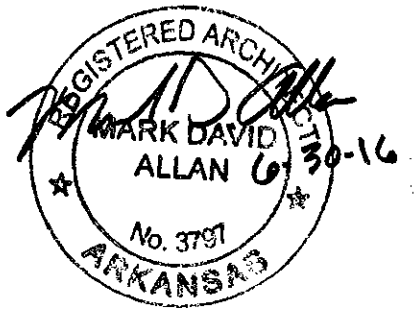
PROJECT MANUAL

WHITE RIVER APARTMENTS

2900 MARION DRIVE

DIAZ, ARKANSAS



ARCHITECT
ALLAN ASSOCIATES ARCHITECTS, PLLC
MARK D. ALLAN AIA

STRUCTURAL
CARPENTER WRIGHT ENGINEERS

MECHANICAL/PLUMBING ENGINEER
JACK HOPKINS P.E.

ELECTRICAL
KEVIN NORRIS P.E.

SECURITY
SAFER PLACES, INC

DATE: 6-30-16

PROJECT IDENTIFICATION #_____

Owner: _____ by:_____ date:_____

Architect: Allan Associates Architects, PLLC by:_____ date:_____

Contractor: _____ by:_____ date:_____

Bonding Co: _____ by:_____ date:_____

Lender: _____ by:_____ date:_____

WHITE RIVER APARTMENTS
2900 MARION DRIVE
DIAZ, ARKANSAS

TABLE OF CONTENTS

TABLE OF CONTENTS

END OF TABLE OF CONTENTS.

AIA® Document A201™ – 2007

General Conditions of the Contract for Construction

for the following PROJECT:
(Name and location or address)
White River Apartments
2900 Marion Drive
Diaz, Arkansas

THE OWNER:
(Name, legal status and address)
White River II, L.P.
900 S. Gay Street
Knoxville, TN 37902

THE ARCHITECT:
(Name, legal status and address)
Allan Associates Architects, PLLC
5516 Wallwood Rd.
Knoxville, TN 37912

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

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

TABLE OF ARTICLES

Init.
/

INDEX
(Topics and numbers in bold are section headings.)

ARTICLE 1 GENERAL PROVISIONS

§ 1.1 BASIC DEFINITIONS

§ 1.1.1 THE CONTRACT DOCUMENTS

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding requirements.

§ 1.1.2 THE CONTRACT

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 THE WORK

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

§ 1.1.4 THE PROJECT

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

§ 1.1.5 THE DRAWINGS

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

§ 1.1.6 THE SPECIFICATIONS

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

§ 1.1.7 INSTRUMENTS OF SERVICE

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

§ 1.1.8 INITIAL DECISION MAKER

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

§ 1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

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

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

§ 1.3 CAPITALIZATION

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

§ 1.4 INTERPRETATION

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

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

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and will retain all common law, statutory and other reserved rights, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

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

§ 1.6 TRANSMISSION OF DATA IN DIGITAL FORM

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

ARTICLE 2 OWNER

§ 2.1 GENERAL

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

§ 2.2.1 Prior to commencement of the Work, the Contractor may request in writing that the Owner provide reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. Thereafter, the Contractor may only request such evidence if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) a change in the Work materially changes the Contract Sum; or (3) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due. The Owner shall furnish such evidence as a condition precedent to commencement or continuation of the Work or

the portion of the Work affected by a material change. After the Owner furnishes the evidence, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.2 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.2.3 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

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

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

§ 2.3 OWNER'S RIGHT TO STOP THE WORK

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.4 OWNER'S RIGHT TO CARRY OUT THE WORK

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

ARTICLE 3 CONTRACTOR

§ 3.1 GENERAL

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

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

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

§ 3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

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

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

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

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

§ 3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

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

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 LABOR AND MATERIALS

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other

facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

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

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

§ 3.5 WARRANTY

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

§ 3.6 TAXES

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

§ 3.7 PERMITS, FEES, NOTICES AND COMPLIANCE WITH LAWS

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

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

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

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

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume

the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 ALLOWANCES

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

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

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

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

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

§ 3.9 SUPERINTENDENT

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the name and qualifications of a proposed superintendent. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to the proposed superintendent or (2) that the Architect requires additional time to review. Failure of the Architect to reply within the 14 day period shall constitute notice of no reasonable objection.

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

§ 3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

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

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

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

§ 3.11 DOCUMENTS AND SAMPLES AT THE SITE

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

§ 3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

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

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

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

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

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

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

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

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such written notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. The Contractor shall not be

required to provide professional services in violation of applicable law. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review, approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance and design criteria specified in the Contract Documents.

§ 3.13 USE OF SITE

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

§ 3.14 CUTTING AND PATCHING

§ 3.14.1 The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting and patching shall be restored to the condition existing prior to the cutting, fitting and patching, unless otherwise required by the Contract Documents.

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

§ 3.15 CLEANING UP

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials from and about the Project.

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

§ 3.16 ACCESS TO WORK

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

§ 3.17 ROYALTIES, PATENTS AND COPYRIGHTS

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

§ 3.18 INDEMNIFICATION

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

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

ARTICLE 4 ARCHITECT

§ 4.1 GENERAL

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

§ 4.1.2 Duties, responsibilities and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner, Contractor and Architect. Consent shall not be unreasonably withheld.

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

§ 4.2 ADMINISTRATION OF THE CONTRACT

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

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

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

§ 4.2.4 COMMUNICATIONS FACILITATING CONTRACT ADMINISTRATION

Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate with each other through the Architect about matters arising out of or relating to the Contract. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.

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

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

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5 and 3.12. The Architect's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Architect, of any construction means, methods, techniques, sequences or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

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

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more project representatives to assist in carrying out the Architect's responsibilities at the site. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

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

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

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

ARTICLE 5 SUBCONTRACTORS

§ 5.1 DEFINITIONS

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

§ 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. 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.

Supplementary Conditions of the Contract for Construction

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

OMB Approval No. 2502-0470
(Expires 12/31/2016)

Article 1 – Labor Standards

Instructions

Whenever only FHA mortgage insurance is involved, use paragraph (A) and (C) of Article 1 – Labor Standards. Whenever any direct form of assistance (Section 8, Section 202/811 Capital Advance, grants etc.) is involved, use paragraphs (A) and (B) and (C) of Article 1 – Labor Standards.

Applicability

The Project or Program to which the construction work covered by this contract pertains is being assisted or insured by the United States of America and the following Federal Labor Standards Provisions are included in this Contract or related instrument pursuant to the provisions applicable to such Federal assistance or insurance.

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

Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR Part 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

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

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

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

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

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs A.1.(ii)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

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

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

2. Withholding. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the

same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

3. **(i) Payrolls and basic records.** Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and budget under OMB Control Numbers 1215-0140 and 1215-0017.)

(ii) (a) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR Part 5.5(a)(3)(i). This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149.)

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

(1) That the payroll for the payroll period contains the information required to be maintained under 29 CFR Part 5.5(a)(3)(i) and that such information is correct and complete;

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

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

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

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

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

4. **(i) Apprentices and Trainees. Apprentices.** Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau

of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman's hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

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

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

6. Subcontracts. The contractor or subcontractor will insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as HUD or its designee may be appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR Part 5.5.

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

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

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

10. (i) Certification of Eligibility. By entering into this contract the contractor certifies neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001. Additionally, U.S. Criminal Code, Section 1010, Title 18, U.S.C., "Federal Housing Administration transactions", provides in part: "Whoever, for the purpose of . . . influencing in any way the action of such Administration . . . makes, utters or publishes any statement, knowing the same to be false . . . shall be fined not more than $5,000 or imprisoned not more than two years, or both."

B. Contract Work Hours and Safety Standards Act. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

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

2. Violation; liability for unpaid wages, liquidated damages. In the event of any violation of the clause set forth in subparagraph (1) of this paragraph, the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in subparagraph (1) of this paragraph.

3. Withholding for unpaid wages and liquidated damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

C. The Contractor will be required to execute FHA Form No. 2403-A, Contractor's Prevailing Wage Certificate, as a condition precedent to insurance by the Federal Housing Administration of that certain mortgage loan, or an advance thereof, made or to be made by the mortgagee in connection with the construction of the project.

Article 2 – Equal Employment Opportunity

The applicant hereby agrees that it will incorporate or cause to be

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

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

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

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

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

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

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

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

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

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

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

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

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

(Applicable to Section 236 projects, where the estimated replacement cost of the project as determined by the Secretary of Housing and Urban Development exceeds $500,000, and to all projects, including Section 236 regardless of estimated replacement cost, receiving rent supplement assistance under Title I, Section 101 of the Housing and Urban Development Act of 1965.)

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

Article 4 – Health and Safety

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

B. The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 (formerly part 1518) and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act (Public Law 91-54, 83 Stat. 96).

C. The Contractor shall include the provisions of this Article in every subcontract so that such provisions will be binding on each subcontractor. The Contractor shall take such action with respect to any subcontract as the Secretary of Housing and Urban Development of the Secretary of Labor shall direct as a means of enforcing such provisions.

General Decision Number: AR160199 01/08/2016 AR199

Superseded General Decision Number: AR20150199

State: Arkansas

Construction Type: Residential

County: Jackson County in Arkansas.

RESIDENTIAL CONSTRUCTION PROJECTS (consisting of single family homes and apartments up to and including 4 stories).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.15 for calendar year 2016 applies to all contracts subject to the Davis-Bacon Act for which the solicitation was issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.15 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2016. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/08/2016

SUAR2008-196 11/28/2008

	Rates	Fringes
BRICKLAYER	$ 13.41	0.00
CARPENTER, Including Cabinet Installation and Form Work (Excluding Drywall Hanging)	$ 11.37	0.00
CEMENT MASON/CONCRETE FINISHER	$ 13.00	0.00
DRYWALL FINISHER/TAPER	$ 12.00	0.00
DRYWALL HANGER	$ 12.00	0.00
ELECTRICIAN	$ 15.78	0.00
FENCE ERECTOR	$ 10.00	0.00
HVAC MECHANIC (System Installation Only)	$ 10.00	0.00
INSTALLER - SIDING, Including Vinyl	$ 10.75	0.00
LABORER: Common or General	$ 7.50	0.00
LABORER: Mason Tender - Brick	$ 8.38	0.00

LABORER: Mason Tender - Cement/Concrete	$ 8.07	0.00
OPERATOR: Backhoe/Excavator/Trackhoe	$ 10.50	0.00
PAINTER: Brush and Spray, Excluding Drywall Finishing/Taping	$ 10.75	0.00
PLUMBER	$ 13.71	0.00
ROOFER	$ 11.72	0.00
SHEETMETAL WORKER	$ 10.54	0.00
TILE SETTER	$ 8.00	0.00
TRUCK DRIVER: Dump Truck	$ 9.15	0.00

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1,

2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour

Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

==========

END OF GENERAL DECISION

SECTION 01 10 00 - SUMMARY OF WORK

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Project description.

B. Contractor use of site and premises.

1.02 PROJECT DESCRIPTION

A. The Project consists of the renovation of eight (8) two story apartment buildings that include sixteen (16) one-bedroom, twenty four (24) two-bedroom, sixteen (16) three-bedroom and eight (8) four-bedroom Units, a new 1-story Leasing/Community Building and various site amenities located at 2900 Marion Dr, Diaz, Arkansas. The facilities shall be renovated/constructed in accordance with all plans and specifications. The work shall include, but not limited to, the furnishing of all labor, materials, and equipment required for the construction of all site and building work as outlined by these plans and specifications.

B. Summary by References: Work of the Contract can be summarized by references to the Contract, General Conditions, Specifications, Drawings, addenda and modifications to the contract documents issued subsequent to the initial printing of this project manual and including, but not necessarily limited to printed material referenced by any of these.

1.03 - CONTRACTOR USE OF SITE

A. Refer to Drawings for Contract Limits. Coordination of staging areas shall be through the owner.

B. Contractor shall coordinate with Owner and Architect and provide a Site Plan “marked up” showing the anticipated phases of the project, material/conex storage locations, worker parking areas and general use of site prior to beginning any on site work.

PART 2 - PRODUCTS

A. Not Used.

PART 3 - EXECUTION

A. Not Used.

END OF SECTION

SECTION 01 20 00 - CONTRACT CONSIDERATIONS AND ALLOWANCES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Inspection and testing.

B. Schedule of Values.

C. Application for Payment.

D. Change procedures.

1.02 RELATED SECTIONS

A. Section 01 33 00 - Submittals: Schedule of Values.

B. Section 01 60 00 - Material and Equipment: Product substitutions and alternates.

1.03 INSPECTION AND TESTING

A. The Contractor shall include in his base bid the cost of engaging an inspection or testing firm; the execution of inspection and testing and the reporting of the results to the Owner and the Architect.

B. The following testing shall be included in the contractor's base bid. The Contractor may at his own discretion and cost provide additional testing to insure proper construction and integrity of the project.

1. **Concrete Testing**: Testing shall be by an independent testing agency. A copy of all reports, test results and letter to the contractor shall be sent to the Owner and the Architect.

1.04 SCHEDULE OF VALUES

A. Submit typed schedule on HUD Form 92328 – Contractors Cost Breakdown.

1.05 APPLICATIONS FOR PAYMENT

A. Submit six copies of each application on HUD Form 92448 – Contractors Requisition.

B. The initial Application for Payment shall be submitted to the Architect for approval of the listed items and dollar amounts associated with each item **two weeks prior** to Application for Payment #1.

C. The pay period on the schedule of values shall include all work completed and all material delivered and stored on site on or before the 25th of each month. The Application for Payment is to be received into the Architect's office before the 1st day of the following month, or as modified by Owner/Contractor Agreement.

D. Application for Payment #2 and subsequent Applications for Payment shall be accompanied by a Release of Leans from the General Contractor, Subcontractor and Suppliers along with a notarized statement from the General Contractor that all subcontractors and materials suppliers have been paid from the money received for the amount of work that has been authorized in the previous Application for Payment.

1.06 CHANGE PROCEDURES

A. The Architect will advise of minor changes in the Work not involving an adjustment to Contract Sum/Price or Contract Time as authorized by AIA A201, 1987 Edition, Article 7.4 by issuing Supplemental Instructions on AIA Form G710.

B. The Architect may issue a Notice of Change which includes a detailed description of a proposed change with supplementary or revised Drawings and Specifications, a change in Contract Time for executing the change and the period of time during which the requested price will be considered valid. Contractor will prepare and submit an estimate within 14 days.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01 30 00 -COORDINATION AND MEETINGS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Coordination

B. Preconstruction conference.

C. Preinstallation conference.

D. Progress meetings.

1.02 COORDINATION

A. Coordinate scheduling, submittals, and Work of the various Sections of specifications to assure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

B. Verify that utility requirement characteristics of operating equipment are compatible with building utilities. Coordinate work of various Sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

C. Coordinate space requirements and installation of mechanical and electrical work which are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with line of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

D. After Substantial Completion of project, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.03 PRECONSTRUCTION CONFERENCE

A. The Contractor shall schedule a preconstruction conference after Notice of Award. Coordinate time and location of meeting with the Architect and Owner.

B. Contractor shall address Time Schedule, Temporary Utilities, Pay Request procedures, Change Order procedures, Substitution procedures, Project Record Document procedures and Shop Drawing Procedures.

C. The Owner and Architect shall be present at the meeting

D. Additional items to be addressed shall be at the discretion of the Contractor.

1.04 PREINSTALLATION CONFERENCES

A. When required in individual specification Section, convene a preinstallation conference at work site prior to commencing work of the Section.

1.05 PROGRESS MEETINGS

A. Schedule and administer meetings throughout progress of the Work at maximum monthly intervals

B. Agenda:
   1. Review minutes of previous meting
   2. Review work in progress
   3. Field observations, problems and decisions
   4. Identifications of problems which impede planned progress
   5. Review of Submittals Schedule and status of submittals
   6. Review of off-site fabrications and delivery schedules
   7. Maintenance of progress schedules
   8. Corrective measures to regain projected schedules
   9. Planned progress during succeeding work period
   10. Coordination of projected progress
   11. Maintenance of quality and work standards
   12. Effect of proposed changes on progress schedule and coordination
   13. Other business related to Work.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01 33 00 -SUBMITTALS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Submittal procedures.

B. Construction progress schedules.

C. Shop drawings.

D. Product data.

E. Samples.

F. Manufacturers' instructions.

1.02 RELATED SECTIONS

A. Section 01 40 00 - Quality Control: Manufacturers' field services and reports.

B. Section 01 70 00 - Contract Closeout: Contract closeout submittals.

1.03 SUBMITTAL PROCEDURES

A. Identify Project, Contractor, Subcontractor or supplier.

B. Apply Contractor's stamp, signed or initialed certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and Contract Documents.

1.04 CONSTRUCTION PROGRESS SCHEDULES

A. Submit progress schedule in duplicate within two weeks after date established in Notice to Proceed for the Owner’s review.

B. Update progress schedule monthly with each applications for payment for Owner and Architect review.

1.05 SHOP DRAWINGS

A. Submit the number of opaque reproductions which Contractor requires, plus two copies which will be retained by Architect/Engineer. Shop drawings must be original documents not reproductions of the Contract Drawings.

1.06 PRODUCT DATA

A. Submit the number of copies which the Contractor requires, plus two copies which will be retained by the Architect/Engineer.

1.07 SAMPLES

A. Submit samples to illustrate functional and aesthetic characteristics of the Product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

B. Submit samples of finishes from the full range of manufacturers' standard colors, textures, and patterns for the Owner’s selection.

1.08 MANUFACTURER'S INSTRUCTIONS

A. When specified in individual specification Sections, submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for Product Data.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not used

END OF SECTION

SECTION 01 40 00 - QUALITY CONTROL

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Quality assurance and control of installation

B. References

C. Inspection and testing laboratory services

1.02 RELATED SECTIONS

A. Section 01 33 00 - Submittals: Submission of Manufacturers' Instructions and Certificates

B. Section 01 60 00 - Material and Equipment: Requirements for material and product quality

1.03 QUALITY ASSURANCE/CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.

B. Comply fully with manufacturers' instructions, including each step in sequence.

C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.

1.04 REFERENCES

A. Conform to reference standard by date of issue current on date of Contract Documents.

B. Obtain copies of standards when required by Contract Documents.

C. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.

1.05 INSPECTION AND TESTING LABORATORY SERVICES

A. Contractor shall appoint and employ services of an independent firm to perform inspection and testing**.** Testing firm shall be acceptable to the Owner and the Architect. **Contractor shall pay for all services.** Refer to Section 01 20 00- Contract Considerations for minimum testing required.

PART 2 - PRODUCTS

A. Not Used

PART 3 - EXECUTION

A. Not Used.

END OF SECTION

SECTION 01 50 00 - CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Temporary Utilities: Electricity, lighting, heat, ventilation, telephone service, water, and sanitary facilities.

B. Temporary Controls: Barriers, enclosures and fencing, protection of the Work, and water control.

C. Construction Facilities: Access roads, parking, progress cleaning, project signage, and temporary buildings.

1.02 RELATED SECTIONS

A. Section 01 70 00 - Contract Closeout: Final cleaning.

1.03 TEMPORARY ELECTRICITY

A. Contractor will not be required to provide and pay for power services, existing service may be used.

1.04 TEMPORARY VENTILATION

A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

1.05 TELEPHONE SERVICE

A. Provide, maintain and pay for telephone service to field office at time of project mobilization.

1.06 TEMPORARY SANITARY FACILITIES

A. Provide and maintain required facilities and enclosures.

1. 07 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operation.

B. Provide protection for plant life designated to remain. Replace damaged plant life.

C. Protect non-owned vehicular traffic, stored materials, site and structures from damage.

1.08 WATER CONTROL

A. Protect site from ponding or running water. Provide water barriers as required to protect the site from soil erosion.

1.09 PROTECTION OF INSTALLED WORK

A. Protect installed Work and provide special protection where specified in individual specification Sections.

B. Provide temporary and removable protection for installed Products. Control activity in immediate work area to minimize damage.

1.10 SECURITY

A. Provide security and facilities to protect Work, existing facilities, and Owner's operations from unauthorized entry, vandalism, or theft.

1.11 PARKING

A. Contractor shall limit the use of parking Coordinate locations with Owner.

1.12 PROGRESS CLEANING

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

B. Remove waste materials, debris, and rubbish from site periodically and dispose off-site.

1.13 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary above grade or buried utilities, equipment, facilities, materials, prior to Substantial Completion and Final Application for Payment inspection.

B. Remove underground installations to a minimum depth of 2 feet .

C. Clean and repair damage caused by installation or use of temporary work.

1.14 FIELD OFFICE AND SHEDS

A. Office: Weather tight with lighting, electrical outlets, heating, cooling and ventilating equipment, and equipped with sturdy furniture, drawing rack and drawing display table. Coordinate location with Owner.

B. Sheds: Provide watertight and secure storage sheds as necessary to hold materials to be protected white stored on site. Coordinate locations with Owner.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used.

END OF SECTION

SECTION 01 57 13 - TEMPORARY EROSION AND SEDIMENT CONTROL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Prevention of erosion due to construction activities.

B. Prevention of sedimentation of waterways, open drainage ways, and storm and sanitary sewers due to construction activities.

C. Restoration of areas eroded due to insufficient preventive measures.

D. Compensation of Owner for fines levied by authorities having jurisdiction due to non-compliance by Contractor.

1.02 RELATED REQUIREMENTS

A. Section 31.22.00 - Grading: Temporary and permanent grade changes for erosion control.

1.03 PERFORMANCE REQUIREMENTS

A. Comply with all requirements of U.S. Environmental Protection Agency for erosion and sedimentation control, as specified for the National Pollutant Discharge Elimination System (NPDES), Phases I and II, under requirements for the 2003 Construction General Permit (CGP), whether the project is required by law to comply or not.

B. Also comply with all more stringent requirements of State of Arkansas Erosion and Sedimentation Control Manual.

C. Comply with all requirements of Jonesboro for erosion and sedimentation control.

D. Develop and follow an Erosion and Sedimentation Prevention Plan and submit periodic inspection reports.

E. Do not begin clearing, grading, or other work involving disturbance of ground surface cover until applicable permits have been obtained; furnish all documentation required to obtain applicable permits.

F. Timing: Put preventive measures in place as soon as possible after disturbance of surface cover and before precipitation occurs.

G. Storm Water Runoff: Control increased storm water runoff due to disturbance of surface cover due to construction activities for this project.
   1. Prevent runoff into storm and sanitary sewer systems, including open drainage channels, in excess of actual capacity or amount allowed by authorities having jurisdiction, whichever is less.
   2. Anticipate runoff volume due to the most extreme short term and 24-hour rainfall events that might occur in 25 years.

H. Erosion On Site: Minimize wind, water, and vehicular erosion of soil on project site due to construction activities for this project.
   1. Control movement of sediment and soil from temporary stockpiles of soil.
   2. Prevent development of ruts due to equipment and vehicular traffic.
   3. If erosion occurs due to non-compliance with these requirements, restore eroded areas at no cost to Owner.

I. Erosion Off Site: Prevent erosion of soil and deposition of sediment on other properties caused by water leaving the project site due to construction activities for this project.
   1. Prevent windblown soil from leaving the project site.
   2. Prevent tracking of mud onto public roads outside site.
   3. Prevent mud and sediment from flowing onto sidewalks and pavements.

4. If erosion occurs due to non-compliance with these requirements, restore eroded areas at no cost to Owner.

J. Sedimentation of Waterways On Site: Prevent sedimentation of waterways on the project site, including rivers, streams, lakes, ponds, open drainage ways, storm sewers, and sanitary sewers.
   1. If sedimentation occurs, install or correct preventive measures immediately at no cost to Owner; remove deposited sediments; comply with requirements of authorities having jurisdiction.
   2. If sediment basins are used as temporary preventive measures, pump dry and remove deposited sediment after each storm.

K. Sedimentation of Waterways Off Site: Prevent sedimentation of waterways off the project site, including rivers, streams, lakes, ponds, open drainage ways, storm sewers, and sanitary sewers.
   1. If sedimentation occurs, install or correct preventive measures immediately at no cost to Owner; remove deposited sediments; comply with requirements of authorities having jurisdiction.

L. Open Water: Prevent standing water that could become stagnant.

M. Maintenance: Maintain temporary preventive measures until permanent measures have been established.

1.04 SUBMITTALS

A. See Section 01.30.00 - Administrative Requirements, for submittal procedures.

B. Erosion and Sedimentation Control Plan:
   1. Submit not less than 30 days prior to anticipated start of clearing, grading, or other work involving disturbance of ground surface cover.
   2. Include:
      a. Site plan identifying soils and vegetation, existing erosion problems, and areas vulnerable to erosion due to topography, soils, vegetation, or drainage.
      b. Site plan showing grading; new improvements; temporary roads, traffic accesses, and other temporary construction; and proposed preventive measures.
      c. Where extensive areas of soil will be disturbed, include storm water flow and volume calculations, soil loss predictions, and proposed preventive measures.
      d. Schedule of temporary preventive measures, in relation to ground disturbing activities.
      e. Other information required by law.
      f. Format required by law is acceptable, provided any additional information specified is also included.
   3. Obtain the approval of the Plan by authorities having jurisdiction.
   4. Obtain the approval of the Plan by Owner.

C. Inspection Reports: Submit report of each inspection; identify each preventive measure, indicate condition, and specify maintenance or repair required and accomplished.

PART 3 EXECUTION

2.01 EXAMINATION

A. Examine site and identify existing features that contribute to erosion resistance; maintain such existing features to greatest extent possible.

2.02 PREPARATION

A. Schedule work so that soil surfaces are left exposed for the minimum amount of time.

2.03 MAINTENANCE

A. Inspect preventive measures weekly, within 24 hours after the end of any storm that produces 0.5 inches or more rainfall at the project site, and daily during prolonged rainfall.

B. Repair deficiencies immediately.

C. Clean out temporary sediment control structures weekly and relocate soil on site.

D. Place sediment in appropriate locations on site; do not remove from site.

2.04 CLEAN UP

A. Clean out temporary sediment control structures that are to remain as permanent measures.

B Where removal of temporary measures would leave exposed soil, shape surface to an acceptable grade and finish to match adjacent ground surfaces.

