.

E. Pigments: Chemically pure mineral oxides, alkali proof and light fast as manufactured by Solomon Grind – Chem Services, Inc of Springfield, IL., Lander-Sigal or approved equal.

F. Mix proportions:
For brick repointing joints: 1:1:6 mixture of Type I or Type II (non-staining) Portland Cement, Type S hydrated bag lime and sand and pigment to match existing historical mortar..

For brick setting joints: 1:1:6 mixture of Type I or Type II Portland Cement, Type S hydrated bag lime and sand.

2.03 Bricks

A. Brick: Reuse existing bricks salvaged during removal of debonded outer wythe for repairing areas where bricks are bowing or debonding.

B. Brick: Provide new bricks as required to repair areas of cracked spalled or damaged bricks. New bricks to match existing in compressive strength, absorption, initial rate of absorption, color, size, and surface texture.

2.04 ACCESSORIES

A. Anchors: Stainless steel.

PART 3 - EXECUTION

3.01 PREPARATION

A. Prior to beginning work examine existing mortar joints to determine procedures required to match new mortar to existing, including:
1. Order in which horizontal and vertical joints were tooled.
2. Style of tooling including depth and profile.

3.02 REPLACEMENT OF DAMAGED AND MISSING MASONRY

A. Remove damaged and deteriorated masonry without damage to adjacent masonry.

B. Install new or salvaged masonry bricks where existing units are missing or were removed.

C. Establish lines, levels, and courses to match existing. Fit new masonry to bond and coursing of existing masonry.

D. Lay masonry plumb and true to line.

E. Do not shift masonry after mortar has achieved initial set. If adjustments must be made after initial set, remove mortar and replace with new.

F. Lay bricks in full mortar bed, with full head joints.

G. Do not butter corners or excessively furrow joints.

H. Cut masonry with straight, true cuts and clean, unchipped edges. Prevent oversized or undersized joints. Discard damaged units.

I. Where fresh masonry joins existing, or partially set masonry, remove loose masonry and mortar; clean and lightly wet exposed surface of set masonry.

3.03 RAKING OUT OF MORTAR JOINTS

A. Remove all mortar material from joints using hand tools. The use of hand held grinders or pneumatic tools will be allowed where joint widths can accommodate a single pass of the blade without touching either edge of the stone or bricks. Each mechanic must demonstrate proficiency in the use of hand held grinders or pneumatic tools.

B. Rake out joints to a minimum depth of 3/8" or until sound mortar is reached. Contractor to satisfy themselves as to existing conditions at the time of bidding. No allowances will be made for extra raking out work.

C. Remove mortar to provide reveals with square backs and to expose masonry for contact with pointing mortar. Remove dirt and loose debris.

D. Do not spall edges or widen joints.

E. If joints are flushed with water to remove debris, the flushing shall be done the day before mortar application to avoid excess moisture.

3.04 MORTAR APPLICATION

A. Moisten joints with clean water and stiff natural bristle brush before application of mortar to sufficient degree to avoid absorption of mortar water.

B. Thoroughly mix ingredients in quantities needed for immediate use.

C. Mix dry ingredients mechanically until uniformly distributed. Add water to achieve workable consistency.

D. Discard lumpy, caked, frozen and hardened mixes and mixes not used within 2 hours after initial mixing.

E. Do not use antifreeze compounds to lower freezing temperature of mortar.

F. First layer to create a uniform depth for later applications and to be thoroughly Compacted into cavities: apply mortar to a maximum thickness of 3/8”

G. After joints have been filled to a uniform depth, apply remaining mortar in successive ¼” thick layers: fully compact each layer and allow to dry to thumbprint hardness before applying next layer.

H. When final layer is thumbprint hard, tool to match approved sample joint.

I. Avoid feather-edging of mortar joint.

J. Immediately after repointing, remove excess mortar by light brushing with a natural bristle brush. Do not leave encrusted matter.

K. Keep mortar damp for 48 hours after pointing to permit proper hardening of mortar. The following cures are permissible:

a. Cover masonry temporarily with burlap, which is moistened periodically.

Or

b. Cover wall with plastic sheets temporarily to prevent evaporation.

3.03.1 Cleaning

A. The cleaning shall be done with clean water applied vigorously with fiber brushes. After cleaning with brushes the stone shall be thoroughly rinsed with clear water. Proprietary cleaning compounds containing caustic agents, intended for removing mortar smears shall not be used without the written approval of the Architect. The goal is to remove all smears before they set so that caustic agents are not required.

END OF SECTION

SECTION 05500

METAL FABRICATIONS

1. GENERAL

1.1 REFERENCES

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 specifications, apply to work in this section.

B. Rough Carpentry: Section 06100

C. Finish Carpentry: Section 06200

D. Roofing and Flashing: Section 07300

E. Painting: Section 09900

F. American Society of Testing Materials (ASTM)

G. Steel Structures Painting Council (SSPC)

H. National Association of Architectural Metal Manufacturers (NAAMM)

1.2 DESCRIPTION OF WORK

A. Extent of Metal Fabrications is shown on the drawings and includes the following:
   a. Guard rails and hand rails at existing front porch.
   b. Hand rails at new rear porch.

1.3 SUBMITTALS

A. Issue submittals in accordance with Section 01300, Submittals.

B. Submittals under this section include:

1. Shop drawings showing details of fabrication, assembly, and installation showing all connections to other work.
2. Samples of materials and finished products as may be requested by the Architect.

2. PRODUCTS

2.1 MATERIALS

1. Railing assembly shall withstand a minimum concentrated load of 200 lbs. applied in any direction at any point on top rail. Intermediate rails, balusters, and panel fillers shall be

designed for uniform load of not less than 25 lbs./sq. ft. over gross area of guard. Assembly shall comply with all provisions of the applicable Building Codes.

2. Accurately miter and cope intersections, and weld all around. Form rail-to-end post connections and changes in rail direction with mitered corners or radius bends, as detailed. Form elbow bends and wall returns to uniform radius, free from buckles and twists.

3. EXECUTION

3.1 FABRICATION

A. GENERAL

1. Use materials of size and thickness shown, or if not shown, of required size, grade, and thickness to produce strength and durability in finished product.

2. Provide materials selected for their surface flatness, smoothness, and freedom from surface blemishes on exposed surfaces.

3. Form metalwork to required shapes and sizes, with true lines, curves and angles. Provide necessary rebates, lugs and brackets for assembly and installation. Use concealed fasteners wherever possible. Mill joints to tight hairline fit; cope or miter corners.

4. Welding:
   a. Weld corners and seams continuously; grind exposed welds smooth and flush.
   b. Welding Electrodes and Filler Metal: Type and alloy to match metal to be welded.

5. Anchors and Inserts: Furnish as required for installation in other work. Use copper, cadmium or galvanized anchors and inserts for exterior work.

6. Fasteners
   a. Type and alloy to match metal to be fastened; use Phillips flat-head screws for exposed fasteners if not otherwise indicated.
   b. Provide bolts, nuts, lag bolts, machine screws, wood screws, toggle bolts, masonry anchorage devices, lock washers as required for application indicated and complying with applicable Federal standards. Hot-dip galvanize fasteners for exterior applications to comply with ASTM A 153.

7. Shop Finishing

   a. Comply with NAAMM "Metal Finishes Manual".
   b. Apply shop primer to surface of metal fabrications except those embedded in concrete or galvanized; comply with SSPC-PA1.
   c. Surface Preparation: Comply with SSPC-SP6 "Commercial Blast Cleaning" for exterior work, and with SSPC-SP3 "Power Tool Cleaning" for interior work.
   d. Shop Primer: Fabricator's standard, fast-curing, lead-free, "universal" primer complying with performance requirements of FS TT-P-645.
   e. Stripe paint edges, corners, crevices, bolts, welds and sharp edges.
   f. Protect finished metal items.

3.2 INSTALLATION

A. Perform cutting, drilling and fitting required for installation; set work accurately in location, alignment and elevation, measured form established lines and levels.

B. Provide anchorage devices and fasteners where necessary for installation to other work.

C. Repair or replace damaged items as directed by the Architect.

D. Touch-up shop paint after installation. Clean field welds, bolted connections and abraded areas, and apply same type paint as used in shop.

E. Restore damaged protective coverings after installation. Maintain until other work in same areas is completed. Remove protective coverings and clean exposed surfaces prior to final inspection.

END OF SECTION

SECTION 06100

ROUGH CARPENTRY

1. GENERAL

1.1 GENERAL PROVISIONS

A. SCOPE: Drawings and general provisions of Contract, including General Conditions and Division 1 specifications, apply to work in this section. Performance shall meet the requirements of these Specifications.

1.2 DESCRIPTION OF WORK

A. The work covered by this section of Specifications consists of the following:

1. All rough carpentry work as required by Drawings and as specified under this section to include: framing, blocking, sheathing, miscellaneous siding and exterior trim, vents, access panels, certain site improvements and temporary structures, and other misc. items specified elsewhere and shown on Drawings.

2. Installation of metal and other items furnished by other trades, if specifically noted in these specifications and cutting/patching for other trades as necessary for proper execution of their work.

3. See MSHA Green Building Standards, Section 8, Materials for framing and finish lumber requirements.

2. PRODUCTS:

2.1 ALL LUMBER shall be as shown on Drawings or called for in this section. Lumber shall be live stock, thoroughly seasoned, and well manufactured. Materials shall be free from warp that cannot be corrected by bridging or nailing.

2.2 FRAMING LUMBER: "S" dried Eastern Spruce, NELMA #2 grade or better. Lumber shall be stamped "S" dry with moisture content not to exceed 19%, dressed four sides sound and free from significant warps, checks, splits, and knots. Dressed sizes shall comply with American Lumber Standards and sizes shown on Drawings are nominal unless shown as actual by inch (") notations.

2.3 PRESSURE TREATED LUMBER where used in contact with concrete, water, or earth shall meet AWPA C-2 for acceptable water-borne preservative process (no creosote or Pentachlorophenal). Timber shall be Southern Yellow Pine treated with CCA to 0.4 # c.f., in contact with concrete (0.6 where buried), in accordance with AWPA C-18.

2.4 SHEATHING: All sheathing shall bear A.P.A. stamp.

2.5 WALL SHEATHING: APA Rated sheathing 24/16, 1/2" minimum thickness.

2.6 ROOF SHEATHING: APA Rated sheathing to be; Exterior 19/32, APA rated sheathing 48/24 for 24" o.c. with H clips

2.7 TRIM FLASHING: Aluminum "Z" flashing 24 gauge with ¼" lower lip.

2.8 ROOF TRUSSES: See Section 06190 Timber Trusses.

2.9 NAILS: As noted in these Specifications and on Drawings.

2.10 SCREWS, BOLTS AND OTHER FASTENERS: as shown on Drawings and of length adequate to support loads where shown; where not shown, consult Architect.

2.11 SILL SEALER: See Section 07200 - Insulation.

3. EXECUTION:

3.1 GENERAL: The Contractor shall carefully lay out and erect all structural members of rough carpentry, framing, sheathing, blocking, bridging and other items of work as necessary to install the finished work as shown on Drawings and as noted in Specifications. All members shall be properly braced, plumbed and leveled. A sufficient number of nails, as shown on Drawings and nailing schedule, screws and bolts shall be used to insure the rigidity of the construction.

3.2 FRAMING:

A. All framing shall be installed closely fitted, accurately set in place to the required lines and levels, and shall be of the dimensions shown on Drawings. Do not impair structural members by improper cutting or drilling. Contractor must follow truss manufacturer limitation of cutouts. Columns shall be continuous without splices from base to girder and shall be joined by nailing alternate sides with 2-16d nails 12" o.c.

B. Joints of girders shall be centered over supports. Framing joists into side of wood beams or girders shall be done with steel joist hangers or connectors as shown on Drawings.

3.3 BLOCKING:

A. (2x6, 2x8 or wider) shall be provided as necessary for the application of plumbing and fixtures, toilet accessories, grab bars, kitchen cabinets, and other wall mounted accessories, electrical and communications equipment. Provide either blocking for or center stud in closet back walls for closet rod/shelf bracket.

B. Provide solid blocking at panel joints of horizontally laid plywood in all external walls.

3.4 WALL SHEATHING:

A. Applied horizontally. Blocking required at horizontal joint leave 1/8" - 1/4" space at panel side joints and end joints, unless otherwise recommended by manufacturer. Nail 1/2" sheathing with 8d common nails at 4" o.c. at edges, 16" o.c. at intermediate supports, 3/8" minimum crown, 1" minimum penetration in studs at 4" o.c. at edges and 8" o.c. at intermediate supports. Unless otherwise noted on the Drawings.

Installation of oriented strand board must meet manufacturers recommendations for cut edge treatment, protection and all other aspects of this product.

3.5 ROOF SHEATHING: Shall be installed continuous over two or more spans with long dimension across supports. End joints shall be over supports and staggered in adjacent courses. Leave 1/4" space at panel edge joints and 1/8" space at panel end joints; unless otherwise recommended by manufacturer. Nail: 8d common at 6" o.c. at panel edges, 16" o.c. at intermediate supports. H" clips required at joints perpendicular to framing midway between every support.

3.6 DOOR FRAMES: Shall be securely anchored to the supporting construction. Install solid wood blocking at all hinges and door latch locations. Framing shall be so door can be hung true and plumb (See Section 08200 Doors). Window framing shall be as shown on Drawings, true and plumb.

END OF SECTION

SECTION 06190

PREFABRICATED TIMBER TRUSSES

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. RELATED DOCUMENTS: Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 1 Specification sections apply to work 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 that of all 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 DESCRIPTION OF WORK:

A. Definition: Prefabricated wood trusses include planar structural units consisting of metal plate connected members which are fabricated from dimension lumber and which have been cut and assembled prior to delivery to the job site.

B. Types of fabricated wood trusses are indicated on the drawings.

C. **DESIGN LOADS – SEE DRAWING ST-3.**

1.03 RELATED WORK SPECIFIED ELSEWHERE:

A. Section 06100 - Rough Carpentry

1.04 QUALITY ASSURANCE:

A. TPI Standards: Comply with applicable requirements and recommendations of the following Truss Plate Institute (TPI) publications:

1. "Design Specification for Metal Plate Connected Wood Trusses."

2. Commentary and Recommendations for Handling and Erecting Wood Trusses."

3. "Commentary and Recommendations for Bracing Wood Trusses."

