

SPECIFICATIONS

PROJECT: **SHALOM HOUSE**
214 Danforth Street
Portland, Maine 04102

OWNER: **SHALOM HOUSE, INC.**
106 Gilman Street
Portland, Maine 04102

ARCHITECT: **SHIELDS ARCHITECTURE**
216 Range Road
Cumberland, Maine 04021

STRUCTURAL ENGINEER:
STRUCTURAL DESIGN CONSULTING, INC.
2696 Lake Shore Road
Unit 130
Gilford, NH 03249-6219

CONTRACTOR: **HARDYPOND CONSTRUCTION**
7 Tee Drive
Portland, ME 04103

Signatures:

Architect _____
Owner _____
Contractor _____
MSHA _____
Construction Lender _____

MSHA Project Number: SHP-1603
Construction Set
Issued for Construction: 7/11/14

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AIA DOCUMENTS

AIA A101 Standard Form of Agreement between Owner and General Contractor
AIA A201-2007 General Conditions of the Contract for Construction
AIA A312-1984 Performance Bond & Payment Bond
AIA A701 Instructions to Bidders

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AIA G702 Application and Certification for Payment

AIA G703 Continuation Sheet for G702

MSHA DOCUMENTS

MaineHousing 2013 Quality Standards and Procedures Manual

MaineHousing Final Certificate and Release for Contractors/Sub-Contractors/Vendors

MaineHousing Supportive Housing/One Write Project Certificate of Completion of Construction/Rehab Activities. (formally "Owner/Agency Certificate of Completion)

MaineHousing Construction Services Final Completion Checklist

MaineHousing Incomplete Work Escrow

END OF SECTION

Shalom House, 214 Danforth Street, Portland, Maine

SECTION 00400

SIGNATURE PAGE

Owner: _____ Date: _____

Architect: _____ Date: _____

Contractor: _____ Date: _____

Construction Lenders Representative: _____ Date: _____

Maine State Housing Authority Representative: _____ Date: _____

END OF SECTION

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. The General Contractor shall anticipate encountering lead painted materials. His Sub-Contractors shall be certified under the Department of Environmental Protection "Lead Renovation, Repair and Painting Rule" and employ the "Work Practices" required by that rule.
- C. Structural Work: Do not cut-and-patch structural work in a manner resulting in a reduction of load-carrying capacity or load/deflection ratio.
- D. 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.
- E. 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.
- F. 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.
- G. 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.

- H. Refer to other sections of these specifications for specific cutting and patching requirements and limitations applicable to individual units of work.
- I. 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. 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 01210

ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Certain work is specified in the Contract Documents by allowances.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALLOWANCES

- A. Allowance No. 1: Include cost for removal of 10 cubic yards of ledge encountered when trenching for utilities, e.g. sprinkler, sewer, water.

- B. Allowance No. 2: Include cost for removal of 10 cubic yards of ledge encountered when excavating for the addition at the south façade of the building.

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. 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. MaineHousing Agenda.
 - 4. Maintenance of record documents.
 - 5. Procedure for field changes, change estimates, change orders, etc.
 - 6. Site and building security.
 - 7. Location and maintenance of temporary storage areas, field offices, vehicular parking and access, waste disposal, etc.
 - 8. Safety and first-aid procedures.
 - 9. 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 twice 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 regular progress meetings 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.

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 Architect, 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.): send electronically in PDF format to Architect.
 - 2. Manufacturers' specifications, installation instructions, charts, schedules, catalogs, brochures, etc.: send electronically in PDF format to Architect.
 - 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 "Reviewed as Noted" or similar do not delay fabrication, assembly and delivery pending receipt of entirely "Reviewed" 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.
- B. Inspection and testing services are intended to determine compliance of the work with requirements specified.
- C. Refer to Statement of Special Inspections issued by the Engineer, David J. Tetreault, P.E. for required inspections and tests.

1.2 RESPONSIBILITIES

- A. The Owner will engage and pay for services of an independent agency to perform the required inspections and tests.
- 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.

1.5 SUBMITTALS

- A. Notify the Engineer of the testing schedule.

- B. Submit a certified written report of each inspection test or similar service, electronically in PDF format, to the Engineer copying the Architect.

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.
8. In addition to Owner and Architect, written inspection and test reports are to be sent from the testing agency directly to MaineHousing.

- B. Reports shall be provided to the 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.

1.13 TEMPORARY 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.

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.

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- 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.

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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. Re-inspection Procedure:

1. The Architect/Engineer will re-inspect 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 re-inspection, 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.
- C. Owner and Contractor to comply with MaineHousing close-out requirements including fulfillment of MaineHousing Construction Services Final Completion Checklist.

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.
- C. The General Contractor shall anticipate encountering lead painted materials. His Sub-Contractors shall be certified under the Department of Environmental Protection "Lead Renovation, Repair and Painting Rule" and employ the "Work Practices" required by that rule.

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.

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

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 – NOT USED

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 sub-grade 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 sub-grade.

END OF SECTION

SECTION 02315

EXCAVATION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Excavating for building volume below grade.
- B. Trenching for utilities outside the building to utility main connections.

1.02 RELATED SECTIONS

- A. Section 02310 - Grading.
- B. Section 02316 - Fill and Backfill

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 Engineer 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 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.

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 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. Aggregate Base - conforming to State of Maine Department of Transportation specification, Type B gravel.
- B. Aggregate Sub-base: conforming to State of Maine Department of Transportation specification, Type D gravel.

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.

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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. 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 ASPHALT PAVING MIXES AND MIX DESIGN

- A. Binder Course: State of Maine Highways standards, Type B.
- B. Wearing Course: State of Maine Highways standards, Type C.

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.

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- 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.

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. 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, at no cost to the Owner.

END OF SECTION

SECTION 02950

PLANTING

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- A. Include General Conditions as part of this Section.
- B. Coordinate work with trades affecting, or affected by, work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.2 WORK INCLUDED

- A. Perform all work required to complete the work of the Section, as indicated. Such work includes, but is not limited to, the following:
 - 1. Planting of hostas.
 - 2. Application of fertilizer and soil amendments to support the health and growth of the plants.
 - 3. Maintenance of plantings, including watering.
 - 4. One year Guarantee of plantings.

1.3 RELATED WORK

- A. Section 02930 – Topsoiling

1.4 QUALITY ASSURANCE

- A. All plant materials shall be true to name according to "Standardized Plant Names", published by the American Joint Committee on Horticulture Nomenclature, latest edition. Each plant or bundle shall be tagged with the name and size of plants in accordance with the standards of the American Landscape and Nursery Association (ALNA). In all cases, botanical names shall take precedence over common names.
- B. Quality and size shall conform to the "American Standard for Nursery Stock", latest edition, for number one grade nursery stock as adopted by the ANLA.
- C. All plants and plant materials shall comply with all Federal, State, regional and local laws and regulations requiring inspection for plant disease and insect control.

1.5 PRODUCT HANDLING

- A. Delivery and Storage:
 - 1. Deliver all items to the job site in their original containers with all labels intact and legible at time of Landscape Architect's inspection.
 - 2. Immediately remove from the site all plants which are not true to name or damaged and all materials which do not comply with the specified requirements.
 - 3. Use all means necessary including wood construction fences to protect plant materials before, during, and after installation and to protect the work and materials of all other trades.

4. Replacements: in the event of damage, immediately make all repairs and replacements necessary to the approval of the Landscape Architect and at no additional cost to the Owner.
5. Nursery plant identification tags shall remain on plants until final acceptance of plant material.

1.6 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 compacted soils, rubble fill, adverse drainage conditions, clay or obstructions, notify the Architect immediately for direction. Do not proceed with planting until direction has been given by the Architect.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Topsoil used in the Planting Soil Mix and plant beds shall meet the requirements of topsoil in Topsoiling section.
- B. Fertilizer – Fertilizer shall be a slow-release product. Pills, spikes, tablets and injections are not considered controlled release packets.
 1. All fertilizers shall be approved by the EPA and all applicable state, regional and local agencies, and conform to their most recent standards.
- C. Mulch - aged pine bark consisting of the outer bark of pine trees with minimum hardwood bark. Bark shall be thoroughly mixed and aged in stock piles a minimum of 6 months, partially decomposed, dark brown in color, and generally free of chunks of wood thicker than 1/4". Aged pine bark containing an excess of fine particles or stringy material over two inches will not be acceptable.
- D. Water – Provide hose and connections and/or water truck for watering all plant materials until completion of the project.

2.2 PLANT MATERIALS

- A. Provide plants as per Drawings in quantities listed on plant materials list. If there is any discrepancy between quantities listed and plant material graphically shown, notify the Architect immediately for clarification prior to bidding. Be responsible for quantity of plant material graphically shown on Drawings and as per clarification by Architect.
- B. Plants shall be nursery grown unless otherwise authorized, and grown under climatic conditions similar to those of the project.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to the proper and timely completion of the work. Do not proceed until unsatisfactory conditions have been corrected.

3.2 PLANTING OPERATIONS

- A. Planting shall be performed by a licensed and bonded Contractor.
- B. Avoid planting in hot, dry weather and during rain events.
- C. When container plants are set, remove plant from container, make sure root system is in good health and not root bound. Loosen the outside layer of the root system by scoring with a knife. Circling roots pose a serious health hazard to the plant and shall be divided by hand.
- D. Thoroughly compact Planting Soil Mix around roots and thoroughly and deeply water the root zone to the drip line immediately after plant pit is backfilled. Form a watering saucer 6" greater than the diameter of the root ball with a 4" ridge of loam to retain water. Maintain watering saucer throughout growing season. Rake saucer smooth to finish grade before first frost of the year. Cultivate soil in shrub beds, rake smooth and neatly edge after planting.

3.3 MAINTENANCE - PLANTING

- A. Planting Maintenance
 - 1. Maintenance shall begin immediately after each plant is installed and shall continue until final acceptance of all planting.
 - 2. Maintenance shall consist of keeping plants in a healthy growing condition and shall include but is not limited to watering, weeding, cultivating, applying mulch as needed, tightening and repairing of guys, removal of dead material, resetting plants to proper grades or upright position, and maintaining the watering saucer. Maintenance shall include the following:
 - a. Plants shall be inspected for watering needs at least twice each week and watered as necessary to promote plant growth and vitality. During dry periods, the Contractor shall water plants deeply at least once weekly. Irrigation is not provided on this project site.
 - b. Mulch shall be replaced as required to maintain the specified layer of mulch. Beds and individual pits shall be neat in appearance and maintained to the designed layout.
 - e. Plants that die during the maintenance period shall be removed and replaced at once, unless designated otherwise by the Architect.
 - f. Spraying for both insect pests and diseases shall be included during the maintenance period as required and as directed.

3. During the maintenance period, any decline in the condition of plants shall require immediate action to identify potential problems and undertake corrective measures. If requested by the Architect,

3.4 ACCEPTANCE STANDARDS FOR PLANTING

- A. Following the completion of planting, request from the Architect in writing, a formal inspection of the completed work. If plant materials and workmanship for the Site are acceptable, written notice will be given to the Contractor stating that the work has been accepted and that the maintenance period is terminated. The one year guarantee period shall commence from the date of acceptance.
- B. If a number of plants are sickly or dead at the time of inspection, or if, in the Architect's opinion, workmanship is unacceptable, written notice will be given by the Architect to the Contractor in the form of a punch list, which itemizes necessary planting replacements and/or other deficiencies to be remedied. Maintenance of plants shall be extended until replacements are made or other deficiencies are corrected and are accepted by Architect. All dead and unsatisfactory plants shall be removed promptly from the project. Replacements shall conform in all respects to the Specifications for new plants and shall be planted accordingly.

3.5 GUARANTEE FOR PLANT MATERIALS

- A. Plants shall be guaranteed for a period of one (1) year after written notification of acceptance and shall be alive and in satisfactory growth at the end of the guarantee period.
- B. At the end of the guarantee period, a final inspection will be held to determine whether any additional plant material replacements are required. Each plant shall show at least 80% healthy growth and shall have the natural character of its species as determined by the Architect. Plants found unacceptable shall be removed promptly from the site. These plants shall be replaced during the plant installation times given in the Specifications.
- C. Replacement plants shall have a one (1) year guarantee from time of plant approval.

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.

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 Engineer 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, Basement Abutment Wall:
 - a. Strength: 3500 psi @28 days, 3/4" aggr.
 - b. W/C Ratio: 0.48
 - c. Entrained Air: 4% \pm 1%
 - d. Slump: 3" \pm 1"

2. Interior Flatwork:
 - a. Strength: 3500 psi @28 days, 3/4" aggr.
 - b. W/C Ratio: 0.46
 - c. Non Air-entrained Air
 - d. Slump: 3" \pm 1"

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 Owner will employ a testing agency to inspect, sample and test the materials and the production of concrete and to submit test reports. Concrete testing will be performed by technicians certified by the Maine Concrete Technician Certification Board. The Contractor shall notify the testing agency a minimum of 48 hours before all concrete placements.
- 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

MASONRY

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Repointing of existing defective brick and CMU mortar joints. See Definitions, 1.03, A below.
2. Repair and repointing of existing defective rubble foundation joints on the interior face of the wall at the southwest corner of the basement.
3. Removal and replacement with new matching masonry units of all spalled, cracked, damaged and missing bricks, CMUs and rubble.
4. Brick infill with CMU back-up at existing basement windows.
5. Parging of exterior areas of rubble foundation exposed above grade.
5. Wash all masonry surfaces within work area.
6. 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 Masonry Units: Missing units or units which have cracked, spalled or been previously patched or coated.

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 work with strong waterproof membrane at end of each day or shutdown. Cover partially completed work when work is not in progress.
 - 2. Prevent staining and damage to exposed masonry.
 - 3. 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. Parging and interior repair and repointing at Rubble Foundation: Structural Skin by Conproco Corporation.

2.03 Masonry Units

- A. Masonry Units: Reuse existing salvaged units. Provide new units as required to repair areas of missing, cracked, spalled or damaged units. New units to match existing in compressive strength, absorption, initial rate of absorption, size, and surface texture.

2.04 ACCESSORIES

- A. Anchors: Stainless steel.

PART 3 - EXECUTION

3.01 REPLACEMENT OF DAMAGED AND MISSING MASONRY

- A. Remove damaged and deteriorated masonry without damage to adjacent masonry. Install new or salvaged masonry where existing units are missing or were removed.
- B. Establish lines, levels, and courses to match existing. Fit new masonry to bond and coursing of existing masonry. Lay masonry plumb and true to line.
- C. Lay bricks in full mortar bed, with full head joints.
- D. Cut masonry with straight, true cuts and clean, unchipped edges.

3.02 RAKING OUT OF MORTAR JOINTS

- A. Remove all loose mortar material from joints.
- B. Rake out joints to a minimum depth of 3/8" or until sound mortar is reached.
- C. Do not spall edges or widen joints.

3.03 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. Do not use antifreeze compounds to lower freezing temperature of mortar.
- D. 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"
- E. Immediately after repointing, remove excess mortar by light brushing with a natural bristle brush. Do not leave encrusted matter.

- F. 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.
 - b. Cover wall with plastic sheets temporarily to prevent evaporation.

3.04 PARGING, REPAIR & REPOINTING OF EXPOSED RUBBLE FOUNDATION

- A. At exterior work excavate at the face of the work 6" below grade.
- B. Remove loose and deteriorated material – repair, replace defective and missing units.
- C. Saturate wall with clean water.
- D. Mix product per manufacturer's written instructions.
- E. At time of application surfaces should be saturated surface dry, holding no standing water.
- F. Add 1 quart K-88 Admix per bag of material.
- G. Trowel or spray apply material to a uniform minimum of 1/8".
- H. Keep damp with a fine mist of water for 24 hours, protect from direct sunlight, wind, rain and frost during curing period.
- I. Backfill grade excavated in Item A above.

3.05 CLEANING

- A. The cleaning shall be done with clean water applied vigorously with fiber brushes. After cleaning with brushes the units shall be thoroughly rinsed with clear water. The goal is to remove all smears before they set so that caustic agents are not required.

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.

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 Pentachlorophenol). 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.

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2.6 ROOF SHEATHING: APA Rated sheathing to be; Exterior 19/32, APA rated sheathing 48/24 for 24" o.c.

2.7 TRIM FLASHING: Aluminum "Z" flashing 24 gauge with 1/4" lower lip. Trim Flashing shall be a minimum of .032" thickness.

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.

2.12 FLOORING UNDERLAYMENT: 1/4" thick APA rated plywood multiply underlayment.

2.13 SUBFLOOR: AdvenTech 19/32" subflooring. Treads & risers at stairs shall be APA rated plywood sheathing or hard pine board.

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 blocking 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:** 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 manufacturer's 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 **SUBFLOORING:** Installation per manufacturer's written recommended installation instructions for gluing, spacing and fastening.
- 3.7 **UNDERLAYMENT:** Shall be installed at all areas to receive resilient vinyl flooring, carpet, walk-off mat and rubber or vinyl treads / risers / stair landings. To install, use 1" screws driven every 8 to 12 inches along the edges of the board. Sink the heads of the screws slightly below the surface of the plywood. Pepper the field of the plywood with 1" screws about 12 inches apart from each other. Allow for 1/4" between each sheet of plywood and along walls to allow for expansion. At vinyl resilient flooring installations, patch the screw divots and seams with floor patching compound and sand down the dried compound and any irregular spots in the plywood.
- 3.8 **DOOR FRAMES:** Shall be securely anchored to the supporting construction. Install double studs at jambs and 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).

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.

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: At each clothes closet pre-manufactured plastic coated wire shelving with integral clothes hanger, Closet Maid or equal. In each linen closet - five shelves.

2.5 INTERIOR TRIM: Door and window trim: paint grade finger-joint – 1x4. Wall base: paint grade finger joint – 1x6.

2.6 EXTERIOR TRIM & CORNERBOARDS: Expanded rigid PVC trim and cornerboards by Azek.

2.7 PORCH STEP FINISHES: By Railing Dynamics, Inc. (DFI)

1. Vinyl wrapped railing system, "Original Rail" by DFI.
2. Vinyl wrapped handrail system, "Endurance Handrail" by DFI.
3. Vinyl post sleeve, post cap and column wrap by DFI.

2.8 STAIR SKIRTBOARDS: #1 pine or poplar.

2.9 STAIR RISERS & TREADS: 3/4" APA plywood or hard pine board.

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2.10 STAIR HANDRAIL BRACKETS: Satin brass handrail brackets providing 2 ¼” clear stand-off from wall secured with #8 or #10 brass screws of adequate length for wall condition, minimum 1 ¼” into blocking and 4’ on center.

2.11 STAIR RAILINGS: Fir railings, 1 ½” diameter.

2.12 COUNTERTOPS: Rounded-edge pre-formed plastic laminate countertops, color by Architect. See Section 11450 – Residential Equipment & Kitchens.

2.13 UNIT NUMBERS: 2” rigid plastic adhesive backed letters, style and color by Architect, for interior apartment entry doors.

2.14 EXTERIOR GABLE VENT: 3 square feet fixed factory painted aluminum vent with insect screening and galvanized pan behind with drain to exterior.

2.15 ATTIC ACCESS PANEL: 2’-0” x 3’-0” (1) hour rated access panel with keyed lock.

2.17 EXTERIOR ALUMINUM COIL STOCK: nominal 0.022 thick painted aluminum coil stock, attach with aluminum or stainless steel nails, hem material to stiffen it.

2.18 FLOORING UNDERLAYMENT: ¼” thick APA rated plywood multiply underlayment.

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 & 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 rigid insulation.
2. Installation of blown-in cellulose insulation, dense-pack method.
3. Installation of foam insulation: closed cell with fire barrier in basement walls, open cell otherwise.
4. Vapor barriers to be installed as shown.

2. PRODUCTS:

2.1 RIGID INSULATION:

1. Foundation Insulation: Type SM Styrofoam insulation by Dow Chemical, or approved equal.
2. Roof Insulation: 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 polyisocyanurate will be required. Roof insulation to be ISO 95+ by Firestone, H-Shield by Hunter Panels or approved equal.

2.2 SPRAY FOAM INSULATION TYPE:

1. Basement Insulation: closed cell type.
2. Wall, roof Insulation: open cell type.

2.3 BLOWN-IN CELLULOSE INSULATION: dry cellulose using dense-pack installation method.

2.3 THERMAL BARRIER OVER EXPOSED FOAM INSULATION: Cafco TB-415 or other product approved by State of Maine Fire Marshal Office.

2.4 MOISTURE PROTECTION: 6 mil. clear polyethylene film.

2.5 SILL SEALER: "Dow" 1/4" x 5-1/2" fiberglass sill sealer.

2.6 SHEATHING PAPER: Tyvek.

END OF SECTION

SECTION 07464

VINYL SIDING

GENERAL

1.1 SECTION INCLUDES

- A. Vinyl siding.
- B. Accessories and trim.

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.

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.

PRODUCTS

1.7 MANUFACTURERS

- A. Acceptable Manufacturer: CertainTeed Corporation.
- B. Substitutions: Or Equal.
- 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. Minimum thickness of vinyl siding and trim – 0.044”.
 - 2. Provide elongated nailing slots on nailing flanges to allow for movement.
 - 3. Factory-notch ends of horizontal panels to form overlapping joints.
 - 4. Provide products that meet weathering requirements of ASTM D 3679.
- D. Clapboard Style: Monogram 46 by CertainTeed.
- E. Vinyl siding shall simulate standard wood sidings as to exposure, shadow lines, depths, etc.

1.8 FASTENERS

- A. Provide galvanized or other corrosion-resistant nails as recommended by manufacturer of siding products.

EXECUTION

1.9 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.

1.10 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.

1.11 INSTALLATION

- A. Install products in accordance with the latest printed instructions of the manufacturer.

- B. Install products with all components true and plumb.
- C. 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)
- D. 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.
- E. Stagger lap joints in horizontal siding in uniform pattern as successive courses of siding are installed.

1.12 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

1.13 CLEANING

- A. 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.

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 (10) 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.

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, a twenty (20) year material warranty and a fifteen (15) year "full system" 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

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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

FIRE STOPPING

SECTION 07860

1. General

1.1 SECTION INCLUDES

1. Comply with Division 1, General Requirements and Documents referred to therein.
2. It is the intent of this section of the specifications to establish a single, competent source to be responsible for providing all labor, materials, products, equipment and services, to supply and install the fire stopping and smoke seal work for the entire project, at the following locations:

Openings in fire rated walls, floors and roofs both empty and those containing penetrations such as cables, conduits, cable pipes, ducts and similar penetrating items.

Gaps between fire-rated walls and exterior walls.

Openings at each floor level in fire rated stairwells.

Gaps between the tops of fire rated walls and underside of fire rated floor or roof assemblies.

Penetrations through smoke barriers and construction enclosing compartmentalized areas involving both empty openings and openings containing penetrating items.

1.2 RELATED WORK SPECIFIED ELSEWHERE

1. Openings through Floors and Walls:

Fire Rated: Metal sleeves for fire rated openings through floors and walls shall be provided under applicable mechanical and electrical specification sections.

Non-Rated: Non-rated openings through floors and walls shall be sealed under applicable mechanical and electrical specification sections.