END OF SECTION

SECTION 01 60 00 - MATERIAL AND EQUIPMENT

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Products.

B. Transportation and handling.

C. Storage and protection.

D. Product options.

E. Substitutions.

1.02 RELATED SECTIONS

A. Section 01 40 00 - Quality Control: Product quality monitoring.

1.03 PRODUCTS

A. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.

B. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.

1.04 TRANSPORTATION AND HANDLING

A. Transport and handle products in accordance with manufacturer's instructions.

1.05 STORAGE AND PROTECTION

A. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight, climate controlled enclosures.

1.06 PRODUCT OPTIONS

A. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.

1.07 SUBSTITUTIONS

A. Architect/Engineer will consider requests for Substitutions only after the Bids have been Received. Contractors GMP shall be based on these Documents without modification unless change by Addendum. Contractors may submit "Substitution Request Form(s)" under the following conditions:
   1. A substitutions will be considered when the product becomes unavailable through no fault of the Contractor or;
   2. The Contractor offers a credit to the Owner for the proposed substitution or;
   3. A substitution is offered and in the opinion of the Architect is of higher quality than the original product specified and meets all design considerations for the project or;
   4. A substitution is offered and in the opinion of the Architect is in the best interest of the Owner and the project to accept the substitution for a timely completion of the project.

B. For all substitution accepted by the Owner and the Architect, a written approval will be issued by the Architect/Engineer. The Architect/Engineers shop drawing stamp is not to be considered written approval **when the substitution is not specifically brought to the attention of the Architect/Engineer in a separate cover letter accompanying the shop drawings.**

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not used

END OF SECTION

SECTION 01 70 00 -CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Closeout Procedures.

B. Final cleaning.

C. Adjusting.

D. Project Record Documents.

E. Operation and maintenance data.

F. Warranties.

G. Spare Parts and Maintenance Materials.

1.02 RELATED SECTIONS

A. Section 01 50 00 - Construction Facilities and Temporary Controls: Progress cleaning.

1.03 CLOSEOUT PROCEDURES

A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Owner's inspection.

B. Provide submittals to the Owner that are required by governing or other authorities.

C. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

1.04 FINAL CLEANING

A. Execute final cleaning prior to final inspection.

B. Clean interior and exterior glass and surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.

C. Clean equipment and fixtures to a sanitary condition.

D. Replace filters of operating equipment.

E. Clean debris from roofs, gutters, downspouts, and drainage systems.

F. Clean site, sweep paved areas, rake clean landscaped surfaces, power wash concrete flatwork.

G. Remove waste and surplus materials, rubbish, and construction facilities from the site.

1.05 ADJUSTING

A. Adjust operating Products and equipment to ensure smooth and unhindered operation.

1.06 PROJECT RECORD DOCUMENTS

A. Maintain on site, one set of the following record documents; record actual revisions to the Work:
   1. Contract Drawings.
   2. Specifications.
   3. Addenda.
   4. Change Orders and other Modifications to the Contract (RFI's and ASI's).
   5. Reviewed shop drawings, product data, and samples.

B. Store Record Documents separate from documents used for construction.

C. Record information concurrent with construction progress.

D. Specifications: Legibly mark and record at each Product section description of actual Products installed, including the following:
   1. Manufacturer's name and product model and number.
   2. Product substitutions or alternates utilized.
   3. Changes made by Addenda and Modifications.

E. Record Documents and Shop Drawings: Legibly mark each item to record actual construction including:
   1. Measured horizontal and vertical locations of underground utilities and appurtenances referenced to permanent surface improvements.
   2. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
   3. Field changes of dimension and detail.
   4. Details not on original Contract Drawings.

F. Delete Architect/Engineer title block from all documents.

G. Submit hard copy and Disk "CD" of documents to Architect/Engineer with claim for final Application for Payment.

1. 07 OPERATION AND MAINTENANCE DATA

A. Submit two hard copy sets prior to final inspection, bound in 8-1/2 x 11-inch text pages, three D side ring capacity expansion binders with durable plastic cloth covers and Disk "CD".

B. Prepare binder covers and CD with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project, and subject matter of binder when multiple binders are required.

C. Internally subdivide the binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.

D. Contents: Prepare a Table of Contents for each volume, with each Product or system description identified, type on 24-pound white paper.

E. Submit final volumes revised, within ten days after final inspection.

CONTRACT CLOSEOUT

1.08 WARRANTIES

A. Provide notarized copies.

B. Execute and assemble documents from Subcontractors, suppliers, and manufacturers.

C. Provide Table of Contents and assemble in THREE-D side ring binder with durable plastic cover and on CD.

D. Submit prior to final Application for Payment.

E. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.

F. Refer to specific sections of the project manual for warranties required.

1.09 SPARE PARTS AND MAINTENANCE MATERIALS

A. Provide products, spare parts, maintenance and extra materials in quantities specified in individual specification Sections.

B. Deliver to Project site and place in location as directed; obtain receipt prior to final payment.

PART 2 **–PRODUCT**

Not Used

PART 3 **–EXECUTION**

Not Used

END OF SECTION

SECTION 02 41 00 – SELECTIVE DEMOLITION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Removal of designated building equipment and fixtures

B. Removal of designated structure

C. Cutting and patching

1.02 SCOPE OF WORK

A. Refer to drawings for the areas schedule for demolition. Cut opening in walls as required for new doors listed in schedules whether or not shown on the demolition drawings

1.03 RELATED SECTIONS

A. Comply with the requirements of Division 1

1.04 REGULATORY REQUIREMENTS

A. Conform to applicable codes for demolition work, safety of structure and dust control

B. Obtain required permits from Authorities

C. Do not close or obstruct egress widths to exits

D. Conform to procedures applicable when discovering hazardous of contaminated materials

PART 2 - PRODUCTS

2.01 NOT USED

PART 3 - EXECUTION

3.01 PREPARATION

A. Provide, erect, and maintain temporary barriers

B. Erect and maintain weatherproof enclosures with exterior openings

C. Protect existing materials which are not to be removed or demolished

D. Prevent movement of structure. Provide required bracing and shoring. Design and erection of bracing and shoring shall be the sole responsibility of the contractor.

3.02 DEMOLITION REQUIREMENTS

A. Conduct demolition to minimize interference with adjacent and occupied buildings

B. Cease operations immediately if structure appears to be in danger. Notify the Architect. Provide necessary temporary bracing and shoring if necessary to prevent collapse or further damage to the structure. Do not resume operations until directed.

C. Maintain protected egress and access to the work.

3.03 DEMOLITION

A. Disconnect, remove and cap designated utilities within the demolition area.

B. Demolish in an orderly and careful manner. Protect existing supporting structural members.

C. Except where noted otherwise, remove demolished material from site. Do not burn or bury material on site.

D. Remove temporary work upon completion of demolition.

3.04 RESPONSIBILITY

A. Cutting and patching shall be the responsibility of the contractor

B. Patchwork shall be performed by an appropriate contractor engaged in a given craft or trade.

C. Patching of all finishes shall match existing adjacent surfaces and shall meet the approval of the Architect.

END OF SECTION

SECTION 03 11 00 - CONCRETE FORMWORK

PART 1 – GENERAL

1.1 RELATED SECTIONS

A. Section 03 20 00 – Concrete Reinforcement.

B. Section 03 30 00 – Cast-in-Place Concrete.

1.2 WORK INSTALLED BUT FURNISHED BY OTHERS

A. Build in anchors, inserts, bolts, hangers, sleeves, ferrules, waterstops and other accessories.

1.3 DESIGN REQUIREMENTS

A. Design, construct and erect formwork per ACI 347R, Guide to Formwork for Concrete.

1.4 ALLOWABLE TOLERANCES

A. In accordance with ACI-301 as listed in Table 4.3.1-Tolerances for Formed Surfaces.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Concealed concrete: No. 2 Common Southern Pine, S4S, or better.

B. Exposed Concrete: B-B Plyform, Class I or II, EXT-APA, Metal or Fiberglass forms may be used.

C. Construction joint forms for slabs-on-grade: Key-type steel formers, Vulcan Screed Joints, Burke Keyed Kold Joint Form, Dayton Sure-Grip G-20.

D. Expansion joint filler: Asphalt impregnated, premolded fiberboard by full thickness of slab or joint, ASTM D994.

E. Form-coating: Non-staining mineral oil.

F. Form ties: Snap-off type which will break off at least ½" below surface of concrete. For sanitary structures, the form ties shall be of surface leaving an opening no larger than the tie diameter, without cones. Wall ties for structures containing or to retain liquids shall have integral water stops.

2.2 EARTH FORMS

A. Where soil is firm enough to permit cutting to true size, concrete may be placed without forms.

PART 3 – EXECUTION

3.1 ERECTING

A. Erect forms to obtain shapes, designs and dimensions indicated. Make forms sufficiently tight to prevent leakage. Brace, shore and tie forms together to maintain position without sagging or bulging.

B. Provide ¾" chamfering at corners (exposed or unexposed).

C. Prepare insides of forms so that concrete will have a smooth, uniform finish, free from fins, stone pockets, voids and other surface defects.

D. For slabs-on-grade, provide construction joint forms where concrete placement terminates at the end of a day or because of other reasons.

E. For structural members, provide bulkheads, with reinforcing steel penetrating bulkheads, where concrete placement stops at the end of day or for other reasons.

F. Where soil conditions are such that concrete cannot be placed without forms, and where other conditions cause trenches to be opened wider than footing or slab widths, erect forms for footing or slabs.

3.2 PREPARING

A. Prepare insides of forms so that concrete will have a smooth, uniform finish free of surface defects.

B. Coat forms before reinforcement steel is placed. Where mill-oiled forming material is used, follow manufacturer's instructions for recoating. Where forming material is not mill-oiled, coat forms before each use.

C. Before reusing forms, thoroughly clean them and remove projecting nails or similar devices.

3.3 FORM REMOVAL

A. Remove forms in such a manner and such time as to insure safety of structure and to avoid chipping and spallingof concrete. Refer to Section 6.2 of ACI 318, Section 6.2 of the Commentary to ACI 318, and Section 3.7 of ACI 347R for form removal requirements.

END OF SECTION

SECTION 03 20 00 - CONCRETE REINFORCEMENT

PART 1 – GENERAL

1.1 RELATED SECTIONS

A. Section 03 10 00 – Concrete Formwork.

B. Section 03 30 00 – Cast-in-Place Concrete.

PART 2 – PRODUCTS

2.1 REINFORCEMENT STEEL

A. ASTM A615, Grade 60.

2.2 REINFORCEMENT WIRE

A. Welded steel wire fabric, ASTM A185.

2.3 BAR SUPPORTS

A. Bar supports and spacing of same shall be as per recommendations set forth by Chapter 3 of the CRSI Manual of Standard Practice, Current Edition.

B. Steel wire bar supports in concrete where soffits are exposed to view, weather, or liquid shall be Class 1 or Class 2, Types A or B; Class 3 is acceptable for other uses.

2.4 OTHER SUPPORTS

A. Concrete brick may be used to support reinforcement to obtain proper clearance from earth and rigidity of reinforcement under concreting operations.

2.5 TIE WIRE

A. Wire shall be 16-1/2 gauge or heavier, black-annealed.

2.6 FABRICATING

A. In accordance with CRSI Manual of Standard Practice, Current Edition.

PART 3 – EXECUTION

3.1 CONDITION OF SURFACES

A. Maintain reinforcement surfaces free of mud, oil or other coatings which might impair bond as described in Section 7.4 of ACI 318. Rust or mill scale is acceptable provided the minimum dimensions are not less than applicable ASTM Standards. Loose rust scale to be removed with wire brush.

3.2 INSTALLING REINFORCING STEEL

A. Handle, place and tie reinforcement steel in accordance with “Building Code Requirements for Reinforced Concrete,” ACI 318-95 and CRSI publication “Placing Reinforcing Bars,” Current Edition.

3.3 INSTALLING WELDED WIRE FABRIC

A. For Slabs-on-Grade:

1. Install welded wire fabric after vapor barrier (or under floor waterproofing, if applicable) has been placed.

2. Locate welded wire fabric in center third of slabs.

B. Lap side one full mesh plus 2 inches. Lap end two full meshes. Offset end laps in adjacent width to prevent continuous laps.

3.4 CONCRETE PROTECTION FOR REINFORCEMENT

A. Protect reinforcing by thickness of concrete indicated on Contract Drawings.

B. Variation from clear cover shall conform to section 7.5 of ACI 318.

END OF SECTION

SECTION 0330 00 - CAST-IN-PLACE CONCRETE

PART 1 – GENERAL

1.1 RELATED SECTIONS

A. Section 0311 00 – Concrete Formwork.

B. Section 0320 00 – Concrete Reinforcement.

PART 2 – PRODUCTS

2.1 READYMIX CONCRETE

A. In accord with ASTM C94, option A and the criteria given in these specifications and on the Structural Drawings.

B. Strength at 28 days: As specified on the Structural Drawings.

C. Air Content: Provide entrained air in accordance with ACI 302-1R, Table 5.2.7a within tolerances specified. Concrete subject to freezing and thawing and/or deicers shall be categorized as "severe exposure," except concrete with a specified strength of 6000 psi shall be categorized as "moderate exposure." All other concrete shall be categorized as "moderate exposure."

D. Water-Cement Ratio: All concrete exposed to freezing and thawing shall have a maximum water-cement ratio of 0.50. All concrete subjected to deicers and/or * required to be watertight shall have a maximum water-cement ratio of 0.45 (4500 psi or more at 28 days.) All reinforced concrete subjected to brackish water, salt spray or deicers shall have a maximum water/cement ratio of 0.40 (5000 psi or more at 28 days).

E. Slump: All concrete containing the high-range water-reducing admixture (superplasticizer) shall have a maximum slump of 9" unless otherwise approved by the Architect. The concrete shall arrive at the job site at a slump of 2" to 3", which shall be verified, then the high-range water-reducing admixture added to increase the slump to the approved level. All other concrete shall have a maximum slump of 3 inches for slabs and 4 inches for other concrete.

F. Maximum water soluble chloride ion concentrations in hardened concrete at an age of 28 days contributed from the ingredients including water, aggregates, cementitious materials and admixtures shall not exceed the limits established in Table 4.3.1 of ACI 318.

G. Admixtures: All concrete shall contain the specified water-reducing admixture or high range water-reducing admixture (superplasticizer). At the Contractor's option, both water-reducing admixtures may be included in the concrete mix. All concrete slabs placed at air temperatures below 50 degrees Fahrenheit shall contain the specified Non-Chloride, Non-Corrosive accelerator. All concrete required to be air entrained shall contain the approved air entraining admixture. All pumped concrete, architectural concrete, and concrete with a water-cement ratio below 0.50 shall contain the specified high range water reducing admixture (superplasticizer).

2.7 VAPOR RETARDER

A. 10 mil polyethylene sheeting comforming to ASTM E154.

PART 3 – EXECUTION

3.1 FIELD QUALITY CONTROL

A. As concrete is delivered, the Testing Laboratory will make cylinders as specified in this specification. In addition, the Testing Laboratory will take small batches of the same concrete used for making cylinders for making slump tests and air entrainment tests. Assist the Laboratory in taking samples and furnish concrete required for making the test.

B. The Testing Laboratory shall observe baseplate grouting and curing procedures.

3.2 PLACING CONCRETE

A. Prepare place of deposit and equipment. Convey and place concrete in accordance with ACI 301, Chapter 8, Paragraphs 8.1 through 8.3. Certain parts of those paragraphs are modified below, and where modifications conflict with those paragraphs or additional instructions they should take precedence over the printed paragraphs of ACI 301.

B. Variation from clear cover and depth of members shall conform to section 7.5 of ACI 318.

C. Deposit concrete within 1-1/2 hours after water is added to dry batching, or use retarding admixture.

D. Convey concrete promptly to point of use in manner which will prevent separation of ingredients and loss of water. Deposit concrete near its final position to avoid rehandling.

E. Consolidate concrete, including floor slabs, in accordance with ACI 309R, “Recommended Practice for Consolidation of Concrete”. All concrete shall be vibrated. Maintain at least one vibrator as a stand-by. Lower frequency vibrators may be used with “flowing” concrete.

F. Do not use vibrators to cause concrete to flow.

G. Concrete column placements shall not extend more than ¾ inch into the concrete slab, beam or shear cap. Chip off any concrete that exceeds this dimension.

3.3 FINISHING

A. After placing concrete, screed to levels and slopes indicated. Do not use tamping tools to force aggregate away from surface.

B. When the water sheen has disappeared, use a wood float as indicated.

C. Where troweled finish is required, the surface shall initially receive a float finish. The surface shall then be troweled, at least twice, to a smooth dense finish. Remove small imperfections left by troweling machine and bring to a smooth, dense, polished finish.

D. Broomed finish (at all ramps). The surface shall be given a coarse transverse scored texture by drawing a broom or burlap belt across the surface. This operation shall follow immediately after floating. Texture shall be as approved by the Architect from sample panels.

E. Do not use dry materials, such as sand and cement, on surfaces during finishing.

F. Do not use any procedures, such as the addition of water to the concrete surface, that produces a layer of weak material with an increased water-cement ratio at the slab surface.

G. Grinding or the specified underlayment or repair topping shall be used where surfaces do not achieve their specified tolerances.

H. Where floors are to be covered with thin set tile, trowel as specified above and then broom surfaces to form a “tooth”.

3.4 CURING

A. As finished work is completed, begin curing. Curing may be accomplished by either of the methods described below, except for items specifically designated for a particular method.

B. Waterproof paper or plastic film curing: Cover damp surfaces with film or paper and lap at edges at least 4 inches. Apply weights to prevent displacement. Repair tears and punctures as they occur.

C. All exposed interior slabs and troweled slabs receiving mastic applied adhesives or metallic or mineral aggregate hardeners shall be cured with curing and sealing compounds compatible with the adhesives or hardeners. Exterior slabs, sidewalks, curbs, architectural concrete and any concrete where total resistance to yellowing from ultra-violet light and water exposure is required shall be cured with the specified clear, non-yellowing curing and sealing compound. Use waterproof paper or plastic film where any topping or applied material is not compatible with curing and sealing compounds.

D. Do not use curing and sealing compounds on surfaces receiving applied finishes other than resilient tile or carpet.

E. Where forms are left in place, keep forms damp by spraying at frequent intervals for at least 8 days. Do not allow forms to dry out.

3.5 PROTECTION

A. Protect concrete for at least 48 hours after finishing is complete. Erect barriers as necessary to protect uncured areas. Provide wood covers to protect uncured areas. Provide wood covers to protect concrete step-ups.

B. Protect concrete from paint and other stains, and from abrasive traffic.

END OF SECTION

SECTION 05 12 00 - STRUCTURAL STEEL

PART 1 - GENERAL

1.01 RELATED SECTIONS

A. Grouting under base and bearing plates: Section 03 30 00 - Cast-in-Place Concrete.

1.02 PRODUCTS FURNISHED BUT NOT INSTALLED UNDER THIS SECTION

A. Anchor rods and setting templates:

1. Section 03 30 00 - Cast-in-Place Concrete.

2. Section 03 11 00 - Concrete Formwork.

1.03 SCOPE

This is a Performance specification. Work under this section includes, but is not limited to, a complete resolution of the geometry of the Structural Steel members and their joints, connection design and detailing when not fully detailed on the contract documents, producing shop drawings which accurately reflect the geometry of the members and joints, fabricating and erecting of the structural steel to achieve a finished structural frame. The fabricator and erector shall include in their bid the expense of making any field corrections required to achieve a workable structure.

1.04 SUBMITTALS

A. Steel fabricator and erector to supply a list of five previous projects similar in size and complexity to this project to establish that they are capable to perform the work for this project. List shall include the name and location of each project with the name and phone number of the Contractor and Architect for which the previous projects were performed. Architect may reject any steel fabricator or erector that, in his opinion, fails to appear capable of performing the required work. Steel fabricator shall be approved by the Architect prior to the production of shop drawings.

B. Shop drawings prepared by the fabricator. Connections not detailed on the design drawings shall be designed by the fabricator. Structural design drawings are for design intent only. It is the responsibility of the fabricator to ensure that the shop drawings reflect all necessary information required for fabrication and erection. Reproduction of structural design drawings for the shop drawing submittal will not be permitted nor will they be reviewed.

C. Prequalified welding procedures, prepared by the steel fabricator and erector, as a written procedure specification to Engineer. Prepare these procedures in accordance with Appendix E of the AWS "Structural Welding Code," AWS D1.1. Obtain Architect’s approval before erecting steel.

D. Submit mill certification that steel supplied meets requirements of specifications.

E. Submit electrode manufacturer's certification that the electrode and flux combination the requirements of the particular classification or grade of electrodes.

F. Submit manufacturer's certification that shear stud bases are qualified.

G. Submit the number of copies required by Division 01 of each report from the Testing Laboratory to the Architect. See Field Quality Control section this specification for inspections and test required of the Testing Laboratory.

H. Submittals shall include the following note completed and signed by the Contractor: The data submitted does not contain material deviation from requirements of contract documents except as follows:

1.05 QUALITY ASSURANCE

A. Structural steel: Meet requirements of the AISC Steel Construction Manual, Thirteenth Edition, Allowable Stress Design for types of steel specified.

B. Fabrication and erection: Meet requirements of Specification for Structural Steel Buildings, March 9, 2005, and all subsequent modifications or addendums (referred to below as Structural Steel for Buildings) as indicated.

C. Welding: In accordance with requirements of American Welding Society "Structural Welding Code," AWS D1.1.

D. Testing Agency - Personnel performing tests and inspection will be certified by American Society for Non-Destructive Testing, for Level II.

E. Included in the responsibilities for structural steel testing and inspection are the following:

1. Observe the AWS qualifications of all welders.

2. Visually inspect all bolted connections and test a representative sampling of a minimum of 10% of the high strength bolts for proper installation and tensioning.

3. Verify that electrodes are compatible with the base metals joined.

4. Ultrasonically test all complete penetration welds and visually inspect all fillet welds.

5. Visually verify size, spacing, location and quantity of welded headed shear studs and test a representative sampling in accordance with AWS recommendations and procedures using the bend test method or approved equal.

1.06 QUALIFICATIONS

A. Steel fabricator: Certified by American Institute of Steel Construction Fabrication Certification Program, Category STD. If steel fabricator is not so certified, he shall have an Independent Testing Laboratory, approved by Architect, certify that the fabrication procedures used in this Work are fabricated in accordance with these specifications. The purpose of this inspection is to enable the Testing Agency to verify, in general, that the steel is being fabricated in accordance with these specifications. A minimum of one trip per week is recommended.

B. Welders, tackers, and welding operators: Qualified in accordance with Structural Welding Code - Steel, AWS D1.1 to perform the type of work required.

1.07 PRODUCT HANDLING

A. Deliver materials, such as anchor rods and other anchor devices to be embedded in concrete and masonry construction, to project site in time to be installed in proper sequence with concrete and masonry work. Provide setting drawings, templates and directions for installation of anchor rods and other devices.

B. Deliver steel to project site and stack in designated areas.

C. Stack and store steel above ground on platforms, studs or other supports. Protect steel from corrosion and damage. Keep materials clean.

D. Store other materials in a weathertight, dry place until ready for use.

E. Store packaged materials in their original, unbroken package or container.

F. Store shear studs in a protected, weathertight, dry place until ready for use.

PART 2 - PRODUCTS

2.01 STRUCTURAL STEEL

A. ASTM A36, Standard Specification for Structural Steel for plates, channels and angles.

B. ASTM A992, Standard Specification for Structural Steel Shapes or ASTM A572, Grade 50, High Strength, Low Alloy Columbian-Vanadium Steels of Structural Quality for all other rolled shapes.

2.02 STEEL PIPE

A. ASTM A53, Grade B, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.

2.03 STEEL TUBING

A. ASTM A500, Grade B, Standard Specification for Cold-Formed Welded and Seamless Carbon Structural Tubing.

2.04 SHEAR STUDS

A. Shall be in accordance with AWS Structural Welding Code AWS D1.1, Section 7.

2.05 WELDING ELECTRODES

A. Electrodes having low hydrogen covering shall be purchased in hermetically-sealed containers.

B. For fabricating plant use: E70 electrodes, AWS A5.1, A5.5, A5.17 or A5.20.

C. For shear studs, in accordance with AWS Structural Welding Code AWS D1.1, Part F. Provide heat-resistant arc shields with studs.

2.06 BOLTS

A. High strength bolts, nuts and washer: Type 1 or 2, ASTM A325, Standard Specification for High-Strength Bolts for Structural Joints, Including Suitable Nuts and Plain Hardened Washers. Provide 3/4" diameter bolts unless noted otherwise or approved by the engineer.

B. High strength bolts in slip critical connections or in connections where bolts are specified or noted as fully tensioned shall be load-indicator bolts. Provide load-indicator bolts as manufactured by Bethlehem, Le Juene, or approved substitute. Load-indicator bolts shall be installed using equipment specifically manufactured for this use. Load-indicator bolts in tension shall have rounded heads that cannot accept the application of a wrench.

C. Unfinished bolts: ASTM A307, Standard Specification for Carbon Steel and Externally Threaded Standard Fasteners.

D. Expansion (wedge) anchors:

Manufacturer	**Product**
Ramset Fastening Systems	Trubolt anchors
Hilti Fastening Systems	Kwik Bolt 3
Simpson Strong-Tie	Wedge-All or Strong Bolt anchors
Powers Fasteners	Power-Bolt anchors

E. Anchor Rods: ASTM F1554, grade 36, unless noted otherwise.

2.07 SHOP COATING

A. A high grade rust-inhibiting primer. Use red oxide primer unless otherwise noted.

B. Paint shall be VOC compliant, lead and chromate free and shall be compatible with products specified in Division 9 specifications.

PART 3 - EXECUTION

3.01 FABRICATING

A. Fabricate in accordance with applicable requirements of M2 of "Specification For Structural Steel Buildings" by AISC.

B. Design all connections, except for those fully detailed on the Structural Drawings.

3.02 SHOP COATING

A. Before steel leaves fabricator's shop, remove loose mill scale, rust, weld slag and flux deposit, dirt, foreign matter and oil and grease. Prepare surface as recommended by paint manufacturer for the intended exposure. Do not sandblast, flame clean, or pickle material.