4. "Quality Control Manual."

B. Wood Structural Design Standard: Comply with applicable requirements of NFPA "National Design Specification for Wood Construction."

C. Lumber Standard: Comply with PS 20 and with applicable rules of the respective grading inspecting agencies for species and grade of lumber indicated.

D. Connector Plate Manufacturer's Qualifications: Provide truss connector plates manufactured by a firm which is a member of TPI and which complies with TPI quality control procedures for manufacture of connector plates published in TPI "Quality Control Manual."

E. Fabricator's Qualifications: Provide trusses by a firm which has a record of successfully fabricating trusses similar to type indicated and participates in the TPI "Quality Control Inspection Program" as a licensee authorized to apply TPI marks to trusses.

F. Uniformity of Manufacture for Connector Plates: Provide metal connector plates from a single manufacturer.

1.05 SUBMITTALS:

A. The Engineer shall receive all submittals a minimum of two weeks prior to the start of fabrication. The Contractor shall have received and approved all submittals prior to review by the Engineer. All review by the Architect, Engineer and Contractor of submittals shall be completed prior to fabrication and installation of any material or product.

B. Product Data: Submit fabricator's technical data covering lumber, metal plates, hardware, fabrication process and treatment (if any).

1. Submit certificate, signed by an officer of fabricating firm, indicating that trusses to be supplied for project comply with indicated requirements.

C. Shop Drawings:

1. General: Submit shop drawings, prepared under the supervision of a professional engineer, showing species, sizes and stress grade of lumber to be used; pitch, span, camber, configuration and spacing for each type of truss required; type, size, material, finish, design value and location of metal connector plates; and bearing and anchorage details.

2. Design: To the extent engineering design considerations are indicated as the Fabricator's responsibility, submit design analysis and test reports indicating loading, section modulus, assembled allowable stress, stress diagrams and calculations and similar information needed for analysis and to ensure that trusses comply with requirements.

3. Engineer Stamp: Provide shop drawings which have been signed and stamped by a structural engineer licensed to practice in the State of Maine.

4. TPI Approval: All drawing submittals must bear a TPI stamp.

1.06 DELIVERY, STORAGE, HANDLING

A. Handle and store trusses with care, and in accordance with manufacturer's instructions and TPI recommendations to avoid damage from bending, overturning or other cause for which truss is not designed to resist or endure.

B. Time delivery and erection of trusses to avoid extended on-site storage and to avoid delaying work of other trades whose work must follow erection of trusses.

PART 2 - PRODUCTS

2.01 LUMBER

A. General: Factory mark each plate of lumber with type, grade, mill and grading agency.

B. Sizes: Nominal sizes are indicated except as shown by detail dimensions. Provide actual sizes as required by PS 20 for dressed lumber, S4S, unless otherwise indicated.

C. Moisture Content: Provide seasoned lumber with a maximum moisture content of 19% at time of dressing.

D. Lumber Grade: Lumber members will be graded in accordance with the following grading agency requirements:

1. Eastern Woods: NELMA or NHPMA
2. Western Woods: WWPA
3. Southern Pine: SPIB

2.02 METAL CONNECTOR PLATES, FASTENERS AND ANCHORAGES

A. Connector Plate Material: Use metal not less than "0.036" thick, coated thickness, (Contractor's option if more than one metal indicated).

1. Galvanized Sheet Steel: ASTM A 446, Grade A, Coating G60.

2. Electrolytic Zinc Coated Steel Sheet: ASTM A 591, Coating Class C, with minimum structural quality equivalent to ASTM A 446, Grade A.

B. Available Manufacturers: Subject to compliance with requirements, manufacturers offering metal connector plates which may be incorporated in the work, but are not limited to, the following:

a. Gang Nail Systems, Inc.
b. Hydro-Air Engineering, Inc.
c. Inter-Lock Steel Co., Inc.
d. Link-Wood Construction Systems
e. Robbins Manufacturing Co.
f. Tee-Lok Corp.
g. Truss Connectors of America
h. Truswall Systems Corp.

2.03 FIRE RETARDANT TREATMENT:

A. Not applicable.

2.04 FABRICATION:

A. Cut truss members to accurate lengths, angles and sizes to produce close fitting joints with wood-to-wood bearing in assembled units.

B. Fabricate metal connector plates to size, configuration, thickness and anchorage details required for types of joint designs indicated.

C. Assemble truss members in design configuration indicated using jigs or other means to ensure uniformity and accuracy of assembly with close fitting joints. Position members to produce design camber indicated.

D. Connect truss members by means of metal connector plates accurately located and securely fastened to wood members by means indicated or approved.

PART 3 - EXECUTION

3.01 GENERAL

A: Erect and brace trusses to comply with the recommendations of the Manufacturer and the TPI publications referenced above.

B. Erect trusses with plane of truss webs vertical (plumb) and parallel to each other, located accurately at design spacings indicated.

C. Hoist units in place by means of lifting equipment suited to sizes and types of trusses required, applied at designated lift points as recommended by fabricator, exercising care not to damage truss members or joints by out-of-plane bending or other causes.

C. Provide temporary bracing as required to maintain trusses plumb, parallel and in location indicated, until permanent bracing is installed.

D. Anchor trusses securely at all bearing points to comply with methods and details indicated.

E. Install permanent bracing and related components to enable trusses to maintain design spacing, withstand live and dead loads including lateral loads, and to comply with other indicated requirements.

F. Do not cut or remove truss members.

3.02 ENGINEER'S REVIEW

A. The Engineer of Record will conduct periodic reviews of the construction for compliance with the provisions of the Specifications and Drawings during the construction period.

B. The General Contractor shall employ a licensed professional engineer to analyze and design modifications and repairs for construction not in conformance with the provisions of the Contract Documents. These modifications and repair details shall be stamped by an engineer licensed to practice in the State of Maine and submitted with calculations for approval by the Engineer of Record. Modifications shall not be made without express written approval.

END OF SECTION

SECTION 06200

FINISH CARPENTRY

1. GENERAL

1.1 GENERAL PROVISIONS: Drawings and general provisions of Contract, including General Conditions and Division 1 specifications, apply to work in this section.

1.2 DESCRIPTION OF WORK:

A. The extent of work shall be as shown on Drawings and called for in these Specifications. Performance shall meet the requirements of these Specifications. The work covered by this section of Specifications consists of the following:

1. All finished carpentry work and millwork as required by Drawings and as specified under this section.
2. Installation of metal and other items furnished by other trades, if specifically noted in these Specifications.
3. See MSHA Green Building Standards, Section 8 Materials for lumber requirements for framing and finish lumber.

2. PRODUCTS:

2.1 BOARD LUMBER shall comply with the American Lumber Standards Simplified Practice Recommendation No. 16. Grade of board lumber shall be suitable for its intended use. Finish lumber is to be painted and shall be dressed free of tool marks and other objectionable defects. All exposed lumber to be architectural quality grade: Custom.

2.2 NAILS: 6d for 1/2" finish stock and 4d finish for thinner wood. Use 8d generally for nailing 3/4" wood trim to framing. All nails used with cellular PVC trim shall be stainless steel finish nails.

2.3 SCREWS, BOLTS & OTHER FASTENERS: as shown on Drawings with penetration into framing or blocking adequate to support loads shown. Where not shown, consult Architect.

2.4 CLOSET SHELVING: Pre-manufactured plastic coated wire shelving with integral clothes hanger. Closet Maid or equal. Two (2) five tier shelf units required in each walk-in closet. One (1) shelf with closet pole at each closet including each walk-in closet.

2.5 UNIT NUMBERS: 2" solid brass double digit numbers, style to be selected by Architect for exterior apartment entry.

2.6 INTERIOR TRIM: Door and window trim: Brosco 8308, 1 round corner casing. Wall base: Brosco B-688 base. **BIN all knots**.

2.7 PORCH DECKING: composite thermoplastic polymer and wood fiber decking – Azek Deck by Azek Building Products, Scranton, PA. Or equal.

2.8 PORCH TRIM: expanded rigid poly-vinyl-chloride trim boards – Azek Trimboards by Azek Building Products, Scranton, PA or equal.

3. EXECUTION:

3.1 ALL ITEMS OF MILLWORK shall be carefully erected, leveled and plumbed with tight-fitting joints and square corners, carefully cut and secured. Exposed nails shall be set adequately for putty. Moulds and faces shall be free from hammer or other tool marks, clean-cut and true pattern. All work shall be thoroughly cleaned and sanded to receive the finish. Sharp corners of small members of finished woodwork shall be slightly rounded. All trim baseboards, etc. fastened to walls shall be secured to wall framing members and nails set. Care shall be taken to avoid splitting ends of trim boards.

3.2 INTERIOR TRIM: Install trim with finishing nails and glue where required to assure permanent, tight joints, according to Drawing details.

END OF SECTION

SECTION 07200

INSULATION AND VAPOR BARRIERS

1. GENERAL:

1.1 GENERAL PROVISIONS: Drawings and general provisions of Contract, including General Conditions and Division 1 specifications, apply to work in this section.

1.2 DESCRIPTION OF WORK: The extent of work shall be as shown on Drawings and called for in these Specifications. Performance shall meet the requirements of the Specifications. The work covered by this section of Specifications consists of the following:

1. Installation of closed cell and open cell foam insulation: including basement walls, exterior walls, ceilings, roof framing where shown on Drawings.
3. Vapor barriers to be installed at open cell installations as shown.

2. PRODUCTS:

2.1 FOAM INSULATION TYPES: Open cell and closed cell type.

2.2 THERMAL BARRIER OVER EXPOSED FOAM INSULATION: Cafco TB-415 or other product approved by State of Maine Fire Marshal Office.

2.3 MOISTURE PROTECTION: 6 mil. clear polyethylene film.

2.4 SILL SEALER: "Dow" ¼" x 5-1/2" fiberglass sill sealer.

2.5 SHEATHING PAPER: Tyvek – Commercial Wrap.

END OF SECTION

SECTION 07300

ASPHALT SHINGLE ROOFING AND FLASHING

1. GENERAL

1.1 GENERAL PROVISIONS: Drawings and general provisions of Contract, including General Conditions and Division 1 specifications, apply to work in this section.

1.2 DESCRIPTION OF WORK:

A. The extent of work shall be as shown on Drawings and called for in these Specifications. Performance shall meet the requirements of these Specifications. The work covered by this section of Specifications consists of the following:

1. Complete installation of roofing as shown on Drawings or noted in these Specifications.
2. Installation of all flashings as needed to make the roof watertight.
3. Installation of flashings in connection with work of other trades and flashings furnished by others in connection with roof work.
4. Installation of drip edges.
5. Furnish and install ridge vents.

1.3 SUBMITTALS: Contractor to submit manufacturer's information on shingles and vents.

2. PRODUCTS;

2.1 ASPHALT SHINGLES:

A. Shall be Class C of the Underwriters' Laboratories, Inc., and shall meet ASTM D-225 Type III, ASTM D3161 and UL Standard #997 for compliance with wind resistance.

B. Shingles shall be IKO Aristocrat asphalt with 30 year warranty or equal. Color to be chosen by Architect.

2.2 ROOF FLASHINGS; shall be .014 mil aluminum.

2.3 DOOR, WINDOW & WALL FLASHING – "Vycor plus" self-adhering flashing by W.R. Grace or equal.

2.4 DRIPEDGES: shall be 8" preformed aluminum on fascia, 5" on rake min. 0.064".

2.5 RIDGE VENT: shall be Filtervent by Air Vent Inc., Peoria, Hts., Ill. (1-800-AIR VENT) or equal. Open ridge venting to be Ridge Filter Shingle Vent (series SHFV 103), venting at roof/wall junctures to be Flash Filtervent (series FFV 131 or FFV 161)

2.6 ROOFING FELTS: shall be 15# Asphalt Impregnated.

2.7 EAVE AND EDGE UNDERLAYMENT: Ice Shield: Bituthane ice and water shield shingle underlayment by W.R. Grace. 36" wide roll x 40 mil thick rubberized asphalt membrane or equal. Contractor to be aware that the ice and water shield is to be applied for the first 6' at all eaves, a minimum of 3’ in from rake edges and valleys, and over entire roof at pitches below 5:12. In addition, at all roof/wall intersections underlayment shall run up walls 18” minimum.

3. EXECUTION:

3.1 ALL ROOFING MATERIALS to be installed in accordance with manufacturer's recommendations. In no case shall any roofing materials be installed over snow, ice, frost or any other wet materials.

3.2 ROOFING FELT: Install felt as required over dry roof, fully secured and laid flat with no bubbles, humbles etc. Felt shall not be exposed to weather for more than 24 hours before shingles are installed.

3.3 ASPHALT SHINGLE ROOFING: Install asphalt shingles to provide at least double thickness at all points. Use eleven or twelve-gauge wire nails long enough to penetrate the sheathing. Number, spacing and pattern of nails shall be described in the attached Asphalt Roofing Manufacturer’s Association Technical Bulletin.

3.4 INSTALL FLASHINGS:

A. At roof surface intersections and at intersections of roof surface with other parts of the building.

B. Install roof-to-wall flashings at all intersections leaving 1" exposed above roof plane as shown on Drawings.

C. Install sheet metal flashing in "step" fashion; one step at each shingle course.

D. Flashing to run up wall behind finish a minimum of 6", and run under shingles a minimum of 6", flashing overlap minimum 4".

E. Flash pipes projecting through roof with one-piece sheet metal or preformed synthetic rubber boot made for this purpose.

F. Install fascias, drip edges and ridge vents shown on Drawings or noted in these Specifications.

3.5 RIDGE VENTS to be installed at ridge according to manufacturer's recommendations, run continuously to 12" from each end. Insure that free air space allows ventilation flow through bay spaces & out ridge vent. Provide air baffles to insure this air flow.

3.8 NOTE: All roofing, flashing and related work to be in accordance with "Asphalt Roofing Manufacturer's Association" application procedures. Handbook/guide shall be obtained by roofing installer.