1.3 RELATED SECTIONS

1. Division 15 - Mechanical: Mechanical work requiring fire stopping.
2. Division 16 - Electrical: Electrical work requiring fire stopping.

1.4 REFERENCE STANDARDS

1. ANSI/UL 1479 - Fire Tests of Through-Penetration Fire stops

1.5 SYSTEM DESCRIPTION

1. Fire stopping Materials: Provide fire stopping system(s) of sufficient thickness, width and density to provide and maintain a fire resistance rating, as indicated on drawings and in accordance with UL or FM design numbers.

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
2. Provide a seal completely filling all annular spaces to prevent the passage of flame, smoke and gases through the opening in the fire separation in which it is installed.
 3. Material Compatibility: Provide materials which are compatible with all materials used in the system including materials used in or on penetrants as well as all construction materials used in conjunction or contiguous with the system.
 4. Accessories: Provide components for each fire stopping system that are needed to install fill materials. Use only components specified by the fire stopping manufacturer and approved by the qualified testing and inspecting agency for the designated fire resistance rated systems. Accessories include but are not limited to the following items:

Permanent forming/damming/backing materials.

Temporary forming materials.

Substrate primers.

Collars.
Steel sleeves.

1.6 SUBMITTALS

1. Manufacturer's Data: Submit manufacturer's specifications, installation instructions and product data for each material required, in accordance with Section 01300. Include manufacturer's certification, if requested and UL, WH, ULC, CUL or FM test reports to show compliance with the Contract Documents.
2. Samples: If requested, submit samples of each type of fire stopping systems, smoke seals and accessories. Indicate location where material/system shall be utilized.

1.7 QUALITY ASSURANCE

1. Manufacturer: Company specializing in manufacturing products of this Section with minimum three (3) years documented experience.
2. Applicator: Company having a minimum of three (3) years experience in the installation of materials specified herein on projects comparable to this Project.

1.8 REGULATORY REQUIREMENTS

1. Conform to applicable local Building Codes for fire resistance ratings.
2. Provide materials, accessories and application procedures which have been listed by UL, FM or tested by a nationally recognized independent testing agency according the ANSI/UL 1479 or ASTM E814 to achieve the required fire protection rating.

1.9 ENVIRONMENTAL REQUIREMENTS

1. Do not proceed with the installation of fire stopping materials when temperatures or weather conditions exceed the manufacturer's recommended limitations for installation.
2. Ventilate solvent based fire stopping per fire stopping manufacturer's instructions by natural means or, where this is inadequate, forced air circulation.

1.10 DELIVERY, STORAGE AND HANDLING

1. Deliver materials to Site in manufacturer's sealed and labeled containers intact. Handle and store materials in accordance with manufacturer's instructions.

1.11 PROJECT/SITE CONDITIONS

1. Comply with manufacturer's recommended requirements for temperature, relative humidity and substrate moisture content during application and curing of materials.

1.12 SEQUENCING AND SCHEDULING

1. Do not install fire stopping system(s) until Work within opening has been completed. Coordinate with other applicable Sections. Schedule work of other trades so that fire stopping applications can be inspected prior to being covered by subsequent construction.

2. Products

2.1 MATERIALS

1. Provide a complete system of asbestos-free fire stopping and through-penetrations fire stopping. Firestop systems capable of maintaining an effective barrier against flame, smoke and gases in compliance with requirements of ANSI/UL 1479 or ASTM E814 and listed by UL or FM and in addition are approved by jurisdictional authorities and the Consultant.
2. Fire stopping for Combustible Penetrating Items: For use in openings where either plastic pipe, non-rated insulated pipes or insulated cables are installed.
4. Firestop system ratings: Comply with Building Code requirements for locations and hourly ratings of F, FT, FH and FTH designations.

2.3 ACCESSORIES

- .1 Damming and backup materials, supports and anchoring devices: Non-combustible, to manufacturer's recommendations and in accordance with the tested system being installed as acceptable to jurisdictional authorities.
- .2 Retainers: Galvanized clips approved by manufacturer to hold A/D FIREBARRIER Mineral Wool insulation in place.
- .3 Primers: As required by fire stopping manufacturer and compatible with selected system and contiguous materials.
- .4 Water: Potable.
- .5 Sealants for vertical joints: Non-sagging.
- .6 Sealants and fluid seals at floor openings: Self-leveling.
- .7 Sealants and putty for vertical and overhead joints: Non-sagging.
- .8 Tape: Pressure sensitive masking tape as recommended by the fire stopping manufacturer.

3 Execution

3.1 EXAMINATION

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1. Examine substrates, openings, voids, adjoining construction and conditions under which the Work is to be installed. Confirm compatibility of surfaces scheduled to receive fire stopping.
2. Verify that penetrating elements are securely fixed and properly located with the proper space allowance between penetrations and surfaces of openings.
3. Do not proceed with Work until unsatisfactory conditions have been corrected.

3.2 PREPARATION

1. Surfaces to receive fire stopping shall be free of dirt, dust, grease, oil, rust, loose materials, form release agents, frost, moisture or any other matter which would impair the bond of fire stopping material to the substrate of penetrating item(s).
2. Prime substrates in accordance with manufacturer's written instructions or recommendations. Confine primers to areas of bond; do not allow spillage or migration onto exposed surfaces.
3. Do not apply fire stopping and smoke seals to surfaces previously painted or treated with sealers, curing compounds, water repellent or other coatings unless tests have been performed to ensure compatibility of materials. Remove coatings as required.
4. Ensure that anchoring devices, back-up materials, clips, sleeves, supports and other related materials used in the actual fire tests are provided.
5. Mask where necessary to prevent fire stopping materials from contacting adjoining surfaces that will remain exposed upon completion of Work. Remove tape as soon as it is possible to do so without disturbing fire stopping's seal with substrates.
6. Installation is not to proceed until submittals have been completed.

3.3 INSTALLATION

1. Manufacturer's Instructions: Comply with UL or FM Listings and manufacturer's instructions for the type of material and condition of opening in each case. Consult with the manufacturer's technical representative to determine proper procedure for conditions not fully covered by printed instructions. Record in writing any oral instructions received, with copy to manufacturer.
2. Install fire stopping with sufficient pressure to properly fill and seal openings to ensure an effective smoke seal. Tool or trowel exposed surfaces. Remove excess fire stopping material promptly as the Work progresses and upon completion.
3. Damming: Provide leak-proof dams as required to seal openings and contain liquid sealants, putty or mortar until cured. Install damming in accordance with manufacturer's instructions.

4. Damming Boards: Install forming/damming materials and other accessories of type required to support fill materials during their application and in the position needed to produce the shapes and depths required to achieve fire ratings of through-penetration firestop systems.

Combustible Type: For temporary dams only. Remove after fire stopping material has cured.

Non-Combustible Type: For temporary or permanent dams. Provide non-combustible type wherever damming material cannot be removed after applying fire stopping materials.

5. Void Filler: Use materials recommended by the fire stopping manufacturer to seal gaps created by non-combustible type damming boards and to seal around cables, conduits, pipes and where void filler material becomes part of the fire rated assembly.
6. Sealant: Install damming material or mineral wool as required. Apply sealant so air voids are not present and sealant is in full contact with penetrating items. Tool sealant to ensure substrate contact. Remove excess sealant in accordance with manufacturer's recommendations.
7. Fire stopping Mineral Wool: Install fire stopping by compressing material to the minimum required by UL or FM listing. Apply fire stopping in sufficient thickness, depth and density so as to achieve the required fire resistance rating. Use impaling clips to support and secure fire stopping where required by tested system.

3.4 CLEANING AND PROTECTION

1. Upon completion of this work, remove all materials, equipment and debris from the site.
2. Leave work area and adjacent surfaces in a condition acceptable to the Consultant.
3. Leave installed work with sufficient protection to enable it to remain untouched until project turnover.

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, 2.1 B Cutting and Patching.

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

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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.

3.6 Caulk at floor / GWB gap for air sealing at exterior walls and sound transmission at interior walls.

END OF SECTION

SECTION 08200

DOORS AND FINISH HARDWARE

A. GENERAL:

SCOPE: Furnishing and installing all doors, frames and hardware as called for in the Construction Documents. The door schedule calls for door slabs only as certain existing interior door openings.

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 the Door Schedule on Drawings. Doors 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.

FIRE-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.

NON-RATED DOORS: shall be 1-3/8" Cambridge, moulded, smooth panel doors by Jeld Wen distributed by Brosco or equal, units shall be pre-hung and primed. Doors shall be hollow or solid core as scheduled.

EXTERIOR DOORS: shall be insulated Steel All Panel Exterior Doors – Model 21 (Cambridge two panel style) by Jeld Wen.

1. Exterior Door Flashing: "VycorPlus" self-adhering flashing by W.R. Grace or equal.

ATTIC ACCESS DOOR: shall be "Fire Rated Insulated Access Door with Drywall Flange, Model BA-PFI-GYP, Size 24" x 36" as manufactured by Best Access Doors, www.BestAccessDoors.com.

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. All exterior steel doors and frames are thermally broken and comply with the performance standards set forth on page 2 of MaineHousing's 2013 Quality Standards and Procedures Manual.

C. PRODUCTS - HARDWARE:

NOTE: Hardware finish to be Satin Brass.

Locksets - shall be manufactured by Mark, available through Superior Lock & Key, Portland, ME. Function as scheduled.

Door Closers: At all fire-rated doors install a Super Stock Closer 1460 by LCN, to have hold-open arms delayed action option for handicapped use and adjustable spring power.

Adjustable Door Sweep: Slotted aluminum with brush insert #309 P by Pemko. Install at each exterior door.

Weather-Stripping: 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 Viewer: Schlage #698 Security Viewer at each unit entry door.

Smoke Gasket: Provide at each unit entry door.

Electric Latch Release: Provide electric latch release at doors #1 and #14. Coordinate with Intercom sub-contractor.

D. 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.

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.

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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. Single Hung "New-Construction Type" and "Replacement Type" Vinyl Windows with 3 1/2" integral exterior flat vinyl casing and sill nose for vinyl siding.

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/NWDA 101/I.S.2-97 and current A440-05 performance standards listed above.

- E. Specified fenestration with the following characteristics:
 - 1. Windows shall meet Energy Star (for Northern Climate) and National Fenestration Rating Council (NFRC) rating performance requirements and have an Air Leakage rate (AL) of 0.30 or less.
 - a) Ti Factor < 0.30, or
 - b) Ti Factor = 0.31 and SHGC > 0.35, or
 - c) Ti Factor = 0.32 and SHGC > 0.40
 - 2. Tempered glazing – where indicated on Drawing A10a Window Types.
 - 3. Insect screens.

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

- A. Premium Single Hung window by Paradigm or equal.
- B. Window Flashing: "VycorPlus" self-adhering flashing by W.R. Grace or equal.

2.2 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.

2.1 INSTALLATION OF REPLACEMENT WINDOWS

Preparation of the Opening

- 1. Remove the old sashes by removing the interior and/or parting stops, metal jamb liners, sash counterweights, etc. on the sides and top of the opening, being careful not to damage the structure. Do not remove the exterior stop. Remove old sash counterweights if possible and insulate the counterweight pocket with fiberglass batt insulation.
- 2. Clean and remove any peeling paint or debris from the window opening, especially on the inside of the exterior stop.

3. Make sure the opening is level and plumb and that the side jamb material will accept fastening screws solidly. If not, repair as needed.

Installation of the New Window

1. Dry fit the window unit into the opening by placing the sill of the window over the existing interior sill and tipping the window unit into the opening as shown above. You should have 1/8" to 1/4" between the opening and the new window frame. Remove the window unit from the opening and remove the balance covers and sash stops from the window (hung windows only) to expose the installation holes in the jambs. Use a small flat blade screwdriver to pop these parts out of the frame, taking care not to damage them.

2. Run a continuous bead of good quality silicone caulking on the inside of the exterior stops on the sides and top of the opening; also run a bead on the outside of the wood stool of the old window.

3. Now, place the window back into the opening making certain it is centered side to side in the rough opening.

4. Install shims as needed between new windowsill and the existing wood sill and check it for level.

5. Install shims as needed behind the installation holes in the jambs, making sure the frame is plumb, level and square as you go. The window is square when the two diagonal measurements are equal.

6. The replacement windows are held in place by stainless steel screws (provided) which fasten the side jambs of the new window to the existing wooden jamb of the old window frame. (Note: expose the mounting holes by opening the window or raising and lowering the sashes.) When fastening the screws, make sure to press the window unit against the outside stops to ensure a tight fit. Screws must be installed flush to the vinyl jambs without over tightening for proper clearance of the balance mechanism.

7. Install the top and bottom screws on both sides of the window frame. Adjust the alignment screws at the center of the window jambs for straightness of the jambs using shims behind the screw pads as needed.

8. Install the center installation screws.

9. Using fiberglass batt insulation material fill the cavity between the side jambs and head of the window and the rough opening being careful not to overstuff this pocket.

Installation of the Sill Adapters

Sill adapters enclose the cavity between the bottom of the replacement window and the sloped wooden sill of the old window frame. The adapter snaps into the exposed accessory groove at the bottom exterior of the window.

1. Fill the cavity under the replacement window using fiberglass batt insulation.

2. Cut the sill adapter to length. You may prefer to cut it a little long and tuck the ends behind the exterior stops.

3. Measure the height from the wood sill to the groove in the bottom of the replacement window.

4. Mark the sill adapter and score with a utility knife using the grooves provided on the back of the adapter. Snap off the excess material and discard.
5. Now snap the sill adapter into the accessory groove on the window.
6. Neatly run a bead of caulking where the sill adapter meets the wood sill and up the two edges at the blind stops. Tool this caulking for a neat appearance.

Finish-up and Adjustment

Check the operation of the window and make final adjustments as necessary. Pay close attention that the window jambs are not bowed as this will make operation difficult and diminish performance. Reinstall interior trim along the top and sides of the window frame.

2.2 INSTALLATION OF NEW CONSTRUCTION WINDOWS

Preparation of the Opening

1. Cut the house wrap material that covers the window opening, fold the wrap back into the opening, stapling it to the framing and trimming the excess material.
2. Next make diagonal cuts in the house wrap 10-12" long at the two upper corners of the opening to create a flap that will go over the head of the window. Tape this flap up and out of the way for now.
3. Apply one strip of membrane tape along the edge of the opening at this sill as shown, extending it 10-12" past the corners. Apply a second strip overlapping the first one that turns into the opening, covering the sill plate. Run this strip up the sides of the opening for several inches as well, notching at the corners. NOTE – always be conscious of the sequence of these installation steps. Flashing is always applied from the bottom up, in "weatherboard" fashion.

Installation of Window

4. Apply a generous bead of silicone caulking to all 4 sides of the nail fin in the location shown to the left. (typical for all new construction windows)
5. Place the window in the opening and press it firmly against the wall to squeeze the caulking under the fin. Secure to the wall in a temporary fashion to allow for shimming and leveling of the frame. Typical shimming locations depending on condition of rough opening
6. Shim under the window sill as needed to level the unit(s) in the opening, following the general guidelines shown to the right. Use tapered shims in pairs to create a parallel spacer. NOTE: Shimming under the center of operating windows is not recommended as it may cause a crown in the sill and impair the performance of the window.
7. Next shim along the sides of the window to ensure there is no bow or twist in the window jambs. Check the function of the window throughout this step to maintain the smooth operation of the sashes.
8. Complete the attachment of the window frame to the exterior sheathing of the house using nails or screws in the slotted holes on the nail fin.

9. Apply membrane strips over the nail fins on the window jamb and head. First apply the two strips marked 1 along the window jambs. This material should extend below the membrane strip at the window sill, and up to the bottom edge of the flap of house wrap material at the head of the window. These strips should be at least 6" wide. Next apply another strip over the nail fin at the head of the window. (marked 2). Overlap the jamb pieces by at least 3" on both ends.

10. Remove the tape holding up the flap of house wrap material and let it overlap the membrane tape strip over the head of the window. Using the seam tape specified by the house wrap manufacturer, tape over the diagonal cuts in the house wrap as shown.

11. Install exterior siding or finish material around the window, utilizing the integral "J" channel on the window frame if appropriate.

Finish-up and Adjustment

- Using fiberglass batt insulation material fill the inside cavity between the sides of the window frame and the rough opening being careful not to overstuff this pocket. NOTE: Do not use expanding foams in this area as it may damage or distort the window frame.
- Check the operation of the window and make final adjustments as necessary. Pay close attention that the window jambs are not bowed as this will make operation difficult and diminish performance.

2.3 CLEANING

- A. Clean soiled surfaces and glass prior to substantial completion.

2.4 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 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.
- C. At Existing G.B. Ceilings: Existing voids, holes, gaps, etc. in the g.b. ceiling as well as voids, holes, gaps, etc. as a result of demolition shall be taped and finished so as to maintain the integrity of the floor / ceiling assembly fire resistance rating.

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 BATHROOM WALLS & CEILINGS: 5/8" thick Type MR gypsum board to be provided at all walls and ceilings in bathrooms.
- 2.4 LAUNDRY 102 WALLS & CEILINGS: 5/8" thick Type MR gypsum board to be provided at all walls and ceiling.
- 2.5 JANITOR'S CLOSET 103 WALLS & CEILINGS: 5/8" thick Type MR gypsum board to be provided at all walls and ceiling.

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.
 - C. At all walls, interior and exterior, provide for caulking joint along floor for air sealing and sound transmission by installing GWB 3/8" +/- off the floor.
 - D. Caulk at floor for air sealing at exterior walls and sound transmission at interior walls.
 - E. 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 and after completion leave the premises broom clean.

END OF SECTION

SECTION 09510

ACOUSTICAL CEILINGS

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. Gypsum Drywall: Section 09250
- C. Mechanical and Electrical: Division 15 and 16
- D. Underwriters Laboratories (UL)
- E. American Society for Testing and Materials (ASTM)

1.2 DESCRIPTION OF WORK

- A. Extent of Acoustical Ceilings is 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. Color range;
 - 3. Samples of acoustical units;
 - 4. Shop drawings indicating materials, pattern number, tile number, and manufacturer.
- B. Provide, as maintenance material, 1 percent of each acoustical unit used on job, in clean, marked cartons.

2. PRODUCTS

2.1 SUSPENSION SYSTEMS

- A. Suspension System shall be "Prelude XL 15/16" Exposed Tee", hot dipped galvanized steel, baked polyester paint. Color selected by Architect from manufacturer's standard colors.

2.2 MINERAL-FIBER ACOUSTICAL UNITS

- A. Tile shall be manufactured by Armstrong as follows:
 - 1. Classic Fine Textured, 24" x 24" x 1/2".

3. EXECUTION

3.1 INSTALLATION

- A. Before beginning installation, examine areas to receive ceiling system for dampness, structural weakness, and other conditions which would affect quality of finished work. Coordinate layout with work in Divisions 15 and 16, for alignment of equipment with ceiling suspension system.
- B. Installation of suspension system shall comply with ASTM C 636. Finished installation shall be level to within 1/4 in. in 10 ft.
 - 1. Space hangers not over 48 in. o.c. in direction of main runner channels, and within 6 in. of ends of main runner runs and of boundary walls, structural steel, partitions, and similar interruptions of ceiling continuity. Install additional hangers at ends of each suspension member and at ceiling equipment not separately suspended, 6 in. from vertical surfaces. Do not splay wires more than 5 in. in a 4 ft. vertical drop. Wrap wire a minimum of three times horizontally, turning ends upward.
 - 2. Attach hangers directly to ceiling structure, or to supplementary framing members supplied and installed under this Section. Hangers may not be suspended from mechanical or electrical equipment such as ductwork, conduit or piping.
 - 3. Install main and cross runners level and perpendicular to walls, at right angles to one another.
 - 4. Install wall molding at intersection of suspended ceiling and vertical surfaces. Miter corners where wall moldings intersect or install corner caps. Attach to vertical surfaces with mechanical fasteners.
- C. Install lay-in panels to bear fully on suspension system. Neatly cut acoustical units as required for sprinkler heads and HVAC equipment.
- D. At completion of job, clean soiled or discolored unit surfaces after installation. Touch up scratches, abrasions, voids, and other defects in painted surfaces. Remove and replace damaged or improperly installed units.

END OF SECTION

SECTION 09650

RESILIENT 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. Installation of sheet vinyl flooring, vinyl stair treads, risers and landings and installation of plywood underlayment under all flooring materials, including resilient flooring in this section. (Omit underlayment installation on concrete slab at Vestibule 112.)

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:

2.0 VINYL SHEET FLOORING: "Coordinates Plus" Commercial Sheet Flooring by Tarkett – 12' width. Color by Architect.

2.1 VINYL STAIRWELL TREADS, RISERS & LANDINGS: Johnsonite "Safe-T-Rib" Visually Impaired treads with Johnsonite vinyl landing tile & risers.

- Color: By Architect.

2.2 UNDERLAYMENT: Install underlayment beneath resilient flooring - underlayment shall be 1/4" thick APA rated plywood multiply underlayment.

2.4 STAIR TREADS & RISERS: Per Section 06200, 2.9 stair treads and risers shall be 3/4" APA plywood or hard pine board

2.5 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.

- 3.2 DURING WORK PROGRESS, remove all excess materials, extraneous mastic, and debris resulting from operations. 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 carpet as shown on plans or noted in these Specifications. Installation is “stretched-in” type with pad or “glue-down” type as scheduled in the finish schedule.
- B. Installation of “walk-off” type carpet tiles with releasable adhesive as scheduled in the finish schedule.
- C. Installation of ¼” thick APA rated plywood multiply underlayment under all flooring including carpet and carpet tiles.

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.

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 “Capital III bl”.
- B. Carpet Pad.
- C. Roberts Strip.
- D. “Walk-off” type carpet tiles: Shaw “Step on it”.
- E. Underlayment: Install underlayment beneath carpet and carpet tiles. Underlayment shall be

APA rated plywood multiply "Underlayment".

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. 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.
- C. 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. Stretched-in type installation as scheduled.
- C. Glue-down type installation as scheduled. Glue down carpet tiles with releasable glue.
- D. 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 Schuler metal strip wherever carpet edge does not abut vertical surface, if appropriate configuration to provide smooth transition to adjacent material. Allowable variation from level for finished installation: 1/4" from level in any direction when tested with 10' straight-edge.
- E. 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.
- F. 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. Trim loose pieces of face yarn with sharp scissors. Upon completion of installation, remove

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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

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 all interior and exterior surfaces as called for in the Finish Schedule, on Drawings or in these Specifications. Including, but not limited to the following:
 - Painting interior walls, door trim, doors, window trim, etc.
 - Painting exterior brick and CMU walls.
 - Painting all exterior doors as specified.
 - Painting and finishing any other work requiring finishing left unfinished by others.
 2. The General Contractor shall anticipate encountering lead painted materials. His Sub-Contractor shall be certified under the Department of Environmental Protection “Lead Renovation, Repair and Painting Rule” and employ the “Work Practices” required by that rule.
 3. All colors to be selected by Architect.
 4. The number of paint colors selected by the Architect shall not exceed five (5).

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.