B. Thoroughly and evenly apply one coat of shop paint to cleaned surfaces. Thickness of shop paint coat shall be applied to a minimum dry film thickness of 1 mil or as required by surface preparation.

C. Do not paint steel to be encased in concrete, plaster and sprayed-on-fireproofing. Mask steel at locations to be field welded and at the faying surfaces of slip-critical bolted connections.

3.03 ERECTING

A. Before commencing erecting work, notify Architect in writing at least 48 hours in advance.

B. Erect steel in accordance with requirements of Section M4 of "Specification For Structural Steel Buildings" by AISC, except paragraph M4.6 is hereby modified to make field painting a part of the work on this section.

C. Use specified high-strength bolts for bolted connections, except where unfinished bolts and welded connections are allowed below. Use a minimum of 2 bolts at each bolted connection. Use hardened washers under bolt or nut, whichever is the element turned in tightening. Prior to tightening the bolts of a connection to final tension, there shall first be enough bolts brought to a "snug tight" condition to insure that the parts of the joint are brought into good contact with each other.

D. Bolts in bearing type conditions which are not subject to fatigue or load fluctuations need only to be tightened to a snug-tight condition. Bolts in tension shall be tightened to full tension values. Refer to Drawings for location of bolts required to be fully tightened.

E. Use unfinished bolts in places indicated.

F. Install expansion anchors per manufacturer's instructions.

G. Provide headed stud anchors in quantity and spacing required by the Structural Drawings. Studs shall be arc welded to the steel member using automatically timed stud welding equipment in accordance with AWS D1.1.

H. Weld connections where indicated. Do not peen welds unless authorized in writing by Architect. Any shop paint on surfaces adjacent to joints to be field welded shall be wire brushed to reduce the paint film to a minimum.

I. Field painting: For shop coated steel, touch up welds and scarred and damaged shop coat.

J. Protect all structural steel below grade by encasing in concrete or painting with bitumastic paint.

K. Do not field cut or alter structural members without approval of Architect/Engineer.

3.04 FIELD QUALITY CONTROL

A. Shop and field welding will be tested and inspected in accordance with AWS Structural Welding Code. Welds will be visually or ultrasonically tested, depending on types of welded joints. All full or partial penetration welds shall be ultrasonically tested or tested using other non-destructive testing methods approved by the Engineer. All other welds shall be visually inspected by the Testing Laboratory for compliance with the design drawings and shop drawings. If suspect welds are observed during the visual inspection, ultrasonic or other approved non-destructive testing shall be performed to determine the acceptability of such welds. If defects are found, then a random sampling of at least 10 percent of the other welds similar to the defective weld shall be tested by ultrasonic or other approved non-destructive testing methods to evaluate the extent of the defective welds. The Testing Laboratory as directed by the Architect shall perform any additional inspections and testing of welds Additional testing as a result of non-conformances will be at the expense of the Contractor.

B. The Testing Laboratory shall inspect and test a minimum representative sampling of 10 percent of all bolted connections. Additional inspections and testing of bolted connections shall be performed by the Testing Laboratory as directed by the Architect. Additional testing as a result of non-conformances will be at the expense of the Contractor.

C. Shear studs shall be tested and inspected by Testing Laboratory in accordance with AWS D1.1, Section 7.

D. The steel fabricator shall be fully responsible for insuring that all steel fabrication and erection is in accordance with the Contract Documents. Failure of Architect, Engineer or Testing Laboratory to detect defective work, workmanship, materials, or erection shall in no way prevent rejection of the work and does not release the steel fabricator from his responsibility for providing approved corrective action when such defects are discovered. The Architect/Engineer or the Testing Laboratory shall not, thereby, be obligated to make a final acceptance.

E. Submit all reports to the Architect in accordance with the requirements of Division 01.

END OF SECTION

SECTION 05 50 00 - MISCELLANEOUS STEEL

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Steel handrails and supports.

1.2 DESIGN REQUIREMENTS

A. Handrails shall be designed in accordance with the referenced building code. Handrails and guardrails shall be designed and detailed to comply with all applicable OSHA Standards.

B. Provide railing capable of withstanding a uniform load of 50 lbs/ft and a concentrated load of 200 lb applied to handrail and top rails of guards in any direction. Uniform and concentrated loads need not be assumed to act concurrently.

C. Provide railing infill capable of withstanding a concentrated load of 50 lbf applied horizontally on an area of 1 sq ft. Infill load and other railing loads need not be assumed to act concurrently.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Steel Sections: ASTM A 36/A 36 M. Wide flange shapes ASTM A572.50 (50ksi)

B. Steel Tubing: ASTM A500, Grade B or Hot rolled ASTM A 501.

C. Steel Plates: ASTM A283.

D. Bolts, Nuts, and Washers: ASTM A 325 (ASTM A325M) galvanized to ASTM A 153/A 153M for galvanized components.

E. Exposed Mechanical Fastenings: Flush countersunk screws or bolts.

F. Welding Materials: AWS D1.1; type required for materials being welded.

G. Shop and Touch-up Primer: SSPC Paint 15, Type I – Red Oxide.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Install components plumb and level, accurately fitted, free from distortion or defects.

B. Provide anchors, plates, angles, hangers, and struts required for connecting to structure.

C. Field weld components indicated on drawings. Perform field welding in accordance with AWS D1.1

D. Field bolt and weld to match shop bolting and welding. Conceal bolts and screws whenever possible. Where not concealed, use flush countersunk fastenings.

E. Mechanically fasten joints butted tight, flush and hairline. Grind welds smooth and flush.

F. Obtain approval prior to site cutting or creating adjustments not scheduled.

G. After erection, prime welds, abrasions, and surfaces not shop primed, except surfaces to be in contact with concrete.

END OF SECTION

SECTION 06 10 00 - ROUGH CARPENTRY

PART 1 - GENERAL

1.01 SCOPE

A. This section covers wood framing of completed buildings, including all materials, labor services and equipment necessary to complete this work. Work includes but is not limited to wood frame stud walls, floors, ceilings, roofs, prefabricated wood trusses, wood furring, blocking, fasteners and replacement of damaged wood as specified on contract drawings.

1.02 COORDINATION

A. Coordinate the location and sequence of this work with other trades for proper execution to fulfill design requirements. Time delivery and erection of wood to avoid extended on-site storage.

1.03 PRODUCT HANDLING

A. Store all materials off the ground in such a manner as to ensure proper ventilation and drainage and to protect against damage and the weather.

B. Remove all damaged material promptly from site to prevent its inadvertent use.

1.04 SUBMITTALS

A. Pressure treated wood: Submit certification by treating plant stating chemicals and process used, net amount of salts retained, and conformance to applicable standards.

B. Preservation treated wood: Submit certification for waterborne preservative that moisture content was reduced to moisture content specified elsewhere in this Section.

C. Fire retardant treated wood: Submit certification by treating plant stating that chemicals and process used produce wood which conforms to all requirements of fire retardant treated wood.

D. Wood Trusses: Shop drawings shall indicate species, sizes, and stress grades of lumber to be used; pitch, span, camber, configuration and spacing for each type of truss required; type, size, material, finish, anchorage details. Shop drawings shall include roof framing plans indicating placement and spacing of all trusses. A letter of certification from the truss manufacturer shall also accompany the truss shop drawing confirming the capacity of the metal gusset plate used in fabrication of the trusses. Shop drawings shall also specify all special requirements of the truss manufacturer where trusses support conventional framing above.

E. Provide shop drawings which have been signed and stamped by a structural engineer licensed to practice in the state where trusses are to be erected. Plans that accompany truss drawing submittals shall also be signed and stamped by the Structural Engineer who designs the individual truss components..

F. Submittals shall include the following note completed and signed by the Contractor: The data submitted does not contain material deviation from requirements of contract documents except as follow:

G. Submit delegated engineer component certification letter appended to this section.

PART 2 - PRODUCTS

2.01 NAILERS, BLOCKING AND FRAMING

A. Except as specified below, all wood shall be No. 2 air-dried Southern Yellow Pine at maximum moisture content of 19 percent.

B. Wood Floor joist shall be no. 2 kiln-dried Southern Yellow Pine at a maximum moisture content of 15 percent.

C. All lumber in contact with roofing, steel, masonry or concrete, or embedded in or in contact with the ground, floor framing members 18 inches or closer to the ground, wood framing closer than 12 inches to exposed ground within periphery of the building over crawl space or unexcavated areas, sills on exterior walls, or continuous foundations and less than 8 inches from exposed earth, shall be pressure treated complying with American Wood Preserving Institute Standards. Do not use oil-based preservative where wood may contact roofing materials. All nails, bolts or any other metal connector used with pressure treated lumber shall be galvanized.

D. Specified lumber dimensions are nominal. Actual dimensions conform to industry standards established by the American Lumber Standards Committee and the rules writing agencies.

E. Provide fire retardant treated wood where indicated on drawings. All fire retardant treated wood shall bear an identification mark showing the flame spread index thereof issued by an approved agency having a re-examination service. Wood noted to be fire-retardant shall be pressure treated in accordance with AWPA C-20 for lumber and AWPA C-27 for plywood.

2.02 PLYWOOD

A. Each plywood panel shall be identified with the appropriate grade trademark of the American Plywood Association, and shall meet the requirements of the U.S. Product Standard PS 1-74.

B. All plywood which has an edge or surface permanently exposed to the weather shall be exterior type.

C. Provide thickness indicated on the Drawings. Grade of plywood panel shall be as specified on the Drawings, or in accordance with the recommendations of the American Plywood Association.

2.03 PREFABRICATED WOOD TRUSSES

A. All wood used in prefabricated wood trusses shall be graded lumber conforming to stress requirements and grades indicated on shop drawings.

B. Allowable design stresses shall be in accordance with the Design Values for Wood Construction Supplement to the National Design Specification for Wood Construction Produced by the National Forest Products Association.

2.04 FASTENERS

A. Nails: Common wire nails, finishing nails, and cement coated nails in accordance with Fed. Spec. FF-N-105. Use coated nails for exterior nailing. Use galvanized nails where nails are in contact with pressure treated wood.

B. Bolts, washers and nuts: Commercial quality steel. Galvanized where used on exterior or in contact with pressure treated lumber.

C. Anchor bolts: Shall be in accordance with Fed. Spec. FF-B-517 and FF-B-575. Sizes shall be as indicated on Drawings. Bolts shall be galvanized where used on exterior or in contact with pressure treated lumber.

D. Screws: Shall be in accordance with Fed. Spec. FF-S-111, galvanized.

E. Expansion bolts: Shall be in accordance with Fed. Spec. FF-S-325, with expansion shields. Sizes shall be as indicated on Drawings. Bolts shall be galvanized where used on exterior or in contact with pressure treated lumber.

2.05 METAL GUSSET PLATES

A. Provide gusset plates manufactured by a firm which is a member of TPI and which complies with TPI quality control procedures for manufacture of connector plates published in TPI "Quality Control Manual."

B. Indicate recommended values for load as established by the manufacturer on the shop drawings. Plates shall be galvanized or otherwise protected from corrosion.

PART 3 - EXECUTION

3.01 FRAMING

A. Reject members not suitably straight or having blemishes or defects that would impair the strength of the member.

B. Install framing members in such a manner as to provide a true, even, straight plane to receive finishes or flooring. Fit wood square, plumb, and true without gaps, cracks, or open joints.

C. Cutting shall be accomplished using necessary tools to produce square cuts, holes and notches. Do not notch, bore or cut members for pipes, ducts, conduits or other reasons except as shown on the Drawings or as specifically approved by the Architect. Apply two brush coats of preservative used in original treatment to all sawed and cut surfaces of treated lumber.

D. Provide spacing or blocking as required to place member into alignment.

3.02 FASTENING

A. Nailing: Use number and size of nails to achieve a rigid and solid connection. Space and size nails to prevent splitting or prebore wood as required. Replace all split members. Nailing shall conform to applicable building codes.

B. Bolting: Drill holes 1/16" larger in diameter than bolt to be installed. Drill straight and true from one side only. Provide plates or washers between bolt head or nut and wood surface.

C. Screws: Prebore holes same diameter as root of thread. Enlarge holes to shank diameter for length of shank.

D. Make wood-to-wood fastenings with proper size cement coated nails.

3.03 PLYWOOD

A. Install plywood panels to be continuous over two or more spans. Installation shall conform to recommended practice of the American Plywood Association and to the applicable building code.

3.04 ANCHORING

A. Anchor wood nailers to angles by bolting to steel at 4'-0" using washers and lock washers. Bore and counter-bore to keep surfaces free from projections.

B. Anchor wood nailers to concrete or masonry with anchor bolts spaced not more than 4'-0".

3.05 PREFABRICATED WOOD TRUSSES

A. Design trusses for the dead and live loads shown on the Structural Drawings and in accordance with the defined allowable stresses.

B. Fabrication: Cut truss members to accurate lengths, angles, and sizes to produce close fitting joints with wood-to-wood bearing in assembled units. Assemble truss members in design configuration using jigs or other means to ensure uniformity and accuracy of assembly with close fitting joints.

C. Erect and brace trusses to comply with recommendations of manufacturer and the Truss Plate Institute.

D. Erect trusses with plane of truss webs vertical (plumb) and parallel to each other, located accurately at design spacing indicated.

E. Hoist units in place by means of lifting equipment suited to sizes and types of trusses required, applied at designated lift points as recommended by fabricator, exercising care not to damage truss members or joints by out-of-plane bending of other causes.

F. Provide temporary bracing as required to maintain trusses plumb, parallel and in location indicated, until permanent bracing is installed.

G. Anchor trusses securely at all bearing points to comply with methods and details indicated on shop drawings.

H. Install permanent bracing and related components to enable trusses to maintain design spacing.

I. Do not cut or remove truss members.

3.06 METAL GUSSET PLATES

A. Press plates into members to obtain full penetration without crushing outer surface of wood.

B. A stress increase for the value of a connector for duration of loading or other factors will not be allowed in any case.

C. Increase metal gusset plates, except for scissor trusses, 25 percent in capacity over and above that which is required for calculated stresses and balance on joint as forces require. Minimum bite of 2-1/2" on tension member.

D. Dimension exact location of each connector in joint.

E. Splices in bottom or top chords shall occur at a joint.

F. Where more than one member meets at a joint, only one gusset plate per side of truss is allowed.

G. Job applied pressed metal plates shall be installed with the same pressure used in shop application.

H. NOTE: For architecturally exposed trusses, trim gusset plates to the sizes of the truss members prior to shipment to job site.

I. Construct scissor trusses with gusset plates 1.5 times the capacity required by stresses.

3.07 CLEAN-UP

A. Clean up debris and excess materials from this work and remove from site. Leave area broom clean.

END OF SECTION

SECTION 07 21 00 - INSULATION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Thermal insulation.

B. Attic blown

PART 2 - PRODUCTS

2.01 MATERIAL

A. Attic insulation shall be Owens Corning PROPINK L77 PINK fiberglass loosefill insulation designed for use in attics “Blown”. Thickness shall be as required to achieve (R-42) listed on drawings. Material by Johns Manville, Certainteed or Knauf are acceptable.

A. Exterior Wall Cavity shall be Owens Corning EcoTouch Pink Fiberglas Insulation with Kraft Face and minimum R-19. Material by Johns Manville, Certainteed or Knauf are acceptable.

B. Storage Room Wall Cavity shall be Owens Corning EcoTouch Pink Fiberglas Insulation with Kraft Face and minimum R-13. Material by Johns Manville, Certainteed or Knauf are acceptable.

C. Substitutions: Under provisions of Section 01600.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify site conditions under provisions of Section 01 30 00.

B. Verify work within construction spaces or crevices is complete prior to insulation application.

C. Verify that surfaces are clean, dry, and free of matter that may inhibit insulation or overcoat adhesion.

3.02 INSTALLATION

A. Install all insulation in accordance with manufacturer's instructions.

B. Exterior wall batt insulation shall have kraft face on the interior side. Tape all joints to maintain vapor barrier.

C. Attic blown insulation shall be installed over existing batt insulation, provide new vent baffles as required to allow free ventilation into attic space.

D. Any wall insulation damaged by water shall be replaced prior to installation of gypsum sheathing.

END OF SECTION

SECTION 07 21 54 - RADIANT BARRIERS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Radiant barriers.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Manufacturer: Fi-Foil Company, Inc., PO Box 800, Auburndale, Florida 33823. Toll Free 800-448-3401. Phone 863-965-1846. Fax 863-967-0137. Website www.fifoil.com. E-mail info@fifoil.com.

2.2 RADIANT BARRIERS

A. Radiant Barriers: Fi-Foil “Radiant Shield”.

B. Description:
   1. Multi-laminate, perforated, sheet radiant barrier.
   2. Two outer layers of aluminum foil laminated to layer of woven polyethylene.
   3. Thickness of Each Layer: Minimum 0.00025 inch.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install radiant barriers in accordance with manufacturer's instructions and ASTM C 1743.

B. Install radiant barriers at locations indicated on the Drawings.

C. Splice radiant barriers in accordance with manufacturer's instructions to avoid gaps.
   1. Tape seams if gaps appear where splice has been butted.

D. Cut radiant barriers to fit snugly around openings.
   1. Tape edges of radiant barriers to openings, if wall can be seen.

E. Tape tears in radiant barriers.

F. Replace damaged radiant barriers as directed by Architect.

END OF SECTION

SECTION 07 25 00 – AIR BARRIER/ WEATHER RESISTANT BARRIER

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Air Barrier/ Weather Resistant Barrier: Furnish and install air barrier/weather resistant barrier over exterior of wall sheathing at all location regardless of whether or not indicated on the drawings to protect exterior sheathing and interior walls.

PART 2 - PRODUCTS

2.01 MATERIAL

A. Air Barrier/ Weather resistant Barrier: DuPont Tyvek Home Wrap- a flash spun bonded olefin, non-woven, non-perforated secondary weather resistant barrier as manufactured by DuPont Weatherization Systems, Wilmington, DE 19805 www.tyvek.com

B. Air Barrier/ Weather Resistant Barrier shall have the following characteristics:
   1. AATCC-127: Water Penetration Resistance, exceeded at 280
   2. TAPPI T-460: Gurley Hill (sec/100cc) Air infiltration at >1500 seconds
   3. ASTM E 96: Method B (g/m2-24 hr.) Water Vapor Transmission of 200
   4. TAPPI T-41D: Basic Weight of 2.7 oz/yd
   5. ASTM E 96: Method B Water Vapor Transmission, 28 perms
   6. ASTM E 1677: Air Retarder Material Standard Specifications- Type I air barrier

PART 3 - EXECUTION

3.01 INSTALLATION

A. Air barrier/ weather resistant barrier is to be installed over exterior side of exterior wall sheathing.

B. Install lower level barrier prior to upper level to ensure proper shingling of layers.

C. Overlap Air Barrier at corners of building by a minimum of 12 inches

D. Overlap Air Barrier at vertical seams by a minimum of 6 inches

E Ensure barrier is plum and level with foundation and unroll extending Air Barrier over window and door openings.

F. Attach Air Barrier to wood, insulated sheathing or exterior gypsum with plastic cap nails every 12” to 18” on vertical stud line with wood stud framing and screws and washers to metal stud framing. When attaching to masonry, use adhesive recommended by the manufacturer.

G. Prepare window and door rough openings as follows:
   1. Prepare each window rough opening by cutting a modified “I” pattern in the air barrier as follows:
      a. Horizontally cut Air Barrier along bottom of header
      b. Vertically cut Air Barrier down the center of the window opening from the top of the window opening down to 2/3 of the way to the bottom of the window opening
      c. Diagonally cut Air Barrier from the bottom of the vertical cut to the left and right corners of the opening.

d. Fold side and bottom flaps into window opening and fasten every 6 inches. Trim off excess.

2. Prepare each door opening by cutting a standard "I" pattern in air barrier as follows:
    a. Horizontally cut Air Barrier alone bottom of door frame header and along top of sill
    b. Vertically cut Air Barrier down the center of the door opening from top of door opening (header) down to the bottom of the door opening (sill)
    c. Fold side flaps inside around door opening and fasten every 6 inches. Trim off excess.

H. Tape all horizontal and vertical seams of Air barrier with DuPont Tyvek Tape

I. Seal all tears and cuts in Air Barrier with DuPont Tyvek Tape

END OF SECTION

SECTION 07 31 00- FIBERGLASS BASES ASPHALT SHINGLES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. SCOPE: Furnish and install fiberglass shingles, underlayment, eave and valley (Ice and Watershield) protection, flashings, rake and eave edges, closures, and miscellaneous accessories to provide a complete roof enclosure as shown on the Drawings.

PART 2 MATERIALS

2.01 MANUFACTURERS - FIBERGLASS SHINGLES

A. Cer Tain Teed – "LANDMARK"

2.02 FIBERGLASS SHINGLES

A. Fiberglass Shingles: ANSI/ASTM D3018, Class A; UL Rating of A and Wind Resistance Label, glass fiber mat base, mineral granule surface type; architectural dimensional grade type; algae resistant, color: Driftwood.

2.03 SHEET MATERIALS

A. Eave, Rake and valley (Ice and Watershield) Protection: Sheet barrier of rubberized asphalt bonded to sheet polyethylene, 40 mil total thickness, with strippable treated release paper; manufactured by W.R. Grace and Company, ALCO, IKO or Certainteed.

B. Starter Course: Trim tabs from shingle, applying solid shingle strips as starter course, extending 3/8" over eave and rake edges for drip edge.

C. Underlayment: ANSI/ASTM D226, No. 15 unperforated asphalt saturated felts as recommended for use in waterproofing.

2.04 FLASHING MATERIALS

A. Sheet Flashings: ANSI/ASTM B209; 0.03 inch thick aluminum.

B. Eave and Rake Edges: Non-corroding aluminum drip edges designed for rake and eave conditions, in baked-on wicker paint finish.

PART 3 EXECUTION

3.01 INSTALLATION - SHINGLES

A. Install shingles in accordance with manufacturer's instructions.

B. Place shingles in straight coursing pattern with 5" weather exposure, but as a minimum to produce double thickness over full roof area. Provide double course of shingles at the eaves as indicated above.

C. Project first course of shingles 1/2 inch beyond the up slope line of the gutters.

D. Extend shingles to the edge flashing at the gable ends.

E. Install metal drip edge at top off fascia and roof rakes.

END OF SECTION

SECTION 07 46 00- FIBER-CEMENT SIDING

PART 1GENERAL

1.1 SECTION INCLUDES

A. Furnish and install Hardie Lap fiber-cement siding, Hardisoffit, Harditrim fascia, moldings and accessories where shown on drawings or as specified herein.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers shall be James Hardie Building Products.

2.2 MATERIALS

A. Hardi Lap Siding 5" exposure x required length. Cedar Mill Texture.

B. Hardisoffit Smooth pnl. (Vented and Unvented per drawings)

C. HardiTrim Smooth size per drawings.

PART 3 EXECUTION

3.1 INSTALLATION - HARDITRIM FASCIA AND MOULDING

A. Install self adhered flashing tape around all wall openings.

B. Fasten through trim into structural framing. Fasteners must penetrate minimum 3/4 inch of full thickness of sheathing. Additional fasteners may be required to ensure adequate security.

C. Place fasteners no closer than 3/4 inch and no further than 2 inch from side edge of trim board and no closer than 1 inch from end. Fasten maximum 16 inch on center.

D. Maintain clearance between trim and adjacent finish grade.

E. Overlay siding with Harditrim moldings at windows, doors and inside corners.

F. Fasten through overlapping boards. Do not nail between lap joints.

G. Overlay siding with single board of outside corner board then align second corner board to outside edge of first corner board. Do not fasten Harditrim boards to Harditrim boards.

H Shim frieze board as required to align with corner trim.

I. Install Harditrim fascia over structural sub fascia.

J. Provide metal drip flashing at location per Siding and Trim manufacturers instructions.

3.3 INSTALLATION - HARDIPANEL SIDING

A. Block framing between studs where Hardipanel siding horizontal joints occur.

B. Place fasteners no closer than 3/8 inch from panel edges and 2 inch from panel corners.

C. Allow minimum 1 inch vertical clearance between roofing and bottom edge of siding.

D. Maintain clearance between siding and adjacent finished grade.

E. Specific framing and fastener requirements refer to Tables 2 and 3 in National Evaluation Service Report No. NER-405.

F. Allow a max. 1/8 inch gap at vertical joints for caulking.

END OF SECTION

SECTION 07 62 00 - SHEET METAL FLASHING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Gutters, down spouts and drip flashing.

1.02 RELATED SECTIONS

A. Section 07 92 00 Joint Sealers

1.03 REFERENCES

A. SMACNA - Architectural Sheet Metal Manual.

1.04 SUBMITTALS

A. Submit under provisions of Section 01 33 00.

B. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashing, terminations, and installation details. Submittal shall be made in conjunction with Roofing Submittal

1.05 QUALITY ASSURANCE

A. Perform work in accordance with SMACNA standard details, attachments and requirements.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect and handle products to site under provisions of Section 01 60 00.

1.07 COORDINATION

A. Coordinate work under provisions of Section 01 30 00.

PART 2 - PRODUCTS

2.01 SHOP FABRICATED SHEET MATERIALS

A. Galvanized Steel: ASTM A446, Grade A. Gauge shall be as designated on the plans.

B. Prefinished Metal: Berridge prefinished metal with Kynar 500 finish. Color shall be selected from manufactures standard color selection. Gauge shall be as designated on the drawings.

2.02 PREFABRICATED METAL TRIM

A. Drip edge: Pemko #346

2.03 ACCESSORIES

A. Fasteners: Same material and finish as flashing metal, with soft neoprene washers.

B. Downspout Supports:
1. Provide 3 straps per downspout. Strap shall be 24 gauge. Material shall be the same as the downspout material

2.02 COMPONENTS

A. Gutters: Galvanized metal as per SMACNA standards. Aluminum .027 Color Wicker.

B. Downspouts: Galvanized metal as per SMACNA standards. Aluminum .027 Color Wicker.

2.03 FABRICATION

A. Form sections true to shape, accurate in size, square, and free from distortion or defects.

B. Form pieces in longest possible lengths, 10 ft maximum lengths..

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify roof openings, curbs, pipes, sleeves, ducts, or vents through roof are solidly set and nailing strips are installed.