END OF SECTION

SECTION 07464

Vinyl Siding

GENERAL

1.1 SECTION INCLUDES

A. Vinyl siding.
B. Accessories and trim.
C. Downspouts.
D. Refer to Section 00600 Alternates, Add Alternate #1.

1.2 SUBMITTALS

A. Submit under provisions of Section 01300.
B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.
C. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
D. Verification Samples: For each finish product specified, two samples, minimum size 12 inches (300 mm) long, representing actual product, color, and patterns.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: Provide installer with not less than three years of experience with products specified or has obtained 5-Star Green Contractor (Preferred), 5-Star Contractor (preferred), or Master Craftsman credentials from CertainTeed.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation. Refer to manufacturer’s installation instructions for specific storage and handling requirements.

1.5 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.6 WARRANTY

A. Provide manufacturer's standard lifetime limited warranty on siding products, transferable to new owners.

Part 2 PRODUCTS

1.1 MANUFACTURERS

A. Acceptable Manufacturer: CertainTeed Corporation, Siding Products Group, P.O. Box 860, Valley Forge, Pennsylvania 19482. ASD. Tel: (800) 233-8990. Fax: (610) 341-7940; Email: ctsiding@certainteed.com; Web: www.certainteed.com.
B. Substitutions: Or Equal.

MATERIALS

C. Vinyl Siding and Components: Provide products made of extruded polyvinyl chloride as specified in this section and manufactured to comply with requirements of ASTM D 3679.
   1. Provide elongated nailing slots on nailing flanges to allow for movement.
   2. Factory-notch ends of horizontal panels to form overlapping joints.
   3. Provide products that meet weathering requirements of ASTM D 3679.

VINYL SIDING

D. Based on Wolverine American Legend: note minimum thickness required.

   1. Design: Double clapboard, wood-grain finish, STUD finder Installation System.
   2. Lock: Grip-Lock.
   3. Width: 10 inches (254 mm) plus or minus .062 inch (1.57 mm).
   4. Length: 12 feet (3.66 m) plus or minus .025 inch (6 mm).
   5. Minimum Thickness: 0.044 inch (1.11 mm).
   6. Panel Projection: 9/16 inch (14.3 mm).
   7. Exposure: to be determined by Architect.
   8. Maximum Warp (per 2 panels): 0.250 inch (6 mm).
   9. Color shall be chosen by Architect from the following standard colors:
      a. Colonial White.
      b. Cypress.
      c. Desert Tan.
      d. Granite Gray.
      e. Heritage Cream.
      f. Herringbone.
      g. Light Maple.
      h. Natural Clay.
      i. Oxford Blue.
      j. Savannah Wicker.
      k. Snow.
      l. Sterling Gray.
      m. Warm Sand.

VINYL CARPENTRY ACCESSORIES

E. Standard Accessories:
   1. Corner post: Standard width, 10 feet (3.05 m), 12 feet (3.66 m), and 20 feet (6.10 m) lengths.
   2. J-Channel: Standard width, 12 feet, 6 inches (3.81 m) length.
   3. Undersill trim: ¾" face, 12 feet, 6 inch (3.81 m) length.
   4. Dual undersill trim: ¾" face, 12 feet 6 inches (3.81 m) length.
   5. 2-1/2 inch (64 mm) Metal Starter Strip. (No Color)
   6. 2-1/4 inch (57 mm) Vinyl Starter Strip. (No Color)
   7. Color: refer to CTS002 for color availability of accessories

1.2 DOWNSPOUTS

A. Provide FlintEDGE™ Downspout by Certainteed with factory offset for concealed joints. Provide factory fabricated starter tubes to channel water into the downspout. Downspouts shall be 0.050" (1.25mm) aluminum, in 10'-0" (3048 mm) sections with an offset at one end for concealed joints. Color to match vinyl siding selection.

1.3 FASTENERS

A. A. Provide galvanized or other corrosion-resistant nails as recommended by manufacturer of siding products.

EXECUTION

1.4 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.
B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

1.5

1.6 PREPARATION

A. Examine, clean, and repair as necessary any substrate conditions which would be detrimental to proper installation.
B. Do not begin installation until unacceptable conditions have been corrected.

1.7 INSTALLATION

A. Install products in accordance with the latest printed instructions of the manufacturer.
B. Installer should have current 5-Star Contractor (preferred) or Master Craftsman credentials.
C. Install products with all components true and plumb.
D. Nail horizontal panels by placing nail in center of slot. Nail vertical panels by placing first nail at top of top slot and remaining nails in center of slots. Drive nails straight, leaving 1/16 inch (1.6 mm) space between nail head and flange of panel. (NOTE: Refer to CTS205 Installation Manual for latest installation recommendations)
E. Allow space between both ends of siding panels and trim for thermal movement. Overlap horizontal panel ends one-half the width of factory pre-cut notches.
F. Stagger lap joints in horizontal siding in uniform pattern as successive courses of siding are installed.

1.8 PROTECTION

A. Protect installed products until completion of project.
B. Touch-up, repair or replace damaged products before Substantial Completion.

1.9 CLEANING

A.
B. At completion of work, remove debris caused by siding installation from project site.

END OF SECTION

SECTION 07500
EPDM ROOFING AND FLASHING

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

A. Fully adhered EPDM sheet roofing, tapered and flat roof insulation, elastomeric flashing, tapered edge strips and roof drains.

1.02 CODES, REGULATIONS AND STANDARDS

A. Contractor Responsibility: The Contractor shall assume full responsibility and liability for compliance with all applicable Federal, State and local codes, regulations and standards pertaining to work practices, hauling, disposal, protection of workers and visitors to the site, and persons occupying areas adjacent to the site. This includes modification of procedures to comply with changes to codes, regulations and standards which occur during the work of this contract. The Contractor is responsible for providing medical examinations and maintaining medical records of personnel as required by the applicable Federal, State and local regulations. The Contractor shall hold the Owner and Owner's Representatives harmless for failure to comply with any applicable work, hauling, disposal, safety, health or other regulations on the part of himself, his employees or his subcontractors.

1.03 QUALITY ASSURANCE

A. Roofing contractor to be approved in writing by the membrane manufacturer. Contractor shall be able to substantiate that he has been trained by the membrane manufacturer.

B. Roofing and flashing workmanship to comply with industry standards. The National Roofing Contractors Association's (NRCA) ***ROOFING AND WATERPROOFING MANUAL*** along with ***ARCHITECTURAL SHEET METAL MANUAL*** as published by Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA) will be used to establish industry standards.

1.04 SUBMITTALS

A. Sample fifteen (15) year watertight warranty for the EPDM membrane.

B. Sample twenty (20) year material warranty for the EPDM membrane.

C. Sample fifteen (15) year “full system” warranty in accordance with MSHA construction manual.

D. Current EPDM membrane manufacturer's application specifications.

E. Shop drawings of each flashing condition, such as eave, curb, vent, wall termination, fascia and siding. Show securement of panels and clips, spacing, type and number of fasteners.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver materials in their original, unopened containers, clearly labeled with manufacturer's name. All material to be stored in waterproof trailers or sheds, up on raised platforms and under lock and key until use. Do not use materials damaged in handling or storage. Replace damaged material with new material. Store adhesives between 60 and 80 degrees F. Should they be exposed to lower temperatures, restore to room temperature for three to five days prior to use.

1.06 WARRANTY

A. A ten (10) year watertight warranty and twenty (20) year material warranty shall be issued by the EPDM membrane manufacturer.

B. The roofing contractor shall furnish the Owner with his personal two (2) year watertight warranty.

PART 2 PRODUCTS

2.01 ROOF INSULATION

A. Tapered and flat roof insulation to be polyisocyanurate closed-cell foam core with manufacturer's standard facing laminated to both sides, complying with FS HH-I-1972/2, Class 1. 1/8" per foot tapered isocyanurate will be required. Roof insulation to be ISO 95+ by Firestone, H-Shield by Hunter Panels or approved equal.

B. Over all foam insulation, install one layer of 1/2" high density fiberboard roof insulation. The high density fiberboard roof insulation to be Structodek by Wood Fiber Industries, High Density Fiberboard by the Celotex Corp. or approved equal.

C. Tapered edge strips to be 1-1/2" by 18" fiberboard. Use the tapered edge strips at the drains to create an additional sump for the drains.

2.02 MEMBRANE ROOF SYSTEM

A. Membrane roofing to be fully adhered .060" EPDM sheet roofing furnished in twenty five foot (25') wide (or wider) rolls by Firestone, Carlisle or Versico. Roof membrane to be fully adhered to the 1/2" high density fiberboard roof insulation.

B. Use the roof membrane for flashing of curbs and walls per the manufacturer's standard details. Use reinforced EPDM anchor strips to avoid splice joints at walls and edges.

C. Adhesives, sealants, thinner, cleaner and accessories to be furnished by the membrane manufacturer.

D. **Six inch (6") wide seam tape will be required for all field seams**.

2.03 FASTENERS

A. Use fasteners recommended by the membrane manufacturer to secure anchor bars and termination bars.

B. Fasteners used to secure roof insulation to the wood deck to be #14-10 Heavy Duty Roofing Fasteners with CR-10 coating, a minimum shank diameter of 0.170" and a thread diameter of 0.125". Pressure plates to be 3" diameter Galvalume plates. Screws and plates to be manufactured by Olympic Fasteners or approved equal. Length, size and accessories to be as required by the EPDM membrane manufacturer selected.

PART 3 EXECUTION

3.01 PREPARATION OF SURFACES

A. Surfaces on which the roofing system is to be applied shall be clean, smooth, dry, free of fins, rot, sharp edges, loose and foreign materials, oil and grease.

3.02 ROOF INSULATION

A. Insulation shall be tightly butted with joints not more than 1/8" in width. Stagger joints with those in layer below. Fiberboard to be installed with a 1/16"-1/8" gap at all joints when board size is greater than 2' x 4'.

B. Fasten insulation to the roof deck with the appropriate screws and plates. Fastener quantity and layout must meet all requirements that may be imposed by the EPDM manufacturer to obtain their warranty.

C. Stagger joints in one direction for each course. For multiple layers, stagger joints in both directions between courses leaving no gaps, allowing a complete thermal envelope to be formed.

D. Provide tapered units to suit drainage pattern indicated.

E. Do not install more insulation in a day than can be covered with membrane before end of day or before start of inclement weather.

3.03 ROOF MEMBRANE

A. Adhere the .060" EPDM membrane to the 1/2" high density fiberboard in strict accordance with the manufacturer's specifications.

B. **Six inch (6") wide seam tape will be required for all field seams**.

3.04 FLASHING - - WALLS, PARAPETS, CURBS AND VENTS

A. Use the longest pieces of material which are practical. All flashing and terminations shall be done in accordance with the applicable manufacturer's details.

B. Care must be taken to set the elastomeric flashing so it does not bridge where there is a change of direction (i.e. where a parapet meets the roof deck). This can be accomplished by creasing the membrane into the angle change prior to adhering up the wall. Excess bridging will be cause for rejection and will be re-done at the contractor's expense.

C. Install termination bars at the top of all base flashing, fastening a minimum of 6" on center.

3.05 TEMPORARY WATER CUT-OFF

A. Temporary water cut-offs are to be constructed at the end of each working day to protect the insulation, roofing, building and building interior from damage due to wind, snow and rain.

B. Temporary water cut-offs are to be detailed by the contractor and approved by the manufacturer and Owner.

3.06 CLEAN UP

A. Site clean-up shall be complete and to the satisfaction of the Owner.

B. All roofs, building, landscape and parking areas shall be cleaned of all trash, debris and dirt caused by or associated with this work.

C. Any areas stained, dirtied, discolored or otherwise damaged due to this work shall be cleaned, restored and replaced as required.

D. All debris shall be removed from the premises promptly and the construction area left clean daily.

3.07 INSPECTION AND TESTING

THE OWNER RESERVES THE RIGHT TO INSPECT AND TEST ALL CONSTRUCTION OPERATIONS AND MATERIALS.

A. Any defect or noncompliance discovered by inspection shall be reported to the contractor

who shall promptly remove any defective material from the site.

B. The Owner reserves the right to inspect the work or parts of it as he chooses. His failure to inspect the work in progress shall not relieve the contractor of the responsibility for properly executing the contracted work, nor shall it impair the Owner's right to reject deficiencies he may subsequently discover.

PART 4 JOB CONDITIONS

A. Roofing to be applied in dry weather.

B. Completed roof areas shall not be trafficked. The work shall be coordinated to prevent this situation by working toward the roof edges.

C. This project is subject to compliance with all requirements of the Occupational Safety and Health Administration (OSHA). All work on this project must meet the requirements of all applicable state and local codes, laws and ordinances.

END OF SECTION

SECTION 07900

JOINT SEALERS

1. GENERAL:

1.1 REFERENCES:

A. Drawings and general provisions of Contract, including General Conditions and Division 1 specifications, apply to work in this section.

B. Section 01045 Cutting and Patching, SPECIFICALLY Section 2.1B Fire stopping & section 07860 fire stopping & smoke seals.

1.2 DESCRIPTION OF WORK: The extent of work shall be as shown on Drawings and called for in these Specifications. Performance shall meet requirements of these Specifications.

2. PRODUCTS:

2.1 CAULKING MATERIAL

A. Tremco Dymonic; one part polyurethane on exterior walls for caulking joints where siding butts trim and at all junctions as necessary to obtain complete watertight construction and caulking gap between bottom of wall and sheathing foundation wall face.

B. Tremco Latex 839 for general interior caulking.

3. EXECUTION:

3.1 ALL POTENTIAL INFILTRATION cracks & joints to be caulked. Caulking shall be done only by workmen who are thoroughly experienced in this work. Exterior caulking shall be applied around all trim boards-corners, windows, doors, vents, utilities, at top of foundation, and any other infiltration "crack".

3.2 NOTE: Apply caulking under corner boards and window, door trim as trim applied. Apply caulking under flange as window is installed.

3.3 INTERIOR CAULKING shall be applied to seal all penetrations through top plates of interior walls, (due to electrical or plumbing), and at tubs, showers, counter tops, bottom of party walls GWB, and other as shown on Drawings.

3.4 IN GENERAL, caulking to be done prior to (in conjunction with) siding installation. See Drawings for any additional applications. Joints and spaces to be caulked shall be dry and free from dust. Finished caulking "bead" shall be neat and smooth, free of gaps and sags and run continuously. Complete all caulking work and allow to stand for the manufacturer's recommended time period before painting. Prime if required before finish coat of paint is applied.

3.5 NOTE: Vents penetrating siding shall be adequately “Wood Backed” for plumpness and tight seal, and caulked prior to installation.