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 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.
- C. 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. Brick & CMU Masonry: Two (2) coats exterior elastomeric masonry paint over one (1) coat exterior 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 drop cloths, 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.
- E. Allow new masonry to cure for 30 days before painting.

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.
- C. 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.
- D. At masonry route out and fill cracks greater than 1/16", scuff sand glossy surfaces.

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 vertical front loading, semi-recessed, aluminum box unit with (6) mail boxes, resident name and number ID card holders, locksets and keys as manufactured by Auth-Florence Manuf. Co. - Model 1250, Color: by Architect. Provide Collar SR120-6 for semi-recessed mounting.

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 are "Or Equal".
- 2.1 TOWEL BARS AND TOILET PAPER HOLDERS: Nutone Hallmark "Coronado" series, size as shown on Drawings.
- 2.2 SOAP DISH:
1. Surface mounted, stainless steel, satin finish - Bobrick B-6807.
- 2.3 DOUBLE HOOK FOR BATHROOM DOOR: NuTone HM-682.
- 2.4 SHOWER CURTAIN ROD: NuTone HM-382. Curtains are by Owner.
- 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 MIRROR:
1. Surface mounted mirror, stainless steel frame and shelf - Bobrick B-166 18"x36".
- 2.7 **NOTE: Blocking for all accessories and grab bars must be provided. See Rough Carpentry, Section 06100, 3.3.**
- 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.

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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 SIGN

1. GENERAL

1.1 DESCRIPTION OF WORK:

- A. One project sign is required per detail shown in the Drawings. Obtain Owner's final written approval prior to manufacturing the sign.

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.
 - 1. Kitchen cabinets - wall hung and base.
 - 2. Kitchen cabinet countertops.

1.3 SUBMITTALS

- A. Submit manufacturer's product data and installation recommendations for all specified products.
- B. Provide sample of easily accessible base cabinet.
- C. 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.
- D. Submittals for countertops shall be in accordance with Section 06200, Finish Carpentry.

2. PRODUCTS

2.1 Kitchen Cabinets and Bathroom Vanity Base:

- A. Cabinets shall be of all plywood box construction, all drawer fronts, cabinet faces, stiles, and rails shall be constructed of hardwood.
- B. Cabinets shall have wood finished reverse beveled doors, self closing hinges, adjustable shelves, dual tracks for drawers with nylon guides. Classic Series by Kabinart or equal.
- C. Cabinet doors all wood construction, Classic Series by Kabinart or equal.

- D. Kitchen Countertops shall be post-form 290 plastic laminate, Wilsonart, or equal.
- E. Cabinetry that is “adaptable” shall have easily removable fronts; all surfaces to be eventually exposed shall be completely finished (paint, base, piping insulation kits, etc. prior to the placement of the cabinetry.

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.
- C. Kitchen cabinets and vanities: shall be installed by experienced cabinet installers in a craftsman like manner. 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.
- D. 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 14425

VERTICAL WHEELCHAIR LIFT

1. GENERAL

1.1 SECTION INCLUDES

- A. Floor mount vertical platform wheelchair lift.

1.2 RELATED SECTIONS

- A. Division 16 – Electrical: dedicated telephone service and wiring connections, lighting and wiring connections at top of shaft, 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. – 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 provision of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Submit manufacturer's installation instruction, 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's Qualification: 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 PRODUCT 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 including labor.

2. PRODUCTS

2.1 SHAFTWAY VERTICAL WHEELCHAIR LIFT

- A. Height and Weight Carrying Capacities:
 - a. 5'-0" +/- lifting height. Lift subcontractor to field verify prior to submitting bid to GC.

- b. 750 lbs rated capacity.
- B. Nominal Clear Platform Dimension: 56 inches by 36 inches.
- C. Platform Configuration: Straight through Entry/Exit: front and rear openings.

Landing Openings:

- 1. Lower Landing: Gate
- 2. Upper Landing: Gate

Base Mounting and Access to Lift at Lower Landing:

- 1. Base of lift shall be mounted on the floor surface of the lower landing. For access onto the platform provide a ramp of 16 gauge (1.5 mm) galvanized steel sheet with a slip resistant surface.

Gate Construction:

- 1. 42 inches high, pre-hung on an anodized aluminum frame, fitted with a door closer, pull handle, integrated interlock and constructed with a 16 gauge galvanized steel kick plate and upper panel as follows:
 - a. Panels of 16 gauge galvanized steel.

Lift Components:

- 1. Machine Tower.
- 2. Base Frame.
- 3. Platform Side Wall Panels.

- C. Platform Controls: 24VDC 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. Telephone line shall be supplied to the lift site.
- D. Call Station Controls: 24 VDC control circuit with the following features.
 - 1. Direction Controls: Constant pressure switches.
 - 2. Keyless operation.
- E. 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/gate is in the closed position and the lock is engaged before lift can move from landing.

F. 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 standards colors.

G. Shutoff:

1. Per Laws & Rules of the Board of Elevator and Tramway Safety.

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. Verify machine space is 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 A17.1, 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 A 18.1 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".

1.02 SCOPE

- A. The Mechanical Contractor is responsible for providing design documentation of the Mechanical Work proposed – drawings and specifications - meeting the requirements of the Section.
- B. The work to be performed at this facility will require installation of all new equipment. Demolition of existing mechanical equipment is involved. 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.

GENERAL REQUIREMENTS OF MECHANICAL WORK – DESIGN/BUILD

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 high efficiency gas fired boiler vented in plastic.
- B. Heating distribution for individual apartment units and common areas will be served by baseboard fin tube radiation with zone thermostats.
- C. Bathroom exhaust ventilation will be supplied by individual ceiling exhaust centrifugal fans, vented individually with metal ductwork. All fans to be Energy Star certified and rated for use in 1 hour construction.
- D. The kitchens are to be equipped with metal ductwork from the range hood individually vented to the outside.
- E. The plumbing system requires basic drainage and domestic water systems for installation of bathrooms, kitchen sinks, laundry, janitor's closet and floor drain. Domestic hot water will be generated by indirect fired water heater with the energy supplied by the boiler system.
- F. The following items shall be ADA compliant:
 - 1. Kitchen sinks and faucets.
 - 2. Tub / Shower enclosures. Tub / Shower enclosure in Unit 2 shall include factory installed grab bars. Other Tub / Shower reinforcement for field installed grab bars.
 - 3. Toilets.
 - 4. Lavatories and faucets in bathrooms.

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.

1.05 MAJOR EQUIPMENT COMPONENTS

All materials shall be the standard product of a reputable manufacturer regularly

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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.

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. 35 CFM attic ventilation fan with hydrostatic, thermostatic and fire-stat controls.
11. Controls

1.06 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.

1.07 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.
- D. ASHRAE--American Society of Heating, Refrigerating and Air Conditioning Engineers.
- E. SMACNA--Sheet Metal and Air Conditioning Contractors National Association

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- F. UL--Underwriters Laboratories, Inc.
- G. ANSI -- American National Standards Institute

1.08 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.

1.09 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.

1.10 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.

1.11 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.

1.12 HOISTING, SCAFFOLDING AND TRANSPORTATION

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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.

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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.

PART II PRODUCTS, EQUIPMENT AND MATERIALS

2.01 PIPE AND PIPE ACCESSORIES

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- A. Heating water and domestic water piping above grade to be type "L" hard drawn copper or PEX tubing.
- B. Heating water and domestic water piping below grade to be type "K" hard drawn 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.

2.03 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).
- C. Fan shall include a damper rated for use in 1-hour fire-rated floor-ceiling and roof-ceiling designs.

2.04 BATHROOM EXHAUST FAN CONTROL:

- A. The bathroom combination exhaust fan will be controlled by a wall switch supplied by the electrical contractor. The switch is to control both the ceiling light and fan with the fan on a 5 minute shut-off delay.

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.

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- 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.

2.07 APARTMENT BASEBOARD FIN TUBE HEATING CONTROL:

- A. The units will be supplied with heating only non-programmable thermostats (Honeywell T-87) which regulates the hot water flow through electric operated control valves.

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

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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

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- 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 existing equipment and connecting new equipment associated with new power and systems as indicated on the drawings and specifications including the following:

1. The Electrical Contractor is responsible for providing design documentation of the Electrical Work proposed – drawings and specifications - meeting the requirements of this Section.

1.02 QUALITY ASSURANCE

- A. All wiring shall be in accordance with the latest issue of the National Electrical Code.
- B. Note the following items:
1. Lamps and fixtures must be Energy Star rated.
 2. Smoke and carbon monoxide detectors to be both audible and visual and powered from a circuit that includes essential light/device.
 3. All circuits to be a minimum of 20 amps.
 4. Switch for bathroom ceiling light/exhaust fan should allow for 5 minute time delay for fan. See Section 15000, 2.04.
- 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 (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.

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



AIA[®] Document A101[™] – 2007

Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

AGREEMENT made as of the _____ day of _____ in the year _____
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

and the Contractor:
(Name, legal status, address and other information)

for the following Project:
(Name, location and detailed description)

The Architect:
(Name, legal status, address and other information)

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

AIA Document A201[™]-2007, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

The Owner and Contractor agree as follows.

Init.

TABLE OF ARTICLES

- 1 THE CONTRACT DOCUMENTS
- 2 THE WORK OF THIS CONTRACT
- 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION
- 4 CONTRACT SUM
- 5 PAYMENTS
- 6 DISPUTE RESOLUTION
- 7 TERMINATION OR SUSPENSION
- 8 MISCELLANEOUS PROVISIONS
- 9 ENUMERATION OF CONTRACT DOCUMENTS
- 10 INSURANCE AND BONDS

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be the date of this Agreement unless a different date is stated below or provision is made for the date to be fixed in a notice to proceed issued by the Owner.

(Insert the date of commencement if it differs from the date of this Agreement or, if applicable, state that the date will be fixed in a notice to proceed.)

If, prior to the commencement of the Work, the Owner requires time to file mortgages and other security interests, the Owner's time requirement shall be as follows:

§ 3.2 The Contract Time shall be measured from the date of commencement.

Init.

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§ 3.3 The Contractor shall achieve Substantial Completion of the entire Work not later than () days from the date of commencement, or as follows:
(Insert number of calendar days. Alternatively, a calendar date may be used when coordinated with the date of commencement. If appropriate, insert requirements for earlier Substantial Completion of certain portions of the Work.)

Portion of the Work

Substantial Completion Date

, subject to adjustments of this Contract Time as provided in the Contract Documents.
(Insert provisions, if any, for liquidated damages relating to failure to achieve Substantial Completion on time or for bonus payments for early completion of the Work.)

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be Dollars (\$) , subject to additions and deductions as provided in the Contract Documents.

§ 4.2 The Contract Sum is based upon the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:
(State the numbers or other identification of accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)

§ 4.3 Unit prices, if any:
(Identify and state the unit price; state quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit (\$0.00)
------	-----------------------	-------------------------

§ 4.4 Allowances included in the Contract Sum, if any:
(Identify allowance and state exclusions, if any, from the allowance price.)

Item	Price (\$0.00)
------	----------------

ARTICLE 5 PAYMENTS

§ 5.1 PROGRESS PAYMENTS

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the _____ day of a month, the Owner shall make payment of the certified amount to the Contractor not later than the _____ day of the _____ month. If an Application for Payment is received by the Architect after the application date fixed above, payment shall be made by the Owner not later than _____ (_____) days after the Architect receives the Application for Payment.
(Federal, state or local laws may require payment within a certain period of time.)

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be 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.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 Subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

- .1 Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Sum allocated to that portion of the Work in the schedule of values, less retainage of _____ percent (_____ %). Pending final determination of cost to the Owner of changes in the Work, amounts not in dispute shall be included as provided in Section 7.3.9 of AIA Document A201™–2007, General Conditions of the Contract for Construction;
- .2 Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing), less retainage of _____ percent (_____ %);
- .3 Subtract the aggregate of previous payments made by the Owner; and
- .4 Subtract amounts, if any, for which the Architect has withheld or nullified a Certificate for Payment as provided in Section 9.5 of AIA Document A201–2007.

§ 5.1.7 The progress payment amount determined in accordance with Section 5.1.6 shall be further modified under the following circumstances:

- .1 Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to the full amount of the Contract Sum, less such amounts as the Architect shall determine for incomplete Work, retainage applicable to such work and unsettled claims; and
(Section 9.8.5 of AIA Document A201–2007 requires release of applicable retainage upon Substantial Completion of Work with consent of surety, if any.)
- .2 Add, if final completion of the Work is thereafter materially delayed through no fault of the Contractor, any additional amounts payable in accordance with Section 9.10.3 of AIA Document A201–2007.

§ 5.1.8 Reduction or limitation of retainage, if any, shall be as follows:

(If it is intended, prior to Substantial Completion of the entire Work, to reduce or limit the retainage resulting from the percentages inserted in Sections 5.1.6.1 and 5.1.6.2 above, and this is not explained elsewhere in the Contract Documents, insert here provisions for such reduction or limitation.)

§ 5.1.9 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.2 FINAL PAYMENT

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- .1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Section 12.2.2 of AIA Document A201-2007, and to satisfy other requirements, if any, which extend beyond final payment; and
- .2 a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 INITIAL DECISION MAKER

The Architect will serve as Initial Decision Maker pursuant to Section 15.2 of AIA Document A201-2007, unless the parties appoint below another individual, not a party to this Agreement, to serve as Initial Decision Maker.

(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)

§ 6.2 BINDING DISPUTE RESOLUTION

For any Claim subject to, but not resolved by, mediation pursuant to Section 15.3 of AIA Document A201-2007, the method of binding dispute resolution shall be as follows:

(Check the appropriate box. If the Owner and Contractor do not select a method of binding dispute resolution below, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.)

- Arbitration pursuant to Section 15.4 of AIA Document A201-2007
- Litigation in a court of competent jurisdiction
- Other: *(Specify)*

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2007.

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2007.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2007 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located. *(Insert rate of interest agreed upon, if any.)*

§ 8.3 The Owner's representative:
(Name, address and other information)

§ 8.4 The Contractor's representative:
(Name, address and other information)

§ 8.5 Neither the Owner's nor the Contractor's representative shall be changed without ten days written notice to the other party.

§ 8.6 Other provisions:

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 The Contract Documents, except for Modifications issued after execution of this Agreement, are enumerated in the sections below.

§ 9.1.1 The Agreement is this executed AIA Document A101–2007, Standard Form of Agreement Between Owner and Contractor.

§ 9.1.2 The General Conditions are AIA Document A201–2007, General Conditions of the Contract for Construction.

§ 9.1.3 The Supplementary and other Conditions of the Contract:

Document

Title

Date

Pages

Init.

§ 9.1.4 The Specifications:

(Either list the Specifications here or refer to an exhibit attached to this Agreement.)

Section	Title	Date	Pages
---------	-------	------	-------

§ 9.1.5 The Drawings:

(Either list the Drawings here or refer to an exhibit attached to this Agreement.)

Number	Title	Date
--------	-------	------

§ 9.1.6 The Addenda, if any:

Number	Date	Pages
--------	------	-------

Portions of Addenda relating to bidding requirements are not part of the Contract Documents unless the bidding requirements are also enumerated in this Article 9.

§ 9.1.7 Additional documents, if any, forming part of the Contract Documents:

.1 AIA Document E201™–2007, Digital Data Protocol Exhibit, if completed by the parties, or the following:

.2 Other documents, if any, listed below:

(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201–2007 provides that bidding requirements such as advertisement or invitation to bid, Instructions to Bidders, sample forms and the Contractor’s bid are not part of the Contract Documents unless enumerated in this Agreement. They should be listed here only if intended to be part of the Contract Documents.)

ARTICLE 10 INSURANCE AND BONDS

The Contractor shall purchase and maintain insurance and provide bonds as set forth in Article 11 of AIA Document A201–2007.

(State bonding requirements, if any, and limits of liability for insurance required in Article 11 of AIA Document A201–2007.)

Type of Insurance or Bond	Limit of Liability or Bond Amount (\$0.00)
---------------------------	--

This Agreement entered into as of the day and year first written above.

OWNER (Signature)

CONTRACTOR (Signature)

(Printed name and title)

(Printed name and title)

CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.

AIA[®] Document A201[™] – 2007 Instructions

General Conditions of the Contract for Construction

GENERAL INFORMATION

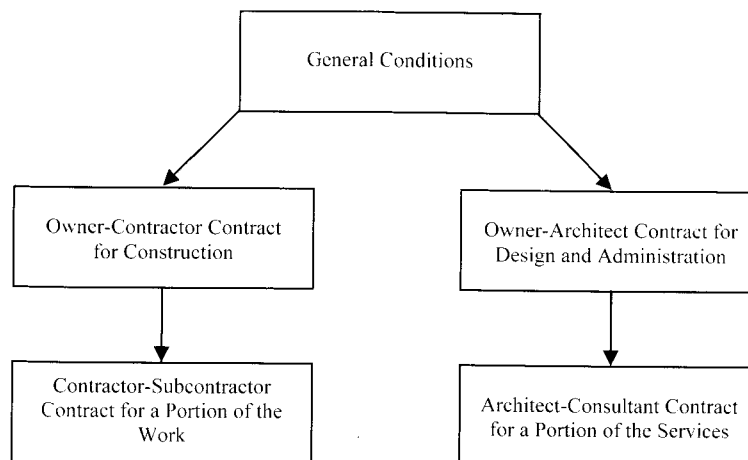
Purpose. AIA Document A201–2007, a general conditions form, is considered the keystone document of the Conventional (A201) Family of Documents because it provides the terms and conditions under which the Owner, Contractor and Architect will work together during the building construction process. When 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.

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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 Contractor 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)

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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.

§ 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.

§ 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

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.

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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, 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 13

CONTRACTOR AS PRINCIPAL

Company: (Corporate Seal)

SURETY

Company: (Corporate Seal)

Signature:

Name and Title: _____

Signature:

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, address and telephone number):

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

Company: _____ (Corporate Seal)

SURETY

Company: _____ (Corporate Seal)

Signature: _____

Name and Title: _____

Signature: _____

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

Company: _____ *(Corporate Seal)*

Signature: _____

Name and Title:

Address:

SURETY

Company: _____ *(Corporate Seal)*

Signature: _____

Name and Title:

Address:



AIA[®] Document A701[™] – 1997

Instructions to Bidders

for the following PROJECT:

(Name and location or address)

THE OWNER:

(Name and address)

THE ARCHITECT:

(Name and address)

This document has important legal consequences.

Consultation with an attorney is encouraged with respect to its completion or modification.

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ARTICLE 1 DEFINITIONS

§ 1.1 Bidding Documents include the Bidding Requirements and the proposed Contract Documents. The Bidding Requirements consist of the Advertisement or Invitation to Bid, Instructions to Bidders, Supplementary Instructions to Bidders, the bid form, and other sample bidding and contract forms. The proposed Contract Documents consist of the form of Agreement between the Owner and Contractor, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications and all Addenda issued prior to execution of the Contract.

§ 1.2 Definitions set forth in the General Conditions of the Contract for Construction, AIA Document A201, or in other Contract Documents are applicable to the Bidding Documents.

§ 1.3 Addenda are written or graphic instruments issued by the Architect prior to the execution of the Contract which modify or interpret the Bidding Documents by additions, deletions, clarifications or corrections.

§ 1.4 A Bid is a complete and properly executed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.

§ 1.5 The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base, to which Work may be added or from which Work may be deleted for sums stated in Alternate Bids.

§ 1.6 An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from the amount of the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.

§ 1.7 A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials, equipment or services or a portion of the Work as described in the Bidding Documents.

§ 1.8 A Bidder is a person or entity who submits a Bid and who meets the requirements set forth in the Bidding Documents.

§ 1.9 A Sub-bidder is a person or entity who submits a bid to a Bidder for materials, equipment or labor for a portion of the Work.

ARTICLE 2 BIDDER'S REPRESENTATIONS

§ 2.1 The Bidder by making a Bid represents that:

§ 2.1.1 The Bidder has read and understands the Bidding Documents or Contract Documents, to the extent that such documentation relates to the Work for which the Bid is submitted, and for other portions of the Project, if any, being bid concurrently or presently under construction.

§ 2.1.2 The Bid is made in compliance with the Bidding Documents.

§ 2.1.3 The Bidder has visited the site, become familiar with local conditions under which the Work is to be performed and has correlated the Bidder's personal observations with the requirements of the proposed Contract Documents.

§ 2.1.4 The Bid is based upon the materials, equipment and systems required by the Bidding Documents without exception.

ARTICLE 3 BIDDING DOCUMENTS

§ 3.1 COPIES

§ 3.1.1 Bidders may obtain complete sets of the Bidding Documents from the issuing office designated in the Advertisement or Invitation to Bid in the number and for the deposit sum, if any, stated therein. The deposit will be refunded to Bidders who submit a bona fide Bid and return the Bidding Documents in good condition within ten days after receipt of Bids. The cost of replacement of missing or damaged documents will be deducted from the deposit. A Bidder receiving a Contract award may retain the Bidding Documents and the Bidder's deposit will be refunded.

§ 3.1.2 Bidding Documents will not be issued directly to Sub-bidders unless specifically offered in the Advertisement or Invitation to Bid, or in supplementary instructions to bidders.

§ 3.1.3 Bidders shall use complete sets of Bidding Documents in preparing Bids; neither the Owner nor Architect assumes responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

§ 3.1.4 The Owner and Architect may make copies of the Bidding Documents available on the above terms for the purpose of obtaining Bids on the Work. No license or grant of use is conferred by issuance of copies of the Bidding Documents.

§ 3.2 INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

§ 3.2.1 The Bidder shall carefully study and compare the Bidding Documents with each other, and with other work being bid concurrently or presently under construction to the extent that it relates to the Work for which the Bid is submitted, shall examine the site and local conditions, and shall at once report to the Architect errors, inconsistencies or ambiguities discovered.

§ 3.2.2 Bidders and Sub-bidders requiring clarification or interpretation of the Bidding Documents shall make a written request which shall reach the Architect at least seven days prior to the date for receipt of Bids.

§ 3.2.3 Interpretations, corrections and changes of the Bidding Documents will be made by Addendum. Interpretations, corrections and changes of the Bidding Documents made in any other manner will not be binding, and Bidders shall not rely upon them.

§ 3.3 SUBSTITUTIONS

§ 3.3.1 The materials, products and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance and quality to be met by any proposed substitution.

§ 3.3.2 No substitution will be considered prior to receipt of Bids unless written request for approval has been received by the Architect at least ten days prior to the date for receipt of Bids. Such requests shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitution including drawings, performance and test data, and other information necessary for an evaluation. A statement setting forth changes in other materials, equipment or other portions of the Work, including changes in the work of other contracts that incorporation of the proposed substitution would require, shall be included. The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.

§ 3.3.3 If the Architect approves a proposed substitution prior to receipt of Bids, such approval will be set forth in an Addendum. Bidders shall not rely upon approvals made in any other manner.

§ 3.3.4 No substitutions will be considered after the Contract award unless specifically provided for in the Contract Documents.

§ 3.4 ADDENDA

§ 3.4.1 Addenda will be transmitted to all who are known by the issuing office to have received a complete set of Bidding Documents.

§ 3.4.2 Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.