B. Verify roofing termination and base flashing are in place, sealed, and secure.

3.02 PREPARATION

A. Install starter and edge strips before starting installation.

3.03 INSTALLATION

A. Conform to drawing details and SMACNA standards.

B. Secure flashing in place using concealed fasteners. Use exposed fasteners only where permitted.

END OF SECTION

SECTION 07 65 00 - FLEXIBLE FLASHING

PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Self-adhering flexible flashing (DuPont™ FlexWrap™, DuPont™ FlexWrap™ NF, DuPont™ StraightFlash™, and DuPont™ StraightFlash™ VF.)

B. Primers

C. Fasteners (DuPont™ Tyvek® Wrap Caps)

1.2 REFERENCES

A. ASTM International

1. ASTM C920; Standard Specification for Elastomeric Joint Sealants
2. ASTM C1193; Standard Guide for Use of Joint Sealants
3. ASTM E96; Test Method for Water Vapor Transmission of Materials
4. ASTM E331; Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference

1.3 SUBMITTALS

A. Refer to Section 01 33 00 Submittal Procedures.

B. Product Data: Submit manufacturer current technical literature for each type of product.

C. Quality Assurance Submittals

1. Design Data, Test Reports: Provide manufacturer test reports indicating product compliance with indicated requirements.
2. Manufacturer Instructions: Provide manufacturer's written installation instructions.

1.4 QUALITY ASSURANCE

A. Qualifications

1. Installer shall have documented successful experience with installation of flexible flashing systems under similar conditions.
2. Installation shall be in accordance with manufacturer's installation guidelines and recommendations.

1.5 DELIVERY, STORAGE AND HANDLING

A. Refer to Section 01 60 00 Product Requirements.

B. Deliver flexible flashing materials and components in manufacturer's original, unopened, undamaged containers with identification labels intact.

C. Store flexible flashing materials as recommended by manufacturer. Keep away from open flame or sources of ignition.

1.6 PROJECT CONDITIONS

A. Refer to Section 01 60 00 Product Requirements.

B. Do not apply flexible flashing on wet or damp surfaces.

C. Apply to surfaces free of dirt, oils, lubricants and other debris.

D. Install flexible flashing materials at temperatures above 40°F. At temperatures below 40°F, apply primer in accordance with flashing manufacturer recommendations, prior to installation of flashing.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. DuPont, GRACE or DOW.

2.2 MATERIALS

A. Self-Adhering – Straight Flashing:
   1. Basis of Design: Self-adhering straight flashing membrane tape is based on DuPont™ StraightFlash™
   2. Description:
      a. Face Material Composition: Textured polyethylene laminate barrier.
      b. Face color: white
      c. Adhesive composition: Butyl adhesive
      d. Thickness: 30 mil
      e. Release Liner: 1 piece siliconized paper
      f. Dimension: [4 inches wide by 150 feet or 9 inches wide by 125 feet]

B. Self Adhering -- Dual-Sided Straight Flashing
   1. Basis of Design: Dual-sided, self-adhering straight flashing membrane tape is based on DuPont™ StraightFlash™ VF
   2. Description:
      a. Face Material Composition: Spunbonded polyethylene
      b. Face Color: white
      c. Adhesive Composition: Dual-sided butyl adhesive
      d. Thickness: 30 mil
      e. Release liner: 2-piece siliconized paper
      f. Dimension: 6 inches wide by 125 feet

C. Self-Adhering – Flexible Flashing
   1. Basis of Design: Self-adhering flexible flashing membrane is based on DuPont™ FlexWrap™.
   2. Description:
      a. Face Material Composition: Conformable textured polyethylene laminate barrier.
      b. Face color: White.
      c. Adhesive composition: Butyl adhesive
      d. Thickness: 70 mil
      e. Release liner: 2-part siliconized paper.
      f. Dimension: [7 inches wide by 75 feet or 9 inches wide by 75 feet]

D. Performance Characteristics:
   1. Water intrusion: No leakage at 75 Pa, when tested in accordance with ASTM E331.
   2. Water Vapor Permeability: < 1 perm, when tested in accordance with ASTM E96.

C. Self-Adhering – Flexible Flashing
   1. Basis of Design: Self-adhering flexible flashing membrane is based on DuPont™ FlexWrap™ NF.
   2. Description:
      a. Face Material Composition: Conformable textured polyethylene laminate barrier.

b. Face color: White.

c. Adhesive composition: Butyl adhesive

d. Thickness: 64 mil

e. Release liner: 2-part siliconized paper.

f. Dimension: [7 inches wide by 75 feet or 9 inches wide by 75 feet]

D. Performance Characteristics:

1. Water intrusion: No leakage at 75 Pa, when tested in accordance with ASTM E331.
2. Water Vapor Permeability: < 1 perm, when tested in accordance with ASTM E96.

2.3 ACCESSORIES

A. Seam Tape: DuPont™ Tyvek® Tape as distributed by DuPont Building Innovations.

1. Description: Pressure sensitive, polypropylene substrate with acrylic based adhesive.

B. Fasteners:

1. Wood Frame Construction- DuPont™ Tyvek® Wrap Caps, as distributed by DuPont Building Innovations: #4 nails with large 1-inch plastic cap fasteners, or 1-inch plastic cap staples with leg length sufficient to achieve a minimum penetration of 5/8-inch into the wood stud.

C. Sealants

1. Provide sealant that complies with ASTM C920, elastomeric polymer sealant to maintain watertight conditions.
2. Products:
   a. DuPont™ Residential Sealant
   b. Sealants recommended by the weather barrier manufacturer.

D. Primer:

1. Provide flashing manufacturer recommended primer to assist in adhesion between substrate and flashing
2. Products:
   a. 3M High Strength 90
   b. Denso Butyl Spray

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify substrate and surface conditions are in accordance with flexible flashing manufacturer recommended tolerances prior to installation.

B. Review requirements for sequencing of installation of flexible flashing assembly with installation of windows, doors, louvers and wall penetrations to provide a weather-tight flashing assembly.

3.2 FIELD QUALITY CONTROL

A. Notify manufacturer's designated representative to obtain periodic observations of flexible flashing assembly installation.

3.3 PROTECTION

A. Protect installed flexible flashing from damage during construction.

END OF SECTION

SECTION 07 84 00 - FIRESTOPPING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Fire stopping and accessories.

B. Division 15 : Mechanical work requiring fire stopping.

C. Division 16 : Electrical work requiring fire stopping.

1.02 REFERENCES

A. ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials.

B. ASTM E119 - Method for Fire Tests of Building Construction and Materials.

C. ASTM E814 - Test Method of Fire Tests of Through- Penetration Firestops.

1.03 PERFORMANCE REQUIREMENTS

A. Fireproofing Materials: ASTM E119 to achieve a fire rating as noted on Drawings.

1.04 SUBMITTALS

A. Submit under provisions of Section 01 33 00.

1.05 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the products specified in this Section with minimum three years experience.

1.06 REGULATORY REQUIREMENTS

A. Conform to applicable code for fire resistance ratings and surface burning characteristics.

1.07 ENVIRONMENTAL REQUIREMENTS

A. Do not apply materials when temperature of substrate material and ambient air is below 60 degrees F

B. Provide ventilation in areas to receive solvent cured materials.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. 3-M Fire Protection Products.

B. Substitutions: Under provisions of Section 01 60 00.

2.02 MATERIALS

A. 3m Fire Barrier CP 25WB+ Caulk: Intumescent latex/water-based caulk. For use around horizontal steel pipe penetrations.

B. 3M FireDam Spray: Sprayable water based coating. For head-of-wall firestopping

C. 3M Fire Barrier 2000 and 2003 Silicone Sealant: One–part caulking grade sealant. Available in nonslump (2000) and self-leveling (2003). Requires mineral wool backing. For top-of-wall/head-of-wall joints subject to vibration and building movement.

D. 3M Fire Barrier 2001 Silicone RTV Foam: Two-part, liquid-silicone elastomer that foams in place when mixed. Requires mineral wool backing. For large and complex penetrations.

E. 3M Ultra Plastic Pipe Device: One-piece metal collar with Intumescent material. For use around plastic pipe.

F. 3M Interam Ultra GS: Intumescent material. Requires RC-1 Restricting Collar. For use around plastic pipe penetrations.

G. 3M Fire Barrier FS-195+ Wrap/Strip: One-part organic/inorganic elastomeric strip with foil on one side. Material is Intumescent. Material is re-enterable. For use around plastic pipe. Can be cut to irregular shapes.

H. 3M Fire Barrier RC-1 Restricting Collar: 28-gauge steel collar. Works in conjunction with 3M FS-195+ Wrap/Strip or 30 Interam Ultra GS. For use around plastic pipes larger than 4 inches in diameter.

I. 3M Fire Barrier Moldable Putty+: One-part, 100% solid Intumescent moldable putty. For use around construction gaps, and telecommunications wiring/cabling.

J. 3M Fire Barrier Mortar: Lightweight cementitious firestop. Bonds to concrete, metals, wood, plastic and cable jacketing. For use in concrete floor steel penetrations.

K. 3M Graphite Intumescent Seal (GIS): Thin fiber/latex mat adhesive backed flexible intumescent strip. For firestopping doors and window panels.

L. 3M InteramT-49 Tape: 3-mil aluminum foil tape. For sealing cut edges of 3M Interam Mats and 3M Fire Master Duct Wrap.

M. 3M Fire Master Duct Wrap: Refractory ceramic fiber blanket encapsulated with aluminum-foil scrim. Zero clearance to combustibles. Oil and water Resistant. Low thermal conductivity. For use to enclose kitchen exhaust ducts and fire-rated air duct work. Used in conjunction with 3M fire barrier 2000+ Silicone sealant. Requires 3M Interam t-49 tape

N. 3M Fire Master Plenum Wrap: High temperature insulation blanket fully encapsulated with aluminum-foil scrim. Oil and water resistant. Requires tie wire, filament tape, or aluminum foil tape for proper installation. For use in enclosing plastic piping in fire rated plenums. Requires on-inch clearance for adjacent material.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify site conditions under provisions of Section 01 30 00.

B. Verify that openings are ready to receive the Work of this Section.

3.02 PREPARATION

A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter, which may affect bond of firestopping material.

B. Remove incompatible materials which affect bond.

C. Install backing materials to arrest liquid material leakage.

3.03 APPLICATION

A. Apply primer and materials in accordance with manufacturer's instructions if required.

B. Apply firestopping material in sufficient thickness to achieve rating required by each rating requirement.

C. Install material at walls or partition openings which contain penetrating sleeves, piping, ductwork, conduit and other items requiring firestopping.

D. Remove dam material after firestopping material has cured. Dam material to remain.

E. Comply with all manufacture requirements for UL listing specified.

3.04 CLEANING

A. Clean Work under provisions of Section 01 70 00.

B. Clean adjacent surfaces of firestopping materials.

3.05 PROTECTION OF FINISHED WORK

A. Protect finished Work under provisions of Section 01 50 00.

B. Protect adjacent surfaces from damage by material installation.

END OF SECTION

SECTION 07 92 00 - JOINT SEALERS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Preparing substrate surfaces

B. Sealant and backer rod

1.02 REFERENCES

A. ASTM C790 - Use of Latex Sealing Compounds.

B. ASTM C804 - Use of Solvent-Release Type Sealant.

C. ASTM C834 - Latex Sealing Compounds.

D. ASTM C920 - Elastomeric Joint Sealant.

1.03 SUBMITTALS

A. Submit under provisions of Section 01 33 00.

1.04 QUALITY ASSURANCE

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

1.05 ENVIRONMENTAL REQUIREMENTS

A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

1.06 COORDINATION

A. Coordinate work under provisions of Section 01 30 00.

B. Coordinate the work with all sections referencing this section.

PART 2 - PRODUCTS

2.01 SEALANTS AND JOINT FILLERS

A. Sealant shall be manufactured by Pecora Corp., Sonneborn Building Products or Tremco Inc. Sealant shall be elastomeric joint type, solvent-release curing type, latex joint type, tape type, or preformed foam type as required for specific installation and called for on the drawings. Sealant types shall be based on the following manufacturers product identification: Dynatrol II, Dynatrol I, Dynaflex, GC-5 Synthacalk, GC-9 Synthacalk, 860 Silicone, 863 Silicone, 864 Silicone, 895 Silicone, AC-20 +Silicone, BC-158, Extru-Seal and Dyna-Seal as manufactured by Pecora. Sealant color to match darkest paint color when install at CMU joint unless noted otherwise. Sealant color shall match storefront color when in contact with storefront. Sealant color shall match concrete when install in sidewalk.

B. Expansion joint filler shall be a closed cell neoprene filler as manufactured by Sandell Manufacturing Co.

C. Backer rod shall be an open cell polyurethane type. Size shall be as required by joint. Acceptable backer rod shall be Denverfoam.

D. Bond breaker tape shall be a polyethylene tape.

E. Concrete block control joint shall be a nominal 3/8" x 6" high grade synthetic rubber compound joint Everlastic slot seal wide flange model # 2016-3 as manufactured by Williams products, Inc.

2.02 ACCESSORIES

A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.

B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer compatible with joint forming materials.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that substrate surfaces and joint openings are ready to receive work.

3.02 INSTALLATION

A. All joints shall be cleaned out full width and loose material shall be removed completely. Joints shall be clean and dry at time of sealing.

B. Install open cell backer rod in all joints to receive sealing. Use a size that will compress 25% when inserted into the joint.

C. Bond breaker tape shall be used in all joints too shallow to allow for backer rod to prevent three-sided adhesion.

D. The width or depth of joint shall not be less than ¼" in joint up to joints wider than 3/8" but not exceeding 1 ¼". The depth should be maintained at 3/8". Do not install joints wider than 1 ¼".

E. Fill joints completely using standard caulking equipment. Install sealant in accordance with manufacturer's instructions.

F. Tool joint immediately after application to insure full contact to the joint sides. Take care not to contaminate open joints below.

G. Install sealant only when ambient temperature is between 45 degree Fahrenheit and 85 degree Fahrenheit.

H. Install expansion joint filler in all CMU expansion joints. Joints filler shall extend the full length of the joint. Refer to drawings for additional information.

3.03 CLEANING

A. Use Xylene or Tolvene to remove excess sealant before it cures or to clean equipment, etc. Solvents are flammable and toxic. Use with caution. Clean work under provisions of 01 70 00.

B. Clean adjacent soiled surfaces.

3.04 PROTECTION OF FINISHED WORK

A. Protect finished installation under provisions of Section 01 50 00.

B. Protect sealant until cured.

END OF SECTION

SECTION 08 13 00 - METAL DOOR AND FRAMES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Non-Rated, thermally insulated steel doors and panels.

B. U.L. Rated, thermally insulated steel doors and panels.

1.2 RELATED SECTIONS

A. Section 08 14 00 - Wood Doors.

B. Section 08 71 00 - Door Hardware.

1.3 REFERENCES

A. ANSI A117.1 - Specifications for Making Buildings and Facilities Accessible to and Usable by Physically Handicapped People.

B. ANSI/SDI-100 - Standard Steel Doors and Frames.

C. ASTM A525 - Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.

D. ASTM C236 - Test Method for Steady-State Thermal Performance of Building Assemblies by Means of a Guarded Hot-Box.

E. ASTM E413 - Classification for Determination of Sound Transmission Class.

F. Door Hardware Institute (DHI) - The Installation of Commercial Steel Doors and Steel Frames, Insulated Steel Doors in Wood Frames and Builder's Hardware.

1.4 SUBMITTALS

A. Submit under provisions of Section 013300.

B. Shop Drawings: Indicate door elevations, internal reinforcement, closure method, and cut-outs for glazing, louvers, and finish.

C. Manufacturer's Installation Instructions: Indicate special installation instructions.

1.5 QUALITY ASSURANCE

A. Conform to requirements of ANSI/SDI-100 and ANSI A117.1.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum twenty years documented experience.

1.7 DELIVERY, STORAGE, AND HANDLING

B. Accept doors on site in manufacturer's packaging. Inspect for damage.

C. Break seal on-site to permit ventilation.

1.8 FIELD MEASUREMENTS

A. Verify that field measurements are as indicated on shop drawings.

1.9 COORDINATION

A. Coordinate the work with door opening construction, door frame and door hardware installation.

PART 2 PRODUCTS

2.1 DOOR MANUFACTURERS

A. Therma Tru Doors, Benchmark, Republic, Pella, Mesker, Masonite and Trutech.

B. Substitutions: Under provisions of Section 016000.

2.2 DOORS, PANELS AND FRAMES

A. Non Rated Building Exterior Doors: Shall be Therma Tru “Traditions Steel” 6 pnl. 24ga galvanized steel construction with solid CFC-free polyurethane foam core. R-Value 11 min.

B. Rated Apartment Unit Entry Doors: Shall be Therma Tru “Traditions Steel” 6 pnl. 24ga electrogalvanized steel construction with rigid insulating foam core and 60-min UL label, see door schedule. R-Value 11 min.

C. Metal Frames: Shall be Therma-Tru Adjust-a-fit, Masonite Fast-Frame or Miliken EZ Flex frames. Provide rated frames where required by door type. Interior door trim shall be painted wood. Exterior trim shall be 1x4 Hardie trim. Provide ADA compliant T’hold for all common area and Accessible Apartment Units. All T’holds shall be depth x length as required for field condition, verify in field.

2.3 DOOR CONSTRUCTION

A. Face: Steel sheet in accordance with ANSI/SDI-100.

2.4 FABRICATION

A. Fabricate for multi-deadbolt and standard lockset.

2.5 FINISH

A. Steel Sheet: Galvanized to ASTM A525

B. Primer: Baked.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that opening sizes and tolerances are acceptable.

3.2 INSTALLATION

A. Install doors in accordance with ANSI/SDI-100 and DHI.

B. Touch-up factory finished doors.

3.3 ADJUSTING

A. Adjust door for smooth and balanced door movement.

END OF SECTION 08 13 00

SECTION 08 14 00 - WOOD DOORS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Wood doors non-rated.

1.02 RELATED SECTIONS

A. Section 09 91 00 - Painting.

B. Section 08 13 00 – Metal Door Frames

C. Section 08 71 00 – Door Hardware

1.03 REFERENCES

A. ANSI A135.4 - Basic Hardboard.

B. ANSI/HPMA HP - Hardwood and Decorative Plywood.

C. ASTM E152 – Methods of Fire Test for Door Assemblies

D. UL 10B – Fire Test of Door Assemblies

1.04 SUBMITTALS

A. Submit under provisions of Section 01 33 00.

B. Shop Drawings: Illustrate door opening criteria, elevations, sizes, types, swings, undercuts required, special beveling, and special blocking for hardware, identify cutouts for glazing and louvers.

1.05 QUALITY ASSURANCE

A. Perform work in accordance with AWI Quality Standard Section 01 33 00, Custom Grade.

B. Furnish doors in accordance with AWI Quality Standards Section 01 50 00.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect, and handle products to site under provisions of Section 01 60 00.

1.07 FIELD MEASUREMENTS

A. Verify that field measurements are as indicated on shop drawings.

1.08 COORDINATION

A. Coordinate work under provisions of Section 01 30 00.

B. Coordinate the work with door opening construction, door frame and door hardware installation.

1.09 WARRANTY

A. Provide warranty under provisions of Section 01 70 00 to the following term:
   1. Interior Doors: Full Warranty-Life of Installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Acceptable manufactures are Masonite, Steves, Algoma Hardwoods Inc, Mohawk Flush Doors Inc and Weyerhaeuser Co.

B. Substitutions: Under provisions of Section 01 60 00.

2.02 DOOR TYPES

A. Apartment Unit Non-Rated interior Doors: 1 3/8 inches thick: solid core construction, 6 panel molded.

B. Office/Community building interior Doors: 1 ¾ inches thick; solid core construction, flush face, stain grade rotary birch.

0.1 DOOR CONSTRUCTION

A. Solid Core: Interior Molded Panel Doors within Apartment Units:
   1. Low Density Composite Core
   2. Veneer: Molded Wood Fiber Facings Primed.
   3. Type: Six Panel
   4. Thickness: 1 3/8” thick unless noted otherwise.
   5. Wood Stiles and Rails primed.
   6. Hinges – (3) standard weight in satin nickel finish.
   7. Frame – Wood 2-piece split jamb primed.

B. Solid Core: Interior Wood Doors within Leasing Office:
   1. Construction: Solid core wood doors
   2. Quality: AWI premium quality
   3. Type: Flush panel unless noted otherwise in the door schedule
   4. Thickness: 1 3/4" thick unless noted otherwise in the door schedule.
   5. Veneer Material: Birch
   6. Veneer Matching: Book matching
   7. Cut: Plane sliced
   8. Rating: Refer to DOOR SCHEDULE
   9. Core: PC-5
   10. Glass: full lite safety glass inserts
   11. Finish: Stain grade

2.04 ADHESIVE

A. Facing Adhesive: I – waterproof

2.05 FABRICATION

A. Fabricate non-rated doors in accordance with AWI Quality Standards.

B. Where fire rated doors are specified or called out on the drawings, fabricate fire rated doors in accordance

with AWI quality Standards and to UL Warnock-Hersey requirements. Attach fire rated label to door.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify frame opening conditions under provisions of Section 01 30 00.

B. Verify that opening sizes and tolerances are acceptable.

C. Do not install doors in frame openings that are not plumb or are out-of-tolerance for size or alignment.

3.02 INSTALLATION

A. Install doors in accordance with manufacturer's instructions.

B. Coordinate installation of glass and glazing.

C. Machine cut for hardware. Core for handsets and cylinders.

3.03 INSTALLATION TOLERANCES

A. Conform to AWI requirements for fit and clearance tolerances.

B. Conform to AWI Section 1300 requirements for maximum diagonal distortion.

3.04 ADJUSTING

A. Adjust work under provisions of Section 01 70 00.

3.05 DOOR SCHEDULE
Refer to Drawings Door Schedule.

END OF SECTION

SECTION 08 31 16 - ACCESS PANELS

PART 1: GENERAL

1.1 WORK INCLUDED

A. Metal Access Panels

B. Options and Accessories

1.2 REFERENCES

A. NFPA8O-Fire Doors

B. Fire-rated access panels tested and certified by Warnock Hersey International (WH I), and labeled with 1 hour rating for combustible floor/ceiling assemblies.

1.3 QUALITY ASSURANCE

A. Fire Resistance Ratings

1. Whenever a fire-rated access panel is indicated, provide complete access panel assembly with door, frame, hinge and latch as tested and labeled by U.L. and/or W.H.I.

B. Size Variations

1 Obtain Architects acceptance of manufacturer's standard size units which may vary slightly from sizes indicated.

C. Coordination

1. Furnish inserts and anchoring devices which must be built into other work for installation of access doors.

2. Coordinate delivery with other work to avoid delay.

PART 2: PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Units listed as follows are provided by JL. Industries, Inc., Nystrom, KARP or Acudor.

2.02 FIRE RATED ACCESS PANELS

A. Where indicated on drawings, provide JL's FDWB Series, with ***opening dimensions*** as indicated on plans, Access panel to be equipped with a key operator.

PART 3: EXECUTION

3.01 INSPECTION

A. Verify that openings are correctly dimensioned to receive doors.

3.02 INSTALLATION

A. Install per manufacturer's recommendations.

3.03 ADJUST AND CLEAN

A. Adjust latching (locking) mechanism to operate smoothly.

B. Leave work area clean and free of debris.

C. Remove and replace panels or frames which are bowed, warped or damaged

END OF SECTION

SECTION 08 36 13 – SECTIONAL OVERHEAD DOORS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Metal Overhead Doors.

1.2 RELATED SECTIONS

A. Section 03 30 00 - Cast-in-Place Concrete. Execution requirements for placement of anchors in concrete wall construction.

B. Section 05 50 00 - Metal Fabrications.

C. Section 06 10 00 - Rough Carpentry.

D. Section 07 92 00 - Joint Protection.

E. Section 09 91 00 - Painting and Coating.

1.3 REFERENCES

A. ANSI/DASMA 108 - Standard Method for Testing Sectional Garage Doors and Rolling Doors: Determination of Structural Performance Under Uniform Static Air Pressure Difference

B. UL: Underwriters Laboratories, Inc.

C. ULC: Underwriters Laboratories of Canada.

1.4 DESIGN / PERFORMANCE REQUIREMENTS

A. Wind Loads: Design and size components to withstand loads caused by pressure and suction of wind acting normal to plane of wall as calculated in accordance with applicable code.

B. Single-Source Responsibility: Provide doors, tracks and accessories from one manufacturer for each type of door. Provide secondary components from source acceptable to manufacturer of primary components.

1.5 SUBMITTALS

A. Submit under provisions of Section 01 33 00 - Administrative Requirements.

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. Shop Drawings: Indicate plans and elevations including opening dimensions and required tolerances, connection details, anchorage spacing, hardware locations, and installation details.

D. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

E. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.

F. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

G. Operation and Maintenance Data.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum five years documented experience.

B. Installer Qualifications: Authorized representative of the manufacturer with minimum five years documented experience.

C. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories, Inc. acceptable to authority having jurisdiction as suitable for purpose specified.