END OF SECTION

SECTION 08200

DOORS AND FINISH HARDWARE

A. GENERAL:

SCOPE: The extent of work shall be as shown on Drawings and called for in these Specifications. Performance shall meet the requirements of these Specifications. The work covered by this section of Specifications consists of the following:

1. Furnishing and installing all door frames as called for in the Construction Documents.
2. Furnishing and installing all doors as called for in the Construction Documents.
3. Furnishing and installing all hardware as called for in the Construction Documents; including locksets, closers, holders, knockers, etc.

NOTE: The Contractor shall submit drawings on every item specified in this section. There shall be no substitutions without a specific written explanation from the subcontractor that the specific item is equal with the item specified by the Architect. All substitutions shall be approved by the Architect and the Owner.

B. PRODUCTS - DOORS

All doors and frames shall be of the material, type and finish as called for on Drawings or in these Specifications. All dimensions shall be as shown by Door Schedule on Drawings. Door identified by manufacturer's name and type of brand name may be substituted for others of equal quality only with the approval of the Architect. Doors delivered for installation shall be carefully stored to prevent damage or warping.

Non-rated Doors shall be 1-3/8” Cambridge solid core, moulded, smooth panel doors by Jeld Wen distributed by Brosco or equal. Units shall be pre-hung and primed.

20 Minute Rated Doors shall be 1-3/4” Cambridge solid core, moulded, smooth panel doors by Jeld Wen distributed by Brosco or equal. Units shall be pre-hung and primed.

90 Minute Rated Doors shall be 1-3/4” Cambridge steel, smooth panel doors by Jeld Wen distributed by Brosco or equal. Units shall be pre-hung and primed.

Install doors after completion of all other work which would raise the moisture content of wood doors or damage door surfaces. Fit, hang and trim as required by the opening so the doors will close and not bind. Solid blocking at hinges and latch required. Provide even clearance of 1/8" at sides and top, 1/4" over thresholds, and 3/4" over floors. See also Section 06100 & 06200 Rough and Finish Carpentry.

Exterior doors shall be insulated core doors with a U value equal to 0.15 or less and air leakage rate of 0.30 cfm/sf or less.

Hollow metal doors and frames shall be thermally broken.

PRODUCTS - HARDWARE:

Locks/Latches - shall be Schlage AL- Series. Lever handles to be "Saturn" style, finish to be #613 (US 10B). Function per Door Schedule.

Door Closers: To be Super Stock Closer for 1460 by LCN, to have hold-open arms delayed action option for handicapped use and adjustable spring power. Provide at all rated doors.

Door Knocker/Nameplate: Ives Knocker with peephole (door viewer) and nameplate at each apartment entry door. Style to be approved by Architect.

Adjustable Door Sweep and Weather-Stripping: Slotted aluminum with brush insert. #309 P by Pemko. Install at each exterior door.

Door Stops: Provide wall or floor stop as appropriate for all swing doors. Wall - Ives 60 (3-3/4") or #62 (4-1/2"). Floor - Ives #430.

Silencers: Provide 3 rubber silencers compatible with door frame materials. Use Ives: # 20 or # 21.

Door Guards: Provide a door guard at each apartment entry. Use Ives: # 482B.

Smoke Gasket: Provide at each apartment entry door.

C. HARDWARE SUBMITTALS:

Samples: Submit representative samples of all items of finish hardware and finishes for approval of the Architect, upon the Architect's request. Samples shall show the design, material and finish proposed for use.

Provide samples of the apartment numerals.

Hardware Schedule and Keying Chart Prepare and submit a complete Hardware Schedule for approval of the Architect before any hardware is ordered. After approval of the Hardware Schedule, a key and master key chart shall be submitted to the Architect for the Owner's approval. No changes shall be made to the approved schedule or chart without the written consent of the Architect.

Templates: Provide hardware templates to the various trades and fabricators requiring them, immediately after receipt of approved Hardware Schedule, to assure accurate setting and finish hardware.

Hardware Packing and Marking: Shall have the required screws, bolts, and fastenings necessary for installation in the same package with the hardware, including keys and instructions. Each package shall be legibly marked and adequately labeled, indicating the part of the work for which it is intended. Each marking shall correspond to the number shown on the approved Hardware schedule. Within each packed lockset, keys shall be tagged and plainly marked on the face of the envelope with the key change number, door designation and all other identifying information as required.

Hardware Protection: All wrapping furnished by the manufacturer on knobs, handles and pulls shall be replaced upon the hardware as soon as it is installed and shall remain thereon until the completion of construction.

Key System: All locks shall be made to a two-step master key system. Two change keys shall be furnished for each lock and three master keys. Master keys shall be given directly to the Owner.

END OF SECTION

SECTION 08560

VINYL WINDOWS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Vinyl New Construction Windows with 4” integral exterior vinyl casing.

B. Units 1 & 2 – retrofit existing vinyl window sash locks. Provide and install accessible sash locks at the height of between 15” – 48” AFF.

1.2 RELATED SECTIONS

A. Section 06100: Rough Carpentry.

B. Section 06200: Finish Carpentry.

C. Section 07464: Vinyl Siding.

1.3 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Submit the following documents for each type of window.
1. Manufacturer's technical data, product descriptions and installation guides.
2. Elevation for each style window specified indicating its size, glazing type, muntin type and design.
3. Manufacturer's head, jamb and sill details for each window type specified.

C. Selection Samples: For each finish product specified, a complete set of color chips representing manufacturer's full range of available colors.

D. Verification Samples: Provide operating units of each style window specified.
1. Verification samples may be operating scaled-down mock-ups of actual-size units.
2. Operating hardware such as balances, sash locks and weather-stripping.
3. Verification samples will be returned to manufacturer's representative at project closeout.

E. Test Reports: Submit certified independent testing agency reports indicating window units meet or exceed specified performance requirements.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: Minimum ten (10) years producing vinyl (PVC) windows.

B. Installer Qualifications: Utilize an installer having demonstrated experience on projects of similar size.

C. Source Limitations: Obtain window units from one manufacturer through a single source.

D. Provide window units independently tested and found to be in compliance with ANSI/AAMA/NWWDA 101/I.S.2-97 and current A440-05 performance standards listed above.

E. Specified fenestration with the following characteristics:
   1. Windows must be National Fenestration Rating Council (NFRC) rated AND have U and Solar Heat Gain Coefficients (SHCG) that meet Energy Star requirements for Northern Climate AND have an Air Leakage Rate (AL) of 0.30 or less.
   2. Tempered glazing.
   3. Insect screens.
   4. Provide accessible sash locks at a height between 15” – 48” (15” -46” at windows located at kitchen counters.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver windows to project site in undamaged condition; handle windows to prevent damage to components and to finishes.

B. Store products in manufacturer's unopened packaging, out of direct sunlight or high temperature locations, until ready for installation.

1.6 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.7 WARRANTY

A. Submit manufacturer's standard warranty against defects in workmanship and materials.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Hancock Classic Vinyl Window, or equal.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify rough opening size is of sufficient size to receive window unit and complies with manufacturer's requirements for opening clearances.

B. Verify that sill plate is level.

C. Notify Architect of unacceptable conditions before proceeding with installation.

3.2 INSTALLATION

A. Install window unit in accordance with manufacturer's printed instructions.

B. Apply sealant around perimeter of window unit between nail fin and exterior

sheathing of wall. Refer to Division 7 Section "Joint Sealants".

C. Install window unit level and plumb. Center window unit in opening and secure window unit by nailing through nail fin and screw through jambs as indicated in manufacturer's instructions.

D. Flash window in accordance with AAMA's "Standard Practice for Installation of Windows with a Mounting Flange in Stud Frame Construction".

3.3 Insulate between window frame and rough opening with spray foam insulation.

3.4 ADJUSTING

A. Adjust units for smooth operation without binding or racking.

B. Adjust sash locks and screens for smooth operation.

3.5 CLEANING

A. Clean soiled surfaces and glass prior to substantial completion.

3.6 PROTECTION

A. Protect window unit from damage until substantial completion. Repair or replace damaged units.

END OF SECTION

SECTION 09250

GYPSUM BOARD

1. GENERAL

1.1 REFERENCES:

A. Drawings and general provisions of Contract, including General Conditions and Division 1 specifications, apply to work in this section.

B. NOTE: Selection of Finish colors and patterns in overall color scheme to be made by Architect. Contractor to notify Architect prior to commencing Gypsum Board work, to allow adequate time for color selections, Owner's approval and material ordering lead time.

1.2 DESCRIPTION OF WORK: The extent of work shall be as shown on Drawings and called for in these Specifications. Performance shall meet the requirements of these Specifications. The work covered by this section of Specifications consists of the following:

A. Drywall installation as required by Drawings and noted in these Specifications.
B. Taping and finishing all walls and ceilings, except where other kind of finish is specified.

2. PRODUCTS

2.1 NOTE: GWB types are shown as U.S.G. brand names “Sheetrock” and “Firecode C”. Substitutions must have equal U.L. and STC ratings. See Drawings for Specific assembly.

2.2 WALLS & CEILINGS: 5/8” thick gypsum board – Sheetrock or Firecode C as indicated on drawings.

2.3 WET WALLS: Type MR gypsum board to be provided at wet walls in bathrooms, laundry and janitor’s closet.

3. EXECUTION

3.1 THE DRYWALL CONTRACTOR shall inspect all areas affected by his work to ascertain that all work is complete and has been accepted. Defective installations shall be corrected before finished surfaces are painted or sprayed with acoustical material.

3.2 DRYWALL INSTALLATION. Install drywall as shown on plans, noted in the UL Specifications, and as set forth in U.S.G. Handbook

A. Spacing for attachment members shall not exceed 24" o.c. for walls and 16" o.c. for ceilings. All drywall shall be screwed with approved drywall screws made specifically for the purpose and of length adequate for wall types. On walls, screws shall not be placed more than 16" apart for 16" o.c. framing or 12" apart for 24" o.c. framing. Screw all edges 12" o.c. maximum.

B. The drywall contractor may use a few drywall nails to temporarily secure a sheet of drywall before securing with drywall screws. In this event, the drywall nails must be countersunk prior to taping. Corner beads shall be used on all corners and casing beads used whenever Gypsum Board abuts dissimilar material. Caulking to also be applied at these junctions. At all party and unit/corridor walls, Gypsum Board to be set in caulking (for sound).

C. Drywall shall be laid vertically or horizontally. No tapered joints at floor base.

3.3 ON SURFACES TO BE PAINTED: tape and cement all joints and screw locations with three coats of compound, then sand to smooth finish, acceptable to paint.

3.4 DURING WORK PROGRESS, remove all excess materials and debris resulting from operations, which may disrupt the work of other trades, and after completion leave the premises broom clean.

END OF SECTION

SECTION 09650

SHEET FLOORING

1. GENERAL:

1.1 REFERENCES: Drawings and general provisions of Contract, including General Conditions and Division 1 specifications, apply to work in this section.

1.2 DESCRIPTION OF WORK

A. SCOPE: The extent of work shall be as shown on Drawings and called for in these Specifications. Performance shall meet the requirements of these Specifications. The work covered by this section of Specifications consists of the following:

B. Extent of Sheet Flooring as shown on the drawings.

1.3 SUBMITTALS

A. Submittals under this Section shall include:

1. Manufacturers' data and installation instructions on all specified products;
2. Samples of sheet flooring;

2. PRODUCTS:

2.1 SHEET FLOORING: Shall be “Coordinates Plus” Commercial Sheet Flooring by Tarkett – 12’ width. Color: By Architect.

2.2 UNDERLAYMENT: Shall be APA rated “Underlayment”, sanded face, with tongue and groove joints.

2.3 ADHESIVES: shall be as recommended by the manufacturer.

3. EXECUTION:

3.1 INSTALLATION shall be done by skilled craftsmen using the adhesives recommended by the manufacturer and in accordance with the manufacturer's instructions. The flooring contractor shall examine the subfloors and report all defects which have to be corrected before the application of flooring starts. Concrete floors shall be smooth, free of any grooves and depressions, and brushed clean of any foreign matter. Install all resilient flooring with joints tight, floor true, level and even with no bubbles, pops or other visible defects. Cut to and around all permanent fixtures keeping vinyl tight to fixtures. Vinyl also

shall be installed under fixtures such as baseboard heating, and glued tight. Wrap vinyl base around exterior corners.

3.2 DURING WORK PROGRESS, remove all excess materials, extraneous mastic, and debris resulting from operations, which may disrupt the work of other trades. The Contractor shall be responsible for keeping the floors clean, unstained and undamaged until the final completion of the building.

END OF SECTION

SECTION 09680

CARPET

1. GENERAL

1.1 REFERENCES: Drawings and general provisions of Contract, including General Conditions and Division 1 specifications, apply to work in this section.

1.2 DESCRIPTION OF WORK:

A. Installation of Carpeting as shown on plans or noted in these Specifications.

1.3 QUALITY ASSURANCE

A. Finished installation shall comply with fire test specified in applicable Building Code.

B. Architect/Engineer shall review first finished space for workmanship. Accepted space shall serve as project standard.

C. All carpets will meet UM44D

D. Carpet to meet CRI Low Emission Label Standard.

E. Carpet shall meet the requirements of the MSHA Carpet Standards, included at the end of this section.

1.4 SUBMITTALS

A. Submittals under this Section shall include:

1. Manufacturer's specifications and installation instructions on all specified products.
2. Samples: one piece, 18" x 18", of each color and type of carpet provided.

B. Deliver to Owner, neatly packaged and labeled, all usable carpet scraps over 2 sq. ft. or 8 in. in least dimensions: 1 percent of each type and color of carpet provided, in 12 ft. wide rolls; and 1 percent of each type of edge strip provided, in standard lengths.

C. Provide written maintenance program.

2. PRODUCTS

2.1 shall be as follows:

A. Carpet: Shaw Contract “Potential III” on classic-back backing.
- Install with direct glue method.

B. Walk-off mat: “Diagonal Tile” modular tile walk-off mat by Matsinc. Color selected by Architect from manufacturer’s standard color selection.