§ 3.4.3 Addenda will be issued no later than four days prior to the date for receipt of Bids except an Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of Bids.

§ 3.4.4 Each Bidder shall ascertain prior to submitting a Bid that the Bidder has received all Addenda issued, and the Bidder shall acknowledge their receipt in the Bid.

ARTICLE 4 BIDDING PROCEDURES

§ 4.1 PREPARATION OF BIDS

§ 4.1.1 Bids shall be submitted on the forms included with the Bidding Documents.

§ 4.1.2 All blanks on the bid form shall be legibly executed in a non-erasable medium.

§ 4.1.3 Sums shall be expressed in both words and figures. In case of discrepancy, the amount written in words shall govern.

§ 4.1.4 Interlineations, alterations and erasures must be initialed by the signer of the Bid.

§ 4.1.5 All requested Alternates shall be bid. If no change in the Base Bid is required, enter "No Change."

§ 4.1.6 Where two or more Bids for designated portions of the Work have been requested, the Bidder may, without forfeiture of the bid security, state the Bidder's refusal to accept award of less than the combination of Bids stipulated by the Bidder. The Bidder shall make no additional stipulations on the bid form nor qualify the Bid in any other manner.

§ 4.1.7 Each copy of the Bid shall state the legal name of the Bidder and the nature of legal form of the Bidder. The Bidder shall provide evidence of legal authority to perform within the jurisdiction of the Work. Each copy shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further give the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current power of attorney attached certifying the agent's authority to bind the Bidder.

§ 4.2 BID SECURITY

§ 4.2.1 Each Bid shall be accompanied by a bid security in the form and amount required if so stipulated in the Instructions to Bidders. The Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bid and will, if required, furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds if required, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty. The amount of the bid security shall not be forfeited to the Owner in the event the Owner fails to comply with Section 6.2.

§ 4.2.2 If a surety bond is required, it shall be written on AIA Document A310, Bid Bond, unless otherwise provided in the Bidding Documents, and the attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of the power of attorney.

§ 4.2.3 The Owner will have the right to retain the bid security of Bidders to whom an award is being considered until either (a) the Contract has been executed and bonds, if required, have been furnished, or (b) the specified time has elapsed so that Bids may be withdrawn or (c) all Bids have been rejected.

§ 4.3 SUBMISSION OF BIDS

§ 4.3.1 All copies of the Bid, the bid security, if any, and any other documents required to be submitted with the Bid shall be enclosed in a sealed opaque envelope. The envelope shall be addressed to the party receiving the Bids and shall be identified with the Project name, the Bidder's name and address and, if applicable, the designated portion of the Work for which the Bid is submitted. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof.

§ 4.3.2 Bids shall be deposited at the designated location prior to the time and date for receipt of Bids. Bids received after the time and date for receipt of Bids will be returned unopened.

§ 4.3.3 The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.

§ 4.3.4 Oral, telephonic, telegraphic, facsimile or other electronically transmitted bids will not be considered.

§ 4.4 MODIFICATION OR WITHDRAWAL OF BID

§ 4.4.1 A Bid may not be modified, withdrawn or canceled by the Bidder during the stipulated time period following the time and date designated for the receipt of Bids, and each Bidder so agrees in submitting a Bid.

§ 4.4.2 Prior to the time and date designated for receipt of Bids, a Bid submitted may be modified or withdrawn by notice to the party receiving Bids at the place designated for receipt of Bids. Such notice shall be in writing over the signature of the Bidder. Written confirmation over the signature of the Bidder shall be received, and date- and time-stamped by the receiving party on or before the date and time set for receipt of Bids. A change shall be so worded as not to reveal the amount of the original Bid.

§ 4.4.3 Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids provided that they are then fully in conformance with these Instructions to Bidders.

§ 4.4.4 Bid security, if required, shall be in an amount sufficient for the Bid as resubmitted.

ARTICLE 5 CONSIDERATION OF BIDS

§ 5.1 OPENING OF BIDS

At the discretion of the Owner, if stipulated in the Advertisement or Invitation to Bid, the properly identified Bids received on time will be publicly opened and will be read aloud. An abstract of the Bids may be made available to Bidders.

§ 5.2 REJECTION OF BIDS

The Owner shall have the right to reject any or all Bids. A Bid not accompanied by a required bid security or by other data required by the Bidding Documents, or a Bid which is in any way incomplete or irregular is subject to rejection.

§ 5.3 ACCEPTANCE OF BID (AWARD)

§ 5.3.1 It is the intent of the Owner to award a Contract to the lowest qualified Bidder provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed the funds available. The Owner shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the Owner's judgment, is in the Owner's own best interests.

§ 5.3.2 The Owner shall have the right to accept Alternates in any order or combination, unless otherwise specifically provided in the Bidding Documents, and to determine the low Bidder on the basis of the sum of the Base Bid and Alternates accepted.

ARTICLE 6 POST-BID INFORMATION

§ 6.1 CONTRACTOR'S QUALIFICATION STATEMENT

Bidders to whom award of a Contract is under consideration shall submit to the Architect, upon request, a properly executed AIA Document A305, Contractor's Qualification Statement, unless such a Statement has been previously required and submitted as a prerequisite to the issuance of Bidding Documents.

§ 6.2 OWNER'S FINANCIAL CAPABILITY

The Owner shall, at the request of the Bidder to whom award of a Contract is under consideration and no later than seven days prior to the expiration of the time for withdrawal of Bids, furnish to the Bidder reasonable evidence that financial arrangements have been made to fulfill the Owner's obligations under the Contract. Unless such reasonable evidence is furnished, the Bidder will not be required to execute the Agreement between the Owner and Contractor.

§ 6.3 SUBMITTALS

§ 6.3.1 The Bidder shall, as soon as practicable or as stipulated in the Bidding Documents, after notification of selection for the award of a Contract, furnish to the Owner through the Architect in writing:

- .1 a designation of the Work to be performed with the Bidder's own forces;
- .2 names of the manufacturers, products, and the suppliers of principal items or systems of materials and equipment proposed for the Work; and
- .3 names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the Work.

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§ 6.3.2 The Bidder will be required to establish to the satisfaction of the Architect and Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the Work described in the Bidding Documents.

§ 6.3.3 Prior to the execution of the Contract, the Architect will notify the Bidder in writing if either the Owner or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner or Architect has reasonable objection to a proposed person or entity, the Bidder may, at the Bidder's option, (1) withdraw the Bid or (2) submit an acceptable substitute person or entity with an adjustment in the Base Bid or Alternate Bid to cover the difference in cost occasioned by such substitution. The Owner may accept the adjusted bid price or disqualify the Bidder. In the event of either withdrawal or disqualification, bid security will not be forfeited.

§ 6.3.4 Persons and entities proposed by the Bidder and to whom the Owner and Architect have made no reasonable objection must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Owner and Architect.

ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND

§ 7.1 BOND REQUIREMENTS

§ 7.1.1 If stipulated in the Bidding Documents, the Bidder shall furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Bonds may be secured through the Bidder's usual sources.

§ 7.1.2 If the furnishing of such bonds is stipulated in the Bidding Documents, the cost shall be included in the Bid. If the furnishing of such bonds is required after receipt of bids and before execution of the Contract, the cost of such bonds shall be added to the Bid in determining the Contract Sum.

§ 7.1.3 If the Owner requires that bonds be secured from other than the Bidder's usual sources, changes in cost will be adjusted as provided in the Contract Documents.

§ 7.2 TIME OF DELIVERY AND FORM OF BONDS

§ 7.2.1 The Bidder shall deliver the required bonds to the Owner not later than three days following the date of execution of the Contract. If the Work is to be commenced prior thereto in response to a letter of intent, the Bidder shall, prior to commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished and delivered in accordance with this Section 7.2.1.

§ 7.2.2 Unless otherwise provided, the bonds shall be written on AIA Document A312, Performance Bond and Payment Bond. Both bonds shall be written in the amount of the Contract Sum.

§ 7.2.3 The bonds shall be dated on or after the date of the Contract.

§ 7.2.4 The Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of the power of attorney.

ARTICLE 8 FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

Unless otherwise required in the Bidding Documents, the Agreement for the Work will be written on AIA Document A101, Standard Form of Agreement Between Owner and Contractor Where the Basis of Payment Is a Stipulated Sum.

APPLICATION AND CERTIFICATE FOR PAYMENT

AIA DOCUMENT G702

PAGE 1 OF

PAGES

TO (OWNER):

APPLICATION NO.:

Distribution to:

- OWNER
- ARCHITECT
- CONTRACTOR
- INSPECTOR
-

FROM (CONTRACTOR):

PERIOD TO:

KA#

CONTRACT FOR:

CONTRACT DATE:

CONTRACTOR'S APPLICATION FOR PAYMENT

CHANGE ORDER SUMMARY

Change Orders approved in previous months by Owner		ADDITIONS	DEDUCTIONS
TOTAL			
Approved this Month			
Number	Date Approved		
TOTALS			

Net change by Change Orders

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief, the Work covered by this Application for payment has been completed in accordance with the Contract Documents, that all previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR:

By: _____ Date: _____

State of: _____ County of: _____, 20____
 Subscribed and sworn to before me this _____ day of _____
 Notary Public:
 My Commission expires: _____

Application is made for Payment, as shown, in connection with the Contract. Continuation Sheet, AIA Document G702, is attached.

1. ORIGINAL CONTRACT SUM \$ _____
2. Net change by Change Orders \$ _____
3. CONTRACT SUM TO DATE (Line 1+2)..... \$ _____
4. TOTAL COMPLETED & STORED TO DATE..... \$ _____
 (Column G on G702)
5. RETAINAGE:
 - a. ____% of Completed Work \$ _____
 (Column D+E)
 - b. ____% of Stored Material \$ _____
 (Column F on G703)
 Total Retainage (Line 5a + 5b or Total in Column 1 of G702..... \$ _____
6. TOTAL EARNED LESS RETAINAGE..... \$ _____
 (Line 4 less Line 5 Total)
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate) \$ _____
8. CURRENT PAYMENT DUE..... \$ _____
9. BALANCE TO FINISH, PLUS RETAINAGE..... \$ _____
 (Line 3 less Line 6)

CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising the above application, the Architect/Inspector certifies to the Owner that to the best of the his/her knowledge, information and belief, the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

Inspector: _____ Date: _____

Project Manager _____ Date: _____

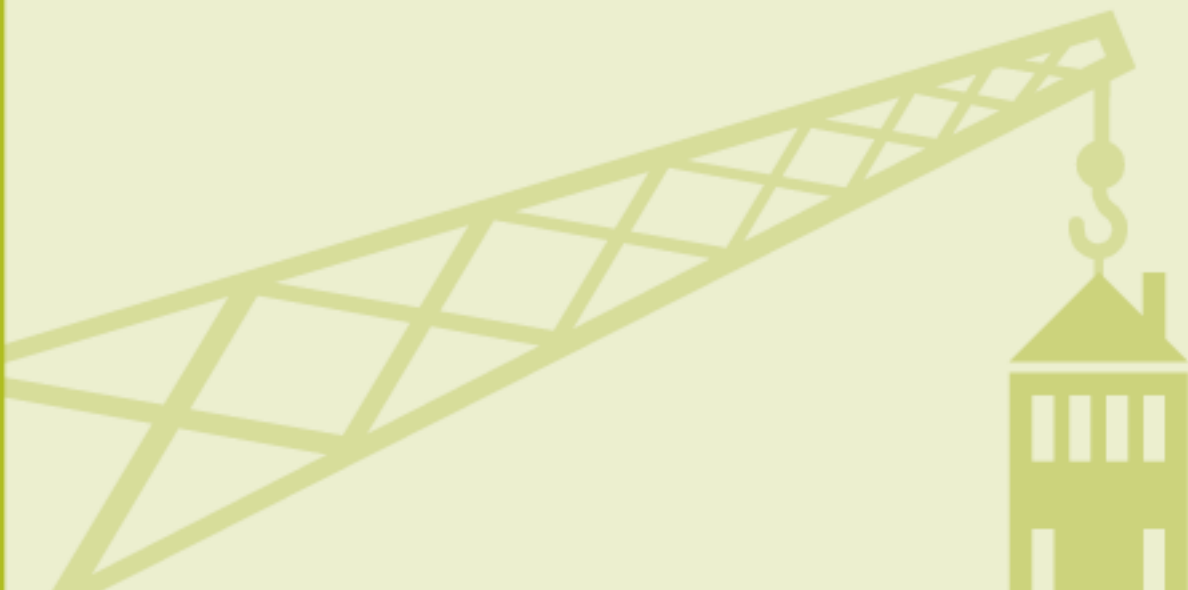
This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

AMOUNT CERTIFIED \$ _____
 (Attach explanation if amount certified differs from the amount applied for.)



Quality Standards and Procedures Manual

2013



MAINEHOUSING QUALITY STANDARDS AND PROCEDURES MANUAL

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MAINEHOUSING QUALITY STANDARDS AND PROCEDURES MANUAL

PREFACE

This *Quality Standards and Procedures Manual (Quality Manual)* has been assembled for use by MaineHousing staff and project Partners and their agents who are participating with MaineHousing in the development of safe and affordable housing through their applications for various funding sources administered by MaineHousing.

The material contained herein shall be used in the design and construction of all new and rehabilitated multi-family and supportive housing projects developed under the various programs administered by MaineHousing. These standards establish both general and minimum performance, quality, and durability criteria for the design, construction and rehabilitation of multi-unit developments financed all or in part by MaineHousing. It is the intent of this manual to assist our partners by outlining MaineHousing's minimum expectations to ensure a basis for providing safe, sanitary, cost effective, energy efficient, accessible, and decent housing for all occupants, as well as protecting the Authority's security interests in the property. This manual is also available on MaineHousing's website: www.MaineHousing.org.

APPLICABILITY

MaineHousing understands that not all codes, standards, processes, procedures, and documents may apply to every project, in every instance. For example, projects with limited scope, such as existing building rehabilitation supportive housing projects, that do not include substantial additions or major site alterations, will likely require much less documentation and review than large-scale, new-construction or substantial rehabilitation, multi-family projects that include complete site development, require local approvals, and will include the latest materials and construction technologies and techniques.

Acquisition/rehabilitation and/or preservation projects also present unique challenges in matching work scope with available funds. In developing scopes of work for such projects the allocation of funds should be prioritized based on the specifics of each project using a hierarchy that starts with an evaluation of code compliance including structural integrity, life-safety (including sprinklers), hazardous materials and environmental issues, accessibility, and then an evaluation of deferred maintenance, durability, and energy concerns, and lastly include the feasibility of project upgrades and/or amenities including any proposed additions.

Structures proposed for rehabilitation must meet, or be rehabilitated to meet all of the new construction codes and standards contained herein, wherever reasonably and practicably possible. Re-use of existing materials, i.e., doors, windows, siding, roofing, structure, woodwork, finishes, etc., will be judged on a case-by-case basis utilizing the new construction criteria as a reference point. It should be further noted that rehabilitation projects present unique accessibility, mechanical, structural, and fire stopping characteristics/challenges that will need to be upgraded to the latest standards in most instances. Consideration must be given to the needs to provide extermination services for all proposed buildings prior to the rehabilitation construction. All rehabilitation projects shall be evaluated for any environmental issues and any such issues shall be fully remediated as part of the project.

USE OF THE MANUAL

This *Quality Manual* provides specific information that defines applicable codes, minimum quality and durability standards, and outlines the process of project design review, project delivery, and construction oversight. The use of MaineHousing, MSHA, Maine State Housing Authority, and/or the “Authority” all reference the Maine State Housing Authority. This *Quality Manual* as well as the *Best Practices Guide* is available on MaineHousing’s website: www.MaineHousing.org.

All applicants are encouraged to review this *Quality Manual* in detail and reach a consensus with the Construction Analyst assigned to their project as to the standards, scopes of work, processes, procedures, and documents that will be applicable for their project. The Concept Meeting, as discussed later in this *Quality Manual*, provides for the project kick-off and is an opportune time to discuss the project scope, level of design detail, and review procedures for each project. If consensus can’t be reached, applicants may make further requests, to the Construction Services Manager of MaineHousing for final determinations.

STRUCTURE OF THE MANUAL

This *Manual* has been divided into two parts plus an Appendix section:

- Part One contains the Design and Construction Codes and MaineHousing’s Quality Standards to be used in the development of contract documents
- Part Two discusses the project delivery processes and procedures and contains the Design and Construction Document requirements and document submittal procedures
- The appendix section contains additional information that is referenced in the body of the *Quality Manual*

BEST PRACTICES GUIDE

MaineHousing has also created a *Best Practices Guide* (which is also available on MaineHousing’s website) that provides useful general information to help define the hoped for outcomes when developing a housing project with MaineHousing. The material contained therein provides guidance in the design and construction of all new and rehabilitation multi-family and supportive housing projects developed under the various programs administered by MaineHousing. It is the intent of that *Guide* to assist our partners by outlining MaineHousing’s goals and expectations to ensure an agreed upon basis for providing safe, sanitary, cost effective, energy efficient, accessible, and decent housing for all occupants, as well as protecting the Authority’s security interests in the property.

This *Quality Manual* has been generated in an effort to provide a quick and easy reference for interested parties involved with the design and construction of housing projects administered by MaineHousing, and supersedes all previous editions and/or publications printed to date. This is the first edition of this *Quality Manual*; the format and general content has been developed from previous manuals and standards issued by MaineHousing’s Construction Services including previous editions of the Construction Services *Design & Construction Manual* and MaineHousing’s *Green Building Standards*.

Final interpretations, variances, clarifications, amendments, etc. related to this *Quality Manual* shall be made by MaineHousing.

MAINEHOUSING QUALITY STANDARDS AND PROCEDURES MANUAL

PART 1 – CODES, QUALITY STANDARDS, ACCESSIBILITY

A. CODES

MaineHousing recognizes and endorses the use of the following national, state, and/or locally adopted building, plumbing, electrical, fire protection, and engineering codes and standards as applicable as minimal requirements for all projects.

* Maine Uniform Building and Energy Code (MUBEC). MUBEC is MaineHousing’s Minimum Building Code as applicable by Project Type; which includes the following:

- International Building Code (IBC) 2009
- International Existing Building Code (IEBC) 2009
- International Residential Code (IRC) 2009
- International Energy Conservation Code (IECC) 2009
- ASHRAE 62.1 Ventilation for Acceptable Indoor Air Quality 2007
- ASHRAE 62.2 Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings 2007
- ASHRAE 90.1 Energy Standard for Buildings except Low-Rise Residential Buildings 2007
- ASTM E1465-06 Radon Standard for new residential construction - (Maine Model Standard) 2006

- * NFPA 101 Life Safety Code 2009 State Standard
- * NFPA 211 (chimneys, etc.) 2003..... State Standard
- * NFPA 1 Fire prevention Code 2003..... State Standard
- * State Plumbing Code. (Based on IAPMO 2000 Uniform Plumbing Code) State Standard
- * National Electric Code 2011 State Standard
- * ADA Federal Requirement
- * ICC/ANSI A-117.1 2003 State and Federal Requirements
- * Fair Housing Act (design manual)..... Federal Standard
- * Section 504 (UFAS Standard) Federal Standard

All multi-family and/or licensed facilities shall be reviewed by and be permitted by the State Fire Marshal for both Life Safety and Accessibility requirements.

MaineHousing requires full compliance with state and local codes and/or standards for zoning and subdivision regulations.

Energy Conservation Standards

MaineHousing recognizes that energy conservation is one of the best ways to manage operating costs and that controlling operating costs is the best way to ensure long term solvency of affordable residential developments that typically generate limited additional operating surpluses. Therefore, all new and renovated residential projects financed by MaineHousing shall be constructed to the following energy conservation standards and requirements:

1. Meet the energy conservation components of the currently adopted version of the Maine Uniform Building and Energy Code (MUBEC) for new construction which includes compliance with:
 - a. Commercial and Mid-High Rise Residential (more than three stories)– ASHRAE 90.1, currently, the 2009 version OR IECC (optional)
 - b. Low-Rise Single/Multi-family Residential (three stories or less) – International Energy Conservation Code (IECC) currently, the 2009 version.

2. MaineHousing New Construction Energy Conservation Standards (these standards exceed MUBEC requirements).
 - a. Glazed Windows: Meet Energy Star (for Northern Climate) and NFRC rating performance requirements and have an Air Leakage rate (AL) of 0.30 or less
 Ti Factor < 0.30, or
 Ti Factor = 0.31 and SHGC > 0.35, or
 Ti Factor = 0.32 and SHGC > 0.40
 - b. Glazed Doors: Meet Energy Star performance requirements.
 Ti Factor < 0.21, or
 Ti Factor = 0.27 and SHGC > 0.30, or
 Ti Factor = 0.32 and SHGC > 0.30
 - c. Glazed Skylight: Meet Energy Star performance requirements.
 Ti Factor < 0.55
 - d. Max. Glazed area: One and two family dwellings: 15% of the gross insulated exterior wall area
 All other buildings: 25% of the gross insulated exterior wall area
 Note: This requirement applies to all glazed components of the exterior walls of the building as a whole. Proposals that exceed listed maximum glazed areas shall provide increased performance values, supported by an energy analysis, in other insulation envelope systems or glazed systems that equal the additional performance loss incurred by the increased glazing area proposed.
 - e. Insulated Doors: Ti Factor < 0.15 + Air Leakage Rate < 0.30 cfm/SF
 - f. Ceiling R Value: R-49, minimum
 - g. Exterior Walls: R-21, minimum, or
 R-5 continuous LTTR + R-15 cavity insulation (no fiberglass), or
 R-10 continuous LTTR + R-15 cavity insulation (any kind), or
 R-5 continuous LTTR + R-19 cavity insulation (any kind).
 - h. Framed Floors: R-30, minimum
 - i. Basement Walls: Above exterior grade = match Exterior Walls
 Below exterior grade = per MUBEC
 - j. Foundations: Below exterior grade, horizontal and vertical = per MUBEC
 - k. Interior Slabs: Inboard of Foundation, R = 5

3. MaineHousing Existing Facilities Energy Conservation Standards (exempt by MUBEC)
 - a. Change of Use Creation of new residential units - meet overall performance of New Construction MaineHousing Energy Conservation Standards supported by a building energy model that demonstrates equal “whole building” performance compared to the New Construction

Energy Conservation standards. This recognizes that, in many situations, the individual standards may be difficult to achieve and, accordingly, meeting the new building performance for the building as a whole by other means is an acceptable alternative to meeting individual component requirements.

- b. Preservation Preservation of existing housing units - balance redevelopment needs including weatherproofing, durability, marketability and energy conservation to provide the best long term operating benefit, supported by an operating budget analysis, while striving to meet performance values of the MaineHousing Energy Conservation Standards where possible.
- c. Historic Reuse Reuse of Historic Structures- balance historic preservation objectives with requirements of both Change of Use and Preservation strategies (see above).

B. MAINEHOUSING QUALITY STANDARDS

MaineHousing has experienced that certain materials and/or construction practices are uneconomical when considered over the life of the project or the cause of reoccurring problems. Therefore, outlined in this section are specific materials, installations, and construction practices that have demonstrated proven performance characteristics, minimum quality and/or durability and are appropriate to the developments it wishes to finance.