1.7 DELIVERY, STORAGE, AND HANDLING

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

B. Protect materials from exposure to moisture until ready for installation.

C. Store materials in a dry, ventilated weathertight location.

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

1.8 WARRANTY

A. Provide manufacturers product warranty as follows:
   1. Thermacore 490 Series. Warranty: Limited lifetime against splitting and cracking, 10 year against delamination of polyurethane foam from steel face and all other components for 1 year.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Overhead Door Corp., which is located at: 2501 S. State Hwy. 121 Suite 200; Lewisville, TX 75067; Toll Free Tel: (800) 275-3290; Tel: (469) 549-7100; Fax: (972) -906-1499; Email:info@overheaddoor.com; Web:www.overheaddoor.com

2.2 METAL OVERHEAD DOORS

A. Insulated Steel Sectional Overhead Doors: Thermacore 490 Series Insulated Steel Doors by Overhead Door Corporation.
   1. Door Assembly: Rigid steel fully insulated construction with a metal foam metal sandwich panel. Fabricated with EPDM seals between sections.
      a. Size: As indicated on the Drawings.
      b. Panel Thickness: 2 inches (51 mm) nominal.
      c. Panel Style: Ship lap panels.
         1) Contemporary flush panel, 495 Series.
      d. Exterior Steel: .012 inch (.030 mm) nominal, high strength hot dipped galvanized steel with an embossed wood grain texture.
      e. Insulation: CFC-free foamed in place polyurethane.
      f. Thermal Values: R-value of 17.5.
      g. Windload Design: Provide to meet the Design/Performance requirements specified.
   2. Finish/Color: Two coat baked-on polyester. Color as follows:
      a. Selected by Owner
   3. Hardware: Standard hinges.

4. Lock:
    a. Interior mounted slide lock.
    b. Optional keyed lock.
5. Bottom fixture: DASMA 103 red-head fasteners.
6. Weatherstripping: Co-extruded EPDM bulb-type strip at bottom.
7. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.
8. Standard rollers.
9. Manual Operation.

PART 3 EXECUTION

3.1 EXAMINATION

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

B. Verify wall openings are ready to receive work and opening dimensions and tolerances are within specified limits.

C. If preparation is the responsibility of another installer, notify Architect 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 overhead doors, track in accordance with approved shop drawings and the manufacturer's printed instructions.

B. Coordinate installation with adjacent work to ensure proper clearances and allow for maintenance.

C. Anchor assembly to wall construction and building framing without distortion or stress.

D. Securely brace door tracks suspended from structure. Secure tracks to structural members only.

E. Fit and align door assembly including hardware.

3.4 CLEANING AND ADJUSTING

A. Adjust door assembly to smooth operation and in full contact with weatherstripping.

B. Clean doors, frames and glass.

C. Remove temporary labels and visible markings.

3.5 PROTECTION

A. Do not permit construction traffic through overhead door openings after adjustment and cleaning.

B. Protect installed products until completion of project.

C. Touch-up, damaged coatings and finishes and repair minor damage before Substantial Completion.

END OF SECTION

SECTION 08 41 00 - ALUMINUM STOREFRONTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Fixed Aluminum windows

B. Perimeter sealant.

1.2 RELATED SECTIONS

A. Section

1.3 REFERENCES

A. AAMA - Metal Curtain Wall, Window, Store Front and Entrance - Guide Specifications Manual.

B. AAMA - Curtain Wall Manual #10 - Care and Handling of Architectural Aluminum From Shop to Site.

1.4 SYSTEM DESCRIPTION

A. Aluminum entrances and storefront system includes tubular aluminum sections, shop fabricated, factory pre-finished, vision glass, related flashings, anchorage and attachment devices.

1.5 SUBMITTALS

A. Submit under provisions of Section 01300.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect and handle products to site under provisions of Section 01600.

1.7 FIELD MEASUREMENTS

A. Verify that field measurements are as indicated on shop drawings.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Aluminum Storefront shall be as manufactured by KAWNEER, US Alumn., or Vistawall. Provide Manufacturers standard 2 year warranty.

B. Substitutions: Under provisions of Section 016000.

2.2 MATERIALS

A. Interior Storefront system shall be center glazed 2” x 4-1/2” aluminum storefront system Kawneer Trifab II 451. Color shall be Selected by Owner. Interior Glazing shall be ¼” clear tempered glass.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify site opening conditions under provisions of Section.

B. Verify dimensions, tolerances, and method of attachment with other work.

C. Verify wall openings and adjoining air and vapor seal materials are ready to receive work of this Section.

3.2 INSTALLATION

A. Install wall system in accordance with manufacturer's instructions and AAMA - Metal Curtain Wall, Window, Store Front and Entrance - Guide Specifications Manual.

B. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.

C. Provide alignment attachments and shims to permanently fasten system to building structure.

D. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.

3.3 CLEANING

A. Clean work under provisions of 01 70 00.

B. Remove protective material from pre-finished aluminum surfaces.

C. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.

D. Remove excess sealant by method acceptable to sealant manufacturer.

3.4 PROTECTION OF FINISHED WORK

A. Protect finished Work under provisions of Section 015000.

END OF SECTION 084100

SECTION 08 53 14 - VINYL (PVC) WINDOWS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Window Units.

1.2 RELATED SECTIONS

A. Section 061000 - Rough Carpentry.

B. Section 079200 - Joint Sealers.

1.3 REFERENCES

A. AAMA/NWWDA 101/I.S. 2-97 - Voluntary Standard for Aluminum and Poly (Vinyl Chloride) (PVC) Prime Windows and Glass Doors.

B. NFRC 100 - Thermal Properties; National Fenestration Rating Council.

C. NFRC 200 - Solar Heat Gain; National Fenestration Rating Council.

D. ASTM D 3656 - Standard Specification for Insect Screening and Louver Cloth Woven from Vinyl-Coated Glass Fiber Yarn.

E. ASTM D 3678 - Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Interior Profile Extrusions.

F. ASTM D 4028 - Standard Specification for Solar Screening Woven from Vinyl-Coated Fiber Glass Yarn.

G. ASTM E 774 - Standard Specification for Sealed Insulating Glass.

H. IGCC - Classification of Insulating Glass Units; Insulated Glass Certification Council.

I. U.S. Department of Energy - Energy Star Windows Program.

1.4 SUBMITTALS

A. Submit under provisions of Section 013300.

B. Manufacturer's standard details and catalog data demonstrating compliance with referenced standards; include manufacturer's standard installation instructions.

C. Drawings: Manufacturer's product drawings showing details of fabrication, hardware, weatherstripping, fasteners, screens, glazing, accessories, and related items.

D. Verification Samples: Operating sample of each window type specified illustrating fabrication, hardware, glazing, screen, and finish.

E. Test Reports: For each window type specified, furnish test reports from accredited independent testing laboratory certifying that identical or larger window units meet requirements specified for air infiltration, water penetration and structural performance by AAMA/NWWDA 101/I.S. 2-97, for thermal performance by NFRC-97, and for seal integrity of insulating glass units by IGCC.
   1. Test reports to test standards other than those listed will not be accepted.

F. Closeout Submittals: Warranty documents, properly executed.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Minimum ten (10) years experience producing vinyl (PVC) windows.

1.6 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 windows out of contact with ground; protect windows from weather and construction traffic in well-ventilated area.

1.7 WARRANTY

A. Furnish manufacturer's standard warranty against deficiencies in materials or fabrication.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Ply Gem and All Side.

2.2 WINDOW UNITS

A. Acceptable Product: Horizontal sliders and casement as required to meet:
   1. Grade: AAMA/NWWDA 101/I.S.2-97, H-LC25, for 44-inch wide by 77-inch high window unit; exceeding grade requirements as follows:
      a. Water test pressure: 3.75 pounds per square foot.
      b. Air infiltration: 0.09 cubic feet per minute per linear foot at 25 miles per hour.
      c. Structural test pressure: 52.5 pounds per square foot.
   2. Thermal performance, in accordance with NFRC 100, for 48-inch wide by 72-inch high window unit: U-Value 0.32.
   3. Solar Heat Gain Coefficient, in accordance with NFRC 200-97, for 36-inch wide by 60-inch high window unit shall not exceed 0.29.
   4. Glazing: HP2 + Glass Package with Low-e sealed insulating glass unit, and argon gas fill; U.S. Department of Energy - Energy Star conformance labeled.
   5. Sealed Insulating Glass Units: Conform to ASTM E 774, Level CBA.
   6. Frame: PVC extrusions, fusion-welded construction, mitered corners. Color selected by Owner.
   7. Mounting: Nail flange or Trim and Clip as required for proper installation and site conditions.
   8. Insect screening: Roll-formed or extruded aluminum channel frames, with 18 by 16 fiberglass mesh secured with continuous vinyl gasket, removable for screen replacement.

2.3 FABRICATION

A. Window Units: Assemble units completely in factory, including operating hardware and glazing.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verification of Conditions: Openings are in correct location, and of correct size, in accordance with approved shop drawings and manufacturer's installation instructions.

B. Installer's Examination:
   1. Have installer of this section examine conditions under which construction activities of this section are to be performed, then submit written notification if such conditions are unacceptable prior to bidding.
   2. Transmit two copies of installer's report to Architect within 24 hours of receipt.
   3. Beginning construction activities of this section before unacceptable conditions have been corrected is prohibited.
   4. Beginning construction activities of this section indicates installer's acceptance of conditions.

3.2 INSTALLATION

A. Install products specified in this section square, plumb and level, in accordance with approved shop drawings and manufacturer's installation instructions.

B. Installation of joint sealers is specified in Section 079200.

C. Installation of opening flexible flashing is specified in Section 07 65 00.

3.3 ADJUSTING

A. Adjust operating hardware for correct operation in accordance with manufacturer's installation instructions.

3.4 CLEANING

A. Clean interior and exterior surfaces free of labels, mortar, plaster, paint, joint sealers, and other foreign matter to prevent damage to weatherstrip, and to prevent interference with operation of hardware.

3.5 PROTECTION

A. Protect ventilators and operating parts from dirt and damage caused by subsequent construction activities.

B. Replace units damaged by subsequent construction activities.

END OF SECTION

SECTION 08 71 00 - DOOR HARDWARE

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Hardware for wood and metal doors.

1.02 RELATED SECTIONS

A. Section 08 13 00 - Metal Door Frames.

B. Section 08 14 00 – Wood Doors

1.03 REFERENCES

A. ANSI A117.1 - Specifications for Making Buildings and Facilities Accessible to and Usable by Physically Handicapped People and A.D.A. Requirements.

1.04 SUBMITTALS

A. Submit under provisions of Section 01 33 00. Submittal shall include item, manufacture, model number and finish.

1.05 PROJECT RECORD DOCUMENTS

A. Revise drawing to reflect any changes in hardware as required under provisions of Section 01 70 00.

1.06 QUALITY ASSURANCE

A. Perform work in accordance with the following requirements:
   1. ANSI A117.1 - Specifications for Making Buildings and Facilities Accessible to and Usable by Physically Handicapped People, and A.D.A. Requirements.

1.07 REGULATORY REQUIREMENTS

A. When fire doors are designated on the drawings, conform to applicable code for requirements applicable to fire rated doors and frames.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect and handle products to site under provisions of Section 01 60 00.

B. Package hardware items individually; label and identify each package with door opening code to match hardware schedule.

C. Deliver keys to Owner upon issuance of the Certificate of Substantial Completion.

1.09 COORDINATION

A. Coordinate work under provisions of Section 01 30 00.

1.10 WARRANTY

A. Provide five year warranty against operational failure. Warranty shall be for replacement of material only.

PART 2 - PRODUCTS

2.01 SUPPLIERS

A. The selections listed are intended to indicate the standard of quality and the type of hardware required. The catalog numbers listed in these specifications are from the catalog of the first named manufacturer: Equivalent items of other named manufacturers will be acceptable.

2.02 ACCEPTABLE MANUFACTURERS

A. Latch Sets: Yale, Schlage, PDQ, Pamex

B. Cylinder Locks: Adams-Rite, Schlage, PDQ, Pamex

2.03 KEYING

A. Keying shall be a 6-pin tumbler with two nickel silver keys per lock.

2.04 HARDWARE SETS

A. Match existing function of hardware being replaced. Provide hardware set list for review and approval of Architect.

B. Quality standard for Common Area and Exterior Door cylinder locksets shall be Schlage D-series heavy – duty commercial grade. Certification shall conform to ANSI a156.2, 1996, series 4000 grade 2. Interior Apartment hardware shall be grade 3.

C. Quality standard for mortise lockset shall be Schlage L-series heavy-duty mortise lock. Certification shall conform to ANSI A156.13, 1994, Grade 1 Operational, Grade 1 Security.

2.05 STYLE/ TRIM/ FINISHES

A. Cylinder lockset design style shall be Schlage “Sparta” series approved for Handicap use.

B. Mortise lockset design style shall be Schlage “ “06” series approved for Handicap use.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify site conditions under provisions of Section 01 30 00.

3.02 INSTALLATION

A. Install hardware in accordance with manufacturer's instructions.

B. Use templates provided by hardware item manufacturer.

3.03 ADJUSTING

A. Adjust work under provisions of Section 01 70 00.

B. Adjust hardware for smooth operation.

C. At time of Substantial Completion, contractor shall examine all doors and make all necessary adjustments to all hardware operation to conform to specification.

END OF SECTION

SECTION 09 29 00 - GYPSUM BOARD SYSTEMS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Gypsum board.

1.2 RELATED SECTIONS

A. Section 09 91 00 - Painting: Surface finish.

1.3 REFERENCES

A. ASTM C36 - Gypsum Wallboard.

B. ASTM C475 - Joint Treatment Materials for Gypsum Wallboard Construction.

1.4 SUBMITTALS

A. Submit under provisions of Section 01 33 00.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Gypsum board system shall be as manufactured by U.S Gypsum Co., Gold Bond or National Gypsum Co.

B. Substitutions: Under provisions of Section 01 60 00.

2.02 GYPSUM BOARD MATERIALS

B. Standard Gypsum Board: ASTM C36; ½" or 5/8" thick as designated on the drawings. Install in maximum permissible length. Ends shall have square cut edges. Sides shall have tapered edges ready for taping and spackling.

B. Provide M.R. Gypsum Board in all wet areas and when called for on the drawings. M.R. gypsum shall be ½" or 5/8" thick as designated on the drawings.

C. Provide 5/8" type X gypsum board in all rated assemblies.

D. Provide Dens-shield, 5/8" thick (rated where required) at any tub or shower locations.

PART 3 - EXECUTION

3.01 EXAMINATION

B. Verify site conditions under provisions of Section 01 30 00.

C. Verify that site conditions are ready to receive work and opening dimensions are as indicated on shop drawings.

3.02 GYPSUM BOARD INSTALLATION

A. Install gypsum board in accordance with manufacturer's instructions.

B. Erect single layer standard gypsum board in most economical direction, with ends and edges occurring over firm bearing. In fire rated partition install fire rated Type “X” gypsum board vertically with all edges supported by wall framing. Joints shall be staggered from gypsum board joints on opposites side of stud. Seal all penetrations.

C. Use screws when fastening gypsum board to metal furring or framing.

3.03 JOINT TREATMENT

A. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.

END OF SECTION

SECTION 09 30 00- PORCELAIN TILE

PART 1-GENERAL

1.01 SECTION INCLUDES

A. Porcelain Floor Tile.

B. Trowel Applied Waterproof Membrane

1.02 RELATED SECTIONS

A. Section 079200 Joint Sealers

B. Section 102800 Toilet Room Accessories

1.03 REFERENCES

A. ANSI A 137.1 - American National Standard Specifications for Ceramic Tile; 1988.

B. ANSI A 108 Series/A 118 Series/A 136.1 - American National Standard Specifications for the Installation of Ceramic Tile (Compendium); 1999.

C. TCA - Handbook for Ceramic Tile Installation; Tile Council of America, Inc.; 2005.

D. ASTM C 373 - Standard Test Method for Water Absorption, Bulk Density, Apparent Porosity, and Apparent Specific Gravity of Fired Whiteware Products.

B. ASTM C 501 - Standard Test Method for Relative Resistance to Wear of Unglazed Ceramic Tile by the Taber Abraser.

C. ASTM C 648 - Standard Test Method for Breaking Strength of Ceramic Tile.

D. ASTM C1028 - Standard Test Method for Determining the Static Coefficient of Friction of Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull-Meter Method.

1.04 SUBMITTALS

A. Submit under provisions of Division One

B. Submit 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.
   4. Instructions for using grouts and adhesives.
   5. Maintenance instructions, including cleaning methods and materials, stain removal methods, sealers, and polishes and waxes.

1.05 SHOP DRAWINGS

A. Indicate tile layout, patterns, color arrangement, perimeter conditions, and junctions with dissimilar materials, control and expansion joints, thresholds, ceramic accessories, and setting details.

B. Selection Samples: Color charts illustrating full range of colors and patterns.

1. Selection Samples: Samples of actual tiles for selection.
2. Verification Samples: Submit the following for each type, color, size, and finish included in the work.
    a. Two full size tile and trim shapes.
    b. Grout color samples.
    c. Sealant color samples or prefabricated joint/transition strip samples.

1.06 MANUFACTURE'S CERTIFICARE

A. Tile manufacturer's product and technical data indicating compliance with applicable standards.

B. Master Grade Certificates for each type of tile issued by tile manufacturer and signed by the installer.

C. Mortar and grout manufacturer's technical data sheets indicating suitability for the installation specified and compliance with applicable standards.

D. Sealant or prefabricated joint manufacturer's product and technical data.

E. Maintenance Data: Include recommended cleaning methods, cleaning materials, stain removal methods, and polishes and waxes.

1.07 QUALITY ASSURANCE

A. Provide tile materials of each type, color and finish. Provide setting, grouting and related materials of each type, color and finish obtained from one source.

B. Installer Qualification: Engage an installer with a minimum of five commercial tile installations similar in material, design and scope to that indicated.
1. Shade and Texture Index:
    a. V1 = Uniform appearance, differences among pieces are minimal.
    b. V2 = Slight variation, clear distinguishable texture and /or pattern within similar colors.
    c. V3 = Moderate variation, colors present in a single piece are indicative; however the amount of these colors on each piece may vary significantly.
    d. V4 = Substantial variation, unique and random color differences from tile to tile, one tile may have totally different colors than found on other tiles.
2. Field Mockups: Install a fully finished mock-up for each type tile installation. Mock-up shall be a minimum of 10 feet (3M) square and will be reviewed for joint quality, color range, pattern and workmanship.
    a. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Comply with provisions of Division One

B. Deliver, store and handle materials in accordance with manufacturer's instructions.

C. Maintain environmental conditions and protect work during and after installation to comply with referenced standards and manufacturer's printed recommendations.

D. Maintain minimum and maximum temperature limits as recommended by manufacturers.

E. Protect adjacent surfaces during progress of the work in this section.

F. Illuminate the work area during installation providing the same level and angle of illumination as will be available for final inspection.

1.09 PROJECT CONDITIONS

A. Tile contractor, by commencing the work of this section, assumes overall responsibility to assure that all assemblies, components and parts shown or required within the work of this section comply with contract documents and are compatible with each other and with the conditions and expected use.

B. Comply with requirements of referenced standards and recommendations of material manufacturers for environmental conditions before, during and after installation.

C. Maintain environmental conditions and protect work during and after installation to comply with referenced standards and manufacturer's printed recommendations.

D. Pre-Installation Meeting: Prior to tile installation, conduct a pre-installation project meeting. Contractor, Subcontractor, Material Suppliers, Architect and Owner representative shall be notified of the meeting.

1.10 EXTRA MATERIALS

A. Furnish extra stock of quantity equal to 50 sf in full-size units, for each type, color, size and finish of tile installed.

PART 2- PRODUCTS

2.01 MANUFACTURERS

A. Acceptable Manufacturers
   1. American Olean
   2. Mannington
   3. Crossville, Inc

2.02 TILE MATERIALS

A. Floor Tile:
   1. Series: Daltile Salerno Nubi Bianchi
   2. Location: Bathroom Floor
   3. Size: 12”x12”
   4. Grout width: 1/8”
   5. Colors: Selected by Owner
   6. Physical Properties:
      i. Moisture Absorption: <0.5 %
      ii. Abrasive Resistance: 4
      iii. Coefficient of Friction: >0.70 dry/ >0.60 wet.
      iv. Breaking Strength: 300 lbs
      v. Tile thickness: ¼”
      vi. Finish/Texture: non-abrasive
      vii. Shade and Texture Index: V1.
      viii. Trim and Border: Cove base and corners, bullnose and corners.

2.03 SETTING MATERIALS FOR PORCELAIN TILE

A. Organic Adhesive: ANSI A136.1, thinset bond type; use Type I in areas subject to prolonged moisture exposure.

B. Standard Grout: Cement grout, sanded or unsanded, as specified in ANSI A118.6; color as selected.

C. Setting Bed: Portland cement, sand and latex additives. Provide dry mix setting bet as required by the America Tile Council for thick set tile installation

2.04 WATERPROOF MEMBRANE SYSTEM

A. Membrane shall meet all ANSI A118.10 specifications for ceramic, porcelain and quarry tile waterproofing membranes

B. Trowel-applied waterproof membranes shall be Triple Flex Waterproofing, Crack Isolation Membrane and Bonding Mortar System (324) as manufactured bt TEC Specialties Products, Inc.

2.05 PATCHING AND LEVELING PRODUCTS

A. VersaPatch Latex modified floor patch and Leveler (327), as manufactured by TEC specialty Products, Inc.

B. Primer and Patch Additive (861), as manufactured by TEC Specialty products, Inc.

2.06 EXPANSION JOINTS, CONTROL, CONTRACTION, AND ISOLATION JOINTS

A. Refer to TCA Handbook, Installation Method EJ171 for recommendations on locating, treating and detailing various types of construction joints. NOTE: Architect must specify type of expansion joints and show location and details on drawings.

B. Use sealant complying with ASTM C920 according to Type, Grade, Class and Uses required.

C. Provide marble threshold trim strips, or other edging material where tile terminates at dissimilar finishes as shown or specified.

D. Prefabricated expansion joints can also be used when suitable for installation.

E. Glass tile requires the usage of sealant/caulk joints anywhere tile work abuts restraining surfaces or where changes occur in backing materials

2.07 ACCESSORIES

A. Provide coordinating trim shapes such as bullnose, corners, borders and cove base when specified.

B. Provide solid surfacing or granite threshold at door openings.

PART 3- EXECUTION

3.01 EXAMINATION

A. Examine substrates where tile will be installed for compliance with requirements for installation tolerances and other conditions effecting performance of installed tile. Verify that substrates for setting tile are well cured, structurally sound dry, clean, and free from oil or waxy films, curing compounds or other coatings and surface treatments.

B. Do not proceed with installation until unsatisfactory conditions have been corrected. Commencement of work signifies acceptance of substrate and installation conditions.

3.02 INSTALLATION - FLOORS - THIN-SET METHODS

A. Over interior concrete substrates, install in accordance with TCA Handbook Method F113, latex-portland cement bond coat, with standard grout, unless otherwise indicated.

B. Where waterproofing membrane is indicated, install in accordance with TCA Handbook Method F122, with latex-portland cement grout.
   1. Where epoxy bond coat and grout are indicated, install in accordance with TCA Handbook Method F131.
   2. Over wood substrates, install in accordance with TCA Handbook Method F150, with, latex-portland cement grout unless otherwise indicated.
   3. Where epoxy bond coat and grout are indicated, install in accordance with TCA Handbook Method F143.

3.03 PREPARATION FOR INSTALLATION OF TILE

A. Substrate Preparation: Prepare and clean substrate in accordance with installation standards and manufacturer's instructions. Remove protrusions, bumps and ridges by grinding or chipping. Repair, fill, and level cracks, holes, depressions and rough or chipped areas in substrate using patching material recommended by setting materials manufacturer.

A. Ensure that the substrate is within the following tolerances:
   1. Horizontal surfaces (floors) - Maximum variation in substrate shall not exceed 1/4" (6 mm) in 10 feet (3 M) from required plane, depending on substrate.
   2. Vertical surfaces (walls) - Maximum variation in substrate shall not exceed 1/4" (6 mm) in ten feet from the required plane, depending on substrate.
   3. For tile larger than 12 inches (305 mm) square and a grout joint narrower than 1/4 inch (6 mm) a more stringent tolerance of 1/8 inch (3 mm) in 10 feet (3 M).
   4. Jobsite Blending: Blend tiles before installing in accordance with reference standards to produce an even range and distribution of color and finish.

3.04 TILE INSTALLATION - GENERAL

A. Install tile in pattern indicated. Align joints when adjoining tiles on floor, base, walls, and trim are same size. Adjust to minimize tile cutting and to avoid tile less than half size.

B. When possible, smooth cut edges of tile and/or use appropriate cutter or wet saw to produce smooth cuts. Provide straight cuts which align with adjacent materials.

C. Extend tile into recesses and under equipment and fixtures to form a complete covering without interruption.

B. Terminate tile neatly at obstructions, edges, and corners, without disruption of pattern or joint alignment.

C. Provide tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make joints smooth and even, without voids, cracks, or excess mortar or grout.

D. Mix mortar in strict accordance with manufacturer's recommendations.

E. Apply setting material in accordance with manufacturer's directions and install tile before mortar has started initial cure. For thin set mortar application, use a notch trowel that will achieve the recommended coverage of mortar after tiles have been installed. Reference standard coverage information and follow manufacturer's recommendations for trowel size when using mortars.

F. Do not spread more material than can be covered within 10 to 15 minutes. If "skinning" occurs, remove mortar and spread fresh material. Spread mortar with notches running in one direction that shall be perpendicular to the pressing, pushing and pulling of tile during placement.

G. Place tile in fresh mortar, press, push and pull the tile slightly to achieve as near 100 percent coverage and contact of tile with setting material and substrate. The coverage shall be no less than 95-100 percent and be sufficiently distributed to give full support of the tile. Make sure that all corners and edges are well supported with mortar. Leave no hollow corners or edges. A skim coat ("back-butter") of mortar can be placed onto the entire back of the tile using a trowel in order to assist in optimum adhesion and coverage of the mortar being used.
   1. Exterior Tile Installation: 95-100 percent coverage is mandatory for wet or exterior areas.

H. Ensure there is a minimum 1/8 inch (3 mm) of mortar between tile and substrate after proper bedding. Installer must periodically remove sheets or individual tiles to assure proper bond coverage consistent with industry specifications. If coverage is found to be insufficient, use a larger size notch trowel.

I. Use a beating block and hammer or rubber mallet so that faces and edges of individual tiles are flush and level with faces and edges of adjacent tiles, and to reduce lippage.