2.2 CARPET must carry stamp confirming conformance to above and submitted to Architect for approval.

2.1 UNDERLAYMENT: Shall be APA rated “Underlayment”, sanded face, with tongue and groove joints.

2.3 Adhesive and sealants must meet MaineHousing Green Building Standards requirements of Section 7 R-3. See Appendix A.

Volatile Organic Compound (VOC) emissions from adhesives and sealants must not exceed VOC limits of South Coast Air Quality Management District Rule #1168 AND sealants used as fillers must meet the requirements of the Bay Area Air Quality Management District Regulation 8, Rule 51.

3. EXECUTION:

3.1 JOB CONDITIONS:

A. Examine Subfloor for dampness, loose material, excessive irregularity, oily or waxy areas impeding adhesion, or other conditions which would prevent proper installation. Verify that no incompatible curing compound has been used on newly-poured concrete. Commencement of work constitutes acceptance of subfloor.

B. Install Underlayment per manufacturer’s written instructions.

C. Broom-clean or vacuum surfaces to receive carpet, before beginning installation. Apply primer-sealer to concrete sub-floor, if recommended by carpet or adhesive manufacturer.

D. Before proceeding with complete installation of carpet, install a representative sample area of each type of carpet provided over each type of substrate, to test for compatibility of adhesive to substrate at glue-down installation, and verify general appearance of finished installation. If sample is securely bonded after 72 hours, final installation may proceed.

3.2 INSTALLATION

A. Field measure each space to receive carpet. Do not scale drawings. Before beginning installation, verify that floor telephone and electrical outlets have been installed.

B. Apply manufacturer's recommended adhesive in accordance with manufacturer's instructions, observing proper safety precautions. Apply adhesive in a uniform film with a steel trowel and proper size notches for correct coverage. Avoid applying excess quantities so that adhesive bleeds through joints. Apply adhesive only in area which dries or films over. Avoid soiling adjacent walls and floors with adhesive. Promptly remove any spillage. Broom or roll carpet to remove air bubbles and insure bond.

C. Install carpet wall to wall unless noted otherwise. Fit carpet neatly into breaks, recesses, closets and alcoves, against bases, around pipes and penetrations, under saddles and thresholds, and around permanent cabinets and equipment. Install Schluter metal strip wherever carpet edge does not abut vertical surface, of appropriate configuration to provide smooth transition to adjacent material. Allowable variation from level for finished installation: 1/4 in. from level in any direction when tested with 10 ft. straight-edge.

D. Seams shall be flat, free from puckering, without twists, free from frayed edges. Coat edges with seam adhesive at glue-down installation, hot-melt tape at cushion, and as recommended by manufacturer. Patterns at seams shall match exactly. Cut raw edges on a slight angle with surface yarns extending outward over backing material so that surface yarns mingle neatly at seams.

E. Seams shall be in accordance with approved seaming shop drawings and samples. No seams will be accepted perpendicular to openings such as doors, stairs, and entries. Seams at doors shall be centered directly under doors. Seam at corridor change of direction shall follow inner wall line across corridor.

G. Remove adhesive spots from carpet immediately with solvent. Trim loose pieces of face yarn with sharp scissors. Upon completion of installation, remove rubbish, selvages, wrapping paper, small scraps, etc., and vacuum with commercial-type vacuum cleaner. Remove soiling, by shampoo if necessary. Cover finished work with kraft paper or polyethylene until Substantial Completion.

H. At completion of job, remove protective paper, vacuum or shampoo again if required.

END OF SECTION

Division 9, Finishes

All carpets specified for MaineHousing projects should have a minimum of a 10year performance warranty.

Carpet	***Moderate Traffic**	****Heavy Traffic**
Construction	Tufted Level & Textured Level Loop	Tufted Level & Textured Level Loop
Fiber	100% Nylon	100% Nylon
Dye Mothod	70% solution dyed or greater	70% solution dyed or greater
Face Weight	26 oz or greater	28 oz or greater
Density	3300 minium	4000 minium
Secondary Backing (w/use of Pad)	Action Backing	Action Backing
Secondary Backing (Direct Glue)	Unitary Backing w/20lbs Tuft	Unitary Backing w/20lbs Tuft
Standard	UM44D	UM44D
Carpet Emission Limits		
VOC	0.50 $mg/m^2 \cdot hr$	0.50 $mg/m^2 \cdot hr$
4-Phenycyclohexane	0.05 $mg/m^2 \cdot hr$	0.05 $mg/m^2 \cdot hr$
Formaldehyde	0.05 $mg/m^2 \cdot hr$	0.05 $mg/m^2 \cdot hr$
Styrene	0.40 $mg/m^2 \cdot hr$	0.40 $mg/m^2 \cdot hr$
Pad (Pads are recommended, but not required.)		
Material	Synethic Hair Jute	Synethic Hair Jute
Weight	27 oz	27 oz
Emission Limits		
TVOCs:	1.00 $mg/m^2 \cdot hr$	1.00 $mg/m^2 \cdot hr$
BHT	0.30 $mg/m^2 \cdot hr$	0.30 $mg/m^2 \cdot hr$
Formaldehyde	0.05 $mg/m^2 \cdot hr$	0.05 $mg/m^2 \cdot hr$
4-PCH	0.05 $mg/m^2 \cdot hr$	0.05 $mg/m^2 \cdot hr$

***Medium Traffic includes carpets inside units

****Heavy Traffic Area includes:

All double loaded coridors, Community Rooms and Public Spaces.

SECTION 09900

PAINTING

1. GENERAL

1.1 DESCRIPTION OF WORK

A. Drawings and general provisions of Contract, including General Conditions and Division 1 specifications, apply to work in this section.

B. The extent of work shall be as shown on Drawings and called for in these Specifications. Performance shall meet the requirements of these Specifications. The work covered by this section of Specifications consists of the following:

1. Painting or staining all interior and exterior surfaces as called for in the Finish Schedule on Drawings or in these Specifications.

2. Solid-body staining of ramp and porch.

3. Painting interior walls, door trim, doors, window trim, etc.

4. Painting all exterior doors as specified.

5. Painting and finishing any other work requiring finishing left unfinished by others.

NOTE: All colors to be selected by Architect. The Contractor shall submit to the Architect, for approval, color samples of stain finishes.

1.2 SUBMITTALS

A. Issue submittals in accordance with Section 01300, Submittals.

B. Submit as follows:

1. Manufacturer's data, application instructions, and color chips on all specified products.

2. Paint schedule covering all surfaces to be painted.

3. Provide as maintenance material, a minimum of one gallon of each type and color of paint used on job, in labeled and well-sealed containers, for future touch-up. Also provide typed list of each type and color of paint used on job, including name of distributor from whom paint may be obtained.

2. PRODUCTS

2.1 General

A. Paint: Acceptable manufacturers, unless specific manufacturer is noted: California Products Corporation, Benjamin Moors, Pratt & Lambert, Sherwin-Williams, Tnemec.

B. All products used shall be manufacturer's top quality product for each type of finish specified.

C. Volatile Organic Compound (VOC) emissions from paints & coatings must not exceed the VOC limits of Green Seal's Standards GS-11 requirements.
   1. Non-flat: 150 g/l
   2. Flat: 50 g/l

D. Pressure Treated Wood Stain: Superdeck 2000 Series, or equal. Refer to www.superdeck.com for manufacturer's written application instructions.

2.2 MATERIALS

A. Where primer is called for, use primer recommended by manufacturer for particular combination of substrate and finish coat. Where painting over shop-applied primers, verify that finish paint proposed for field application is compatible with shop primers actually used.

B. All Gypsum Walls and Ceilings to be painted:
   - Walls – One (1) primer coat and two (2) finish coats. Primer - Benjamin Moore Vinyl Latex Primer Sealer, Finish - Benjamin Moore Moorcraft Latex Eggshell.
   - Ceiling – One (1) primer coat and Two (2) finish coats. Primer - Benjamin Moore Vinyl Latex Primer Sealer, Finish - Benjamin Moore Moorcraft Latex Flat.

C. Interior window sash, exposed softwood woodwork, wood trim and baseboard as noted on Drawings: One (1) coat Primer; two (2) finish coats Semigloss Latex. NOTE: BIN all knots.

D. Wood Door frames, trim, & miscellaneous interior wood trim: Benjamin Moore Wood Primer and two (2) coats Latex Semigloss. NOTE: BIN all knots.

E. Molded Doors: Factory Primed & Two (2) coats Latex Semigloss.

F. Exterior Wood: One (1) coat primer, two (2) coats Latex Semigloss.

G. Steel-Clad Door - exterior and interior faces: Two (2) coats exterior enamel over factory primer. Doors shall be laid flat if sprayed. Doors may be rolled or brushed in place, however with no visible brush marks, drips or imperfections.

H. Metal Railings: Two (2) coats exterior enamel over factory primer.

3. EXECUTION

3.1 JOB CONDITIONS

A. Store materials in sealed containers. Provide a fire extinguisher in storage room. Remove flammable rags and waste from building at end of day.

B. Do not perform exterior work in rain or when precipitation is forecast imminently; or in hot, dry, or windy weather which would cause finish to cure too rapidly, or be marred by windstorm dust; or at temperatures below 40 degrees F.

C. Maintain temperature at interior locations between 50 and 75 degrees F, maximum 80 percent relative humidity, while paint is being applied. Provide adequate ventilation, by mechanical means if necessary, for drying of paint and prevention of condensation and mildew. Do not apply finish in areas in which dust is being generated.

D. Protect finished surfaces and equipment not being painted with masking tape, canvas dropcloths, polyethylene sheets, etc. Items such as lighting switch covers, fixture canopies, and door handles shall be temporarily removed, carefully stored, and replaced after painting, or carefully covered during painting operations.

3.2 PREPARATION

A. Preparation of newly-installed materials to receive finish painting is specified under those Sections installing materials. This includes, but is not necessarily limited to: touch-up of damaged shop coats; taping, sealing and sanding of drywall; patching masonry; sanding finish wood; and cleaning off grease, oil, dirt, mildew, factory-applied protective coatings, and other foreign materials.

B. At wood surfaces to be painted, scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer, before application of priming coat. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood-filler. Sandpaper smooth when dried.

E. Before beginning work under this Section, verify that preparation of substrates under other Sections has been done as specified. Thoroughly remove water, dirt, and dust with clean cloths, brooms, or brushes.

3.3 APPLICATION

A. Apply all materials in accordance with the manufacturer's recommendations.

B. Apply materials with suitable brushes, rollers, and spraying equipment. Keep application equipment clean, dry, and free from contaminants. Thoroughly stir materials before applying, and periodically during application.

C. Rate and method of application and drying time between coats shall be strictly in accordance with manufacturer's recommendations.

D. Touch-up shop applied primers before field painting.

E. Do not apply first coat until surface is dry to touch. Moisture content of surface shall be within limitations recommended by paint manufacturer.

F. Leave all parts of moldings and ornaments clean and true to detail, without excessive paint in corners and depressions. Make edges of paint adjoining other materials or colors clean and sharp with no overlapping. Paint surfaces visible through grilles one coat flat black.

G. Finish coats shall be smooth, free of brush marks, streaks, laps or pile-up of paint, and skipped or missed areas. Refinish whole wall if unacceptable finish is extensive or of such a nature that it cannot be repaired by normal touch-up.

H. After completion of painting work, remove spilled or spattered paint. Touch-up and repair finishes damaged in any way by work under this Section. Protect finished surfaces.

END OF SECTION

SECTION 10200

POSTAL SPECIALTIES (MAILBOXES)

A. GENERAL:

SCOPE: The extent of work shall be as shown on Drawings and called for in these Specifications. The work under this section of Specifications includes furnishing and installing the items listed as indicated on Drawings.

B. PRODUCTS:

1. Mailboxes: Shall be front loading, surface mounted, aluminum box unit with (8) mail boxes, (1) outgoing mail slot, (1) parcel locker, 1" high numbers, locksets and keys as manufactured by Salsbury Industries, or equal

C. EXECUTION:

Provide full key set to Owner.

NOTE: The Contractor shall submit drawings on every item specified in this section, including the concrete base. There shall be no substitutions without a written explanation from the subcontractor that the specific item is equal with the item specified by the Architect. All substitutions shall be approved by the Architect and the Owner.

END OF SECTION

SECTION 10800

TOILET AND BATH ACCESSORIES

1. GENERAL

1.1 REFERENCES: Drawings and general provisions of Contract, including General Conditions and Division 1 specifications, apply to work in this section.

1.2 DESCRIPTION OF WORK: The extent of work shall be as shown on Drawings and called for in these Specifications. The work under this section of Specifications includes furnishing and installing the items listed as indicated on Drawings.

2. PRODUCTS: NOTE: All Products, "Or Equal".

2.1 TOWEL BARS AND TOILET PAPER HOLDERS: shall be Nutone Hallmack "Coronado" series, size as shown on Drawings.

2.2 SOAP DISH: shall be integral with sink, see Section 11450, 2.3.

2.3 DOUBLE HOOK FOR BATHROOM DOOR: shall be equal to NuTone HM-682.

2.4 SHOWER CURTAIN ROD: NuTone HM-382. Curtains are not included.

2.5 GRAB BARS: Stainless steel, 1 ¼ " diameter, concealed mounting with snap flange, satin finish; Bobrick B-5806 Series, lengths as shown on drawings.

2.6 MEDICINE CABINETS:

ALL APARTMENT UNITS: Surface Mounted Medicine Cabinet: Vienna 155130, 30 x 26 x 5½.

2.7 **NOTE: Blocking for all accessories and grab bars must be provided. See Section 06100 - Rough Carpentry.**

2.8 NOTE: The contractor shall submit shop drawings on every item specified in this section. There shall be no substitutions without a written explanation from the subcontractor that the specified item is equal with the item specified by the architect. All substitutions shall be approved by the Architect and the Owner.

3. EXECUTION:

3.1 All work shall be done by experienced craftsmen in first-class manner and high-grade finish.

3.2 All installations shall be in accordance with layout shown on plans and in strict conformity with the manufacturer's recommendations and secured into blocking or other framing with screws of adequate length and size to properly support accessories. Grab bars must be able to sustain a 300# direct load pulling down or out on it.