In general, MaineHousing's quality standards are meant to complement, supplement, or improve upon any national, state, or local regulations. However, in any situations where duplication occurs, the more stringent standard or procedure shall apply.

The items are arranged in accordance with the original Construction Specifications Institute (CSI) headings.

Division 1, General Conditions

1. RESERVED

Division 2, Sitework

1. GEOTECHNICAL INVESTIGATION reports, if produced, shall be either referenced and be readily available for viewing or be included in the project manual. Note: Projects of limited site work scope, such as renovations to existing structures, may not be required to provide geotechnical investigations. Such scopes shall be reviewed and a determination of applicability shall be made by the project's construction analyst.
2. SOIL TESTING services from a qualified testing agency shall be retained by owner or contractor to monitor and test all critical soil fill operations.
3. POSITIVE DRAINAGE slopes away from all buildings shall be provided; a 6" pitch in first 10 feet is a recommended minimum slope. In the event of the inability to provide such natural drainage, an engineered drainage system may be provided.
4. FOUNDATION DRAINS shall be provided for all foundation types including frost wall designs. These drains shall be provided both inside and outside of all walls unless soil and/or site conditions can adequately justify alternative designs. Soils Engineers' (geotechnical) reports must be provided as part of any requests for alternatives. These drains should connect to a permanent and positive storm drainage system or daylight to a properly

designed surface drainage system. All daylight drains should have their outlooks screened and protected from erosion and the entrance of rodents. Provide backflow preventers should be provided for all foundation drains.

5. PASSIVE UNDER SLAB RADON VENTING SYSTEMS shall be provided beneath all slabs-on-grade and measures should be taken to prevent unwanted air leakage into the gas permeable layer. The interior radon piping should be run within the thermal envelop and be properly labeled. All passive system pipe routes shall provide space for installing a radon fan and a monitor should testing confirm the need for such added components. Provide an electrical supply adjacent to the vent stack that is located above the highest occupied space and provides adequate clearance for the potential future installation of a fan. Consideration should be given for access to this location. Whenever practicable, the system should be vented through the highest roof or ridge in such a position that it can neither be covered by snow or other material. The vent stack discharge shall meet the separation distances required by code from any window, door, or other opening into the conditioned space.
Active systems may be required if radon testing confirms the need for such added capacity.
6. FLOOR DRAINS AND/OR SUMPS shall be provided in all basements. The floor should be pitched to these drains or sumps and, to the maximum extent feasible, these should be connected to a positive drainage system, exterior of the building. Connections to storm water systems should be equipped with backflow preventers.
7. SUBSURFACE DRAIN PIPING of styrene or corrugated polyethylene pipe may be used for foundation drains, leaching fields, or other below grade applications only when the materials and its installation are in accordance with ASTM Standards. Rigid perforated PVC pipe is also permissible provided the minimum wall thickness for 4" pipe is 0.075", and for 6" pipe is 0.10", and it is installed in accordance with applicable ASTM Standards.
8. POLYETHYLENE OR OTHER APPROVED VAPOR/MOISTURE/RADON BARRIER MATERIAL shall be placed under all concrete slabs including basement and/or crawl space and on-grade floors. Polyethylene under slabs and in crawl spaces shall be at least six (6) mils thick and shall have all joints lapped a minimum of six inches and sealed with mastic or tape. All pipe or other penetrations shall have the vapor/moisture/radon barrier taped around them in a secure fashion to prevent moisture infiltration.
9. LIQUID ASPHALT AND/OR GRAVEL ROADS AND/OR DRIVES shall are not acceptable within the project bounds. Such surfaces, if acceptable by town standards, may be considered up to the project bounds.
10. EROSION during and after construction shall be controlled in accordance with the "Standards and Specifications" published in the "Environmental Quality Handbook" by the Maine Soil and Water Conservation Commission.
11. FOUNDATION FOOTINGS shall be constructed on undisturbed material unless otherwise specified by the designer-of-record. All fill placed under footings must be engineered fill, designed, tested and certified by a Professional Engineer, registered in the State of Maine.
12. PARKING shall be provided in accordance with the municipality's parking requirement ratio of parking spaces to dwelling units. If a municipality does not have a parking ratio requirement, the project must provide a minimum of 1 parking space per dwelling unit. For sites with limited developable area for on-site parking such that a 1:1 unit/parking ratio cannot be met or is not justified, an alternative parking plan will be considered by MaineHousing on a case-by-case basis. In order to be considered for less than a 1:1 unit/parking ratio, the Developer shall develop and provide a parking plan supporting less than 1:1 that contains the following::

- a. Documents the demand for on-site or off-site parking consistent with projects of similar size, location, and population.
 - b. Documents the demand for on-site or off-site parking consistent with projects of similar size, location, and population.
 - c. Documents the availability and costs of transportation alternatives that service the project site.
 - d. Describes alternatives to car parking that will be provided on-site such as parking for motorcycles and/or scooters and/or storage for bicycles.
 - e. Describes any proposed tenant incentive programs that will reduce car parking needs.
 - f. Describes tenant education efforts that will be implemented that will reduce car parking needs.
 - g. Provides for timely and ongoing monitoring of the plan and describes how adjustments to the plan will be implemented.
13. PARKING SPACES shall be permanently delineated upon the pavement. Accessible parking areas shall be so marked and signed. Each accessible parking space shall be permanently marked as such both by ground applied symbol.
14. WHEEL STOPS may be provided for parking stalls based on topography, drainage, pedestrian separation needs, protection of improvements, etc. These may be pre-cast concrete stops or materials of similar size and mass acceptable to MaineHousing. Standard asphalt curbing, if used as a wheel stop, shall be backed up with full depth compacted earth fill.
15. PAVED AREAS within the subject property that are deemed in need of new bituminous concrete paving will be required to following:
- a. Prior to the laying of the new bituminous concrete paving (pavement) the existing paving will be removed completely. All exposed gravel base material shall be inspected for contamination by silts or other foreign, deleterious material. Any contaminated base is to be removed down to clean, sound material. Unless otherwise designed and specified by a design professional, the removed material should be replaced with aggregate base material as per M.D.O.T. Sec. 703.06 Type A. All new material should generally be evenly spread in lifts not to exceed eight (8") inches in depth and compacted in place to a minimum of 95% of the maximum density as per ASTM D1 557. Minimum total base thickness shall be 18" for Roadways and Parking Areas; 12" for Walkways and Ramps.
 - b. Minimum compacted thickness and mix design for the pavement courses shall be:
 - c. Base/Binder Course: 2" MDOT Type B
 - d. Surface/Finish Course: 1" MDOT Type D
 - e. Existing and new surfaces shall meet in a smooth continuous plane free from variations in height or smoothness. Clean and treat all areas thoroughly prior to installation of asphalt.
 - f. The temperature of the pavement mix shall be regulated to ensure that at the time of spreading the mix is within specifications. Pavement having temperatures outside of the specified temperature range when dumped into the spreader should be rejected.
 - g. The pavement mixture shall be thoroughly compacted by rolling. Rolling is to begin as soon as the placement of the mixture will bear the roller without undue displacement or delay.
 - h. The construction of the new pavement shall be carried on only when the surface on which the mix is to be placed is dry, and when the surface temperature of the underlying course is greater than 45 degrees F for course thickness greater than one-inch and 55 degrees F for course thickness one-inch or less.

- i. It shall be the Contractor's responsibility to prohibit vehicular traffic, including heavy equipment, from traveling upon the pavement until the surface temperature has cooled to 120-degrees F.
16. SOILS USED FOR PLANTINGS, PLANTING BEDS, AND GRASSED AREAS are to be purposely specified and field tested for conformance to the construction documents. Lawn areas of projects should be planted and properly maintained to assure proper establishment coverage and growth. Because plantings and grass growth are season dependant, an Incomplete Work Escrow (IWE) in the amount of the cost of the work as determined by the Construction Analyst, times 150% may need to be established at the conclusion of the project and will be held by MaineHousing until the work is completed to the satisfaction of Construction Services.
 17. SMOKE-FREE SIGNAGE provide adequate notice to building occupants, visitors, guests and employees of the scope and extent of applicability of the project's smoke-free status (re: reduction of exposure to Environmental Tobacco Smoke (ETS)). To effectively accomplish this, provide conspicuous notices (building and/or site signage) of 'smoke free' status at all entry ways to smoke free buildings, and, if applicable, at the points of entry for vehicles or for foot traffic onto the grounds of the property. Notices, at a minimum, shall be: "Smoke Free Building" and "Smoking Prohibited 25 feet from entryways, windows, vents and balconies" or "Smoke Free Property" (as the case may be). Signage shall meet applicable signage design requirements of the Americans with Disabilities Act of 1990.

Division 3, Concrete

1. FOUNDATION DESIGN shall be consistent with the findings and recommendations of the geotechnical engineer's soils report.
2. CAST-IN-PLACE CONCRETE shall achieve the following minimum 28 day compressive strengths: Footings: 3,000 PSI; Foundation walls: 3,000 PSI; Interior flatwork: 3,000 PSI; Exterior flatwork: 4,000 PSI with 5-7% air entrainment. All concrete shall be designed and specified by the designer-of-record for both strength and durability; strengths listed herein are minimums for durability.
3. ADMIXTURES proposed for use in concrete shall be used in accordance with the American Concrete Institute's recommendations with the exception of calcium chloride which is undesirable due to the side effects and conditions it creates within the concrete. Accelerating admixtures, if needed, are to be used in place of calcium chloride. The accelerator used should be a national brand which has been performance tested. Any and all admixtures shall be specified by the designer-of-record and be used in strict accordance with the manufacturer's instructions.
4. TO HELP CONTROL CRACKING DUE TO TEMPERATURE CHANGES all concrete foundations for wood frame structures shall be reinforced with at least two number four bars in the bottom of the wall or footing and two in the top of the wall. All corner reinforcing shall be pre-formed, lapped and securely tied to the main reinforcing bars. Structural reinforcement and/or additional shrinkage and temperature reinforcement shall be designed and/or specified by the designer of record.
5. CONCRETE TESTING shall be conducted by a qualified testing agency retained by the owner or contractor to monitor and test all structural concrete. Concrete placement records shall be provided by the testing agent to the Owner, Contractor and MaineHousing of all slump and strength tests required in accordance with ACI documents and/or specifications. At a minimum, there should be one strength test for each 50 cubic yds or fraction thereof of material placed in any one day. Three (3) test cylinders constitute one strength test; one

cylinder is tested at 7 days for information only; 2 cylinders are tested at 28 days to determine acceptance. It is recommended that a fourth cylinder be cast in case a 56 day test becomes necessary.

Division 4, Masonry

1. All masonry ties and anchors for veneer walls shall be stainless steel.

Division 5, Steel & Metals

1. STEEL TESTING shall be conducted by a qualified testing agency retained by the Owner or general contractor to monitor and test all steel fabrications.
2. ALL STRUCTURAL ELEMENT FIELD-WELDING should be third party inspected and/or tested and appropriate documentation provided to assure quality of welds consistent with the construction documents requirements.

Division 6, Carpentry

1. PRESSURE TREATED (PT) LUMBER shall meet manufactures' requirements for installation location, e.g., framing in contact with concrete or masonry; or posts embedded in soil. Fasteners and hangers are to be hot dipped galvanized or stainless steel. Metallic flashings, except copper, are to be isolated from PT lumber.
2. DRYWALL OR OTHER HARD CEILING FINISHES in buildings with the bottom chords of roof trusses or floor framing spaced at 24" on center shall be installed on wood strapping or resilient channels spaced at a maximum of 16" on center.
3. WOOD FOUNDATIONS are not permitted without the express approval of MaineHousing and may be suggested only when all other proven methods of foundation construction have been eliminated, and/or when MaineHousing determines for a particular installation that wood foundations constitute a substantial advantage over other materials. The system must be listed and certified by a national listing service.
4. INTERIOR TRIM OF COMPOSITION OR PARTICLE BOARD with or without plastic coating, is not permitted.
5. The use of composite or particle board shelving is not permitted.
6. NEW STAIRS serving more than one dwelling unit shall provide a minimum clear width of 44" unless otherwise required to be wider by code.
7. UNDERLAYMENT GRADE PLYWOOD shall provide at all areas scheduled to receive sheet vinyl, linoleum, or VCT.

Division 7, Thermal and Moisture Protection

1. POLYURETHANE FOAM AND/OR OTHER COMBUSTIBLE INSULATIONS shall not be permitted except when enclosed within a structural assembly which will protect it from sources of fire, and prevent the propagation of flame and the provision of air.
2. POLYETHYLENE (MINIMUM 6 MILS THICK) VAPOR BARRIERS shall be placed on the interior surfaces of all envelope framing that is insulated with fiberglass insulation. All joints and penetrations shall be properly sealed to prevent moisture migration.
3. SPECIALTY INSULATION PRODUCTS (SUCH AS SPRAY FOAMS) shall be presented to and be reviewed by MaineHousing for approval prior to use in any project. Products that provide superior air-sealing qualities are encouraged. Any such products shall be installed per industry standards and be protected per the State Fire Marshal's requirements.
4. INSULATION such as R-5 closed cell rigid insulation or R-5 composite, cross woven polyethylene, aluminum and polyethylene closed cell foam core blankets are required beneath

the entire floor slab-on-grade floor area. Note: The use of composite blankets beneath slabs-on-grade must be used in conjunction with R-10 foundation wall insulation as follows: Rigid insulation, minimum R-10 vertically continuous from footing to under slab AND rigid insulation, minimum R-10, 2' – 0" in horizontally around the entire slab perimeter. To assure an effective moisture barrier is provided, all blanket seams shall be securely sealed utilizing blanket manufacturer's recommended products. All blankets are to be placed on top of horizontal rigid insulation and be continuous from outside wall to outside wall.

5. ALUMINUM AND T-1 11 WOOD SHEETING are not permitted as siding materials on any buildings.
6. VINYL SIDING AND TRIM shall be a minimum of .044" thickness and simulate standard wood sidings as to exposure, shadow lines, depths, etc.
7. ROOF SHINGLES shall be a minimum standard of quality of a 30-year warranty organic asphalt or fiberglass. Heavier grade, "Architectural" shingles are strongly recommended.
8. EPDM ROOFING shall be a minimum standard of quality is equal to Firestone fully adhered (0.060) system, with a minimum 15 year Full System Warranty.
9. FLASHING AND SHEET METAL roof drip edge shall be 0.032" min aluminum (galvanized steel is not permitted).
10. THE USE OF "ICE & WATERSHIELD" BY W.R. GRACE CO. OR MAINEHOUSING APPROVED EQUAL is required for all drip edge (minimum 6' up the roof), rake (minimum 3' in from roof edge, and valley underlayments beneath shingles (minimum of 4.5' up each side of valley). Also, roof to wall intersections shall receive an additional layer of the same fabric flashings/underlayments, run up walls and onto roof substrates 18" minimum.
11. OTHER ROOFING PRODUCTS, including metal roof systems, will be considered on a case-by-case basis.
12. THE BUILDING ENVELOPE must be air-sealed to prevent leaks using the vapor barrier or the airtight drywall approach. In addition to sealing poly or drywall:
 - a. Gaskets or sill seals under mud sills along foundation walls.
 - b. Seal first floor band joists to the adjoining mud sills and plywood decking using adhesive or caulk. Use construction adhesive or caulking between multiple sill plates.
 - c. Seal any band joists between upper floors to the adjoining top plates and plywood decking.
 - d. Use construction adhesive or caulking between multiple top plates.
 - e. Seal bottom plates of exterior frame walls to the sub-floor with construction adhesive or caulking.
 - f. Avoid locating bathtubs and shower enclosures on exterior walls. If installed on exterior walls insulate and air-seal this area BEFORE shower/tub is installed.
 - g. Recessed lights must be air-sealed and airtight. (Recessed lights may not penetrate the building envelope - see Section 5 R2).
 - h. Window frames and door jambs must be sealed to their rough openings using low expansion foam, backer rod or caulk but NOT fiberglass.
 - i. All penetrations through the building envelope must be carefully sealed. Typical penetrations include chimney, duct & plumbing chases and penetrations of pipes and wires through the top plates of top story walls. It is particularly important to seal all possible air paths to the attic.
 - j. Building areas such as knee wall-floor transitions, dropped soffits, split-level transitions, tuck-under garages and cantilevers must be identified and sealed with a continuous air barrier.

- k. Where joist spans or stud bays run between a heated and unheated area all bays must be blocked and sealed at the transition.
- l. Attic and crawl space access doors and hatches must be weather-stripped and insulated.
- m. Electrical boxes on exterior walls and ceilings should either be air-sealed or placed in airtight

13. BLOWER DOOR TESTING is required for each project and is to included a representative number of units, as determined by MaineHousing, to verify effectiveness of air sealing. The intent of Blower door testing is to verify that the building meets MaineHousing requirements for effective air sealing to prevent heat loss and creation of cold surfaces that can cause condensation and mold growth.

Test Procedure:

- a. Blower Door test conducted with calibrated equipment operated by a trained and qualified technician to be performed before the drywall is installed if polyethylene is the air barrier & after installation if airtight drywall approach (ADA).
- b. Maximum building envelope leakage is to not exceed 0.20 cubic feet per minute per square foot at 50 pascals negative pressure (0.20 CFM/SF @ 50 PA).

The SF (Square Foot) reference in the standard is the total building envelope square footage area measured using the inside surface dimensions. The intent is to analyze the effectiveness of the air sealing.

Example: A building that is 8' tall (single story) and has dimensions that are 24' by 24' would have an envelope SF of:

Walls: 4 walls 8'x24' =	768 SF
Floor: 24 x 24 =	576 SF
Roof: 24 x 24 =	<u>576 SF</u>
Total:	1,920 SF of Envelope

- c. Air sealing individual units may have no real bearing on building envelope heat loss if the building shell is leaky. Therefore, MaineHousing requires building shell air sealing from design through to construction completion.

Division 8, Doors and Windows

- 1. METAL FRAMES FOR DOORS AND WINDOWS will not be permitted withOUT THERMAL BREAKS BETWEEN INTERIOR and exterior surfaces which prevent any parts exposed to the interior air from reaching temperatures which would cause condensation. Manufacturer's certification of the effectiveness of the thermal breaks shall be furnished to MaineHousing before approval for installation of such doors and/windows will be considered.
- 2. SCREENS shall be provided for all operable windows.
- 3. STORM AND SCREEN DOORS, IF PROVIDED shall be of sufficient strength to withstand hard use, and shall be equipped with closers which will prevent the springing of the door from wind and hard use.
- 4. HOLLOW CORE DOORS are not acceptable as pass through or security doors.

Division 9 Finishes

1. DRYWALL USED FOR WALLS AND/OR CEILINGS shall have a minimum nominal thickness of 1/2". If used with supporting members spaced more than 16" on centers, minimum drywall thickness shall be 5/8".
2. METAL OR PLASTIC CASING BEAD shall be used whenever gypsum board butts up against a dissimilar material wherever covering trim will not be used.
3. ALL GYPSUM BOARD USED ON WALLS AND CEILINGS AS A FINISH MATERIAL shall be fastened with drywall screws (not nails) in accordance with manufacturer's instructions.
4. CEILING FINISHES OTHER THAN STANDARD PAINT ON TAPED AND PATCHED DRYWALL shall be approved by MaineHousing as being easily patched in an indiscernible manner. A sample shall be prepared by the contractor and submitted to MaineHousing for approval before installation of the finish.
5. ALL EXPOSED PIPING shall be finish painted.
6. CARPETING shall have a minimum 10 year performance warranty including but not limited to abrasive wear static protection, tuft bind, delamination and meet the following:

	<u>Moderate Traffic</u> <i>includes carpets inside units</i>	<u>Heavy Traffic</u> <i>Common corridors, community rooms and public spaces</i>
<u>Carpet</u>		
Construction:	Tufted Level & Textured Level Loop	Tufted Level & Textured Level Loop
Fiber:	100% Nylon	100% Nylon
Dye Method:	70% or greater solution dyed	70% or greater solution dyed
Face Weight:	24 oz or greater	24 oz or greater
Secondary backing:	Action Backing or Unitary Backing w/20lbs Tuft or Equal	Unitary Backing w/20lbs Tuft or Equal
Gauge:	1/8 min.	1/10 min.
Standard:	UM44d, Green Label Plus Certification Program	UM44d, Green Label Plus Certification Program
<u>Carpet Emission Limits</u>		
VOC:	0.50 mg/m ² • hr	0.50 mg/m ² • hr
4-Phenycyclohexane:	0.05 mg/m ² • hr	0.05 mg/m ² • hr
Formaldehyde:	0.05 mg/m ² • hr	0.05 mg/m ² • hr
Styrene:	0.40 mg/m ² • hr	0.40 mg/m ² • hr
Standard:	Green Label Plus Certification	Green Label Plus Certification
<u>Cushion</u> (Recommended, but not required.)		
Material:	Synthetic Fiber	Synthetic Fiber
Thickness/Weight:	.25" thick / 6-8 lbs	.3" thick / 6-8 lbs
Standard:	Green Label Plus Certification	Green Label Plus Certification

Cushion Emission Limits		
TVOC's:	1.00 mg/m ² • hr	1.00 mg/m ² • hr
BHT:	0.30 mg/m ² • hr	0.30 mg/m ² • hr
Formaldehyde:	0.05 mg/m ² • hr	0.05 mg/m ² • hr
4-PCH:	0.05 mg/m ² • hr	0.05 mg/m ² • hr
Standard:	Green Label Plus Certification	Green Label Plus Certification

IF MODULAR CARPETS ARE SCHEDULED they must meet the following criteria:

- a. Construction: tufted Level and Textured Level Loop
 - b. Fiber: 100% nylon
 - c. Dye Method: 70% or greater solution dyed
 - d. Face Weight: 22 oz or greater
 - e. Backing: high-performance, PVC-free with min 15% recycled content backing with fiberglass or equal stabilizer
 - f. Standard: HUD UM44d
 - g. Warranties: Fiber- abrasion wear and static protection, Backing-tuft bind, edge relevel and delamination
 - h. All modular carpets must meet green label and green label plus program requirements for product and adhesives
 - i. Carpet Emission limits: Same as broadloom
7. TO HELP AVOID MILDEW, there shall be no carpet in kitchens, bathrooms or within 3' of at-grade entry doors.
8. MOISTURE RESISTANT (MR) BOARD shall be provided on all walls and ceilings of all bathrooms.

Division 10, Specialties

1. ROOM DARKENING SHADES OR BLINDS shall be provided for all bedroom windows. Shades shall be sufficiently opaque to darken the room when drawn closed. Pull down shades with cardboard rollers are prohibited.
2. TOILET PAPER HOLDERS AND TOWEL BARS shall be provided at all living unit bathrooms. One inch diameter grab bars, properly mounted to in-wall blocking are recommended in lieu of standard towel bars. All bathroom and toilet room accessories are to be mounted to in-wall blocking.