J. Grouting:
   1. Install grout in accordance with ANSI A108.10, A108.6, A108.8, A108.9-1999 correlating to grout type chosen and manufacturer's recommendations.
   2. Apply grout to produce full, smooth grout joints of uniform width, and free of voids and gaps.
   3. Before grouting entire area do a test area to assure there will be no permanent staining or discoloration of the tile and to verify that the grout is easily removed from the surface. If necessary, pre-coat exposed surfaces of tile with a grout release as recommended by the manufacturer, as this will facilitate removal of the grout.
   4. Cure all setting and grouting materials in accordance with manufacturer's recommendations.

3.05 CLEANING AND PROTECTION

A. If one has been used, remove grout release and clean tile surfaces so they are free of grout residue and foreign matter, in accordance with manufacturer's instructions. If a grout haze or residue remains, use a suitable grout haze remover or cleaner and contact grout manufacturer for recommendations. Flush surface with clean water before and after cleaning. Do not use harsh hydrochloric, muriatic or sulfuric acid or acid-based cleaners to clean glazed tiles or tiles grouted with latex modified grout.

B. When a heavy residue of Portland cement grout is present, acceptable tile cleaning acids may be used. However, the grout should be allowed to cure a minimum of 10 days before this aggressive cleaning method is employed. Tile and grout shall be soaked with water before cleaning. In the absence of a recommendation from the grout manufacturer, acid cleaning may be done with a saturated solution of phosphoric or sulfamic acid, mixed in accordance with manufacturer's recommendations.

C. After cleaning, provide protective covering and maintain conditions to protect tile work from damage or deterioration. Where tiled surfaces will be subject to equipment or wheel traffic or heavy construction traffic, and during move-in of furniture and equipment, cover protective covering with 1/4 inch (6 mm) hardboard, plywood or similar material.

D. Leave finished installation clean and free of cracked, chipped, broken, unbonded, and otherwise defective tile work.

A. Consult most current Crossville Brochure "How to Care For Porcelain Tile" for information on post installation cleanup and routine maintenance

END OF SECTION 09 30 00 PORCELAIN TILE

SECTION 09 65 15 - VINYL PLANK FLOORING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Vinyl Plank Flooring

B. Accessories.

1.2 RELATED SECTIONS

A. Section 03300 - Cast-In-Place Concrete: Finishing and curing of concrete slabs.

B. Section 03540 - Cementitious Underlayment.

C. Section 06100 - Rough Carpentry: Wood substrates.

1.3 REFERENCES

A. NALFA/ANSI LF-01-2008 - Laminated Flooring Specifications and Test Methods.

1.4 SUBMITTALS

A. Submit under provisions of Section 01300.

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

C. Shop Drawings: Installation details including location and layout of each type of flooring and accessory. Include layout data for each location with consideration for expansion control.

D. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

E. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.

F. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

G. Closeout Submittals: Provide manufacturer's maintenance instructions that include recommendations for periodic cleaning and maintenance.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum ten years documented experience.

B. Installer Qualifications: Company specializing in performing Work of this section with minimum three years documented experience.

C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques, application workmanship and requirements for expansion control.
   1. Finish 10 feet by 10 feet (3 mm by 3 mm) area, including typical field and edge conditions.

2. Locate in area designated by Architect.
3. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
4. Refinish mock-up area as required to produce acceptable work.
5. Maintain mock-up as a standard of quality for the work of this Section.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging with labels intact until ready for installation.

B. Protect materials from exposure to moisture. Do not deliver until after wet work is complete and dry.

C. Store materials flat in a dry, warm, ventilated and weather tight location.

D. Protect flooring products from damage.

1.7 SEQUENCING

A. Ensure that locating templates and other information required for installation of products of this section are furnished to affected trades in time to prevent interruption of construction progress.

B. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

1.8 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.

B. Spaces must be enclosed and dry with normal design humidity levels and temperatures between 55 and 85 degrees F (12 and 29 degrees C) for a minimum of 48 hours before, during and after installation of finished flooring. After installation, maintain design humidity and temperature levels.

C. Store materials for not less than 24 hours prior to installation in area of installation at temperatures between 55 and 85 degrees F (12 and 29 degrees C) to achieve temperature stability.

1.9 WARRANTY

A. Provide manufacturer's standard 10 year limited residential warranty against tear, fade, stain, separation, discolor, gap, and edge curl and lifetime limited warranty against wear-through

B. Provide manufacturer's standard 5 year limited light commercial warranty against wear-through.

1.10 EXTRA MATERIALS

A. See Section 01600 - Product Requirements, for additional provisions.

B. Deliver 100 sq ft of each type and color specified for Owner's use in maintenance.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Konecto Flooring, Contact - Sam Cook Jr. (870) 917-9223

B. Substitutions: Not permitted.

C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 COMPONENTS

A. Apartment Unit Vinyl Plank: Konecto “Project” Vinyl Plank:
1. Exposed Surface Size: 6 inches x 48 inches.
2. Thickness: 0.177 inches (4.5 mm) including wear layer.
3. Top Coat: Ceramic Bead Finish.
4. Joint Type: Interlocking type on all sides.
5. Color/Pattern: Leon

B. Office Building Vinyl Plank: Konecto “Prestige” Vinyl Plank:
1. Exposed Surface Size: 6 inches x 48 inches.
2. Thickness: 0.177 inches (4.5 mm) including 12 mil wear layer.
3. Top Coat: Ceramic Bead Finish.
4. Joint Type: Interlocking type on all sides.
5. Color/Pattern: Color and pattern selected by Owner. Assume 80/20% pattern.

C. Accessories:
1. Flooring Spacers: Maintain spacing between flooring and walls or other perimeter vertical surfaces.
2. Silicone Sealant: Use 100 percent silicone sealant to seal gaps, around metal door frames and flooring edges and in areas where moisture may be present.

D.Vinyl Base – Jonsonite vinyl base 0.080” x 4.5”h rolls.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared in accordance with manufacturer's instructions.

B. Verify that surfaces to receive vinyl plank flooring are smooth, flat and sound.

C. Verify new concrete slabs and terrazzo substrates are completely cured for a minimum of 6 weeks prior to installation.

D. Verify wood subfloor is properly secured, smooth and flat. All dimples due to nails and seams must be filled.

E. Verify required floor mounted utilities are in proper location.

F. Verify vinyl plank flooring has been acclimated to ambient temperatures, and acclimation and ambient temperatures are in accordance with manufacturer's instructions.

G. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Concrete slabs: Grind high spots and fill low spots to provide a maximum 1/16 inch (2 mm) deviation in any direction when checked with a 3 foot (0.9 m) straight edge.

C. Wood Subfloors: Fill voids to provide a maximum 1/16 inch (2 mm) deviation in any direction when checked with a 3 foot (0.9 m) straight edge.

D. Vinyl Substrate: Verify vinyl is tightly fastened to subfloor. Vinyl shall be smooth, flat and clean. Fill voids to provide a maximum 1/16 inch (2 mm) deviation in any direction when checked with a 3 foot (0.9 m) straight edge.

E. Remove wood floors on concrete subfloor prior to installation.

F. Remove carpeting on subfloor prior to installation.

G. If a leveling compound is used to level subfloor, material must be fully cured and dry as specified for the applicable substrate prior to starting installation.

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

I. Allow unopened cartons of planks to remain in the room where they are to be installed at least 24 hours prior to installation.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install flooring planks parallel to the long direction of the room. Verify strip flooring direction with Architect before starting installation.

C. Install flooring symmetrically about room centerline unless otherwise indicated. Lay planks from left to right.

D. Stagger end joint locations a minimum of 6 inches (150 mm).

E. Fit flooring neatly to vertical interruptions. Follow shape of interrupting item when joint will remain exposed and maintain 5/16 inch (8 mm) expansion space.

F. Install divider strips where flooring terminates at centerline of doors and adjacent to other materials or unfinished floor areas.

G. Door Frames:
   1. Undercut wood door frames and allow for 5/16 inch minimum (8 mm) expansion clearance.
   2. Do not undercut metal door frames, cut floor planks to fit around frames. Provide 5/16 inch (8 mm) expansion space and fill with color-matched perimeter sealant.
   3. Provide transitions at interior metal door applications.

H. Pipe Holes, Fixture Bolts, Fixture Anchors, Pillars, Fixed Objects:
   1. Drill a hole in the flooring 5/8 inch (8 mm) larger than the pipe/anchor diameter to allow for movement.

I. Molding and Trim:
   1. Install moldings and trim in accordance with manufacturer's instructions.

2. Adhere molding with construction mastic and/or mechanical when joining another flooring material.

3.4 CLEANING

A. Remove excess sealant from floor, base, and wall surfaces without damage.

B. Clean and maintain resilient flooring products in accordance with manufacturer's instructions.

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 09 91 00 - PAINTING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Surface preparation and field application of paints and coatings.

1.2 RELATED SECTIONS

A. Section 01 33 00 Submittals.

1.3 REFERENCES

A. Paint manufacturers current specifications.

1.4 SUBMITTALS

A. Submit under provisions of Section 01 33 00.

B. Product Data: Provide data on all finishing products.

1.5 REGULATORY REQUIREMENTS

A. Conform to applicable code for flame and smoke rating requirements for finishes.

1.6 FIELD SAMPLES

A. Provide field sample of paint under provisions of Section 01 40 00.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect and handle products to site under provisions of Section 01 60 00.

B. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

C. Container label to include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

1.8 ENVIRONMENTAL REQUIREMENTS

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

B. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.

C. Minimum Application Temperatures for Latex Paints: 45 degrees F (7 degrees C) for interiors; 50 degrees F (10 degrees C) for exterior; unless required otherwise by manufacturer's instructions.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Paint Products shall be as manufactured by Sherman Williams, Glidden or Pittsburgh Paint.

2.2 PAINT MATERIALS - GENERAL

A. Material Compatibility: Provide block fillers, primers, and finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.

B. VOC Classification: Provide high-performance coating materials, including primers, undercoats, and finish-coat materials, that have a VOC classification of 450 g/l or less.

C. Color: Refer to Finish Schedule and Paint Legend for paint colors.

2.3 EXTERIOR PAINT SYSTEMS

A. Concrete, Stucco, and Masonry (Other Than Concrete Unit Masonry): Provide the following finish systems over exterior concrete, stucco, and brick masonry substrates:
   1. Acrylic Finish: Two finish coats over a primer.
   2. Primer: Pittsburgh Paints: 4-603 Perma-Crete Interior/Exterior Alkali Resistant Primer. Applied at a dry film thickness of not less than 1.2 mils (0.030 mm).
   3. Exterior flat acrylic finish: Pittsburgh Paints; 6-610 Series SpeedHide Exterior House Paint Flat Latex: Applied at a dry film thickness of not less than 1.3 mils (0.033 mm).

B. Mineral-Fiber-Reinforced Cement Panels: Provide the following finish systems over exterior, mineral-fiber-reinforced cement panels:
   1. Acrylic Finish: Two finish coats over a primer.
   2 Primer: Pittsburgh Paints: 4-603 Perma-Crete Interior/Exterior Alkali Resistant Primer. Applied at a dry film thickness of not less than 1.2 mils (0.030 mm).
   3. Exterior flat acrylic finish: Pittsburgh Paints; 6-610 Series SpeedHide Exterior House Paint Flat Latex: Applied at a dry film thickness of not less than 1.3 mils (0.033 mm).

C. Ferrous Metal: Provide the following finish systems over exterior ferrous metal. Primer is not required on shop-primed items.
   1. Low-Luster Acrylic Finish: Two finish coats over a rust-inhibitive primer.
      a. Primer: Pittsburgh Paints; 90-712 Pitt-Tech One Pack Interior/Exterior Primer Finish Oil Base Industrial Enamel: Applied at a dry film thickness of not less than 3.0 mils (0.076 mm).
      b. Exterior low-luster acrylic finish: Pittsburgh Paints; 6-2045 Series SpeedHide Exterior House & Trim Satin--Acrylic Latex: Applied at a dry film thickness of not less than 1.0 mil (0.025 mm).

D. Zinc-Coated Metal: Provide the following finish systems over exterior zinc-coated metal surfaces:
   1. Low-Luster Finish: Two finish coats over a galvanized metal primer.
      a. Primer: Pittsburgh Paints; 90-712 Pitt-Tech One Pack Interior/Exterior Primer/Finish Oil Base Industrial Enamel: Applied at a dry film thickness of not less than 3.0 mils (0.076 mm).

b. Exterior low-luster acrylic paint finish: Pittsburgh Paints; 6-2045 Series SpeedHide Exterior House & Trim Satin--Acrylic Latex: Applied at a dry film thickness of not less than 1.0 mil (0.025 mm).

2.4 INTERIOR PAINT SYSTEMS

A. Gypsum Board: Provide the following finish systems over interior gypsum board surfaces:
   1. Acrylic Finish: Two finish coats over a primer.
      a. Primer: Pittsburgh Paints; 6-2 SpeedHide Interior Quick-Drying Latex Sealer: Applied at a dry film thickness of not less than 1.0 mil (0.025 mm).
      b. Interior eggshel acrylic finish: Pittsburgh Paints; 6-70 Line SpeedHide Interior Wall Eggshel-Latex Paint: Applied at a dry film thickness of not less than 1.0 mil (0.025 mm).

B. Wood and Hardboard: Provide the following paint finish systems over new interior wood surfaces:
   1. Acrylic-Enamel Finish: Two finish coats over a primer.
      a. Primer for Semigloss Acrylic-Enamel Finishes: Pittsburgh Paints; 6-855 SpeedHide Latex Enamel Undercoater: Applied at a dry film thickness of not less than 1.0 mil (0.025 mm).
      b. Interior semigloss acrylic enamel: Pittsburgh Paints; 6-500 Series SpeedHide Interior Semi-Gloss Latex: Applied at a dry film thickness of not less than 1.0 mil (0.025 mm).

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify site conditions under provisions of Section 01 30 00.

B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

D. Test shop applied primer for compatibility with subsequent cover materials.

3.2 PREPARATION

A. Remove or mask electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or finishing.

B. Correct defects and clean surfaces which affect work of this section. Remove existing coatings that exhibit loose surface defects.

C. Seal with shellac and seal marks which may bleed through surface finishes.

D. Impervious Surfaces: Remove mildew by scrubbing with solution of tri-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

E. Aluminum Surfaces Scheduled for Paint Finish: Remove surface contamination by steam or high pressure water. Remove oxidation with acid etch and solvent washing. Apply etching primer immediately following cleaning.

F. Asphalt, Creosote, or Bituminous Surfaces Scheduled for Paint Finish: Remove foreign particles to permit adhesion of finishing materials. Apply latex based compatible sealer or primer.

G. Insulated Coverings: Remove dirt, grease, and oil from canvas and cotton.

H. Concrete Floors: Remove contamination, acid etch, and rinse floors with clear water. Verify required acid-alkali balance is achieved. Allow to dry.

I. Gypsum Board Surfaces: Fill minor defects with filler compound. Spot prime defects after repair.

J. Galvanized Surfaces: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.

K. Concrete and Unit Masonry Surfaces Scheduled to Receive Paint Finish: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with a solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.

3.3 APPLICATION

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

B. Do not apply finishes to surfaces that are not dry.

C. Apply each coat to uniform finish.

D. Apply each coat of paint slightly darker than preceding coat unless otherwise approved.

E. Sand wood and metal lightly between coats to achieve required finish.

F. Vacuum clean surfaces free of loose particles. Use tack cloth just prior to applying next coat.

G. Allow applied coat to dry before next coat is applied.

H. Where clear finishes are required, tint fillers to match wood. Work fillers into the grain before set. Wipe excess from surface.

I. Prime concealed surfaces of interior and exterior woodwork with primer paint.

J. Prime concealed surfaces of interior woodwork scheduled to receive stain or varnish finish with gloss varnish reduced 25 percent with mineral spirits.

3.4 CLEANING

A. Clean work under provisions of 017000.

B. Collect waste material which may constitute a fire hazard, place in closed metal containers and remove daily from site.

3.5 EXTRA MATERIALS

A. Provide one gallon of each paint used.

END OF SECTION

SECTION 09 96 56 - EPOXY FLOOR COATING

General

1.1 Scope

This specification covers the performance characteristics and application procedures for providing a two component, 100% solids, high build epoxy coating system designed for application at 15-20 mils.

1.2 Material Description

The material shall be a two component, 100 % solids, high build epoxy coating system designed for application at 15-20 mils. It should provide moderate resistance to chemical spills, fumes or immersion, oils, and grease; resistance to most acids, alkalies, solvents, gasoline and aviation fuels; withstand temperature extremes without cracking or peeling, and provide excellent adhesion, flexibility and durability.

1.3 Typical Applications

A. Interior horizontal concrete surfaces

1.4 Limitations

A. Avoid applying any polymer coating in direct sunlight during times of extreme heat. This can cause wrinkling, pinholes and blistering.
B. Application should be scheduled for early morning or late afternoon when ambient and substrate temperatures are at their lowest.
C. Do not apply in the presence of foodstuffs. USDA approval pertains to fully cured material only.
D. Duraguard 120 is not formulated for immersion or primary containment of highly aggressive chemicals. Consult ChemMasters technical service staff for alternate product recommendations.
E. When surrounding conditions are damp or humid, surface should be examined after primer coat and between subsequent topcoats for blush, an oily film, which must be removed by washing with warm water and detergent.

1.5 Quality Assurance

The repair contractor shall have experience and proficiency specific to the repair type and shall be approved by the material supplier. The material supplier shall provide job service as required to assure proper handling and installation of materials. The field representative shall instruct as needed to assure that handling, mixing, placing and finishing of materials are in accordance with specifications.

1.6 Delivery, Storage and Handling

The product shall be delivered in the original, unopened containers. It shall be labeled with the manufacturer's name, product name and lot number. Materials should be stored at the job site under dry conditions and at a temperature of
40° F., (4° C.) to 90° F. (32° C.).

1.7 Environmental Requirements

All materials used for the repair work shall be VOC compliant. The manufacturer shall supply the appropriate material safety data sheets upon request.

1.8 Site Conditions

A. Coverage is dependent upon surface texture and porosity.

Materials

2.1 Approved Materials and Manufacturers

2.1.1 Product Standard

Duraguard 120, as manufactured by ChemMasters, 300 Edwards Street, Madison, Ohio, 44057-3112, 1-800-486-7866, is considered to conform to the requirements of this specification and shall be the topping used. Duraguard 120 is a two component, 100% solids, high build epoxy coating system designed for application at 15-20 mils.

2.1.2 Substitutions

No submittals for substitutions will be accepted after the bid date. All submittals must be made in writing to the engineer with supporting technical data sheets and test data showing complete equivalent performance.

2.2 Packaging/Coverage/Estimating

2.2.1 Packaging

Duraguard 120 clear is packaged in 1 U.S. gallon/3.8 liter and 4 gallon/15 Liter units. Duraguard 120 colors are packaged in 1 U.S.gallon/3.8 liter and 3 gallon/11 liter units.

2.2.2 Coverage/Estimating: Ft.^{2}/Gal. M.^{2}/L

A. PRIMER: Duraguard 100 200 5 8
B. COATING: Duraguard 120 80-110 2-2.7 15-20
C. Duraguard 310 CRU 330 7.4 5

2.2.3 Storage:

Store unmixed material in tightly closed containers at standard room temperatures of 50° F/10° C to 80° F/27° C. Do not place in direct sunlight or near sources of heat. Shelf life of properly stored material is one year from date of manufacture.

2.2.4 Suggested System Components

A. PRIMER: Duraguard 100, Epoxy Primer
B. TOPCOAT OR I NTERCOAT: Duraguard 120, High Build Epoxy Sealer
C. QUARTZ BROADCAST: Requires one coat of Duraguard 120 Clear at 15-20 mils with broadcast of 0.75 lbs/0.34 Kg per Ft.½ colored quartz aggregate followed by second coat of Duraguard 120 Clear at 15-20 mils.

2.3 Engineering Properties

The following engineering properties shall be typical of material performance when tested under laboratory conditions at 72°F (22.2°C).

2.3.1 Plastic Properties

2.3.1.1 V.O.C. Content: 0 gm/L
2.3.1.2 Dry film thickness: 15-20 mils
2.3.1.3 Appearance: High gloss
2.3.1.4 Drying Time
A. Pot Life @ 70° F/21° C: 30 minutes
B. Drying Time @ 75° F./24° C. with 50%R.H.: Tack free time 8 hours
C. Recoat Time: 8-24 hours
D. Light or moderate foot traffic: 12 hours
E. Wheeled traffic: 2 days

2.3.2 CHEMICAL RESISTANCE TABLE

A. Acids Concentration Comments

Acetic 5% Fumes & Spills
Citric -Immersion, Fumes & Spills
Hydrochloric 30% Fumes & Spills
Lactic 10%Immersion, Fumes & Spills
Sulfuric 10%Immersion, Fumes & Spills
Sulfuric 90% Fumes & Spills
Fatty Acids, Immersion, Fumes & Spills
Chromic, Fumes & Spills
Phosphoric 10%, Fumes & Spills

B. Alkalies

Ammonia 10% Fumes & Spills
Caustic Salts - Immersion, Fumes & Spills
Detergents various Immersion, Fumes & Spills
Sodium Hydroxide 50% Immersion, Fumes & Spills
Sodium Hypochlorite10% Immersion, Fumes & Spills

C. Solvents

Acetone (7 day cure) Fumes &Spills
Ketones (7 day cure) Fumes &Spills
Aliphatic Hydrocarbons Immersion, Fumes & Spills
Aromatic Hydrocarbons Immersion, Fumes & Spills
Carbon Tetrachloride Fumes & Spills
Gasoline Immersion, Fumes & Spills
Xylene Immersion, Fumes & Spills

D. Salts

Metal salts, various 10%Immersion, Fumes & Spills
Consult ChemMasters for compounds not noted above or for exposures in excess of those listed.

2.3.3 Maximum Temperature Limits

A. Dry Heat: 250° F 392° C
B. Spills: 150° F 212° C
C. Immersion: 150° F 212° C
Cold: -40° F. -130° C.

2.3.4 Based on a temperature range of 60°-80° F./16-27° C.

A. Intermediate chemical exposure 2 days
B. Maximum chemical resistance 7 days

2.3.5 Colors

Color fast, high gloss finish in Color selected by Owner.

2.4 Accessory Materials

As manufactured by ChemMasters, 300 Edwards Street, Madison, Ohio, 44057-3112, 1-800-486-7866, is considered to conform to the requirements of this specification.

Execution

3.1 References

A. Complies with National Volatile Organic Compound Emission Standards for Architectural Coatings, Federal EPA Regulation 40 CFR Part 59
B. USDA approved for incidental contact in federally inspected meat and poultry plants.
C. Refer to ChemMasters MSDS and Technical Data Sheets

3.2 Surface Preparation

A. This is the most critical step in any coating application. All concrete must be mechanically or chemically profiled. For complete surface assessment and preparation guidelines, refer to ChemMasters Technical Bulletin, "Guide to Floor
Preparation" or contact ChemMasters technical service staff.
B. Minimum surface temperature for application is 60° F/15° C. For optimum results, ambient temperature should be between 60° F./15° C. and 90° F./32° C. during application and throughout curing process.

3.3 Priming:

Duraguard 120 requires an initial primer coat of Duraguard 100 for enhanced adhesion to the substrate. Follow mixing and application directions on the Duraguard 100 technical data sheet or label. Allow primer to dry to tack free, 5-6 hours, before applying Duraguard 120.

3.4 Mixing

A. MIX RATIO: 3 Parts A Resin: 1 Part B Hardener
B. MIXING:
1. Duraguard 120 must be mixed with a drill equipped with a jiffler type blade before application.
2. Pour all of the Part B Hardener into the Part A Resin and mix thoroughly at a low RPM speed for 2-3 minutes until uniform in color.
3. It is important to avoid excessive contact of the jiffler blade with the inside of the plastic pail to eliminate plastic particles in the mixed material.
4. Use within 30 minutes of mixing.
Note: Disperse mixed material rapidly. If product is left in mixing container in a large mass, the working time is drastically reduced.

3.5 Application:

A. Pour the mixed Duraguard 120 onto the tack free primer and spread to a uniform depth and appearance using a short nap, solvent resistant roller.
B. Place material in strips or sections that are reached easily with the length of roller handle in use.
C. Recoat: When using Duraguard 120 as the wearing surface in chemical environments, two coats are advised. As an alternate topcoat for increased chemical resistance and U.V. stability, use Duraguard 310 CRU. Allow Duraguard 120 to dry tack free, 6-8 hours, before applying either topcoat.

3.6 Cleanup

Clean tools and equipment before material dries with xylene, xylol or glycol ether PM acetate.

END OF SECTION

SECTION 10 14 00 - PLASTIC SIGNS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Common Area, Unit, Accessible Unit and Bathroom signs.

B. Exterior Building signs

1.2 SUBMITTALS

A. Submit shop drawings and samples under provisions of Section 01 33 00.

B. Submit shop drawings listing sign styles, lettering and locations, and overall dimensions of each sign.

1.3 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site under provisions of Section 01 60 00.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers: Seton Identification Products.

2.2 SIGNS

A. Public Accessible toilets: Standard Unisex Accessible sign w/ lettering, symbol and brail.

B. Common Area and Apartment Units: 4.5”h x required length, Lettering 1 1/2”h, raised 1/32” with brail below.

C. Building Exterior Signs: 12”h x required length, Lettering 8”h.

D. Leasing Office Sign: Engraved.

E. Refer to Sign Sheet for Style and Colors.

2.3 ACCESSORIES

A. Tape Adhesive: Double sided tape, permanent adhesive.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that surfaces are ready to receive work.

B. Beginning of installation means installer accepts existing surfaces.

3.2 INSTALLATION

A. Install in accordance with manufacturer's instructions and American with Disabilities Act.

B. Locate sign on wall, handset side of door, level.

C. Clean and polish.

ENDOFSECTION

SECTION 10 28 00 - BATH ACCESSORIES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Bathroom accessories.

B. Grab bars.

1.2 REFERENCES

A. ANSI A117.1 - Safety Standards for the Handicapped.

B. The Americans with Disabilities Act.

1.3 SUBMITTALS

A. Submit under provisions of Section 013300.

1.4 REGULATORY REQUIREMENTS

A. Conform to ANSI A117.1 code for access for the handicapped, UFAS and A.D.A. Requirements.

1.5 FIELD MEASUREMENTS

A. Verify that field measurements are as indicated on product data. instructed by the manufacturer.

1.6 COORDINATION

A. Coordinate work under provisions of Section 013000.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Bobrick or ASI-American Specialties.