END OF SECTION

SECTION 10900

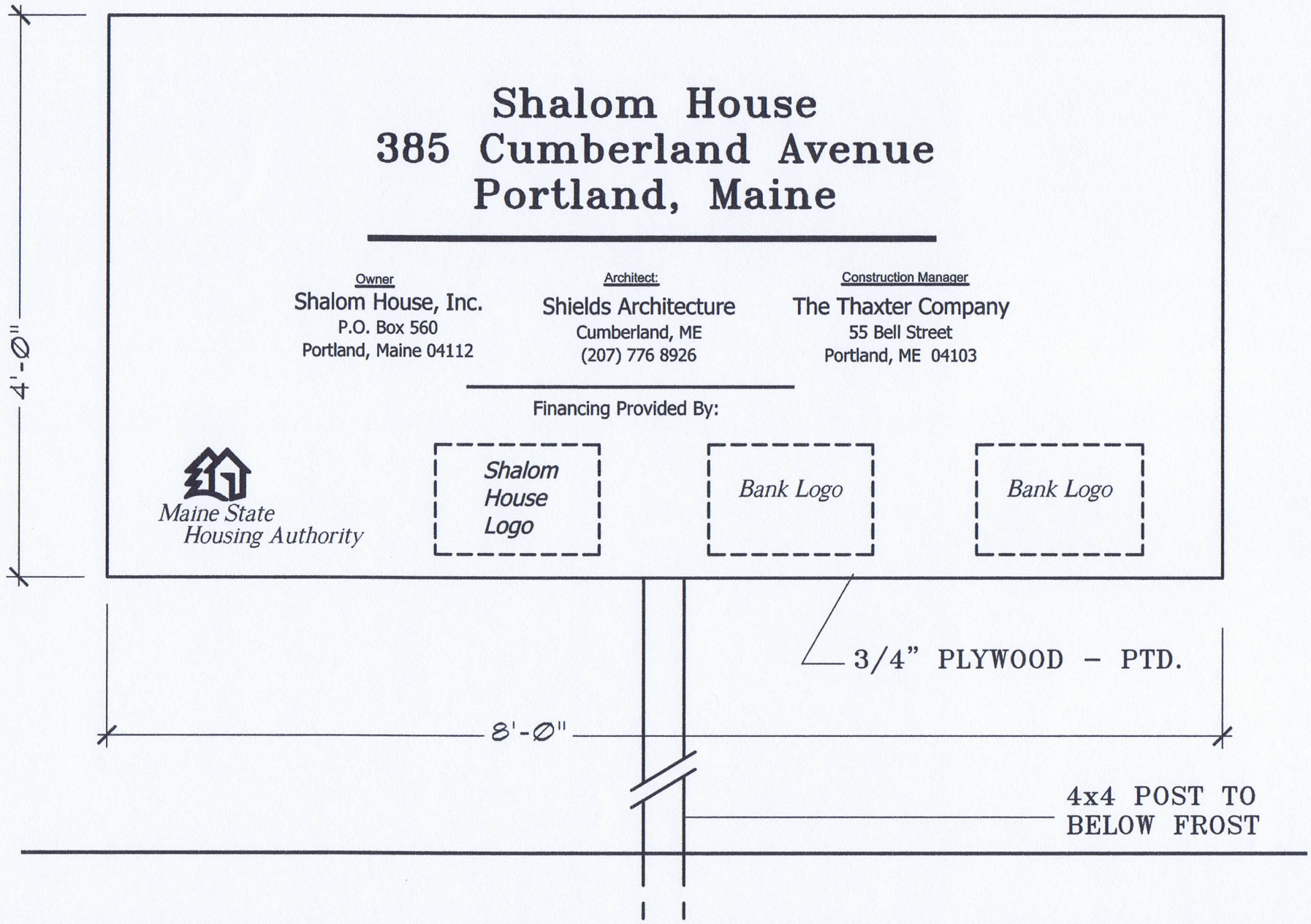
PROJECT SIGNS

1. GENERAL

1.1 DESCRIPTION OF WORK:

A. One project signs are required.

- MSHA Sign – per the detail included in this section. Obtain Owner's final approval prior to manufacturing the sign.



Drawing	Project:	Date	Architect
PROJECT SIGN	SHALOM HOUSE 385 CUMBERLAND AVENUE PORTLAND, ME	6/6/11 Scale 1" = 1'-0"	SHIELDS ARCHITECTURE CUMBERLAND, ME (207) 776- 8926

SECTION 11450

RESIDENTIAL EQUIPMENT AND KITCHENS

1. GENERAL:

1.1 REFERENCES

A. Drawings and general provisions on Contract, including General Conditions and Division 1 specifications, apply to work in this section.

B. Rough Carpentry: Section 06100

C. Finish Carpentry: Section 06200

D. Gypsum Drywall: Section 09250

1.2 DESCRIPTION OF WORK

A. The extent of work shall be as shown on Drawings and called for in these Specifications. The work under this section of Specifications includes furnishing and installing the following items as indicated on Drawings.
   1. Bathroom Vanity Base & Kitchen Cabinets - wall hung and base.
   2. Kitchen cabinet countertops according to layout on drawings.
   3. Bathroom vanity tops.

1.3 SUBMITTALS

A. Submit manufacturer's product data and installation recommendations for all specified products.

B. Architect reserves the right to require samples of all products to be submitted. Acceptable samples will be returned and may be used in the work.

C. Submittals for countertops shall be in accordance with Section 06200, Finish Carpentry.

2. PRODUCTS

2.1 Kitchen Cabinets and Bathroom Vanity Base:

A. Cabinets to be Armstrong Extreme series - shall be of wood construction, with wood finished reverse beveled doors, self closing hinges, adjustable shelves, dual tracks for drawers with nylon guides.

B. Cabinet doors to be Armstrong Bali, color Honey. Countertops to be No-Drip postform plastic laminate, Pionite AT921, Sand Spectrum / Or Equal.

2.2 Kitchen Cabinet Countertops: to be postform 290 plastic laminate as manufactured by Wilsonart, or equal. Countertop/splash guard to be continuous at drop-in range – rout out countertop to accept range, finish edges.

2.3 Bathroom Vanity Tops: "Oasis Marble Tops" with built in bowl and soap dish available through F.W. Webb Co., (207) 784 4575. Coordinate with plumber for drilling holes to receive faucet.

3. EXECUTION:

3.1 INSTALLATION

A. All installation shall be done in a quality first-class manner according to Drawings and layouts shown, and shall be according to manufacturer's recommendations.

B. Kitchen cabinets and vanities: shall be installed by experienced cabinet installers in a craftsman like manner, as though this were really "cabinets". Securely screw cabinets to blocking in the walls. Blocking shall be in place at top and bottom of wall and base cabinets (see Rough Carpentry Sec. 06100), and screws shall be long enough to penetrate blocking 1-1/4" minimum. Cabinets shall be level and plumb. If leveling cabinets puts them visually out of line with other elements (wall line, window sill, door casing, etc.) Architect shall be notified. Countertops shall be tight to the wall and joints caulked. Cabinets shall be tight to each other and in line. All doors and drawers to open freely. Work shall be left clean and right.

C. Where casework is provided to be adaptable, all surfaces that may eventually be exposed shall be completely finished and removable base fronts must be easily removable by maintenance staff.

D. The contractor shall check and make necessary adjustments to insure that all installed items operate faultlessly.

E. Touch up any dings, scratches or other marks with color matching original.

F. All work under this SECTION shall be guaranteed to the Owner IN WRITING for a period of at least one (1) year.

END OF SECTION

SECTION 13710

SPRINKLER PERFORMANCE SPECIFICATION

PART I. GENERAL

This is a performance specification. It requires performance of design work, preparation and submission of Drawings, procurement of approvals, and provisions for complete functional system of automatic sprinklers. As a result, this Section serves the dual purposes of providing specifications and indicating design criteria for Contractor's use and guidance in designing systems and preparing sprinkler Drawings for approvals.

1.01 SECTION INCLUDES

Provides equipment, material, devices, labor, and supervision necessary to fabricate and erect a Residential Sprinkler System.

1.02 CODES AND REGULATIONS

A. Sprinkler system design, equipment, materials, devices, and installation shall conform to NFPA codes and Requirements of Governmental Bodies and Bureaus as listed below:

1. NFPA -13R
2. Local Fire Department (Portland, ME)
3. State Fire Marshal
4. City Building Department
5. Fire Insurance Rating Bureau
6. IMC and IPC

B. UL and FM Compliance: Fire protection system materials and components shall be Underwriter's Laboratories listed and labeled, and Factory Mutual approved for the application anticipated.

1.03 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of fire protection products of types, materials and sizes required, whose products have been in satisfactory use in similar service for not less than five years.

B. Installer's Qualifications: Firm with at least three years of successful installation experience on projects with fire protection work similar to that required for project.

C. Screw thread connections: Comply with Portland, ME Fire Department/Chief requirements for sizes, threading and arrangement of connections for fire department equipment to sprinkler systems.

1.04 TESTS AND CERTIFICATION

A. The sprinkler contractor shall test system in accordance with Chapter 2, of NFPA-13R. Tests shall be conducted in the presence of the authority having jurisdiction and the General Contractor. The Contractor shall have available at the site, a copy of the prescribed test and shall give ample notice as to time for conducting tests.

B. Should any component of the system fail the prescribed test, Contractor shall replace such component with component of increased strength as required to withstand test.

C. Upon completion of installation and test, Contractor shall prepare "Contractor's Material and Test Certificate," as prescribed in Chapter 2, of NFPA-13R. The Certificate shall be signed by Contractor and Engineer/Architect. The Contractor shall furnish copies of the signed Certificate to Authorities with jurisdiction, Owner, Insurance Rating Bureau, and Engineer/Architect.

D. The Fire Protection/Sprinkler Contractor will be responsible for testing and assuring that the facilities water service pressure is adequate for the sprinkler systems proper operation. In the case that it is not will be responsible for providing and installing fire pump pressure boosting equipment as may be necessary.

1.05 WIRING

The Division 16--Contractor shall furnish wiring for signal and alarm devices furnished by Sprinkler Contractor, to interface with the Fire Alarm System. Devices to include tamper switches, flow switches, etc.

1.06 INSTRUCTION

A. Furnish typed instructions relative to sprinkler controls, alarm device operations, and emergency procedures.

B. Instructions shall be encased in a metal frame with glass or Lucite cover and shall be permanently installed next to sprinkler riser main.

1.07 SPRINKLER DESIGN

The wet sprinkler system shall be designed (discharge, number of heads, water demand, coverage, position etc.) as per NFPA -13R.

1.08 SUBMITTALS

A. Product data: Submit manufacturer's technical product data and installation instruction for fire protection materials and products.

B. Shop Drawings: Submit scaled layout Drawings for fire protection pipe and fittings including, but not necessarily limited to, pipe and tube sizes, locations, elevations, and slopes of horizontal runs, wall and floor penetrations, and connections. Indicate interface and spatial relationship between piping and proximate equipment.

C. Approval Drawings and calculations: Submit to the Architect, State Fire Marshal, Fire Chief and all local agencies for approval, water flow test results, hydraulic calculations, and a scaled layout for the fire protection system including, but not limited to, risers, pipe size and lengths, fittings, elevations and slopes of horizontal runs and wall and floor penetrations.

D. Certificate of installation: Submit certification upon completion of fire protection piping work which indicates that work has been tested in accordance with NFPA-13R, and also that system is operational, complete and had no defects.

E. At project close-out, submit record Drawings of installed fire protection piping and products.

F. Submit operating and maintenance data and parts lists for fire protection materials and products. Include this data, product data, shop Drawings, approval Drawings, approval calculations, certificate of installation, and record Drawings in maintenance manual.

PART II. PRODUCTS

2.01 PIPE MATERIAL

A. Underground piping: Class 150 cast iron mechanical joint water main, ANSI A21.6, ANSI A21.11.

B. Interior piping: Black Steel, Schedule 40, ASTM A120 or Schedule 10, ASTM approved by local code.

C. Screwed Fittings: Malleable iron, 175 psi cold water pressure. ANSI B2.1, ANSI B16.3.

D. Flanged fittings: Cast iron, 175 psi cold water pressure, ANSI

B16.1

E. Flanged joint: Cast iron flanges, 175 psi cold water pressure. ANSI B16.1.

F. Grooved fittings: Listed combination of fitting gasket, and grooves. Only rolled groove type to be used with Schedule 10 pipe.

2.02 EQUIPMENT

Equipment listed includes, but is not limited to the following. Contractor will be responsible for a complete design and functioning system.
Equipment listed herein shall be Grinnell, Viking, Potter Roemer, Reliable, Automatic Sprinkler, Star Sprinkler or engineer approved equivalent

1. Water flow detector alarm device.
3. System and water pressure gauges.
4. Valve drains and test connection.
5. Main shut-off valve, OS&Y pattern gate valve or FM approved butterfly valve. (Additional shut off for domestic water system)
6. Check valves.
8. Fire department connection.
9. Sprinkler heads and spares (3)
10. Underground piping Class 150 cast iron or copper.
11. Interior piping black steel schedule 40 or copper.

2.03 SPRINKLER HEADS

A. Sprinkler heads shall be of the ordinary temperature range 135 to 175°F.

B. All sprinkler heads within a room or area shall be of the same type.

C. All sprinkler heads exposed to view will have a chrome finish.

2.04 SPARE STOCK AND SPRINKLER HEAD CABINET

A. Provide spare stock of sprinkler heads in accordance with NFPA-13R, but in no case less than three of each sprinkler head type and temperature rating.

B. Provide wall mounted sprinkler head cabinets with minimum of six of each type

of sprinkler head used, together with required wrenches for replacing heads.

2.05 FIRE DEPARTMENT CONNECTIONS

Polished cast brass, flush wall type with wall escutcheon and two-way connections. Connection sizes shall be 4-inch outlet and two 2 l/2-inch female inlets, having fire department standard threads for the connections size indicated. Each inlet shall have a clapper valve, and plug and chain. Unit shall have wall escutcheon of cast brass, finish to match connections with words "AUTO SPKR--Fire Department Connection."

2.06 VALVES

A. Sectional: OS&Y gate valves or butterfly valves; UL listed and FM approved.
B. Check: Swing check valves; UL listed.

2.07 WATER FLOW INDICATORS

Vane type water flow detector, rated to 250 psig; designed for horizontal or vertical installation; have 2-SPDT circuit switches to provide isolated alarm and auxiliary contacts, 7 ampere 125 volts AC and 0.25 ampere 24 volts DC; complete with factory-set, field-adjustable retard element to prevent false signals, and tamper proof cover which sends a signal when cover is removed.