Division 11, Equipment

1. RANGES AND/OR COOK TOP SURFACES shall not be located adjacent to wall surfaces.
2. ENERGY STAR LABELED SYSTEMS & APPLIANCES (EXCEPT RANGE HOODS) shall be provided if available.
3. THE NUMBER OF WASHER AND DRYERS for common laundries shall be based on a minimum of one washer and one dryer for every ten (or fraction thereof) dwelling units in family housing and one for every twenty-five (or fraction thereof) dwelling units in elderly housing. Mid and high rise buildings and elderly housing without washer and dryer hookups provided within the units shall have a common laundry facility provided.
4. WASHER AND DRYER HOOKUPS shall be provided in each living unit of family housing if common laundry facilities are not provided as part of the development.

5. DRYER VENTS shall be smooth surfaced metal with joints that are hard-cast sealed and are equipped with self-closing dampers and are ducted full sized to the exterior
6. KITCHEN EQUIPMENT shall be provided for all dwellings and include a cook top and oven, or a range with oven, and a refrigerator with freezer space. Specifications on ranges should include front mounted controls for accessibility in elderly and required accessible units only. Selection of residential kitchen appliances shall be based on number of residents.

The minimum size of refrigerators shall be as follows:

- 0 bedroom units: 12.5 cu feet usable
- 1 bedroom units: 14 cu feet usable
- 2 and 3 bedroom units: 15.5 cu feet usable
- 4 bedroom units: 17.5 cu feet usable

7. RANGES shall be provided with a minimum of 4 burners and a full sized (30" minimum width) oven for all living units with separate bedrooms. In zero bedroom units, smaller cooking facilities will be reviewed on a case-by-case basis, but as a rule are discouraged. RANGE HOODS shall be provided in each kitchen over the range; be vented full size directly to the outside; and be equipped with a damper which is self-closing when the fan is not in operation. Ductwork runs shall be as short as possible and with as few elbows as possible to assure proper fan operation. All ductwork shall be concealed within the living unit. Ductwork shall be within heated spaces or properly insulated to eliminate condensation problems.

In Type A accessible units, a separate wall switch mounted for easy accessibility for a wheelchair occupant shall be provided for, and be wired to, the range hood and light. This switch is to be in addition to the integral switch provided with the fixture.)

Note: In projects incorporating whole-building ventilation systems which include kitchen area exhaust, such as Historic Renovation projects which are generally not permitted to have multiple exterior wall penetrations per National Park Services requirements, the use of ductless range hoods will be an acceptable alternative. In projects that are not historic but decide to provide both whole-building ventilation systems and ducted range hoods are also acceptable.

Division 12, Furnishings

1. RESIDENTIAL KITCHEN CABINETS shall be of all plywood box construction and all drawer fronts, cabinet faces, styles, and rails shall be constructed of hardwood. The use of particle board and/or melamine is prohibited.
2. KITCHENS WITH CASEWORK that is "adaptable," shall have all surfaces that may eventually be exposed be completely finished (paint, base, piping insulation kits, etc.) prior to the placement of the cabinetry.
3. UTILIZING THE ADJUSTIBLE countertop option is highly discouraged – setting countertops at a fixed, 34" height is a preferred option. Of particular note are the requirements for clearances in casework for accessible living units. If removable components are incorporated into the cabinet layouts they shall be easily removable by maintenance staff, and all of the exposed components including cabinet sides, walls, flooring, base, etc. shall be fully finished as part of the initial installation.
4. SEAL all countertop miters with silicone sealant during assembly.

5. CLOSETS AND STORAGE SPACE shall be provided for personal and housekeeping items and equipment within each living unit and should be appropriately located and sized in relation to use. Adequate general storage shall also be provided. (The minimum standards that follow are required for new construction projects and are to be met to the extent feasible in renovation projects.)

The following minimum sized closet/storage spaces shall be provided for each living unit:
BEDROOM CLOSETS - each bedroom (or in the case of zero bedroom units, each sleeping area) shall have readily accessible clear hanging space equipped with a rod and shelf as follows:

- Primary and/or double occupancy bedrooms:
2'- 0" deep by 5' - 0" wide by 7' - 0" high minimum
- Single occupancy bedrooms:
2'- 0" deep by 3' - 0" wide by 7' - 0" high minimum

COAT CLOSET - At least one coat closet convenient to the main entrance of all units:
2' - 0" deep by 2' - 0" wide by 7' - 0" high minimum

Linen Storage in all units:

- Minimum shelf area:
10 SF for 2 bedrooms or less;
15 SF for 3 bedrooms or more.

Shelves to be spaced not more than 12" o.c. vertically and shelving over 74" above the floor shall not be counted as part of the required shelf area.

GENERAL STORAGE - Useable general storage space shall be provided for the storage of items and equipment essential to the use of the occupants. This storage requirement or capacity is separate from, and in addition to, required closets listed above and/or kitchen storage. General storage may be integrated with required closet space, by separate storage closet(s) within the unit, in assigned/secured storage areas within the same building, or assigned/secured storage areas in separate buildings.

GENERAL STORAGE REQUIREMENTS (in cubic feet)

Dwelling Size	Elderly	Family
0 Bedroom	50	50
1 Bedroom	100	100
2 Bedrooms	100	100
3 Bedrooms	----	150
4 or more Bedrooms	----	150

Storage spaces less than four feet or more than eight feet in height, or more than four feet in depth without two feet of access space shall not be included within the required volume. Storage area requirements shall not include access space and/or door swing space.

Division 13, Fire protection

1. WET SPRINKLER LINES shall not be run in unheated attic spaces, outside wall cavities, unheated crawl spaces or any other areas subject to freezing temperatures. Use of anti-freeze loops or dry pipe systems for sprinkler lines in such areas are acceptable alternatives but shall be engineered for such use.
2. TAMPER PROOF SWITCHES shall be provided for all sprinkler valves.
3. ALL EXPOSED PIPING shall be finish painted.

Division 15, Mechanical Systems

1. MAIN WATER SUPPLY SHUTOFF shall be provided for each building.
2. DOMESTIC ABOVE GRADE WATER SUPPLY PIPING shall be Type "L" copper or Chlorinated Poly Vinyl Chloride (CPVC) tubing or cross-linked polyethylene (PEX) tubing which is designed, specified, and be installed per the mechanical design professional's requirements for the systems provided.
3. ABOVE GRADE HEAT SYSTEM PIPING shall be type "L" copper, steel, or cross-linked polyethylene (PEX) tubing designed, specified, and be installed per the design professional's requirements for the systems provided.
4. "POWER VENTS" FOR COMBUSTION EXHAUST ON HEATING APPLIANCES are prohibited.
5. COMBUSTION AND VENTILATION AIR is required in all mechanical rooms housing fuel burning appliances that require combustion air or produce residual heat as part of their function. All such systems shall be designed by design professionals.
6. TANKLESS COILS FOR DHW GENERATION are discouraged. If proposed, they shall be sized to produce adequate DHW for 125% of the projected worst case unit needs.
7. DOMESTIC HOT WATER DELIVERY IN ELDERLY PROJECTS shall be adjusted so that the maximum hot water temperature will be 125 degrees F. at the fixtures.
8. FLOOR DRAINS AND/OR SUMP HOLES shall be provided in all basements. The floor should be pitched to these drains or sumps and these should be connected to a positive drainage system, or to the exterior of the building. Connections to storm water systems should be equipped with backflow preventers.
9. PLUMBING VALVES AND TRAPS shall be located so as to be accessible. Access panels shall be constructed in accordance with the Maine State Plumbing Code and be properly fire rated should they be installed in fire rated assemblies.
10. WATER HEATER DRAINS FROM PRESSURE-TEMPERATURE RELIEF VALVES shall not discharge on living unit floors. Pressure-temperature relief valve piping shall be securely mounted.
11. DOMESTIC WATER AND/OR HEAT PIPING shall not be run in unheated attic spaces, outside wall cavities, unheated crawl spaces or any other areas subject to freezing temperatures.
12. HEAT AND DOMESTIC HOT AND COLD WATER SUPPLY PIPING shall be properly insulated to both prevent heat loss to surrounding spaces and loss of energy within the piping systems.
13. MECHANICAL SUBCONTRACTOR shall be responsible for maintaining the entire heating system in good working order for at least one year from the date of substantial completion of the entire project.
14. EXISTING FIXTURES and/or devices containing mercury shall be removed and properly disposed of.
15. THE INSTALLATION OF ANY PRESSURIZED PIPING including domestic hot and cold water and heat piping of any materials beneath slab on grade construction is strongly discouraged.
16. DUCTWORK FOR HEATING, VENTILATING, AND AIR-CONDITIONING SYSTEMS AND INCLUDING VENTING FOR CLOTHES DRYERS, BATHROOM EXHAUSTS, AND KITCHEN RANGE HOODS shall be smooth surfaced metallic type and be hard-cast sealed at all joints.

17. Plumbing and/or mechanical components penetrating into building thermal envelope components shall be properly air-sealed.
18. BATHROOM EXHAUST FANS when provided shall be low noise with energy efficient fan motor rated for continuous duty with a minimum rating of 50 cfm.
19. LOW FLOW FAUCETS, SHOWERHEADS AND TOILETS shall be provided to reduce water consumption as follows:
 20. Faucets: Flow rate of no more than 1 gallon per minute (GPM)
 21. Showerheads: Flow rate of no more than 2 gallons per minute (GPM)
 22. Toilets: Rated at 1.6 gallons per flush (GPF) or less OR dual flush
 23. Urinals: Rated at 1.0 GPF or waterless
24. SEALING DUCTWORK all ductwork shall be sealed duct mastic to prevent air leakage.
25. THE HEATING SYSTEM shall be safe, quiet, and economical in operation and complete in all respects. This system shall provide a uniform temperature of 70 degrees F. (75 degrees F for elderly) in all living spaces as may be noted on the drawings, when the outside temperature is-the appropriate outdoor design temperature for each development location which shall be specified in accordance with the ASHRAE 99% scale.
26. WHOLE-BUILDING VENTILATION where whole-building ventilation is proposed, such systems shall be professionally designed and shall include provisions for make-up air, heat recovery, kitchen, and bathroom exhaust, at a minimum. It is important that the expected operational costs of such systems be included in the Owner's project budget.

Division 16, Electrical Systems

1. PRODUCTS OF COMBUSTION DETECTORS (SMOKE DETECTORS) - shall be powered from a circuit that includes essential lights and/or devices.
2. UNIT ELECTRICAL PANELS IN ACCESSIBLE AND ADAPTABLE UNITS - shall be mounted consistent with reach requirements for wheelchair users. In general, electric panels should be located behind the master bedroom door. Electric panels shall not be located in closets. Electric panels shall not be located back to back in common walls.
3. ELECTRICAL CIRCUITS shall be 20 amps minimum (The use of #14 wire is prohibited).
4. INCANDESCENT LAMPS are prohibited. Pin-type compact fluorescent fixtures or other types of energy efficient fixtures are allowable alternatives.
5. RECESSED "CAN" TYPE LIGHTING FIXTURES IN THE CEILING OF TOP STORY are prohibited if they would be within the thermal envelope.
6. ELECTRICAL SUPPLY FOR FUTURE RADON FANS in the area of all future radon fan locations should they become necessary.
7. AIR SEALING of all wiring penetrating into building thermal envelope components shall be provided.
8. BATHROOM LIGHTING shall include a switched light fixture at or over the mirror.
9. LIGHTING FIXTURES shall be Energy Star rated or equivalent or better as documented/recognized by Efficiency Maine or MaineHousing
10. Emergency exit signs shall be LED type.
11. TELEPHONE SYSTEMS shall be pre-wired in suitable proximity to likely placement of furniture. Outlets are to be located in all of the following spaces:
 - a. Master Bedroom
 - b. Living Room or Corridor or Dining Room
12. TELEVISION MASTER ANTENNA SYSTEMS, MASTER SATELLITE SYSTEMS, AND/OR CABLE TV SYSTEMS shall be provided in all projects in appropriate locations

for viewing and likely furniture placements. At a minimum, jacks shall be installed in all of the following spaces:

- a. Master Bedroom
 - b. Living Room or Corridor or Dining Room
13. INTERNET ACCESS: if a hard-wired distribution system is provided, it shall be pre-wired and be available in the same spaces as the TV and/or Telephone systems. All pre-wiring shall be compatible with the local service provider requirements. If a wireless service is provided, the signal distribution shall be tested and documented to assure adequate signal strength to each space within each living unit where it is reasonable to expect a computer will likely be used.
- a. Master Bedroom
 - b. Living Room or Corridor or Dining Room

C. ACCESSIBILITY LAWS, REGULATIONS, AND MINIMUM STANDARDS

See Appendix A.3 for Maine State Housing Authority's Accessibility Policy and Procedures for the Design and Construction of Multifamily and Supportive Housing Projects.

END OF PART 1

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MAINEHOUSING QUALITY STANDARDS AND PROCEDURES MANUAL

PART 2 – PROCESS AND PROCEDURES

A. DESIGN AND CONSTRUCTION DOCUMENTS

1. INTRODUCTION

Design and construction documents shall be submitted to MaineHousing at three points during their development for review and approval by Construction Services. The formal submissions are defined in detail below and include Concept, Design Development (50% Completion of Construction Documents), and Construction Documents (90% Completion and Pricing Phase). All documents shall be prepared by or under the direction of a design professional (usually an architect) registered in the State of Maine, stamped with the design professional's registration seal, and accompanied by a statement signed by the professional certifying compliance with MaineHousing's standards. Each submission shall be prepared in accordance with the requirements of this Manual and all other applicable referenced documents and shall be approved by MaineHousing before submission of the next phase of document development. Review by MaineHousing's Construction Analyst is strictly assistance to the design professionals; responsibility for compliance with MaineHousing's standards and codes rests solely and entirely with the developer, designers, and contractors. Due to the very nature of the periodic reviews by the construction analysts, it is impossible to identify all areas of non-compliance and/or deficiencies. If the developer does not agree with a determination or interpretation made by the project construction analyst during plan review or construction, the developer may contact the Construction Services Manager to discuss such matters. Such requests shall be in writing and provide good cause with each request. MaineHousing and its staff assume no responsibility or liability for errors or omissions in the design and contract documents as prepared by the Owner's project team. MaineHousing will not review any submittals which are not complete.

2. LICENSED DESIGN PROFESSIONAL SERVICES

All construction drawings and specifications shall be prepared, completed, and be certified in accordance with State of Maine statutes by a design professional (for most projects, an architect) licensed in the State of Maine. It is further required that design professionals, trained and licensed in specific disciplines (i.e., civil, structural, mechanical, electrical engineering) be retained and administered by the designer-of-record for such services. In each instance, the designer-of-record shall be the primary responsible professional. It is required that an Owner-Architect (or Design Professional) Agreement be executed for all design services to be performed on MaineHousing projects. Such agreements shall clearly state scopes of work to be performed and the compensation arrangements between the parties. Owner-Architect Agreement, AIA Document B181, is one suggested format that is acceptable to MaineHousing.

The Owner/Architect (or Design Professional) Agreement shall, at a minimum, include:

- a. The scope of work shall (as applicable based on the extent of the project) include all architectural, structural, mechanical, electrical, civil, landscape, and other consulting services necessary to clearly identify the requirements for the construction of the entire

- project. The scope of services should include provisions for the administration of the construction contract through to project completion, including regular on-site visitations by all designers and engineers, special inspections, bi-monthly (minimum) on-site project meetings, responses to requests for information, tracking of change proposals, creation of field reports, and keeping and distributing meeting minutes. Copies of all documentation created by the architect shall be provided to MaineHousing.
- b. The Owner-Architect (or Design Professional) Agreement shall delineate the responsibility for all services to be provided whether by the design professional, owner, or others.
 - c. Responsibilities related to design and construction administration services shall each be clearly delineated.
 - d. Adequate errors and omissions professional liability insurance shall be provided in accordance with MaineHousing's Insurance requirements.

3. CONCEPT SUBMISSION - 1 COPY for MaineHousing's review

The design of a project begins after the selection of a proposed application by MaineHousing. The mechanism utilized to initiate the design process is through a concept meeting and is described herein.

A joint meeting between Applicant, the design professional, and MaineHousing is held, at which time preliminary design as well as other facets of the project/program are discussed. Preliminary design discussions relate to form, type, and number of buildings, and proposed unit mix that will comprise the project and the respective siting of these buildings, which in turn requires soil and survey information for meaningful decision making. Therefore, MaineHousing requires that a soil survey and a topographical and boundary plan be completed and be provided at concept design.

- a. A SOIL SURVEY shall be made of all sites for new construction, and may be required on project sites that include substantial rehabilitation and/or additions. A soil survey shall be of high intensity type performed by a soil scientist registered by the State of Maine and reported in accordance with the standards and nomenclature of the National Comprehensive Soil Survey.

It is at the discretion of MaineHousing to accept soil surveys provided by a certified engineer. Additional information may be required where circumstances merit and in particular, all filled sites will require several borings under each proposed building site to determine both bearing capacity and composition of the various strata of fill.

- b. SURVEY OF EXISTING CONDITIONS – a survey or surveys consistent with either Article 5.4 of the B101 - 2007 Edition or Article 6.5 of B105 - 2010 Edition of the Standard Forms of Agreement between Owner & Architect.
- c. DIAGRAMMATIC SITE PLAN required at a scale not less than forty (40) feet to the inch showing the general development of the site and include:
 - 1) location of streets
 - 2) parking and driveways
 - 3) in retrofit construction – location of existing and adjacent buildings
 - 4) in new construction existing and proposed buildings

- 5) passive and active recreation areas
 - 6) intention of dedication of streets where applicable
 - 7) property lines must be shown for all streets and rights-of-way.
 - 8) solar access
 - 9) contours at 2 foot intervals (errors shall not exceed one-half contour interval) of the property and of adjacent roads and of adjacent areas which either conduct concentrated drainage onto the site, or receive concentrated drainage from the site in sufficient area to determine its effects on site drainage
 - 10) test boring locations, if any taken
- d. FLOOR PLANS for new construction should diagrammatically show the orientation of areas for daytime use, the principle entrances to structures, and the way the living units relate to the exterior to provide an arrangement which achieves privacy and a sense of home for the inhabitants. These considerations should be made in an attempt to provide passive solar heat to the interior space, especially those areas designated for daytime use.
 - e. FLOOR PLANS FOR THE REHABILITATION OF AN EXISTING BUILDING should be submitted for the building as it exists and as proposed. A plan for each floor or typical floors should be submitted at a scale not less than eight feet to the inch. When possible one set of plans can be submitted showing existing walls, partitions, columns, doors, windows, stairs and plumbing (unless the building is to be gutted, in which case indicating only the major structural systems) and showing proposed modifications to the layout of the existing building to indicate rooms, entrances, stairs, halls, storage and common areas. Differentiation should be made between existing to remain, existing to be removed, and new construction.
 - f. BUILDING ELEVATIONS drawn to convenient scale indicating the design intent for the primary façade(s). Label typical finish materials; indicate entries, and general glazing patterns and sizes.

Agreement must be reached by the Applicant and MaineHousing on the general form the project will take before proceeding to the Design Development Phase (50% Completion).

4. DESIGN DEVELOPMENT SUBMISSION (50% Completion of Construction Documents) - 1 COPY for MaineHousing's review

The Design Development Submission is expected to present approximately 50% of the Construction Documents level of information and should formalize the site plan, building configuration, and internal layout of the living units in sufficient detail to allow preparation of an estimate of the construction costs without proceeding to the preparation of the final construction drawings. MaineHousing will review this submission for conformance with Concept Submission and previously referenced standards relating to general layout of site, buildings, and dwelling units, room size and shape, special provisions of plan layout for accessibility requirements, fire separation and the provision of adequate means of egress, and removal of solid waste.

MaineHousing may waive, in writing, the requirement of some of the information defined herein or may require in writing, additional information. Design Development Submissions will not be reviewed or processed by MaineHousing until MaineHousing is in receipt of

approved Concept drawings which include the Soil Survey, Boundary and Topographic information as previously described.

- a. SOILS ENGINEER'S REPORT shall be submitted for all new construction developments specified by MaineHousing. This report should include recommendations for foundation design and site drainage in accordance with soil survey information previously obtained. (In many instances the developer may choose to do both portions of the soil study at one time. If this is done, the report should be provided at Concept and re-submitted at with the Design Development Submission.)
- b. SITE PLAN(S) drawn to a scale no less than forty (40) feet to the inch, showing the general development of the site with locations of buildings, walks, streets, parking spaces, driveways, service areas, including solid waste collection areas, recreation and private outdoor spaces. Topography should be shown at two (2) foot intervals, indicating both existing (dotted lines) and finish (solid lines) grades where changed. First floor elevation should be noted for each building; utilities should be shown, including underground and/or overhead power feeds, transformer locations, water and sewer mains, hydrants, storm drains, catch basins and outfalls. Streets intended for dedication and public acceptance should be delineated and accessible units, accessible parking, and means of access shall be indicated. Preservation of existing growth and new planting should be shown, identifying form, size and whether deciduous or coniferous, but not necessarily species.
- c. BUILDING PLANS, ELEVATIONS AND TYPICAL SECTION(S) drawn to scale of not less than eight (8) feet to the inch, showing the location of living units, accessible units, common area, entrances, windows, circulation, and relation to site features. Lines of fire and acoustical separation and ratings shall be shown on plans and sections as necessary to demonstrate conformance with the standards.
- d. FLOOR PLANS of typical living units drawn to a scale not less than four (4) feet to the inch showing furniture layouts and indicating dimensions of rooms measured as clear distance between walls. Usable storage areas are to be shaded/blocked out/cross-hatched or otherwise delineated with applicable dimensions and volumes also provided on plans.
- e. MECHANICAL AND ELECTRICAL SYSTEMS drawings indicting overall scopes of work, locations of major components, and overall design concepts of systems.
- f. A DESCRIPTION OF THE TYPE OF SPACE AND WATER HEATING SYSTEMS AND VENTILATION, ENERGY RECOVERY, AND CONDITIONING SYSTEMS proposed. This must be submitted separately and accompany schematic drawings that document proposed equipment locations and distribution systems for heat and ventilation.
- g. OUTLINE SPECIFICATIONS are to include a brief description of all of the trades, their proposed work scopes, and the major materials that are being considered for each trade.
- h. A DESCRIPTION OF MEANS AND FREQUENCY OF SOLID WASTE AND RECYCLING COLLECTION and removal, including the amount of storage necessary.
- i. CALCULATIONS AND STATEMENT OF EXPECTED CONSTRUCTION COSTS for the scope of work defined in the documents. Estimates shall be by line item utilizing the CSI format and be of sufficient detail with proper backup to demonstrate an accurate reflection of the materials, equipment, and labor that will be necessary to construct the project. Estimates may be submitted after the initial 50% submittal but must be before comments on the submittal will be delivered.

- j. PRELIMINARY CODE STUDY demonstrating compliance with local and state building and fire codes.
- k. DESIGN PROFESSIONAL'S TRANSMITTAL FORM
- l. TABULATION OF BUILDING, LIVING UNIT FLOOR AREAS according to the format provided in the Appendix.