B. Refer to drawings for locations and requirement of ADA.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify site conditions under provisions of Section 013000.

B. Verify that site conditions are ready to receive work and dimensions are as indicated on shop drawings instructed by the manufacturer.

C. Verify exact location of accessories for installation.

3.2 PREPARATION

A. Deliver inserts and rough-in frames to site for timely installation.

B. Provide templates and rough-in measurements as required.

C. Provide wall blocking as required.

3.3 INSTALLATION

A. Install accessories in accordance with manufacturers' instructions, ANSI A117.1, UFAS and A.D.A. Requirements.

B. Install plumb and level, securely and rigidly anchored to substrate.

3.4 SCHEDULE

A. Refer to drawings for general locations, mounting heights and sizes shall be in accordance with A.D.A.

B.

Typical Units	Bobrick	Quanity
Bathrooms each		
Toilet paper holder	B 7685	1
24” Towel bar	B 7673	1
Shower rod	B 6047	1
Mirrors (size per dwgs)	Frameless	1

Accessible Units	Bobrick	Quanity
Bathrooms each		
Toilet paper holder	B 7685	1
Grab bars (size per dwgs)	B 6806	per dwgs
24” Towel bar	B 7673	1
60” Shower rods	B 6047	1
Mirrors (size per dwgs)	Frameless	1

Leasing Office	Bobrick	Quanity
Bathrooms each		
Toilet paper holder	B 7685	1
Grab bars (size per dwgs)	B 6806	per dwgs
Mirrors (size per dwgs)	Frameless	1

END OF SECTION

SECTION 10 44 16 - FIRE PROTECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Fire extinguishers.

B. Stove Top Fire Suppressors.

1.2 RELATED SECTIONS

A. Section 099100 - Painting: Field paint finish.

1.3 REFERENCES

A. ANSI/NFPA 10 - Portable Fire Extinguishers.

B. ANSI/UL 92 - Fire Extinguisher and Booster Hose.

C. ANSI/UL 711 - Rating and Fire Testing of Fire Extinguishers.

1.4 SUBMITTALS

A. Submit under provisions of Section 013300.

1.5 OPERATION AND MAINTENANCE DATA

A. Submit under provisions of Section 017000.

1.6 REGULATORY REQUIREMENTS

A. Conform to NFPA 10 1998 ed. for requirements for extinguishers .

1.7 ENVIRONMENTAL REQUIREMENTS

A. Do not install extinguishers when ambient temperature may cause freezing of extinguisher ingredients.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. J. L. Industries, Larsen’s

B. Williams-Pyro

2.2 EXTINGUISHERS

A. Fire Extinguishers – Provide one (1) Larsen MP2 ½ - 1A10BC fire extinguisher in each apartment unit kitchen, mount within cabinet under sink or as directed by local fire inspector. Extinguisher must be tagged and mounted by Arkansas Licensed Fire Extinguisher Co.

B. Provide and install two Firestop Microhood Suppressors #677-2 as manufactured by Williams-Pyro at each microwave within Typical Units. And install two stove top Firestop Suppressors #675-3 as manufactured by Williams-Pyro at each range hood within Accessible Units.

C. Fire Extinguishers – Provide four (4) Larsen MP5A-3A40BC fire extinguishers wall mounted in the following locations: Office, Maintenance Room, Community Room and Laundry Room.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify specified location with local fire inspector.

3.2 INSTALLATION

A. Install in accordance with manufacturer's instructions.

END OF SECTION

SECTION 10 55 00 - POSTAL SPECIALTIES

PART 1 GENERAL

1.1 SCOPE

A. The work required under this specification consists of mail boxes.

1.2 RELATED WORK

A. Finish Carpentry is specified under Section 062000.

1.3 SUBMITTALS

A. Submit under provisions of Section 013300.

B. Shop Drawings: Indicate locations, construction and anchorage details, dimensions, rough-in openings sizes, number and arrangement of box sizes.

PART 2 MATERIALS

2.1 CLUSTER BOX

A. U.S.P.S. approved aluminum front loading pedestal units. Units shall be front load type as manufactured by Auth-Florence, Bommer, or Security Manufacturing Corp. Color selected by Owner.

B. Provide a minimum of (66) 3"x12" patron compartments and (6) 15"x12" parcel openings. Each box provided with five pin tumble cam type lock in accordance with U.S. Postal service requirements.

2.2 RENT DROP BOX

A. “Rent” drop as manufactured by Auth-Florence, Boomer or Security Manufacturing Corp. Color selected by Owner.

B. Provide and install Auth-Florence LD12 Series letter drop w/ angled wall liner chute to 120/130 surface mount collection box.

PART 3 EXECUTION

3.1 INSTALLATION

Install where shown in drawings and in complete accordance with manufacturer's specifications, details and in strict accordance with U. S. Postal Service requirements.

END OF SECTION 105500

SECTION 10 90 00 - CLOSET SHELVING AND ACCESSORIES

PART 1 GENERAL

1.1 SCOPE

A. The work required under this specification consists of closet shelving and accessories within Units.

1.2 RELATED WORK

A. Gypsum drywall is specified under Section 092900.

B. Rough carpentry is specified under Section 061000.

PART 2 MATERIALS

2.1 CLOSET SHELVING/ACCESSORIES

A. Closet shelving and accessories shall be as manufactured by Closet Maid or Rubbermaid. Provide and install as indicated on drawings. Provide handing rod accessory as required.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install as shown in drawings and in complete accordance with manufacturer's specifications and details.

ENDOFSECTION

SECTION 11 31 00 - APPLIANCES

PART 1 GENERAL

1.1 SCOPE

A. Provide kitchen equipment complete and ready for piping, wiring and ductwork, all such connections to be made under the plumbing, mechanical, and electrical sections, of these specifications.

1.2 RELATED WORK

A. Work in other sections of these specifications refer to Divisions 23 and 26 for detailed specifications concerning ventilation, plumbing and electrical rough-ins.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Frigidaire, GE, Hotpoint, Kenmore, and Whirlpool Appliances

2.2 APPLIANCES

TYPICAL UNITS

A.	Refrigerator:	FFHT1821QW Energy Star, Frost Free, Ice Maker
B.	Range 30”	FFEF3011LW
C	Range Splash	Broan SP300108 (rear and side)
D	Microwave/Vent Combo	MWV150KW
E	Fire Suppressors	Williams-Pyro Microhood FireStop #677-2
F	Disposal	Badger 5, ½ HP (with cord & plug)
G	Dishwasher	FFBD2421MW Energy Star (with cord & plug)
H	Washer/Dryer	FFLE3911QW Energy Star

ACCESSIBLE UNITS

A.	Refrigerator:	FFHT1821QW EnergyStar,ADACompliant,FrostFree,Ice Maker
B.	Range 30” (front controls)	FFEF3009PW, ADA Compliant, Self -Cleaning
C	Range Splash	Broan SP300108
D	Range Vent	Broan 4100 with wall switch
E	Microwave (countertop)	FFCE1439LW
E	Fire Suppressors	Williams-Pyro StoveTop FireStop #675-3
F	Disposal	Badger 5, ½ HP (with cord&plug)
G	Dishwasher (2,3,4BR)	FFBD2421MW EnergyStar, ADA Compliant (with cord & plug)
	Dishwasher (1BR)	FFBD1821MW EnergyStar, ADA Compliant (with cord & plug)
H	Washer	GE-GFWH1200D Energy Star, ADA Compliant
I	Dryer	GE-GFDN110ED ADA Compliant

COMMUNITY ROOM (Stainless Steel or Clean Steel finish)

A.	Refrigerator	FFHT1831QS w/ Ice Maker, ADA Compliant, Energy Star
B.	Microwave (countertop)	FFCE1638LS-SS
C.	Dishwasher	FFBD2410HIC-SS ADA, Energy Star (with cord&plug)
D.	Disposal	Badger 5, ½ HP (with cord&plug)

PART 3 INSTALLATION

3.1 GENERAL

A. Installation shall be in accordance with contract drawings and manufacturer's instructions. Plumbing, mechanical and electrical connections shall be in accordance with those sections of these specifications. All equipment (except movable items) shall be securely anchored or attached, leveled, regulated or adjusted, tested, cleaned, and made ready for use.

3.2 INSTRUCTION MANUALS

A. Furnish to Owner all required instruction manuals for operation instructions and maintenance of equipment after testing all equipment before final inspection by Architect.

END OF SECTION

SECTION 12 21 13 - WINDOW BLINDS

PART 1 GENERAL

1.1 SCOPE

A. The work required under this specification consists of window blinds and all related accessories.

PART 2 MATERIALS

2.1 BLINDS

A. Window Blinds 2" Horiz. Vinyl. slats shall be as manufactured by Hunter Douglas , Levolor, Lotus or Graber. Color as selected by Owner.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install as shown in drawings and in complete accordance with manufacturer's specifications. Provide blinds for all new exterior windows.

END OF SECTION

SECTION 12 36 23 - CABINETS AND COUNTERTOPS

PART 1 GENERAL

1.1 SCOPE

A. The work in this specification consists of cabinet work.

1.2 RELATED WORK

A. Painting is specified in Section 099100.

1.3 SHOP DRAWINGS

A. Shop Drawings shall be furnished for all woodwork except for stock items, and shall be drawn in related and/or dimensional position with sections shown either full size or 3" scale.

B. The woodwork manufacturer is responsible for details and dimensions not controlled by job conditions, and shall show on his shop drawings all required field measurements beyond his control. The General Contractor and the woodwork manufacturer shall cooperate to establish and maintain these field dimensions.

1.4 APPLICABLE STANDARDS

A. The Quality Standards of the American Woodwork Industry shall apply and by reference are made a part of this specification. Cabinets shall comply with the requirements of ANSI 161.1-1990 standards.

B. The Architect reserves the right to approve the woodwork manufacturer selected to furnish all of the woodwork. The approved woodwork manufacturer must have a reputation for doing satisfactory work on time and shall have successfully completed comparable work.

C. Soft Wood Ply Wood PS-1.

D. Non-pressure treated millwork CS 262 or NWMA IS-4.

E. Cabinets shall comply with KCMA.

1.5 DELIVERY AND STORAGE

A. The Woodwork Manufacturer and the General Contractor shall jointly be responsible to make certain that items of woodwork are not delivered until the building and storage area is sufficiently dry so that the woodwork will not be damaged by excessive changes in moisture content.

PART 2 MATERIALS

2.1 STANDARDS

A. Cabinets shall be KCMA Approved.

B. Plywood, not noted otherwise, shall be Interior A-A where exposed both sides and

A-D for one side exposure. All plywood shall be grade marked.

C. Cabinet hardware shall be heavy-duty pivot hinges with magnetic catches and concealed parts brushed nickel finish. Cabinet drawer and door pulls shall be provided to meet ADFA, ADA and Fair Housing accessibility guidelines. Supporting hardware shall be designed for total loads and types of adjacent construction with a safety factor not less than 2. Hardware shall support the following loads:

1. 20 lb. load on front of each cabinet door secured as far as possible from hinges and each door operated slowly through 10 openings (full swing) and 10 closings.
2. Same test for Base Cabinet Doors using a 30 lb. load.

2.2 MANUFACTURER

A. Base and Wall cabinets shall be as manufactured by KCI or Aristokraft.

2.3 PRODUCT

A. KCI Standard Construction – Highlander Series 300– Maple w/colonial finish. Upgrade to all plywood construction and dovetailed drawer construction.

PART 3 EXECUTION

3.1 INSTALLATION

A. Installation shall comply with AWI Custom Grade Casework and current manuf. installation instructions.

END OF SECTION

SECTION 12 36 62 - CULTURED MARBLE VANITY TOPS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Cultured Marble Vanity Tops.
   2. Accessories

1.02 RELATED SECTIONS

1. Sealants: Section 079000.
2. Cabinets and Countertops: Section 123623

1.03 REFERENCE STANDARDS

A. ASTM C 97 – Standard Test Methods for Absorption and Bulk Specific Gravity of Dimensions Stone; 2009.

B. ASTM C 880 – Standard Test Method for Flexural Strength of Dimension Stone; 2009.

C. ASTM C 1028 – Standard Test Method for Determining the Static Coefficient of Friction of Ceramic Tile and other Like Surfaces by the Horizontal Dynamometer Pull-Meter Method; 2007, Edition 1.

D. ASTM E 84 – Standard Test Method for Surface Burning Characteristics of Building Materials; 2010

E. ASTM E 228 – Standard Test Method for Linear Thermal Expansion of Solid Materials with a Puch-Rod Dilatometer; 2006.

F. ASTM G 21 – Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi; 2009.

G. ISSFA-2-01 – Classification and Standards for Solid Surfacing Materials; 2007.

H. MIA-DSDM – Marble Institute of America, Dimension Stone Design Manual; 2005.

1.04 SUBMITTALS

A. Comply with Division One

B. Provide the following Product Data:
   1. Detailed specification of construction and fabrication.
   2. Manufacturer's installation instructions.
   3. Manufacturer's detailed recommendations for handling, storage, installation, protection, cleaning and maintenance.
   4. Samples of manufacturer’s standard colors.
   5. Submit manufacturer warranty and ensure that forms have been completed in Owner’s name and registered with manufacturer.

C. Shop Drawings: Installation details including location and layout of each type of fabrication and accessory.

D. Contract Closeout Submittals: Comply with Division One

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Firm experienced in installation or application of systems similar in complexity to those required for this Project and shall be acceptable to or licensed by manufacturer.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver fabrications appropriately wrapped in protective materials.

B. Protect fabrications from damage.

1.07 PROJECT CONDITIONS

A. Maintain relative humidity planned for building occupants and an ambient temperature between 50 and 95_F for 48 hours prior to and during installation. After installation, maintain relative humidity and ambient temperature planned for building occupants.

1.08 WARRANTY

A. Furnish manufacturer's standard warranty.

PART 2 - MATERIAL

2.01 MANUFACTURER

A. Manufacture: Rynone, Penncrafter, American Standard, International Marble Industries, Mincey Manufacturer or Marble Products.

B. Quality Standard: Custom Grade in accordance with AWS.

2.02 VANITY TOPS

A. Cultured Marble Vanity Tops: Sheet or slab of polyester resin composite over vanity base.
   1. Nominal sheet thickness: 3/4 inch (19 mm).
   2. Natural Marble, Quartz and Resin Composite Sheets, Slabs and Castings: Complying with ISSFA-2 and NEMA LD3; polyester resin, mineral filler, and pigments; homogenous, non-porous and capable of being worked and repaired using standard woodworking tools; no surface coating; color and pattern consistent throughout thickness.
   3. Surface burning characteristics in accordance with ASTM E 84: Class I or A, and as follows:
      a. Flame spread: < 25.
      b. Smoke developed: <450.
   4. NSF approved for food contact.
   5. Sinks: Integral castings with at least ¾ inch (19mm) wall thickness; comply with ANSI Z124.3.
   6. Deck Edge at Sinks: Radius
   7. Finish on Exposed Surfaces: Polished.
   8. Color and Pattern: As selected from Manufacturer's standards.
   9. Exposed Edge Treatment: Radius
   10. Back and End Splashes: Integral with vanity top, 4" high.

2.03 ACCESSORY MATERIALS

A. Adhesive: Chemical resistant waterproof adhesive as recommended by manufacturer of materials being joined.

B. Sealant: Standard mildew resistant, FDA/UL® recognized silicone sealant in color matched or clear formulations.

2.04 FABRICATION

A. Fabricate components to greatest extent practical in sizes and shapes as indicated and in accordance with MIA-DSDM. Inspect surfacing prior to fabrication.

B. Fabricate joints between components using manufacturer's recommended, color matched, joint adhesive, reinforce as required.

C. Fabricate factory cutouts for plumbing fittings and bath accessories as indicated on Drawings.

D. Fabricate and finish routed edges of component with clean, sharp returns.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine substrates to receive vanity tops. Identify conditions detrimental to proper or timely installation. Do not commence installation until conditions have been corrected.

3.02 INSTALLATION

A. Install components plumb and level, in accordance with approved shop drawings, project installation details and manufacturer's printed instructions.

B. Form joints using manufacturer's approved adhesive, with joints inconspicuous in finished work.

C. Provide backsplashes and end splashes as indicated on the drawings. Adhere to countertops using manufacturer's recommended silicone sealant.

F. Remove excessive adhesive and sealants. Components shall be clean on Date of Substantial Completion

.

G. Coordinate plumbing installation with Division.

3.03 PROTECTION

A. Protect surfaces from damage until Date of Substantial Completion. Repair or replace damaged components that cannot be repaired to architect's satisfaction.

END OF SECTION 123662

SECTION 22 05 00 - COMMON WORK RESULTS FOR PLUMBING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this and the other sections of Division 22.

1.2 SUMMARY

A. This Section includes general administrative and procedural requirements for plumbing installations. The following administrative and procedural requirements are included in this Section to expand the requirements specified in Division 1.

1. Submittals.
2. Maintenance manuals.
3. Rough-ins.
4. Plumbing installations.
5. Cutting and patching.

1.3 ELECTRICAL WORK

A. Provide and install all control devices and wiring. All electrical work shall be in accordance with the requirements of Division 26.

B. Motor Starters: Furnish motor starters for plumbing equipment for installation by the electrical contractor. Furnish starters that comply with requirements specified in Division 26. Field verify all equipment electrical characteristics before ordering equipment.

1.4 SUBMITTALS

A. General: Follow the procedures specified in Division 1.

B. Increase, by the quantity listed below, the number of plumbing related shop drawings and product data to allow for required distribution, one copy of which will be retained by the Mechanical Consulting Engineer.

1. Shop Drawings - Initial Submittal: One additional print or copy.
2. Shop Drawings - Final Submittal: One additional print or copy.
3. Product Data: One additional copy.

C. Additional copies may be required by individual sections of these Specifications.

1.5 MAINTENANCE MANUALS

A. Prepare maintenance manuals in accordance with Division 1. In addition to the requirements specified in Division 1, include the following information for equipment items:

1. Description of function, normal operating characteristics and limitations, performance curves, engineering data and tests, and complete nomenclature and commercial numbers of replacement parts.
2. Manufacturer's printed operating procedures to include start-up, break-in, and routine and normal operating instructions; regulation, control, stopping, shutdown, 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.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to the project properly identified with names, model numbers, types, grades, compliance labels, and other information needed for identification.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 ROUGH-INS

A. Verify final locations for rough-ins with field measurements and with the requirements of the actual equipment to be connected.

3.2 PLUMBING INSTALLATIONS

A. General: Sequence, coordinate, and integrate the various elements of plumbing systems, materials, and equipment. Comply with the following requirements:

1. Coordinate plumbing systems, equipment, and materials installation with other building components.
2. Verify all dimensions by field measurements.
3. Arrange for chases, slots, and openings in other building components during progress of construction, to allow for plumbing installations.
4. Coordinate the installation of required supporting devices and sleeves to be set in poured-in-place concrete and other structural components, as they are constructed.
5. Sequence, coordinate, and integrate installations of materials and equipment for efficient flow of the Work. Give particular attention to large equipment requiring positioning prior to closing in the building.
6. Where mounting heights are not detailed or dimensioned, install systems, materials, and equipment to provide the maximum headroom possible.
7. Coordinate connection of systems with exterior underground and overhead utilities and services. Comply with requirements of governing regulations, franchised service companies, and controlling agencies. Provide required connection for each service.
8. Install systems, materials, and equipment to conform with approved submittal data to greatest extent possible. Conform to arrangements indicated by the Contract Documents,

recognizing that portions of the Work are shown only in diagrammatic form. Where coordination requirements conflict with individual system requirements, refer conflict to the Architect.

9. Install systems, materials, and equipment level and plumb, parallel and perpendicular to other building systems and components, where installed exposed in finished spaces.
10. Install equipment to facilitate servicing, maintenance, and repair or replacement of equipment components. As much as practical, connect equipment for ease of disconnecting, with minimum of interference with other installations. Extend grease fittings to an accessible location.
11. Install access panel or doors where units are concealed behind finished surfaces.
12. Install systems, materials, and equipment giving right-of-way priority to systems required to be installed at a specified slope.

3.3 CUTTING AND PATCHING

A. General: Perform cutting and patching in accordance with Division 1. In addition to the requirements specified in Division 1, the following requirements apply:

1. Protection of Installed Work: During cutting and patching operations, protect adjacent installations.

B. Perform cutting, fitting, and patching of mechanical equipment and materials required to:

1. Uncover Work to provide for installation of ill-timed Work.
2. Remove and replace defective Work.
3. Remove and replace Work not conforming to requirements of the Contract Documents.
4. Remove samples of installed Work as specified for testing.
5. Install equipment and materials in existing structures.
6. Upon written instructions from the Architect, uncover and restore Work to provide for Architect/Engineer observation of concealed Work.

END OF SECTION 22 05 00

SECTION 22 05 29 - PIPE HANGERS AND SUPPORTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this and other sections of Division 22.

1.2 SUMMARY

A. This section includes hangers, supports, and building attachments for plumbing piping.

B. Related Sections: The following sections contain requirements that relate to this section.

1. Section 22 05 00, "Common Work Results for Plumbing"

1.3 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of hangers, supports, and anchors, of types and sizes required, whose products have been in satisfactory use in similar service for not less than 5 years.

B. Codes and Standards

1. Code Compliance: Comply with applicable plumbing and mechanical codes pertaining product materials and installation of hangers and supports.
2. MSS Standards: Manufacturers Standardization Society of the Valve and Fittings Industry (MSS), MSS SP-58, Pipe Hangers and Supports.

PART 2 - PRODUCTS

2.1 VERTICAL PIPING CLAMPS

A. Except as otherwise noted, provide factory-fabricated vertical piping clamps complying with MSS SP-58, of one of the following types listed, selected by Installer to suit vertical piping systems, in accordance with MSS SP-69 and manufacturer's published product information. Select size of vertical piping clamps to exactly fit pipe size of bare pipe.

1. Two-Bolt Riser Clamps: MSS Type 8, Grinnell Fig. 261.

2.2 HORIZONTAL PIPING HANGERS AND SUPPORTS

A. General: Except as otherwise indicated, provide factory-fabricated piping hangers and supports complying with MSS SP-58, of one of the following MSS types listed, selected by Installer to suit horizontal piping systems, in accordance with MSS SP-69 and manufacturer's published

product information. Use only one type by one manufacturer for each piping service. Select size of hangers and supports to exactly fit pipe size for bare piping, and to exactly fit around piping insulation with saddle or shield for insulated piping.

1. Adjustable Steel Clevis Hangers: MSS Type 1, Grinnell Fig. 260 or 300 (sizes 2" and larger).
2. Adjustable Swivel Pipe Rings: MSS Type 10, Grinnell Figure 70
3. Adjustable Roller Hangers: MSS Type 43, Grinnell Fig. 181

B. Install hangers for piping with the following minimum rod sizes and maximum spacing

Pipe Size	Steel	Copper	PVC	Rod Size
1/2	7	5	3	3/8
3/4	7	5	3	3/8
1	7	6	4	3/8
1-1/4	8	7	4	3/8
1-1/2	9	8	4	3/8
2	10	8	4	3/8
2-1/2	11	9	5	3/8
3	12	10	5	1/2
4	14	12	6	5/8
6	17	14	6	3/4

2.3 HANGER ROD ATTACHMENTS

A. Except as otherwise indicated, provide factory-fabricated hanger rod attachments complying with MSS SP-58, of one of the following MSS types listed, selected by Installer to suit horizontal piping hangers and building attachments, in accordance with MSS SP-69 and manufacturer's published product information. Use only one type by one manufacturer for each piping service. Select size of hanger rod attachments to suit hanger rods.

1. Swivel Turnbuckles: MSS Type 13, Grinnell Fig. 230.
2. Malleable Iron Sockets: MSS Type 16, Grinnell Fig. 110.

2.4 BUILDING ATTACHMENTS

A. Except as otherwise indicated, provide factory-fabricated building attachments complying with MSS SP-58, of one of the following MSS types listed, selected by installer to suit building substrate conditions, in accordance with MSS SP-69 and manufacturer's published product information. Select size of building attachments to suit hanger rods.

1. Concrete Inserts: MSS Type 18, Grinnell Fig. 282, or MSS Type 19, Grinnell Fig. 285.
2. C-Clamps: MSS Type 23, Grinnell Fig. 86 or Fig. 61.
3. Malleable Beam Clamps: MSS Type 30, Grinnell Fig. 228.

B. Precast Hollow Core Concrete Planks and Blocks

1. For spandeck type planks, provide spreader plates on top of planks with bolts through planks to hangers. Concrete topping will cover plates and bolts and nuts on top of planks.

2. For concrete block walls, bolt through blocks and provide backing plates on opposite side.

2.5 SADDLES AND SHIELDS

A. Except as otherwise indicated, provide saddles or shields under piping hangers and supports, factory-fabricated, for all insulated piping. Size saddles and shields for exact fit to mate with pipe insulation.

1. Saddles: MSS Type 39, Grinnell Fig. 160-165, fill interior voids with segments of insulation matching adjoining insulation.
2. Shields: MSS Type 40, Grinnell Fig. 167, sizes 1/2" to 2-1/2". Provide wood blocks under shield to support pipe.

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine areas and conditions under which supports and anchors are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Proceed with installation of hangers, supports, and anchors only after required building structural work has been completed in areas where the work is to be installed. Correct inadequacies including, but not limited to, proper placement of inserts, anchors, and other building structural attachments.

3.3 INSTALLATION OF BUILDING ATTACHMENTS

A. Install building attachments at required locations within concrete or on structural steel for proper piping support. Space attachments within maximum piping span length indicated in MSS SP-69. Install additional building attachments where support is required for additional concentrated loads, including valves, flanges, guides, strainers, expansion joints, and at changes in direction of piping.