2.08 ALARM SYSTEM

A. Install in each zone branch, a water flow indicator of vane-type with automatic reset and instant recycling retard and circuit closer, for connection by the fire alarm contractor.

B. Install on each zone shut-off valve, a tamper switch to indicate whether the valve is open or closed for connection by the fire alarm contractor.

2.09 GAGES

A. Provide gages approved for fire protection systems.

B. Pressure gauges, 0-250 psi range.

2.10 MISCELLANEOUS FIRE PROTECTION SPECIALTIES

Provide miscellaneous fire protection specialties not specified herein, UL listed and NFPA requirements. Miscellaneous fire protection specialties shall be UL listed. Provide sizes and types which mate and match piping and equipment connections.

PART III. EXECUTION

3.01 INSTALLATION

A. General: Comply with requirements of Division 15 sections and NFPA-13R for installation of fire sprinkler piping materials. Install fire sprinkler piping products in accordance with the manufacturer's written instructions, and in accordance with recognized industry practices to insure that fire sprinkler piping complies with requirements and serves intended purposes.

B. Install drain piping at low points of fire sprinkler piping.

C. Identification: Apply signs on drain and test valves to identify their purpose and function.

D. Make connections between under ground and above-ground piping using an approved transition piece strapped or fastened to prevent separation.

E. Install inspector's test connections where indicated, or at most remote point from riser.

F. Install pressure gage on the rise or feed main at or near each test connection. Provide gage with a connection not less than l/4 inch and having a soft metal seated globe valve, arranged for draining pipe between gage and valve. Install gage to permit removal, and where they will not be subject to freezing.

G. Coordinate sprinkler Drawings with the mechanical and electrical Drawings. If drops for sprinkler heads are installed before the lighting, air ducts and air outlets are installed, the sprinkler contractor shall locate the heads so as to avoid interference with such items. Locations for mechanical and electrical items shall have priority over sprinkler piping and head locations.

3.02 SYSTEM DRAINAGE

A. Provide complete system drainage capabilities per NFPA 13R.

B. Pitch piping towards drain valves as required and provide auxiliary drains for trapped piping.

C. Route drainage lines to the floor drains. Drain piping sizes per NFPA-13R requirements. Provide fittings for flushing piping systems as required by NFPA.

3.04 ADJUST AND CLEAN

After fire sprinkler piping installation has been completed and before piping is placed in service, flush sprinkler system, as required to remove foreign substances, under pressure as specified by NFPA-13R. Continue flushing until water is clear, and check to insure that debris has not clogged sprinklers.

3.05 FIELD QUALITY CONTROL

A. Hydrostatic testing: After flushing system, test fire sprinkler piping hydrostatically, for a period of two hours, at not less than 200 psi in excess of maximum static pressure when the maximum static pressure is in excess of 150 psi. Check system for leakage at joints. Measure hydrostatic pressure at low point of each system or zone being tested.

B. Repair or replace piping system as required to eliminate leakage in accordance with NFPA standards for “little or no leakage,” and retest as specified to demonstrate compliance.

C. Instruct Owner’s personnel in the operation, inspection, testing and maintenance of all fire protection systems and equipment specified herein.

END OF SECTION 13710

SECTION 14425

VERTICAL WHEELCHAIR LIFTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Vertical platform wheelchair lift installed within shaft way.

1.2 RELATED SECTIONS

A. Division 16 - Electrical: Dedicated telephone service and wiring connections.

B. Division 16 - Electrical: Lighting and wiring connections at top of shaft.

C. Division 16 - Electrical: Electrical power service and wiring connections.

1.3 REFERENCES

A. ASME A17.1 - Safety Code for Elevators and Escalators.

B. ASME A17.5 - Elevator and Escalator Electrical Equipment.

C. ASME A18.1 - Safety Standard for Platform Lifts and Stairway Chairlifts.

D. ICC/ANSI A117.1 - Accessible and Usable Buildings and Facilities.

E. NFPA 70 - National Electric Code.

F. State of Maine – Laws & Rules of the Board of Elevator and Tramway Safety

1.4 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Submit manufacturer's installation instructions, including preparation, storage and handling requirements.
   2. Include complete description of performance and operating characteristics.
   3. Show maximum and average power demands.

C. Shop Drawings:
   1. Show typical details of assembly, erection and anchorage.
   2. Include wiring diagrams for power, control, and signal systems.
   3. Show complete layout and location of equipment, including required clearances and coordination with shaft way.

D. Selection Samples: For each finished product specified, provide two complete sets of color chips representing manufacturer's full range of available colors and patterns.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Firm with minimum 10 years experience in manufacturing of vertical platform lifts, with evidence of experience with similar installations of type specified.

B. Installer Qualifications: Licensed by the State of Maine Board of Elevator and Tramway Safety to install equipment of this scope, with evidence of experience with specified equipment. Installer shall maintain an adequate stock of replacement parts, have qualified people available to ensure fulfillment of maintenance and callback service without unreasonable loss of time in reaching project site.

1.6 REGULATORY REQUIREMENTS

A. Provide platform lifts in compliance with:
1. ASME A18.1 - Safety Standard for Platform Lifts and Stairway Chairlifts.
2. ASME A17.1 - Safety Code for Elevators and Escalators.
3. ASME A17.5 - Elevator and Escalator Electrical Equipment.
4. NFPA 70 - National Electric Code.
5. State of Maine – Laws & Rules of the Board of Elevator and Tramway Safety.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store components off the ground in a dry covered area, protected from adverse weather conditions.

1.8 PROJECT CONDITIONS

A. Do not use wheelchair lift for hoisting materials or personnel during construction period.

1.9 WARRANTY

A. Warranty: Provide a two year limited warranty covering replacement of defective parts and excluding labor.

PART 2 PRODUCTS

2.1 SHAFTWAY VERTICAL WHEELCHAIR LIFT

A. Capacity: 750 lbs (340 kg) rated capacity.

B. Nominal Clear Platform Dimensions:
1. 56 inches by 36 inches

C. Platform Configuration:
1. Straight Through Entry/Exit: Front and rear openings.

D. Landing Openings:
1. Lower Landing: Door.
2. Upper Landing: Gate.

E. Door Construction:
1. Fire Rated Doors: 1-1/2 hour B label rating. Pre-hung, constructed of 16 gauge (1.5 mm) steel, with a vision panel, delayed action door closer, pull handle and integrated interlock. Doors mount flush to the inside wall of the shaft way.
2. Door Width:
a. Lower Landing:
1) 35-5/8 inches

F. Upper Gate Construction

1. 42 inches (1067 mm) high, pre-hung on an anodized aluminum frame, fitted with a door closer, pull handle, integrated interlock and constructed with a 16 gauge (1.5 mm) galvanized steel kick plate and upper panel as follows:
   a. Panels of 16 gauge (1.5 mm) galvanized steel.

G. Power Door Operator: Automatically opens the door/gate when platform arrives at a landing. Will also open at landing by pressing call button or by gently pulling door.
1. ADA Compliant and obstruction sensitive.
2. Low voltage, 24 VDC with all wiring concealed.
3. Provide power operators at the following locations:
   a. Lower Landing: Door.
   b. Upper landing: Gate.

H. Lift Components:
1. Machine Tower:
2. Base Frame.
3. Platform Side Wall Panels.

I. Drive Side Wall Panels: Provide 16 gauge (1.5 mm) galvanized panels and mounting hardware to cover the void between both sides of the mast and the side of the shaft way. Panels to cover the front and top of the void area to the height of the top surface of the drive mast.

J. Platform Controls: 24 VDC control circuit with the following features.
1. Direction Control: Constant pressure rocker switch.
2. Illuminated and audible emergency stop switch shuts off power to lift and activates audio alarm equipped with battery backup.
3. Keyless operation.
4. Emergency Telephone: Platform shall be equipped with ADA compliant auto-dialer telephone with a stainless steel faceplate. Telephone shall operate in the event of power failure. A telephone line shall be supplied to the lift site.

K. Call Station Controls: 24 VDC control circuit with the following features.
1. Direction Control: Constant pressure switches.
2. Keyless operation.
3. Call Station Mounting:
   a. Lower:
      1) Wall mounted recessed.
   b. Upper:
      1) Wall mounted surface.

L. Safety Devices and Features:
1. Grounded electrical system with upper, lower, and final limit switches.
2. At all landings a solenoid activated interlock shall electrically monitor that the door is in the closed position and the lock is engaged before lift can move from landing.

M. Finishes
1. Aluminum Extrusions: Anodized finish.
2. Ferrous Components: Electro-statically applied baked powder finish, fine textured.
   a. Color: chosen by Architect from manufacturer's standard colors.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. Verify shaft and machine space are of correct size and within tolerances.

C. Verify required landings and openings are of correct size and within tolerances.

D. Verify electrical rough-in is at correct location.

E. If substrate preparation is the responsibility of another installer, notify CM of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install platform lifts in accordance with applicable regulatory requirements including ASME A 17.1, ASME A 18.1 and the manufacturer's instructions.

B. Install system components and connect to building utilities.

C. Accommodate equipment in space indicated.

D. Startup equipment in accordance with manufacturer's instructions.

E. Adjust for smooth operation.

3.4 FIELD QUALITY CONTROL

A. Perform tests in compliance with ASME A 17.1 or A18.1 and as required by authorities having jurisdiction.

B. Schedule tests with agencies and Architect, Owner, and CM present.

3.5 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 15000

GENERAL REQUIREMENTS FOR MECHANICAL WORK – DESIGN/BUILD

PART I

1.01 GENERAL REQUIREMENTS AND CONDITIONS

These general requirements for mechanical work are complimentary to the "General Conditions" of these specifications. The mechanical contractor shall include the conditions imposed by the "General Conditions" in their bidding. The term "Contractor" used in this section of the specifications shall mean the "mechanical contractor".

The MaineHousing Construction Standards are incorporated by reference in the Specifications. The Mechanical Designer / Builder shall familiarize himself with the requirements of these standards and design the mechanical system in accordance with them.

Note the following items required by MaineHousing:
All penetrations through the building envelope must be properly sealed.
Reference that range hoods are owner furnished.
Exhaust fans and dryers shall be equipped with self closing dampers.
Metal duct shall be smooth surfaced and sealed with mastic to prevent leakage.
No piping shall be run in unheated spaces or outside wall cavities.

1.02 SCOPE

A. The work to be performed at this facility will require installation of all new equipment. Demolition of existing mechanical equipment is involved.

B. The new work shall include but is not limited to the furnishing of equipment, materials, supervision, quality control and labor for the fabrication, installation, start-up and testing for complete heating, ventilation, and plumbing system installation.

C. The Contractor shall examine project site and familiarize himself with all conditions which will affect his work. He shall also review the drawings and

specifications of other trades and take note of conditions to be created which will affect his work. All conditions shall be considered in the preparation of bids; no additional compensation will be made on the behalf of this Contractor.

D. Where noted in these specifications, the Contractor for this division shall install equipment furnished by others, and shall make required service connections. Contractor shall verify with the supplier of the equipment the requirements for the installation.

1.03 SYSTEM DESCRIPTION

A. The heating requirements for this facility will be served by a forced hot water radiation system. The hot water will be generated by a gas fired boiler.

B. Heating distribution for individual apartment units and common areas will be served by baseboard fin tube radiation or unit heaters with zone thermostats.

C. Bathroom exhaust ventilation will be supplied by individual ceiling exhaust centrifugal fans, vented individually. All fans to be Energy Star rated.

D. The kitchens are to be equipped with ductwork from the range hood individually vented to the outside using metal ductwork. Range hoods are by Owner, installed by Contractor.

E. The plumbing system requires basic drainage and domestic water systems for installation of apartment bathrooms, kitchen sinks, and floor drains in bathrooms of Apartments 1 and 2. Domestic hot water will be generated by indirect fired water heater with the energy supplied by the boiler system.

1.04 SUBMITTALS

Equipment cut sheets and/or shop drawings, along with manufacturers specifications shall be submitted by the Contractor to the Engineer for review on major equipment components, which will include but is not limited to the following.

The Mechanical Contractor is to provide minimum criteria for boiler and controls and plumbing fixtures.

1.05 MAJOR EQUIPMENT COMPONENTS

All materials shall be the standard product of a reputable manufacturer regularly engaged in the manufacture of the specific product. All materials of the same type of class shall be the product of one manufacturer. For example, all pumps shall be from the same manufacturer. etc.

1. Gas fired hot water boiler
2. Fin tube baseboard radiation
3. Indirect fired domestic water heaters
4. Exhaust fans
5. Kitchen hood exhaust ductwork
6. Pumps
7. Expansion tank and hot water specialty items
8. Boiler Venting
9. Water and air system balancing
10. Controls

1.06 SUBSTITUTIONS

Alternate products that meet or exceed those called for shall be given consideration.

1.07 COORDINATION

A. Coordinate work with that of other trades and adjacent projects to make the proper connection at locations, and at the time the work is ready for the connections to be made.

B. Contractor shall coordinate his work with that of the other trades, so that it may be installed in the most direct and workmanlike manner without hindering or handicapping the other trades.

1.08 CODES AND STANDARDS

A. Conform to 2009 International Building Code and 2009 International Mechanical

Code.

B. Plumbing: Conform to 2009 International Plumbing Code and the Americans with Disabilities ACT (ADA).

C. Energy Code: Maine State Commercial Energy Code and Maine Housing Green Building Standards.

D. ASHRAE--American Society of Heating, Refrigerating and Air Conditioning Engineers.

E. SMACNA--Sheet Metal and Air Conditioning Contractors National Association

F. UL--Underwriters Laboratories, Inc.

G. ANSI -- American National Standards Institute

1.09 PERMITS AND APPROVALS

The Contractor shall obtain all permits, inspections and approvals, as required, by all authorities having jurisdiction. All fees and costs of any nature whatsoever incidental to these permits, inspections and approvals must be assumed and paid by this Contractor.

1.10 PROJECT DRAWING AND SITE CONDITIONS

A. The Mechanical Contractor shall examine the general construction drawings in connection with their work, and shall familiarize himself with all limitations caused by such conditions and take cognizance of same in submitting his bid.

B. The Mechanical Contractor shall visit the site of the proposed work and carefully examine the existing conditions and limitations, and shall include in his bid all costs of any kind which are incurred through limitations of the existing conditions.