5. CONSTRUCTION DOCUMENTS - 1 COPY each for MaineHousing's review, 90% Completion, and Pricing Documents

Working drawings and specifications shall be the contract construction documents which completely describe the design, materials and assembly of the entire development to determine the finished state of work shall follow from the 50% submittal. Formal submittals shall be provided at the 90% completion stage and a set of the documents used to solicit Pricing shall be provided at the beginning of the pricing phase. . The term "or equal," alternates of methods, materials or equipment shall not be used without qualification (i.e. "approved equal," prior to bids); any changes subsequent to the 90% submittal and noted from review of the Pricing Documents shall be made by Addendum during the pricing phase.

Drawings shall be of uniform size and be stamped on each sheet by the designer-of-record and include all of the information provided in the 50% submittal including a narrative response to the review comments provided. The Construction Documents shall include the following information:

a. COVER SHEET

- 1) TITLE OF PROJECT, the Maine State Housing Authority Project Number and Project Location.
- 2) INDEX OF DRAWINGS by name, numbered consecutively.
- 3) SITE LOCATION MAP
- 4) CODE STUDY/ANALYSIS SUMMARY
- 5) SIGNATURE BLOCK setting forth space for signatures of the Architect, Owner, Contractor, MaineHousing, and the Construction Lender.

b. PLOT OR SITE PLAN

- 1) SCALE not less than 1" = 40'
- 2) PROPERTY BOUNDARIES and markers
- 3) NORTH INDICATION true and magnetic north points
- 4) EXISTING PUBLIC AND PRIVATE WAYS adjacent to or within the property boundaries, indicating as applicable legal boundaries, the traveled way, edges of pavements, curbs, walks, wheel stops, and other physical features existing to remain or to be removed, and improvements to them.
- 5) NEW STREETS AND DRIVES parking areas, walks, curbs, edges of pavement, wheel stops, and boundaries of any property for dedication and public acceptance.
- 6) OTHER PAVED AREAS and constructed site improvements such as play and sitting areas, service courts, drying yards, fences, retaining walls, solid waste collection facilities, outdoor mail boxes
- 7) UTILITIES including water mains and hydrants; electric lines: overhead and underground, poles, lighting and transformers; telephone lines, cable TV lines, MATV lines, sanitary and storm sewers, manholes, and catch basins. Indicate diameters and inverts for storm, sanitary sewers, and foundation drainage systems at

building exits, in and out of all manholes, connections, and cross-over points. Also show diameters for water mains. Show utilities to the point of connection with the existing system.

- 8) TOPOGRAPHY indicate finish grades by solid lines and existing grades to be changed by dotted lines at two (2) foot intervals if a separate grading and drainage plan is not provided. Existing trees and other natural features, indicating whether to be removed or preserved.
 - 9) BUILDING LOCATIONS AND DESIGNATIONS with grade elevations at corners and entrances if not show on a separate grading and drainage plan.
 - 10) PROFILES of streets, walks, storm and sanitary sewers showing existing and proposed grades and appurtenances.
 - 11) DIMENSIONS for locating and over all dimensions of all of the above.
 - 12) LAYOUT LINES with dimensions and bearing for all structures and paving.
- c. GRADING & DRAINAGE PLAN – Minimum scale of 1" = 40'
- When the information listed below cannot be shown clearly on the Site Plan, a Grading and Drainage Plan shall be provided to show the following:
- 1) FINISH GRADE ELEVATIONS at all building corners and at entrances.
 - 2) EXISTING AND FINISH GRADE CONTOURS shall be shown at two (2) foot intervals indicated in solid line where changed, and with exiting contours indicated with dotted line.
 - 3) MEANS OF COLLECTING SURFACE DRAINAGE protection of abutting properties and relation to any subsurface system provided.
 - 4) FOUNDATION drainage layouts and connections to subsurface systems or outlooks.
 - 5) RADON piping and system information.
 - 6) DISTRIBUTION OF PLANT MATERIAL location, quantity and key number of each general species of plant in group, lawn areas, and existing trees, if any, to be preserved or transplanted.
 - 7) ENLARGED SCALED PARTIAL PLANS clearly indicating compliance with all accessibility requirements at entries.
- d. LANDSCAPE PLAN - Scale not less than the Site Plan (minimum 1" = 40').
- 1) OUTLINE OF BUILDINGS and other improvements of the project, together with physical features of the site for the purpose of establishing the location and relationships between planting and other construction.
 - 2) DISTRIBUTION OF PLANT MATERIAL; location, quantity, and key number of each general species of plant in group; lawn areas, and existing trees, if any, to be preserved or transplanted.
 - 3) SCHEDULE OF PLANT MATERIAL giving standardized plant names, key number for each variety in reference to plan, and the size, quality, or other pertinent description.
 - 4) OTHER EQUIPMENT with sufficient details such as benches, fences, drying lines, paths, game areas, play equipment, etc.
- e. FOUNDATION PLANS - Minimum scale of 1/8" = 1'
- 1) FOOTINGS, step footings, pilings, grade beams, walls, columns, piers, and slabs with dimensions, thicknesses, and locations.

- 2) CONSTRUCTION AND EXPANSION JOINTS bond outs, windows, sumps, electrical, telephone, plumbing, and air duct locations.
 - 3) ENLARGED DETAILS of reinforcing, foundation drainage systems, keys, corners, joints, insulation, sub-base, vapor barrier, waterproofing, etc. when not shown clearly at the above scale, or explained in notes.
- f. BUILDING LAYOUT PLANS – Minimum scale of 1/8” = 1” unless fully shown on living unit plans for small buildings, Building Floor Plans of each building shall show the following:
- 1) THE DIMENSIONED RELATION of living units and buildings to each other; over-all dimensions of buildings, partition arrangement and fenestration of end living units, units at corners and units at offsets; other partitions as may be necessary only to show variations from the typical living unit plans and relation of rooms in adjacent living units; walls separating living units and their material and thickness.
 - 2) ALL BUILDINGS IDENTIFIED by numbers or letters and each living unit identified, including accessible units.
 - 3) WALL CONSTRUCTION TYPES AND LEGEND WITH KEYS INDICATING locations required for fire and acoustical separation. Provide adequate cross references as to locations of all wall types and details. Provide design references justifying all fire and sound rated assemblies.
- g. LIVING UNIT FLOOR PLANS - Minimum scale of 1/4” = 1’
- 1) LIVING UNIT FLOOR PLANS for each type of living unit and variation.
 - 2) SEPARATE UNIT PLANS are not required when the general floor plans are provided at the above scale and contain all essential information.
 - 3) OVER-ALL DIMENSIONS and dimensions to all partitions, window locations and type designations referring to schedule, dimensioned stair location, runs and widths, landings and handrails.
 - 4) CLOSETS, shelving and clothes rods; radiators or other heating devices, chimneys, and all other such items, unless shown on separate plumbing, mechanical and electrical drawings to same scale.
 - 5) LOCATION OF STRUCTURAL ELEMENTS such as columns, lintels, joists, beams, girders, and bearing partitions. Show sizes, spacing and direction of members. Submit separate structural drawings where structural information cannot be shown clearly.
 - 6) ALL CONDITIONS where units are to join other units, including end unit conditions
 - 7) LIVING UNIT TYPES identified by a number or letter.
- h. ROOF PLANS - Minimum scale of 1/8” = 1’
- 1) RELATION of intersection of the various building roofs; direction of slopes on roofs; parapets, chimneys, vents, and other projections above roofs; downspout location and sizes, flashing and underlayment details.
 - 2) PROVIDE free air ventilation calculation demonstrating compliance with standards.
 - 3) FIRE AND SMOKE barriers.
- i. BUILDING ELEVATIONS - Minimum scale of 1/8” = 1’

- 1) ALL FACADES of each typical building showing materials, window and exterior door types related to schedules.
 - 2) FLOOR LINES and elevations, exterior grades.
 - 3) FLASHING locations, widths, and exposure dimensions
- j. PARTIAL ELEVATIONS - Minimum scale of 1/4" = 1'
(Partial elevations may be omitted when Building Elevations have been drawn to the above scale to include information required of partial elevations.)
- 1) Portions of each type of façade showing the exterior design, including materials, jointing, flashing, special features, windows, doorways, cornices, parapets and all details.
- k. BUILDING SECTIONS – Minimum scale of 1/4" = 1'
- 1) Cross sectional characteristics of the building and floor level relations at one or more points as necessary to show typical configurations.
- l. CONSTRUCTION SECTIONS - Minimum scale of 3/8" = 1'
- 1) EXTERIOR WALL SECTIONS from footing to roof to show each type. Complete construction of: walls with thickness at various stories; floors; furring; waterproofing; ceilings; roofs; including pitch and material; window heads and sills; window heights; flashings; room heights; anchorage and bearings; cornice and gutter; insulations; vapor barrier, foundation walls and footings; footing drains; radon systems; conditions at various depth basements, basement floors or crawl space; roof space, and attic vents.
 - 2) BEARING WALL OR PARTITION SECTIONS for all types of walls and partitions with floor, ceiling and roof construction; supporting walls or members, columns and girders; foundations and footing; size and spacing of all members' joists, splices or ties; sub and finished floors; walls and ceilings. Provide adequate cross-references to plans for locations of all wall types. Provide design references for all required fire and sound rated assemblies.
- m. DETAILS - Minimum scale of 1/2" = 1'
- 1) STAIRS with plans and sections showing stringers, treads, risers, newels, balusters, handrails, rise, run and headroom; show all dimensions.
 - 2) KITCHEN LAYOUTS with plans and elevations showing accessories, cabinets, location of heaters and ductwork runs. Note accessibility requirements where applicable.
 - 3) PLAN OF BATHROOM LAYOUTS with elevations showing accessories, radiator or heater, cabinets and fixtures.
 - 4) SPECIAL EXTERIOR AND INTERIOR DETAILS such as bay windows, dormers, cupolas, vents, built-in furniture, closet sections, blocking for grab bars, range hoods, wood trim details, sheet rock details if returned at windows and doors.
- n. SCHEDULES
(Shown on any drawing or in project manual convenient for reference.)
- 1) DOOR SCHEDULE: size, thickness, materials, and design of each door, with designation on plans. All fire doors shall be indicated with their approved rating.

- 2) WINDOW SCHEDULE: Size, thickness, glazing, material and design of each window, with designation on plan elevation. Identify egress windows.
 - 3) FINISH SCHEDULE: Material and type of finish of floors, walls, ceilings and trim for all rooms. Flame spread and smoke generation ratings for all surfaces required to be limited.
 - 4) HARDWARE SCHEDULE: Material and type of hardware for each door in door schedule. Include special hardware such as closets, electric door strikes intercom devices, and panic hardware.
- o. STRUCTURAL
- 1) Structural drawings shall include a framing plan for each floor and roof of each structure not identical to other structures in the project.
 - a) REPETITIVE FRAMING plans for the floors of structures with more than one story may be combined on one (1) drawing, provided that variations are minor and are clearly identified.
 - b) FRAMING PLANS shall identify the material, size, location and orientation of all structural members, bracing and bridging, and the structural materials acting as the surfaces of the floors and roof.
 - c) THE CONNECTIONS of the walls and floor to the foundation shall be detailed.
 - d) STRUCTURAL FRAMING around all openings, including those for mechanical ducts, shall be shown, as well as that supporting mechanical equipment.
 - 2) Trusses, at a minimum, should be detailed and/or specified by performance criteria meeting all stated live and dead load requirements as set forth by the design professional substantiated by shop drawings and computations from the manufacturer and approved by the design professional prior to installation. The manufacturer's drawings shall be signed and sealed by a professional engineer, registered in the State of Maine. The drawings should show:
 - a) THE CONNECTION at each joint should clearly be shown and the connecting device or method specifically identified.
 - b) CONNECTORS should be located by dimensions from the sides and ends of the members connected.
 - c) STRUCTURAL ADHESIVES used in connections should be specifically identified and the standard applicable to their use referenced on the structural drawings.
 - d) THE ANALYSIS of trusses should take full account of their method of support. Line stress diagrams are acceptable.
 - e) LATERAL AND WIND BRACING details as well as handling details
 - f) WHERE THE LOADS occurring between panel points induce bending significantly affecting the member stresses, such effects shall be included.
 - g) ADEQUATE HOLD DOWN for uplift due to wind and overhang conditions.
 - 3) With the exception of simple connections, such as the typical end nailing of studs to top and bottom plates which can be covered by notes, all connections shall be detailed. Notching of trusses will not be allowed.
 - 4) Consideration of any items that may be installed in and on structures should be evaluated and appropriate upgrades made. An example of such items might be solar panels, domestic water tanks, etc.

p. MECHANICAL

The following information should be shown on separate drawings at an appropriate scale. If the information can provide clear indication of all details, the preferred scale is that used in earlier drawings for the basement and floor layout (1/8" = 1') in order to allow overlay.

1) HEATING AND VENTILATION DESIGN

- a) Locations of equipment: Drawings should show, with dimensions, the location, size, and clearance for all equipment and fixed appliances, e.g., fans, warm air furnaces, boilers, absorption units, etc.
- b) Equipment Schedules: The drawings should show a tabulation of all equipment and fixed appliance used, showing the listing, the manufacturer's name, make, model number, BTU/hr, and input rating for all energy inputs.
- c) Mechanical Ventilation Systems should be provided with layouts and sizes for all equipment, ductwork, insulation, controls, etc. to describe each total system; show all parts of systems that are to be thermally insulated.
- d) Include air-sealing details at all penetrations of mechanical systems through and into building envelopes.

2) PLUMBING AND SPRINKLER DESIGN

- a) Plans and/or schematic drawings of the plumbing layouts, including but not limited to sizes of piping, fittings, traps, and vents, cleanouts and valves; gas, sprinklers, water, radon, and drainage systems should be provided.
- b) Horizontal and vertical sewer and drainage system drawings should include riser diagrams of typical stacks. These diagrams should show pipe, vents, and trap sizes, cleanouts fixtures, interceptors and floor drains. Connection and installation details between pipes, fixtures, and appliances shall be provided. Drawings should show proper slope of waste and vent lines and should clearly define how such lines penetrate walls and floors without destroying the structural and/or fire safety integrity of such systems.
- c) Hot and cold water supply drawings should include all supply pipe sizes, shutoff valves and descriptions of fixtures supplied, along with a statement as to the supply water-pressure used for the design. Note: All fixtures are required to have shut-off valves for both hot and cold water supply and are also required to be connected by threaded unions. Provide hot and cold main water supply shut-offs for each living unit.
- d) All plumbing materials should be shown either on the drawings, on schedules, or in the specifications with applicable cross-reference provided for clarity. All fixtures should be located on appropriate drawings with fixture unit capacity of system (s) and make, model and rating/capacity of all equipment and appliances shall be indicated and installed in accordance with these requirements and the manufacturer's instructions. Provide piping insulation details for ALL mechanical and domestic water piping.
- e) Where not covered in other drawing, i.e., mechanical or electrical, details, make and model of safety controls (such as for water heaters), their location and listings or labelings, should be provided.
- f) Drawings should indicate details of pipe and fixture supports (i.e., type and spacing) and indicate pipe protection such as wrapping, sealing and insulating and provide for thermal expansion as applicable.

- g) Where not provided by other details, locations of vents above roofs and required clearances for air intakes, windows, other flues and vents, should be provided.
- h) Sprinkler designs shall at least indicate the main feeds and distribution, understanding that the final designs will need to be provided by qualified subcontractors of the trade and be approved by the State Fire Marshal's Office prior to their installation. Full coordination of the various mechanical systems is necessary prior to installation.
- i) Radon piping from beneath all slab areas up through the building and the roof.
- j) Include air-sealing details at all penetrations of plumbing systems through and into building envelopes.

q. ELECTRICAL DESIGN

- 1) Provide branch circuit and feed load calculations which contain the total connected loads before applying demand factors, the demand factor used, the computed load after applying demand factors, and the type and size of conductors to be used.
- 2) Provide details and diagrams of the number, types and sizes of service entrances, types and sizes of service conductors and all installation requirements including location, assembly, mounting, protection, and the short circuit current available at all supply terminals from the electric utility. Details of wall penetrations and service entrance cable protection shall be shown.
- 3) Provide details of all over-current protection provisions for equipment and conductors, including sizes, ratings, types and locations.
- 4) Provide complete details of the grounding and bonding provisions including the methods used, the location of connections, and types and sizes of conductors and electrodes. Provide installation details and location of all outlet, switch and junction boxes. NOTE: Do not locate outlet boxes and/or other devices and/or back boxes back to back in "Party" or "Fire Walls."
- 5) Provide schematic plans showing branch circuit distribution system, cable TV systems, telephone systems, television antenna systems, emergency call systems, emergency lighting systems, fire alarm systems including the details and identification of all circuits, outlets, appliances and equipment.
- 6) Provide panel schedules for each scheduled panel.
- 7) Lighting of all public spaces including yard lighting within the buildings and grounds, including controls, shall be shown on the drawings.
- 8) Include air-sealing details of all penetrations of electrical systems into the thermal envelope.

r. PROJECT MANUAL

A project manual shall accompany the drawings and should include the following:

PART 1: Contract Documents

- 1) Cover Page: Printed in black or blue on white paper, stating:
 - a) Title of project and
 - b) MaineHousing's project number, and
 - c) Project location and
 - d) Signature block setting forth space for the signatures of the Architect, Owner, Contractor, MaineHousing and Construction Lender

- 2) Index: Reference and page number for each section all portions of both Part 1 and Part 2 of the Project Manual
- 3) General Conditions of the Contract for Construction (AIA 201 or approved equivalent)
- 4) Performance Bond (AIA A311 or approved equivalent)
- 5) Labor and Material Payment Bond (AIA A311 or approved equivalent)
- 6) Instructions to Bidders (AIA A701 or approved equivalent for bid projects)
- 7) Supplementary Conditions of the Contract for Construction
- 8) Geotechnical Report – By reference or inclusion: “For Information Only”
- 9) Application and Certificate of Payment (AIA G702 or approved equivalent)
- 10) Continuation Sheet (reference L above (AIA G703 or approved equal)
- 11) MaineHousing Final Certificate and Release for Contractors/Subcontractors/Vendors
- 12) MaineHousing Owner/Agency Certificate of Completion
- 13) MaineHousing Construction Services Final Completion Checklist
- 14) Incomplete Work Escrow (IWE)

PART 2: Specifications

The specifications should be divided into sections separately describing the work to be done by each of the trades including landscaping work and off-site construction which is essential to the completion of the project. The CSI format should be used unless prior approval to use another system is accepted by MaineHousing. In each section, under the Trade Title, a complete description, in specific detail, of all the work to be performed by that trade, including descriptions of “Scope of Work”, “Workmanship”, and “Materials” and the manufacturer, grade or model designation of each item of equipment as well as any necessary specific instructions for coordinating the work with that of other trades, also specific instruction and detailed descriptions of work not clearly evident from the drawings.

s. **CONTRACT FORM**

- 1) The contract should reference the scope of work or plans, specs and addenda by the most recent revision date.
- 2) Contracts should contain a detailed schedule of values and unit prices.
- 3) The contract should specify a specific completion date or number of calendar days to complete the project.
- 4) The contract should specify amount and terms of liquidated damages, if any.
- 5) Construction Management (CM) Contracts may contain Contractor/Owner shared savings clauses and/or bonuses, but all such clauses shall be specifically reviewed with and approved by MaineHousing prior to their implementation.
- 6) The contract should specify that the owner will retain a percentage of the billed amount until the project is complete. Suggested retainage language is: “Retainage shall be 10% of the work in-place and billed and may be reduced, at the owner’s discretion, when the amount of retainage equals 5% of the contract value (including change orders) provided all contractual obligations have been met and work progress and quality is acceptable.”
- 7) A MaineHousing Construction Analyst must review, accept, and sign all change order proposals and change orders before they are a valid amendment to the contract.

- 8) The Contractor shall provide a list of Subcontractors with subcontracts in excess of \$2,000.00 and Material Suppliers/Vendors with purchases ~~in~~ exceeding \$10,000.00.

t. OTHER

- 1) REVISED COST ESTIMATES (at 90% Submittal)
- 2) DESIGN PROFESSIONAL'S CERTIFICATION (at Pricing Phase-See appendix)
- 3) TRANSMITTAL FORM
- 4) COMMISSIONING REPORTS (at 50% and 90% Submittals)

ADMINISTRATIVE SUBMITTAL PROCEDURES: Once the completion of the review of Construction Documents and the correction of all discrepancies and/or omissions has been accomplished, and the Pricing Phase is completed, the final submission becomes an administrative function.

The Design Professional submits, at a minimum, five (5) "clean" copies of the Drawings, and Project Manual specifications, and Certifications for sign-off by all interested parties, including MaineHousing. All drawing sheets and the Project Manual are to be sealed by the Design Professional providing the professional services contained therein. The cover sheet of the project manual and drawings shall also bear the primary Design Professional's seal and signature. The cover sheet of the specifications and plans shall also bear the Design Professional's seal as well as his signature. One set of documents will be retained by MaineHousing for its use. Two of the sets of documents should be retained by the contractor, one for his records and one for on-site use by all parties. One set of the documents is to be retained by the Owner and one by the Architect. Any additional sets of signed documents (more than the 5 outlined above) must also be submitted to MaineHousing for signatures.

6. PRE-CONSTRUCTION LOAN CLOSING (CLC) requirements

Once the final construction costs have been determined, Construction Services is responsible for the review of several additional documents. These documents are required to be provided with sufficient time for review prior to the CLC. The pre-CLC documentation shall include the following information:

- a. Full set of approved, sealed working drawings and specifications signed by the Owner, Architect, Contractor, and MaineHousing. (For projects with a rehab cost of less than \$100,000, a written scope of work along with some descriptive sketches and/or schedules may be sufficient to satisfy this requirement.)
- b. Construction contract signed by the Owner and Contractor and acceptable to MaineHousing.
- c. For MaineHousing's Insurance requirements see:
<http://www.mainehousing.org/Documents/HousingDevelopments/HousingDev-InsuranceChecklist.pdf>
- d. Copy of the Building permit from the local Code Enforcement Officer or other satisfactory evidence of local approval.
- e. Copy of the Construction Permit and Barrier Free Permit issued by the Department of Public Safety, State Fire Marshal's Office. (For small, non licensed rehab projects this requirement may be waived)
- f. Copy of letter of acceptance from the Department of Health Engineering (If applicable)
- g. One hundred percent Performance and Payment bonds with dual obligee rider naming MaineHousing. (For projects under \$200,000 this requirement may be waived)

Generally, the General Contractor (GC) or Construction Manager (CM) will be required to furnish surety in the form of 100% Performance & Payment bonds in favor of the Owner and MaineHousing. In certain situations and at the sole discretion of MaineHousing, an Unconditional Irrevocable Letter of Credit (LOC) may be considered as an alternative to bonding only if there are very specific conditions that warrant such consideration. Decisions of the form of security will be made on a case-by-case basis and the general evaluation criteria for these requirements will be based on the value of the proposed work scope as follows:

- Up to \$150,000 of construction value – no bonds or LOC are required
- \$150,000 to \$300,000 of construction value – bonds or LOC may be required.
- Over \$300,000 of construction value – bonds or LOC are required.