1.11 NAMEPLATE DATA

Provide permanent operational data nameplate on each item of power operated mechanical equipment, indicating manufacturer, product name, model number, serial number, capacity, operating and power characteristics, labels of tested compliance, and similar essential data. Locate nameplates in an accessible location.

1.12 ACCESSIBILITY

A. Install equipment and materials to provide required access for servicing and maintenance. Coordinate the final location of concealed equipment and devices requiring access with final location of required access panels and doors. Allow ample space for removal of all parts that require replacement or servicing.

B. Extend all grease fittings to an accessible location.

1.13 HOISTING, SCAFFOLDING AND TRANSPORTATION

The Contractor shall provide his own hoisting facilities to set his materials and equipment in place. The Contractor shall also be responsible for any scaffolding and transportation associated with his work.

1.14 DELIVERY AND STORAGE

A. The Contractor shall make his own provisions for the delivery and safe storage of his materials, and shall arrange with other contractors on the job for the introduction into the building of the equipment too large to pass through finished openings. He shall arrange to have materials delivered to the job at such stages of the work as will expedite the work as a whole. Said materials shall be marked and stored in such a manner as to be easily checked or inspected. Where materials are indicated to be furnished by others to the Contractor for installation, this Contractor shall make a complete and careful check of all materials delivered to him and shall furnish a receipt acknowledging acceptance of the delivery and condition of material delivered.

B. After such acceptance, the Contractor shall assume full responsibility for the safekeeping of same until such time as the complete installation has been approved and accepted.

C. Confine the storage of materials to the limits provided by law, ordinances, permits and as elsewhere specified.

1.15 CUTTING AND PATCHING

The Contractor shall notify the General Contractor and other Contractors, in ample time, of the locations and sizes of all chases, sleeves, and any other openings required for passage or concealment of pipes, or for installation of equipment in the building. Any cutting or patching necessary because of neglect

of this provision, or any other cutting, shall be done at the direction and expense of the Contractor responsible.

1.16 WATERPROOFING

In any case where a Contractor finds it necessary to cut holes through the waterproofing or exterior walls or floor, he shall waterproof the hole with the same waterproofing materials as were used for the original waterproofing.

1.17 ROUGH-IN

Verify final locations for rough-ins with field measurements and with the requirements of the actual equipment to be connected.

1.18 OWNER FURNISHED EQUIPMENT

This Contractor shall make rough-in connections for Owner furnished equipment. Coordinate final connections with Owner requirements.

1.19 SUPERVISION

A competent foreman or superintendent shall be available at the site to receive instructions and to act for the Contractor.

1.20 ELECTRICAL COORDINATION

A. Division 15 Responsibility

1. Mount all electrical power consuming equipment specified under Division 15; i.e., motors, and pre-wired control panels.

2. The electrical trade shall be responsible for providing only the field wiring and equipment as indicated in the wiring schematics on the electrical Drawings; any other wiring and/or equipment that is required and related to Division 15 work shall be the responsibility of Division 15 trades.

3. Furnish all necessary wiring diagrams, instructions, advice, supervision, materials, labor, etc., as may be necessary to accomplish power wiring.

4. Furnish, install and take responsibility for accuracy and completeness of temperature control wiring, interlock wiring, and any other mechanical equipment wiring not shown on the electrical Drawings.

B. Motor starters, disconnects, etc., not shown on the Electrical Drawings shall be provided with Division 15 equipment and shall comply with Division 16 requirements.

PART II PRODUCTS, EQUIPMENT AND MATERIALS

2.01 PIPE AND PIPE ACCESSORIES

A. Heating water and domestic water piping above grade to be type "L" hard drawn copper or PEX tubing where approved by the MaineHousing representative.
B. Heating water and domestic water piping below grade to be type "K" hard drawn and copper.
C. Condensate drains shall be PVC schedule 40 or type "L" hard drawn copper.
D. Sanitary waste below grade will be service weight cast iron soil pipe asphalt coated.
E. Sanitary waste and venting above grade will be PVC schedule 40.
F. Fittings, joints, nipples and unions to be of material strength and type appropriate and compatible with the piping material and application per American National Standards Institute (ANSI), American Society of Testing and Materials (ASTM) and all local, state and federal codes.
H. Provide materials, equipment, labor necessary to install all required hangers, supports, sleeves, escutcheons and guards recommended and required by American Society of Mechanical Engineers (ASME), IPC/IMC and local codes.

2.02 PIPING INSULATION

A. Heating water pipe insulation to be glass fiber insulation with a 'k' value of 0.25 to 0.29 at 75 deg. 1-1/2" thick (run outs less than 12 ft. - 1/2" thick)
B. Domestic hot water pipe insulation to be elasomeric tube (cellular foam) with a 'k' value of 0.24 to 0.28 at 75 deg. 1" thick (run outs less than 12 ft. - 1/2" thick)
C. Domestic cold water pipe insulation to be elasomeric tube - 1/2" thick.

2.03 BATHROOM EXHAUST FANS (Based on Panasonic)

A. Furnish and install ceiling mounted centrifugal direct drive exhaust fans as shown on the drawing plans with exhaust capacity of 80 cfm.
B. Fan to be Energy Star Rated and UL classified (UL standard 555C) for use in 1-hour fire-rated floor-ceiling and roof-ceiling designs.

2.05 CARTRIDGE CIRCULATORS (based on Taco)

A. The pump casing will be constructed of bronze and have a non-metallic replaceable cartridge type impeller.
B. The shaft will be ceramic and the bearings carbon.
C. The pumps will have a maximum pressure rating of 125 PSI and a temperature rating of 230 deg.
D. This pump will be direct drive with electrical characteristics as called for on the drawing schedule.

2.06 FINNED TUBE RADIATION (based on Sterling)

A. Furnish and install where shown on the drawings, Sterling KOM-PAK fin tube enclosure and element as described or approved equal of both quality and BTU capacity. ratings are to be I=B=R approved.
B. The enclosure made of a heavy gauge sheet metal and finished with baked beige enamel.
C. The element with be constructed of ¾" copper tubing with 2.25" x 2.5" aluminum fins .011" thick and spaced at 50 per foot.

Apartment Baseboard Fin Tube Heating Control

The apartment units will be supplied with heating only non-programmable thermostats (Honeywell T-87) which regulates the hot water flow through electric operated control valves.

Bathroom Exhaust Fan Control

The bathroom combination exhaust fan will be controlled by a wall switch supplied by the electrical contractor.

PART III EXECUTION

3.01 GENERAL

All work by the Contractors shall be in a neat and workmanlike manner and in accordance with the best standards and practices of the trades, and shall present neat, finished appearance when completed.

3.02 GENERAL CLEANING

A. Dirt and refuse resulting from the performance of this work shall be removed from the premises as required to prevent accumulation, and the Contractor shall maintain reasonably clean premises at all time.

B. Immediately prior to final inspection, the Contractor shall make a final Clean up of dirt and refuse resulting from the work and shall make the premises broom clean.

C. Immediately prior to final inspection, the Contractor shall clean all materials and equipment installed under the Contract. Dirt, refuse and stains shall be removed from all surfaces and damaged finishes restored to original condition.

3.03 TESTING, ADJUSTING AND BALANCING

A. Before completion of this project, the Contractors shall test all materials and equipment which normally require testing. All piping, etc. shall be tested and disinfected to meet code requirements. All equipment shall be operated sufficiently long to prove to the Owner, or his representative, that the equipment performs satisfactorily and meets the requirements set forth in the plans or in these Specifications. Adjustments will be made as required.

B. The water systems shall be completely balanced for proper system function. A system balancing report shall be submitted.

3.04 WARRANTIES

A. Compile and assemble all warranties for equipment specified in Division 15 in vinyl covered three-ring binders, tabulated and indexed for easy reference.

B. Provide complete warranty information for each item. Include product or

equipment, date of beginning of warranty or bond, duration of warranty or bond, and names, addresses, and telephone numbers and procedures for filing a claim and obtaining warranty services.

3.05 GUARANTEE

A All work done, and all equipment and material furnished shall be guaranteed free from defects for a period of one (1) year from the date of acceptance of the entire installation.

B. The guarantees shall be in writing, in a form approved by the Owner, before final payment is made. If parts of the building are accepted before the entire installation is complete, the guarantee date for workmanship, equipment, and material shall begin on the date of beneficial use by the Owner. These dates shall be agreed upon in advance of beneficial use, and shall be in writing.

3.06 RECORD DOCUMENTS

A. Mark Drawings to indicate revisions to piping (size and location), include locations of heat pumps, energy recovery units, heating coils, dampers and other control devices, filters, and similar equipment requiring periodic maintenance or repair. Show actual equipment locations dimensioned from column lines, actual inverts, concealed equipment dimensioned to column lines, locations of mains and branches of piping systems, numbered valves and control devices, concealed unions, items requiring maintenance (i.e., traps, strainers, expansion compensators, tanks, air vents, etc.), and control system, devices. Mark all change orders on the Drawings.

B. Mark specifications to indicate approved substitutions, change orders, and actual equipment and materials used.

3.07 OPERATION AND MAINTENANCE DATA

The Contractor shall provide the following information in a bound manual:

1. Description of function, normal operating characteristics and limitations performance curves, engineering data and tests, and complete nomenclature and commercial numbers of all replaceable parts.

2. Manufacturer's printed operating procedures to include start-up, break-in, routine and normal operating instructions; regulation, control, stopping, shut-down, and emergency instructions; and summer and winter operating instructions.

3. Maintenance procedures for routine preventative maintenance and troubleshooting; disassembly, repair, and reassembly; aligning and adjusting instructions.

4. Servicing instructions and lubrication charts and schedules.

5. Copies of all approved submittals.

END OF SECTION 15000

SECTION 16000

GENERAL REQUIREMENTS FOR ELECTRICAL WORK – DESIGN/BUILD

PART 1:

1.01 WORK INCLUDED

A. In general, the work consists of removing and relocating existing equipment and connecting new equipment associated with new power and systems as indicated on the drawings and specifications including the following:

1. Furnish and install wiring and connections for new, relocated and rewired existing electrical panel, lighting fixtures, receptacles, etc.

2. Provide new grounding from panels to existing units and common spaces, including additional receptacles, circuits and breakers in kitchen to meet current code.

1.02 QUALITY ASSURANCE

A. All wiring shall be in accordance with the latest issue of the National Electrical Code.

B. The Electrical Contractor shall familiarize himself with the requirements of MaineHousing Construction Standards, incorporated by reference in the Specifications, and design the electrical system (including the fire alarm system) in accordance with them.

Note the following items required by MaineHousing:
Provide motion sensors in common areas.
Lamps and fixtures must be Energy Star rated.
Emergency Exit signs to be LED.
Smoke and carbon monoxide detectors to be both audible and visual and powered from a circuit that includes essential light/device.
All circuits to be a minimum of 20 amps.
Switch for bathroom exhaust fan should allow for time delay.

C. All electrical equipment shall be approved by the Underwriters Laboratories, Inc. Each system shall be products of a single manufacturer of established reputation and experience. The Contractor shall have supplied similar apparatus to comparable installations rendering satisfactory service for at least three years.

D. The Contractor shall guarantee all equipment and wiring free from inherent mechanical or electrical defects for one year from date of acceptance.

1.03 SUBMITTALS

A. Submit four (2) copies of manufacturer's literature.

B. Submit (2) copies of floor plans showing the locations of new/relocated switches, outlets, thermostats, etc. Indicate location of fire alarm panel, intercom system, motion sensor lighting controls in common areas.

1.04 PROJECT CONDITIONS

A. Regulatory Requirements: Secure and pay for all permits and certificates as required by local and State laws.

1.05 WARRANTY

A. The Contractor shall guarantee all equipment and wiring free from inherent mechanical or electrical defects for one year from date of acceptance.

1.06 RELATED WORK

A. Division 15 - Mechanical

PART 2:

2.01 PRODUCTS

A. Products are Design/Build – see Drawing A-9 for light fixtures based on Cooper Lighting.

PART 3: EXECUTION

3.01 INSTALLATION

A. General:

1. All work shall be in accordance with the National Electrical Code requirements as amended to date, with the local electric utility company's rules, the Fire Underwriter's requirements, and all local, State and Federal laws and regulations.

2. Conduits shall be of sizes required by the National Electrical Code. Exposed conduits shall be installed with runs parallel or perpendicular to walls and ceiling, with right-angle turns consisting of bends, fittings, or outlet boxes. No wire shall be installed until work which might cause damage to wires or conduits has been completed. Conduits shall be thoroughly cleaned of water or other foreign matter before wire is installed.

3. All splices shall be mechanically and electrically perfect, using crimp type wire connectors.

6. A typewritten schedule of circuits, approved by the Owner's Representative shall be on the panel directory cards. Type the room numbers and items served on the cards. Three-complete separate copies of all directories, neatly bound, shall be delivered to the Owner's Representative.

7. Revise existing panelboard directories. Furnish new cards as needed.

B. Grounding:

1. The entire electrical system shall be permanently and effectively grounded in accordance with Code requirements.

C. Alterations:

1. The Contractor shall study all drawings and specifications and visit the site and acquaint himself with the existing conditions and the requirements of the plans and specifications. No claim will be recognized for extra compensation due to failure of Contractor to familiarize himself with the conditions and extent of the proposed work.

2. The Electrical Contractor shall execute all alterations, additions, removals, relocations or new work, etc., as indicated or required to provide a complete installation in accordance with the intent of the drawing and specifications.

3. Reconnect existing circuits to remain. Remove existing equipment to be discontinued.

4. Any existing work disturbed or damaged by the alterations or new work shall be repaired or replaced to the Engineer's satisfaction.

5. Equipment relocated or removed and reinstalled shall be cleaned and repaired to first class condition before reinstallation.

D. Record Drawings: The Contractor shall keep on the job, a set of prints showing any changes to the installation. These shall be given to the Owner at the completion of the work.

E. Testing and Adjusting:

1. The entire installation shall be free from short-circuits and improper grounds.
2. Each individual lighting circuit shall be tested at the panel, and in testing for insulation resistance to ground, the lighting equipment shall be connected for proper operation. In no case shall the insulation resistance be less than that required by the National Electrical Code. Failures shall be corrected in a manner satisfactory to the Architects and Engineers.

END OF SECTION