For projects when MaineHousing accepts a LOC in lieu of bonds, the LOC shall equal 20% of the construction contract and shall be in place until MaineHousing's determination that the work is complete and acceptable. A LOC in the amount of 5% of the construction contract shall be secured during the warranty period for projects allowed to use the LOC form of surety.

- h. Commissioning Report (Design phase) and Commissioning Plan listing required inspections and testing.
- i. In certain cases additional information such as an Environmental Site Assessment or itemized cost breakdown may be required.
- j. Alta Survey (See Appendix for detailed requirements)
- k. Establishment of a Project Contingency budget. NOTE: MaineHousing has in its Rental Loan Program Guide a policy concerning the allowable uses of project contingency. The Construction Analyst is responsible for assuring that any use of the contingency is consistent with the policy.
- l. If the project contains historic tax credits, National Parks Service (NPS) written acceptance of the project as meeting historic preservation requirements shall be provided.

Once all of the pre-CLC documentation is received and is found acceptable by the Construction Analyst, the Construction Services Manager is required to provide notification of such acceptance via a checklist sign-off to the loan officer.

B. PROJECT DELIVERY METHODS

1. GENERAL

The development of a project involves the evaluation of ideas, building and use programs, budgets, and considerable time and, as such, the project team and delivery method utilized must fit together to achieve the overall project goals. MaineHousing recognizes that not all projects fit within the same parameters and, therefore, recognizes two viable project delivery methods, which may be considered for its projects. Specifically, the Design - Bid - Build project delivery method and the Construction Manager - At - Risk project delivery method. MaineHousing will generally allow the developer to choose which delivery method is utilized, however, the method chosen must be disclosed to MaineHousing and is subject to review and approval by the Construction Services Manager.

Understanding that both methods have their own inherent strengths and weaknesses to achieving cost effective, timely construction, MaineHousing has set forth parameters for consideration for each project delivery method. For all of PART 3, the term “Architect” shall also mean Design Professional or Designer-Of-Record.

2. DESIGN – BID – BUILD

Traditionally, the Owner selects an architect of choice with whom he prefers to work, usually based on professional qualifications and experience and who is qualified to meet all of MaineHousing’s requirements and standards. The Architect, based on the Owner’s program requirements including the project budget, then provides design documents for the pre-conceptual, conceptual, design development, and construction documents phases of the project development. The Architect and his design consultants, who normally include civil, structural, mechanical, and electrical engineers, are expected to design within a construction budget set by the Owner and the Authority at the onset. The Architect and consultants will be responsible for estimating the project as designed and advising the Owner of the expected construction costs, based on their respective experience, for each phase of the design process, and the Architect is responsible for communicating the entire design intent through accurate, complete, and well coordinated construction documents (plans, project manual, and specifications) such that the project can be put out for competitive bidding. Once the design is complete and the expected costs are estimated by the Architect and the entire package is acceptable to the Owner and to MaineHousing, the project is advertised for bidding. A bidding procedure and time frame is set up and contractors, including generals, subcontractors, suppliers, and vendors, assemble their prices based on the content of the documents and submit “bids” to accomplish the work per the parameters set forth by the Architect and his consultants in the bidding documents. Subcontractors, suppliers, and vendors “bid” for their respective scopes of work to the general contractors (GCs) and the GCs submit their bid for the entire project using a combination of their own estimates, the bids they receive, and their proposed methods of executing the work. Unless there is some irregularity discovered just after the bids are received, usually the low bidder is offered the project, assuming that it is within the project budget as set by the Owner. MaineHousing’s Construction Services shall be included and participate throughout the bidding process.

In general, the bidding process shall: be either Open Bid or Select Bid; assure that a minimum of 3 (4 preferred) bids will be received; provide for an open public bid opening format; provide bids that are valid for a minimum of 60 days. If there are extenuating circumstances that may require a longer bid hold period, these are to be discussed with the Construction Analyst and any such extension shall be agreed to by MaineHousing prior to bidding.

If a select bid process is proposed, all preselected bidders shall be presented to MaineHousing for review and acceptance prior to the bidding process.

After bids are opened, references are to be checked/confirmed by the developer.

Bids vs. budget:

If the lowest responsible bid exceeds the project budget by ten percent (10%) or less, the developer may negotiate changes (conduct a “value engineering” process) with the contractor, provided all changes are approved by the developer, designers of record, and

MaineHousing prior to adoption. Negotiated changes requiring modification of the approved plans and specifications that are in excess of ten percent (10%) of the project construction budget will not be accepted. If negotiated changes to the plans and specifications do exceed ten percent (10%) of the construction budget, then re-design by the designers of record (and approved by MaineHousing) and re-bidding will be required. Additional bids may be required should MaineHousing consider the general contractor cost or any subcontractor costs are excessive.

During the construction period, the Architect is retained by the Owner to administer the terms and conditions of the construction contract between the Owner and the General Contractor and to provide field oversight to assure that the design intent, the construction schedule, and the expected quality are met.

With this project delivery method, the Owner has a contract with the Designer of Record for all design services and the Designer of Record has agreements for the professional services of his consultants. The Owner has a contract with the low bidder/General Contractor for the construction.

Focus points of emphasis related to this method of project delivery:

- It is perceived to be the method that is most “fair” to the construction industry generally resulting in the lowest cost for the construction phase based on competition for the work.
- The design intent is communicated solely through the documents – they are the basis of the bid, the relationships during construction, and the construction contract. The documents must be complete, properly coordinated, and timely.
- Change Orders result if the documents are incomplete, not coordinated, or the intent is not clear.
- The Architect administers the Construction Contract and continues to provide services on an as-needed basis as the construction takes place.

3. CONSTRUCTION MANAGER-AT-RISK

In this scenario, the owner hires an Architect as described above. The Owner and the Architect get together and discuss criteria that they are looking for in a Construction-Manager-At-Risk and choose to openly advertise for qualifications of Construction Managers (CMs), develop a list of qualified CMs (minimum of 4), interview, make a selection, and negotiate a contract for services. MaineHousing’s Construction Services shall be included and participate throughout the selection process.

With this project delivery method, a “team” is set up very early in the design process, which includes the Owner, the Architect (and his engineering consultants), and the Construction Manager. The traditional design phases of pre-concept, concept, design development, and construction documents are followed however, the CM has the responsibility of developing all estimates, not the Architect. The CM also has the added responsibility of offering input to the Owner and Architect for alternatives to achieve the design intent and to maintain the construction budget. All team members participate in the decision making process as the design evolves and all parties are expected to communicate their ideas, concerns, etc. openly and freely to the betterment of the project.

During the final pricing at the construction documents stage, the CM is responsible for soliciting multiple/competitive quotes (a minimum of 3 in each trade or work scope) from suppliers, vendors, and subcontractors and usually selects companies that he has pre-qualified to provide the necessary scopes of work, rather than simply opening it up to all. This helps to assure that the entire construction team will work well together. All of the prices are tabulated and the CM makes recommendations to the project team on which subs are best qualified to the other members of the project team. Once the construction team is assembled and a final price put together (guaranteed maximum price or GMP), the construction process begins.

With this project delivery method, the Owner has a contract with the Designer of Record for all design services and the Designer of Record has agreements for the professional services of his consultants. The Owner has a two-part contract with the CM: Part 1, for pre-construction services and Part 2, for the actual construction. NOTE: It is important that all parties understand the importance of avoiding “Choice Limiting Actions” – Please see Appendix for MaineHousing’s required Amendment attachment to all CM Contracts.

Focus points of emphasis related to this method of project delivery:

- The Owner and Architect must be willing, qualified, and committed to administer and participate in the pre-construction services portion of the project with the CM.
- The Owner and Architect must carefully define the level of services and the prequalifications they require of the CM and conduct an interview/selection process that results in the best possible project team.
- The CM must be qualified and be held accountable and actively participate during the preconstruction phases of the project.
- The CM has the responsibility for soliciting competitive pricing by assembling and administering a “bidding” process for all trades and major scopes of work and establishes a Guaranteed Maximum Price (GMP) which all parties can rely upon. In order to assure a competitive pricing process occurs, the CM must strive to solicit competitive pricing.
- The CM should be careful not to exclude suppliers, subcontractors, and vendors who might otherwise provide quotes in a traditional bid project delivery.
- Usually the form of contract for the construction phase is based on the costs of the work plus a negotiated flat fee. Financial incentives for both the owner and/or the CM are also usually discussed and negotiated and might include considerations for early completion and actual costs vs. estimated costs. These incentives are usually structured in such a way to encourage the CM to continue to find the best value for the Owner during the construction phase.
- The design intent is communicated through the documents and through the ongoing participation of the project team members. The CM assumes a level of understanding beyond the documents by actively participating in the decision making and design processes during the pre-preconstruction phase of the project development.
- The Architect administers the Construction Contract and continues to provide services on an as-needed basis as the construction takes place.
- The Owner must hold the CM accountable for justifying all costs related to the project. A full accounting shall be provided by the CM for review by the Owner

and/or his agents.

C. **PROJECT CONSTRUCTION**

1. **GENERAL CONDITIONS OF CONSTRUCTION & QUALITY CONTROL**

- a. A. Standards for Construction and Contractor's Warranty:
 - 1) The Project shall be constructed according to accepted Construction Documents and in full compliance with applicable building codes and regulations. All materials and equipment shall be new, unless otherwise specified, and all construction shall be of good quality, free from faults and defects.
 - 2) The Contractor warrants to the Owner, the Design Professional, and MaineHousing that all construction will be accomplished in compliance with the Standards for Construction stated above.
- b. Notwithstanding any additional requirements imposed by either the architect or the Owner in the construction contract, or the Construction Lender, Construction Contract Retainage shall be:
 - 1) For construction contracts less than \$100,000 stipulated sum or guaranteed maximum, MaineHousing does not require construction contract retainage.
 - 2) For construction contracts more than \$100,000 but less than \$200,000 stipulated sum or guaranteed maximum, MaineHousing may waive its retainage requirements. If not waived, retainage shall be 10% on all progress payments until the project is complete.
 - 3) For construction contracts more than \$200,000 stipulated sum or guaranteed maximum, MaineHousing requires 10% retainage on all progress payments until the project is 50% complete. Once the dollar value of the work scope meets or exceeds 50% of the contract value (including change orders) then the contractor may request that no further retainage be withheld. With agreement from the architect, Owner, and MaineHousing, no further retainage shall be withheld.
- c. The Contractor shall provide the following on-site facilities:
 - 1) A site office of sufficient size for the review and discussion of the construction documents
 - 2) A site phone
 - 3) A site toilet
 - 4) A current set of signed drawings, specifications, and other documents as amended and as accepted by MaineHousing for the use of the MaineHousing personnel at all times.
 - 5) A "project sign" which designates the project as an Equal Housing Opportunity project and includes references to the Project name, Developer, Architect, Contractor, Bank, Bonding Company, and MaineHousing. This sign should also provide a phone number for rental information.
- d. Quality Control Inspections
MaineHousing requires inspections of the construction by the designer-of-record to determine that work is proceeding according to the Standards for Construction stated above, the contract documents, and generally accepted construction practices. MaineHousing reserves the option to make similar or additional inspections for the same purposes. These inspections should generally be as follows for each building and/or unit:

- 1) Initial excavations; the following items should be completed and visible for inspections:
 - a) all excavation for footings and foundations;
 - b) forms for footings and any required footing reinforcing steel in place; and
 - c) batter boards or other suitable locating devices in place and wall lines established
- 2) Foundation Preparation; the following items should be completed and visible for inspection:
 - a) forms for walls and any required reinforcing in place; and
 - b) forms should be aligned, securely braced, and properly treated with release agents.
- 3) Foundation Completed; the following items should be completed and visible for inspection prior to placing backfill:
 - a) all footings, foundation walls, piers, and any other foundation work, including rodent barriers;
 - b) damp proofing or water-proofing and foundation drainage installations
- 4) Concrete Slabs; an inspection of the non-capillary bed, slab vapor, barrier, below slab insulations, embedded piping including drainage and radon systems, reinforcing steel, etc. should be made prior to the placement of concrete floor slabs.
- 5) Close-In; a “close-in” inspection is required to inspect work completed after the initial inspections and prior to the concealment of all building systems. The following construction should be completed and visible for inspection:
 - a) the structure should be enclosed with all wall, ceiling, and roof framing exposed;
 - b) masonry veneer, if applicable, should not be installed;
 - c) interior wall and ceiling finish material and insulation should not be installed, but
 - d) roofing may be applied;
 - e) heating, plumbing and electrical work should be roughed in;
 - f) footings and foundations for stoops, porches and terraces before backfilling, with any required reinforcing and flashing for slabs in place, before pouring slabs, if not inspected during previous inspections.
- 6) All air-barriers should be established and be sealed including, but not limited to, all mechanical and electrical penetrations in framing.
- 7) Final Inspection; at “final inspection,” all required construction should be completed and ready for inspection. The Contractor shall arrange to have the building(s) open for the Architect and MaineHousing review. The following items should be completed and ready for inspection:
 - a) the dwelling structure completed, cleaned and ready for occupancy - this should include the installation and operation of permanent equipment, buildings and on-site improvements except for those items specified and accepted as suitable for deferred completion in accordance with the provision for Uncompleted Work Escrows;
 - b) finish grading, seeding, sodding, and landscape planting completed;
 - c) walks and drives completed, including their extension to the public walk, curb or pavement, and utilities installed including their extension and connection to off-site public mains;
 - d) fences, garden walls, retaining walls, and other accessory structures completed;
 - e) off-site improvements, if any, completed;
 - f) all non-compliances noted by the Architect and/or Authority during the construction should be corrected and accepted by the Architect and MaineHousing.

e. Concealments

If the Authority encounters construction that has been concealed before being properly inspected as required by a scheduled inspection or a follow-up thereto, MaineHousing may require the uncovering of concealed work or an alternative verification acceptable to the MaineHousing. MaineHousing shall not be liable for the cost of any such uncovering or alternative verification.

f. Re-inspections

Any inspection performed by MaineHousing which, in its sole discretion, is determined to be necessary due to an action, omission, or deficiency caused by the Contractor, Owner, or Design Professional shall be considered a re-inspection. Re-inspections shall be made after corrections have been completed and the Contractor or Architect shall notify MaineHousing of the status of all work requiring re-inspections.

g. Inspection Documentation

A report should be provided to the Contractor following each inspection or re-inspection by the architect. The Contractor should carefully review his copy of the report and correct any noncompliance. Copies of all reports are also to be submitted to MaineHousing.

MaineHousing will generally rely on the Architect's field reports and/or meeting minutes for the proper documentation and tracking of all required inspections and/or re-inspections.

h. Corrective Actions

Upon its sole determination that the construction is not proceeding in compliance with the Standards for Construction, MaineHousing may require of either the Contractor or the Owner or both any of the following corrective actions:

- 1) Repair or correct non-compliance; then notify the Architect and MaineHousing for re-inspection.
- 2) Stop construction in area of non-compliance until further notice.
- 3) Establish a Full Time Project Representative of the Design Professional.

i. Change Orders

Any modifications, including but not limited to, additions, variations, substitutions, or revisions to the accepted Construction Documents shall be submitted to MaineHousing, the Architect, and Owner for review and acceptance prior to the execution of those changes. All change orders shall be submitted on a Change order form acceptable to the Architect and MaineHousing and shall be accompanied by adequate information describing the proposed changes including drawings and description of materials when needed. MaineHousing may request such additional information as it deems reasonably necessary under the circumstances to justify any change order requests. In an effort to expedite approvals for changes, MaineHousing may decide to review and approve individual "Change Proposals" as they are presented, understanding that a Change Order will later be developed to summarize and total approved Change Proposals into a formal Change Order prior to requests for payment of such change items.

- j. Incomplete Work Escrow (IWE)
When completion of site or limited building improvements is prevented by seasonal conditions or other considerations deemed by MaineHousing as being beyond the control of the Contractor, the final inspection will not include the uncompleted construction, provided MaineHousing finds that the development can be occupied without hazards caused by such uncompleted work.

MaineHousing will require a complete written description of all deferred work and the holding in escrow a sum of money equal to not less than one and one half times MaineHousing's estimated cost of completion, and the establishment of a suitable date of completion of the deferred items shall be established. MaineHousing will require an inspection of the deferred work upon completion prior to the release of any escrow amount.

In establishing Incomplete Work Escrows (IWE), MaineHousing will consider the estimated value of the work to be completed as a minimum basis but also may include costs, both direct and indirect, that might be incurred should the Contractor default on his obligations to complete the identified work. The establishment of the IWE amounts is at the sole discretion of MaineHousing. See Appendix for further description of the IWE process.

2. PROJECT CLOSE-OUT

As part of the final project accounting, establishment of the incomplete work list and prior to the permanent loan closing (PLC), MaineHousing's Construction Services requires the submittal, review, and acceptance of several documents. The following documents shall be provided:

- a. Certificate of Substantial Completion (AIA document prepared by architect)
- b. Elevator License (if applicable)
- c. Fire Alarm system Test Report and Sign-off by System Manufacturer's Rep
- d. Sprinkler Test Report/Sign-off by qualified installer and SFMO permit signed-off by "RMS"
- e. Certificate of Occupancy from local municipality
- f. Electrical Permit Sign-off by state or local electrical inspector
- g. Plumbing Permit Sign-off by state or local plumbing inspector
- h. Certificate of Completion of Design Professional (MSHA Document)
- i. Incomplete Work Escrow Agreement
- j. Requisition for all items not identified on Incomplete Work Escrow list
- k. Lien Releases (typically using MSHA's Contractors Final Certificate and Release Form)
- l. O& M manuals (deliver to Owner) as applicable
- m. Warranty information to Owner (e.g. Roofing, Boilers.) as applicable
- n. As-built drawings (deliver to Owner, copy to MSHA)
- o. As-built (Alta) survey with MSHA Certification (may be waived if work did not increase building footprint)
- p. State Fire Marshal Inspection and Plan of Correction (if required)
- q. Owner/Agency Certificate of Completion (MSHA Doc.)
- r. Contractor's report of participation - Minority/Women Owned Business Enterprises
- s. Evidence of satisfactory Lead Based Paint Clearance testing (not required for new construction)

- t. Consent of Surety to release of final payment
- u. Blower Door Test Results
- v. Green Building Standard #10 Compliance

END OF PART 2



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: _____
Signature: _____

Date: _____

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: _____

SUPPORTIVE HOUSING/ONE WRITE PROJECT
CERTIFICATE OF COMPLETION
OF CONSTRUCTION/REHAB ACTIVITIES

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.

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: _____ Remaining Escrow Funds _____
(Date)

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

CC: Legal; Asset Management); Development Manager



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" (Responsible Managing Supervisor)
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) <i>as applicable</i>
14	*		Contractor	Warranty information to Owner (e.g. Roofing, Boilers.) <i>as applicable</i>
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	Supportive Housing/One Write Project Certificate of Completion of Construction/Rehab Activities
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:



Incomplete Work Escrow

Project name/address: _____

Owner/Developer: _____

MH project number: _____

Contractor: _____

Architect: _____

CA: _____

The following items represent project features that have been determined to be incomplete as the result of:

- Seasonal limitations. Extraordinary circumstances w/MSHA concurrence Other

The value of all incomplete items as determined by the project team, with concurrence by Maine Housing, shall be multiplied by a factor of 150% to establish the total amount to be subject to escrow in accordance with MaineHousing policy.

#	Description	\$ Value	x 150%	Notes:
1				_____
2				_____
3				_____
4				_____
Sub Total:				_____

The amount of \$ _____ shall be withheld by MaineHousing till such time that work has been completed and determined acceptable by the Owner and representative of MaineHousing. Work shall be completed by: _____
 Upon satisfactory completion of the items listed above, the Authority will prepare a release of funds being withheld against those work items. At no time shall an aggregate amount exceeding 50% of the total escrow amount be released prior to completion of all escrow items.

Contractor Date Owner Date Architect Date MaineHousing CA Date

Request for Concurrence *for MaineHousing use only*

As the result of an inspection on _____, Construction Services finds:

- All work is complete/satisfactory
 Outstanding work remains as follows... _____
 Completion date exceeded
 Extend to: _____ No extension... MH/Owner to complete

Construction Analyst Date Construction Services Manager Date

To: Development Assistant
RE: Request for check **Date:** _____
CC: AM, LO
 In accordance with CS findings/recommendations, please prepare check in the amount of \$ _____ made payable to:
 1st _____

 2nd _____

Request for Concurrence *for MaineHousing use only*

As the result of an inspection on _____, Construction Services finds:

- All work is complete/satisfactory
 Outstanding work remains as follows... _____
 Completion date exceeded
 Extend to: _____ No extension... MH/Owner to complete

Construction Analyst Date Construction Services Manager Date

To: Development Assistant
RE: Request for check **Date:** _____
CC: AM, LO
 In accordance with CS findings/recommendations, please prepare check in the amount of \$ _____ made payable to:
 1st _____

 2nd _____

Incomplete Work Escrow

INCOMPLETE WORK ESCROW POLICY

Following represents the complete policy for the handling of incomplete work escrow and expressly supersedes any and all instructions to Authority personnel.

1. **MaineHousing** will establish the content, completion date and appropriate retainage for the incomplete work escrow at the time of the final inspection in consultation with the contractor and architect, and in accordance with policy herein.
2. Eligible escrow items shall be limited to seasonal items, and back-ordered items (if proof of ordering is provided at the final inspection), unless the Authority determines that extraordinary circumstances warrant inclusion of other, non-safety related items.
3. 150% times the actual escrow amount shall be held in escrow by **MaineHousing** to cover any and all escrow items.
4. All escrow work shall be completed in full within 60 days from date of agreement, unless a longer period is agreed upon initially for seasonal or back-ordered items. No more than two (2) 15-day extensions shall be allowed beyond the initial completion date.
5. The Owner shall notify **MaineHousing** in writing when all items of an escrow section are complete and ready for inspection. No inspections shall be made until said notification has been received. **MaineHousing** shall schedule an inspection within 5 working days after receipt of notice from the owner.
6. Any MaineHousing inspection which determines the necessity for a re-inspection due to an action, omission, or deficiency caused by the development team, *may* result in charges billable to the Developer to cover the costs of labor and expense to MaineHousing for the re-inspection. The rate of charge shall be **\$25.00** per man-hour for on-site time, **\$15.00** per man-hour for travel time from MaineHousing's office to site and return. A maximum charge per re-inspection shall not exceed **\$200.00**.
7. Upon acceptance of all items in an escrow section **MaineHousing** will prepare a release of those funds being withheld against those work items. AT NO TIME SHALL AN AGGREGATE AMOUNT EXCEEDING 50% OF THE TOTAL ESCROW AMOUNT BE RELEASED PRIOR TO COMPLETION OF ALL ESCROW ITEMS.
8. Upon the forfeiture of escrow monies to **MaineHousing**, **MaineHousing** shall proceed to have all incomplete work escrow items completed by a contractor, determined in the sole discretion of **MaineHousing** to be capable of completing said escrow items. Any escrow funds remaining, if any, after completing said escrow items shall be returned to the Developer.
9. WAIVERS TO THE ABOVE POLICY MAY ONLY BE APPROVED BY MAINEHOUSING'S EXECUTIVE DIRECTOR.