3.4 INSTALLATION OF HANGERS AND SUPPORTS

A. Install hangers, supports, clamps, and attachments to support piping properly from building structure, complying with MSS SP-69. Arrange for grouping of parallel runs of horizontal piping to be supported together on trapeze type hangers where possible. Where piping of various sizes is to be supported together by trapeze hangers, space hangers for smallest pipe size or install intermediate supports for smaller diameter pipe. Do not use wire or perforated metal to support piping, and do not support piping from other piping.

B. Provisions for Movement: Install hangers and supports to allow controlled movement of piping systems and to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends, and similar units.

C. Load Distribution: Install hangers and supports such that piping live and dead loads and stresses from movement will not be transmitted to connected equipment.

END OF SECTION 22 05 29

SECTION 22 11 00 - DOMESTIC WATER SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this and other sections of Division 22.

1.2 SUMMARY

A. This Section includes domestic hot and cold water systems as indicated on the Drawings.

B. Related Sections: The following sections contain requirements that relate to this section:

1. Section 22 05 00, "Common Work Results for Plumbing"
2. Trenching and backfill required in conjunction with domestic water piping, specified in applicable Division 2 Sections, is included as work of this Section.

1.3 SUBMITTALS

A. General: Follow the procedures specified in Division 1 and Section 22 05 00, "Common Work Results for Plumbing"

B. Product Data: Submit product data for the following products:

1. Valves.

1.4 QUALITY ASSURANCE

A. Codes and Standards:

1. Plumbing Code: Furnish and install all materials and products in accordance with the local plumbing code.

PART 2 - PRODUCTS

2.1 PIPE AND FITTINGS

A. General: Provide piping materials and factory-fabricated piping products of the sizes, types, pressure ratings, and capacities indicated or as determined by Installer to comply with installation requirements. Provide materials and products complying with the local plumbing code where applicable. Where more than one type of material is indicated, selection is Installer's option.

B. Interior Water Piping

1. Pipe Size 6" and Smaller: Copper tubing, type "L" hard temper, ANSI/ASTM B88, with wrought-copper fittings and soldered joints.
2. Pipe Size 2" and Smaller: Copper tubing, type "K" soft temper, ANSI/ASTM B88, with wrought-copper fittings and soldered joints (use below floor slabs).
3. Pipe Size 2" and Smaller: Crosslinked polyethylene (PEX) tubing and ASTM F1960 cold expansion fittings.

C. The use of "propress" fittings by Rigid Tool Company is acceptable when installed per manufacturer's instructions.

2.3 HANGERS AND SUPPORTS

A. General: Provide hangers and supports in accordance with Section 22 05 29, "Pipe Hangers and Supports."

B. Horizontal Piping: Use adjustable steel clevis hangers.

C. Vertical Piping: Use two-bolt riser clamps for vertical piping supports.

D. Building Attachments: Use concrete inserts, c-clamps, and/or steel brackets.

2.4 VALVES

A. Sectional, Shutoff, and Drain Valves

1. Pipe Sizes 2" and Smaller: Use ball valves.
2. Pipe Sizes 2-1/2" and Larger: Use gate valves.

B. Check Valves

1. All Sizes: Use swing check valves.

C. Balance Cocks

1. Pipe Sizes 2" and Smaller: Use calibrated balance valve. Basis of design: Bell & Gossett "Circuit Setter."

PART 3 - EXECUTION

3.1 VERIFICATION

A. Verify all existing grades, inverts, utilities, obstacles, and topographical conditions prior to beginning work.

3.2 INSTALLATION OF DOMESTIC WATER PIPING

A. Install domestic water piping pitched to drain at a minimum slope of 1/32" per foot toward drain

point.

B. Water Service Piping: Extend water service piping of size and location indicated to water service entrance at building. Provide sleeve in foundation wall for water service entry; make entry watertight.

3.3 FIXTURE AND EQUIPMENT CONNECTIONS

A. Provide domestic water piping to plumbing fixtures as indicated on the drawings, complying with the fixture manufacturer's installation instructions.

3.4 INSPECTIONS

A. Coordinate required inspections of work with the local plumbing inspector.

B. Inspect all piping for completion of joints, supports, and accessory items. Inspect each fixture for soundness, stability of support, and satisfactory operation.

3.5 CLEANING

A. Clean interior of pipe of dirt and debris as work progresses and before testing.

B. Flush out piping systems with clean water before proceeding with testing.

3.6 TESTING

A. General: Test domestic water systems to the pressure and time periods specified in the plumbing code.

B. Equipment and Methodology: Provide temporary equipment for testing, including pump and gauges. Test piping system before insulation is installed wherever feasible. Test natural sections of piping systems independently, but do not use piping system valves to isolate sections where test pressure exceeds valve pressure ratings. Fill each section with water and pressurize for required pressure and time.

C. Repair piping system sections which fail required pressure test by disassembly and reinstallation, using new materials to the extent required to overcome leakage. Do not use chemicals, stop-leak compounds, mastics, or other temporary repair methods.

D. Drain test water from piping systems after testing and repair work has been completed.

3.7 DISINFECTION

A. Disinfect water mains and water service piping in accordance with AWWA C601, the plumbing code, and local health department regulations.

END OF SECTION 22 11 00

EDSECTION 22 13 00 - WASTE AND VENT SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this and other sections of Division 22.

1.2 SUMMARY

A. This Section includes waste and vent piping systems as indicated on the Drawings, including the building sewer line.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Section 22 05 00, "Common Work Results for Plumbing"
2. Trenching and backfill required in conjunction with waste piping, specified in applicable Division 2 Sections, is included as work of this Section.

C. Definitions:

1. Waste System: All piping which conveys sanitary or other liquid waste to a point of disposal. It does not include the mains of sewer systems or a sewage treatment or disposal plant.
2. Vent System: All piping installed to provide a flow of air to or from a drainage system, or to provide a circulation of air within such system to protect trap seals from siphonage and back pressure.
3. Building Drain: The lowest part of a waste system which receives the discharge from waste pipes inside the walls of the building and conveys it to the building sewer. The building drain is usually underground below the floor slab or within a crawl space.
4. Building Sewer: The portion of a waste system which extends from the end of the building drain and conveys its discharge to a public sewer, individual sewage treatment plant, or disposal plant. The building sewer is usually underground, exterior to the building.

1.3 SUBMITTALS

A. General: Follow the procedures specified in Division 1 and Section 22 05 00, "Common Work Results for Plumbing"

B. Product Data: Submit product data for the following products:

1. Cleanouts.
2. Floor drains and traps.

1.4 QUALITY ASSURANCE

A. Codes and Standards:

1. Plumbing Code: Furnish and install all materials and products in accordance with the local plumbing code.

PART 2 - PRODUCTS

2.1 PIPE AND FITTINGS

A. General: Provide piping materials and factory-fabricated piping products of the sizes, types, and pressure ratings indicated or as determined by Installer to comply with installation requirements. Where more than one material is indicated, selection is Installer's option.

B. Waste and Vent Piping:

1. Pipe Size 8" and Smaller: PVC plastic pipe, Type DWV, Schedule 40 with PVC plastic DWV socket fittings and solvent cement joints. Do not use within return plenums.
2. Pipe Size 10" and Smaller: Hubless cast-iron soil pipe, ASTM A-888, service weight with hubless cast-iron soil pipe fittings and hubless joints.

C. Building Drain Piping:

1. Pipe Size 8" and Smaller: PVC plastic pipe, Type DWV, Schedule 40 with PVC plastic DWV socket fittings and solvent cement joints.
2. Pipe Size 15" and Smaller: Cast-iron hub-and-spigot soil pipe ASTM A-74, service weight, with cast-iron hub-and-spigot soil pipe fittings and compression gasket joints.

D. Building Sewer Piping

1. Pipe Size 8" and Smaller: PVC plastic pipe, Type DWV, Schedule 40 with PVC plastic DWV socket fittings and solvent cement joints.
2. Pipe Size 12" and Smaller: PVC, ANSI/ASTM D-3034, Type PSM, SDR-35.
3. Pipe Size 15" and Smaller: Cast-iron hub-and-spigot soil pipe, service weight, with cast-iron hub-and-spigot soil pipe fittings and compression gasket joints.

E. Condensate Piping

1. Pipe Size 3" and Smaller: PVC plastic pipe, type DWV, Schedule 40 with PVC plastic DWV socket fittings and solvent cement joints. Do not use within return plenums.
2. Pipe Size 3" and Smaller: Copper drainage tube, type DWV, wrought-copper fittings and soldered joints.

2.2 HANGERS AND SUPPORTS

A. General: Provide hangers and supports in accordance with Section 22 05 29, "Pipe Hangers and Supports."

B. Horizontal Piping: Use adjustable steel clevis hangers.

C. Vertical Piping: Use two-bolt riser clamps for vertical piping supports.

D. Building Attachments: Use concrete inserts, c-clamps, and/or steel brackets.

2.3 WASTE AND VENT SPECIALTIES

A. Floor Cleanouts: As scheduled on the Drawings.

B. Wall Cleanouts: As scheduled on the Drawings.

C. Floor Drains: As scheduled on the Drawings.

PART 3 - EXECUTION

3.1 VERIFICATION

A. Verify all existing grades, inverts, utilities, obstacles, and topographical conditions prior to beginning work.

3.2 INSTALLATION OF WASTE AND VENT PIPING

A. Install waste and vent piping pitched to drain at a minimum slope of 1/4" per foot for piping 3" and smaller, and 1/8" per foot for piping 4" and larger.

B. Install piping in accordance with pipe manufacturer's instructions. Use joint adhesives and coatings as recommended by the manufacturer to suit pipe materials.

C. Return Plenums: Avoid the use of PVC piping within return plenums.

D. Joint Adapters: Make joints between cast iron pipe and other types of pipe with standard manufactured cast iron adapters and fittings.

E. Vent Flashing Sleeves: Install on stacks passing through roof, securing flashing over stack in accordance with the roof manufacturer's instructions.

F. Install sleeve and mechanical sleeve seal through foundations walls for watertight installation.

3.3 FIXTURE AND EQUIPMENT CONNECTIONS

A. Provide waste and vent piping to plumbing fixtures and drains, with approved trap of sizes indicated, but in no case smaller than required by the plumbing code.

B. Locate waste and vent piping as close to possible to bottom of floor supporting fixtures or drains.

3.4 INSTALLATION OF WASTE AND VENT SPECIALTIES

A. Install cleanouts where indicated on the drawings, in accordance with code, and at minimum intervals of 100 feet. Install cleanouts at the base of each vertical waste stack.

B. Install floor drains at low points of surface to be drained. Set tops of drains flush with finished floor.

3.5 INSPECTIONS

A. Coordinate required inspections of work with the local plumbing inspector.

3.6 CLEANING AND TESTING

A. Clean interior of pipe of dirt and debris as work progresses and before testing.

B. Test waste and vent systems in accordance with the plumbing code, or under a head of ten feet of water, whichever is greater. Water level shall be maintained for 30 minutes, minimum. Test buried plastic sewer lines with a 95% diameter mandrel and air pressure in accordance with ASTM C-828.

END OF SECTION 22 13 00

SECTION 23 05 00 - COMMON WORK RESULTS FOR HVAC

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this and the other sections of Division 23.

1.2 SUMMARY

A. This Section includes general administrative and procedural requirements for mechanical installations. The following administrative and procedural requirements are included in this Section to expand the requirements specified in Division 1.

1. Submittals
2. Maintenance manuals.
3. Rough-ins.
4. HVAC installations.
5. Cutting and patching.

1.3 ELECTRICAL WORK

A. Provide and install all control devices and wiring. All electrical work shall be in accordance with the requirements of Division 26.

B. Motor Starters: Furnish motor starters for HVAC equipment for installation by the electrical contractor. Furnish starters that comply with requirements specified in Division 26. Field verify all equipment electrical characteristics before ordering equipment.

1.4 SUBMITTALS

A. General: Follow the procedures specified in Division 1.

B. Increase, by the quantity listed below, the number of HVAC related shop drawings and product data to allow for required distribution, one copy of which will be retained by the Mechanical Consulting Engineer.

1. Shop Drawings - Initial Submittal: One additional print or copy.
2. Shop Drawings - Final Submittal: One additional print or copy.
3. Product Data: One additional copy.

C. Additional copies may be required by individual sections of these Specifications.

1.5 MAINTENANCE MANUALS

A. Prepare maintenance manuals in accordance with Division 1. In addition to the requirements specified in Division 1, include the following information for equipment items:

1. Description of function, normal operating characteristics and limitations, performance curves, engineering data and tests, and complete nomenclature and commercial numbers of replacement parts.
2. Manufacturer's printed operating procedures to include start-up, break-in, and routine and normal operating instructions; regulation, control, stopping, shutdown, 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.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to the project properly identified with names, model numbers, types, grades, compliance labels, and other information needed for identification.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 ROUGH-INS

A. Verify final locations for rough-ins with field measurements and with the requirements of the actual equipment to be connected.

3.2 MECHANICAL INSTALLATIONS

A. General: Sequence, coordinate, and integrate the various elements of HVAC systems, materials, and equipment. Comply with the following requirements:

1. Coordinate HVAC systems, equipment, and materials installation with other building components.
2. Verify all dimensions by field measurements.
3. Arrange for chases, slots, and openings in other building components during progress of construction, to allow for HVAC installations.
4. Coordinate the installation of required supporting devices and sleeves to be set in poured-in-place concrete and other structural components, as they are constructed.
5. Sequence, coordinate, and integrate installations of materials and equipment for efficient flow of the Work. Give particular attention to large equipment requiring positioning prior to closing in the building.
6. Where mounting heights are not detailed or dimensioned, install systems, materials, and equipment to provide the maximum headroom possible.
7. Coordinate connection of systems with exterior underground and overhead utilities and services. Comply with requirements of governing regulations, franchised service companies, and controlling agencies. Provide required connection for each service.
8. Install systems, materials, and equipment to conform with approved submittal data to greatest extent possible. Conform to arrangements indicated by the Contract Documents,

recognizing that portions of the Work are shown only in diagrammatic form. Where coordination requirements conflict with individual system requirements, refer conflict to the Architect.

9. Install systems, materials, and equipment level and plumb, parallel and perpendicular to other building systems and components, where installed exposed in finished spaces.
10. Install equipment to facilitate servicing, maintenance, and repair or replacement of equipment components. As much as practical, connect equipment for ease of disconnecting, with minimum of interference with other installations. Extend grease fittings to an accessible location.
11. Install access panel or doors where units are concealed behind finished surfaces.
12. Install systems, materials, and equipment giving right-of-way priority to systems required to be installed at a specified slope.

3.3 CUTTING AND PATCHING

A. General: Perform cutting and patching in accordance with Division 1. In addition to the requirements specified in Division 1, the following requirements apply:

1. Protection of Installed Work: During cutting and patching operations, protect adjacent installations.

B. Perform cutting, fitting, and patching of equipment and materials required to:

1. Uncover Work to provide for installation of ill-timed Work.
2. Remove and replace defective Work.
3. Remove and replace Work not conforming to requirements of the Contract Documents.
4. Remove samples of installed Work as specified for testing.
5. Install equipment and materials in existing structures.
6. Upon written instructions from the Architect, uncover and restore Work to provide for Architect/Engineer observation of concealed Work.

END OF SECTION 23 05 00

SECTION 23 30 00 - HVAC SYSTEMS

PART 1 - GENERAL

1.1 WORK INCLUDED

A. This Section includes heating, air conditioning, and ventilation equipment and accessories.

1.2 QUALITY ASSURANCE

A. Certification: All fans shall bear the AMCA seal.

B. Manufacturer's Representative: The equipment manufacturer shall furnish without additional charge a factory-trained representative to provide check out, test, and start-up of the air conditioning equipment.

1.3 SUBMITTALS

A. Manufacturer's Literature and Shop Drawings: Required data shall include, but not necessarily be limited to:

1. Unit designations.
2. Unit dimensions and weight.
3. Complete electrical data including wiring diagrams.
4. Complete description of materials of construction including finishes.
5. Heating capacities at design conditions (where applicable).
6. Cooling capacities at design conditions (where applicable).
7. Fan capacities - cfm at specified conditions.
8. Fan Motors: Type, horsepower, speed, electrical characteristics.
9. Location and size of piping and electrical connections.
10. List of accessories.

1.4 WARRANTY

A. Packaged air conditioning units shall include a one-year warranty on all parts and labor, and they shall also include a five-year warranty on all unit refrigeration compressors. Other equipment shall include a one-year warranty on all parts and labor.

1.5 CONTROLS/ELECTRICAL WORK

A. Unless otherwise noted, low voltage wiring (less than 120 vac) shall be the responsibility of the mechanical contractor. Line voltage wiring (120 vac and greater) shall be the responsibility of the electrical contractor. All electrical work shall be in accordance with Division 26 and applicable codes.

B Motor starters for mechanical equipment shall be furnished by the mechanical contractor for installation by the electrical contractor. Field verify all purchased equipment electrical characteristics before ordering equipment. Starters for motors 1/2 hp and larger shall be

magnetic types with overload protection. Provide hand-off-auto switches and operational pilot lights where equipment is interlocked with system controls. Provide required auxiliary contacts and a minimum of one spare contact for future. All electrical work shall be in accordance with Division 26 and applicable codes.

C. Thermostat locations are approximate and shall be coordinated to suit field conditions. Thermostats shall be mounted 4'-0" above the finished floor, unless noted otherwise.

PART 2 – PRODUCTS

2.1 GENERAL

A. Equipment shall comply with requirements listed in this Section and capacities, performance, and arrangement as indicated on the Drawings.

2.2 EQUIPMENT SCHEDULED ON DRAWINGS

A. HVAC equipment performance requirements are scheduled on the Drawings. Equipment is specified by name and model number and, where indicated, alternative manufacturers will be considered. Do not substitute without approval by the engineer.

B. Alternative Manufacturers: When alternative manufacturers are utilized it is the contractor's responsibility to ensure that all required sizes, weights, electrical connections, and clearances are compatible with the design concept shown on the drawings. These changes shall be accomplished by the contractor. Alternative manufacturers are considered generally acceptable suppliers, however their specific products have not been evaluated for this design. Check all dimensions, support requirements, electrical ratings, etc. before making final connections to purchased equipment. Make adjustments before fabricating duct, supports, piping, or electrical service.

C. Alternative Manufacturers for specific equipment are listed below. Where alternatives are not specified, provide products as scheduled on the drawings.

a. Outside Air Units: Provide units as scheduled.
b. Roof Ventilator: Cook, Twin City
c. Exhaust Fan: Cook, Twin City, Broan
d. Air Distribution: Titus, Krueger
e. Ductless Split: Daikin, Mitsubishi
f. PTAC's: Provide units as scheduled.
g. Wall Heaters: Chromalox, Berko

2.3 LOW PRESSURE, SINGLE-WALL DUCTWORK

A. Application: Use single-wall ductwork for return ductwork and for low pressure HVAC systems.

B. Low pressure ductwork shall be fabricated, supported, and installed in accordance with SMACNA HVAC Duct Construction Standards. Fabricate duct to withstand 2" positive

pressure on the discharge side of the fan and 1" negative pressure on the suction side of the fan, unless otherwise noted on the Drawings. Duct seams shall be sealed per SMACNA Seal Class "C". Ductwork shall be galvanized steel construction unless otherwise shown on the Drawings. Round duct shall be spiral or longitudinal seam construction and meet all requirements stated above.

C. Size of ductwork shown shall be net inside clear dimensions. Add the thickness of internal duct liner, if applicable, to the outside dimension.

2.4 SINGLE-WALL DUCT FITTINGS AND ACCESSORIES

A. Elbows: Use radiused elbows where possible. Radiused elbows shall have a centerline radius equal to at least 1.0 times the duct width or diameter, unless noted otherwise. Where space does not allow radiused elbows, use 90 degree square elbows having single thickness turning vanes. Do not install turning vanes at any angle but 45 degrees.

B. Transitions: Pitch sides of transitions not to exceed a maximum of 20 degrees (40 degrees included angle) for diverging air flow and 30 degrees (60 degrees included angle) for converging air flow.

C. Volume Dampers: Install volume dampers for balancing as shown on the plans. Rectangular balancing dampers shall be opposed blade types having a locking quadrant operator that is designed to be exposed outside of duct insulation. Round balancing dampers shall be butterfly types having a locking quadrant operator that is designed to be exposed outside of duct insulation.

D. Furnish and install all hangers and supports required to properly support ductwork and equipment according to SMACNA HVAC Duct Construction Standards.

E. Galvanized steel sheet metal shall conform to ASTM A 527 with a commercial class zinc coating. Aluminum shall conform to ASTM B 209. Provide a "paint grip" finish where duct is to be painted. Ducts shall conform accurately to the dimensions indicated and shall be straight and smooth on the inside with joints neatly finished. Where galvanized steel or aluminum is welded, minimum thickness shall be 16 gauge and welding shall be accomplished by the metallic arc or acetylene process.

F. Screens shall be 1/2" inch by 1/2" inch wire mesh constructed of minimum wire gauge and size of material to match ductwork construction as follows:

1. Galvanized Steel: 16 gauge.
2. Aluminum: 14 gauge.

G. Fasteners used in fabrication and erection of ductwork casing and all sheet metal work shall be of the same metal as the ductwork. Sheet metal screws shall be slotted hex washer head self-drilling screws. Rivets shall be button head or tinner's rivets, properly bradded. Pop rivets shall not be used. Bolt, nuts, and lock washers shall be zinc plated steel, aluminum, or stainless steel with hex heads to match ductwork construction. Bolts shall be completely threaded.

H. Structural shapes, bars, hangers, screws, bolts, nuts, lock washers, and miscellaneous

components used in fabrication and erection of ductwork casing and sheet metal work shall be same metal as sheet metal.

I. Duct and casing construction shall provide for an air tight system. Flanged joints shall be made up using a 1/4 inch minimum thickness, flange width gasket. Gasket shall be closed cell neoprene sponge rubber with pressure sensitive backing. Duct sealant shall be designed for operating temperatures up to 250°F.

J. Other details of duct construction, flexible connections, hangers, anchors and supports, duct joints, and duct connections unless otherwise indicated on the Drawings or specified herein, shall conform to SMACNA standards.

2.5 FLEXIBLE DUCT

A. Duct shall consist of a corrosion resistant, vinyl coated spring steel wire helix; a vinyl coated, woven fiberglass mesh inner liner; a minimum 1 inch thick fiberglass insulation wrapping and a fiberglass reinforced, metalized film vapor barrier jacket.

B. Ducts shall be rated for 4 inches w.g. positive or negative pressure with a maximum pressure drop of 0.20 inch w.g. per 100 feet at 500 fpm and a noise criteria level not exceeding 40.

C. Thermal conductance of insulated flexible ductwork shall not be greater than 0.23 BTU/hour/square foot/F at 75 F ambient.

D. Insulated flexible ductwork shall be rated for operating temperature range of 0 F to 180 F.

E. Inner liner of flex duct shall be connected to ductwork or diffuser with a 1/2" wide positive locking steel or nylon band. Outer insulation cover shall be finished off at both ends with duct tape so that no insulation is exposed.

2.6 GRILLES, REGISTERS AND DIFFUSERS

A. Grilles, registers, and diffusers shall be as scheduled on the Drawings.

B. Grille, register, and diffuser sizes shown are nominal duct sizes.

C. Refer to Architectural Drawings for relationship of ceiling grilles to the reflected ceiling plans. The distribution device manufacturer shall provide all accessories required for installation in ceiling system. Distribution devices in T-Bar systems shall be designed as lay-in types to fit modules as indicated on the reflected ceiling plan. Devices in gypsum board ceilings shall include an adapter panel designed to allow lay-in of the device and access to the ceiling above.

D. Finishes shall be as specified above unless noted otherwise on Drawings. Baked enamel finish shall be manufacturer's standard off-white unless noted otherwise.

2.7 DAMPERS

A. Dampers shall be opposed blade types designed to withstand air velocities of 3,000 fpm and 4 inches of water gauge pressure across the closed damper. Damper section shall not exceed 25

square feet and panel width shall not exceed 48 inches.

B. Dampers shall be furnished complete with locking lever and quadrant. Lever shall be parallel to airflow in full open position. When installed on ducts to be thermally insulated, the locking-type quadrant shall be provided with stand-off mounting brackets, bases, or adapters to provide clearance between the duct surface and the operator not less than the thickness of the insulation. Stand-off mounting items shall be integral with the operator or a standard accessory of the damper manufacturer.

2.8 FIRE DAMPERS

A. Fire dampers shall be all welded galvanized steel curtain types. Units with horizontal airflow shall close from any position by their own weight. Fire dampers shall have a 1½ hour fire protection rating unless noted otherwise and shall bear UL label.

B. Frame shall be low resistance type, galvanized steel rigidly braced and supported to withstand air velocities of 3000 fpm. Blade guides shall be channel type galvanized steel. Blade shall be minimum 24 gauge galvanized steel.

C. Fusible link shall be UL listed and marked for 165°F. Links shall be capable of withstanding air velocities of 3000 fpm.

D. Fire damper sleeve length shall not be greater than the wall thickness plus retaining angle dimensions plus 6 inches.

E. Fire dampers mounted in supply and return air rectangular duct shall have blades out of the air Stream (Style “B”).

F. Fire dampers mounted in round or oval duct shall have blades and frame out of the air stream (Style “CO”).

2.9 LOUVERS

A. General: Except as otherwise indicated, provide manufacturer’s standard louvers where shown; of size, shape, capacity and type indicated; constructed of materials and components as indicated, and as required for complete installation.

B. Performance: Provide louvers that have minimum free area, and maximum pressure drop of each type as listed in manufacturer’s current data, complying with louver schedule.

C. Substrate Compatibility: Provide louvers with frame and sill styles that are compatible with adjacent substrate, and that are specifically manufactured to fit into construction openings with accurate fit and adequate support, for weatherproof installation. Refer to general construction drawings and specifications for types of substrate which will contain each type of louver.

D. Materials: Construct of aluminum extrusions, ASTM B 221, Alloy 6063-T52. Weld units or use stainless steel fasteners.

E. Louver Screens: On inside face of exterior louvers, provide 1/2" square mesh anodized

aluminum wire bird screens mounted in removable extruded aluminum frames.

2.10 DUCT INSULATION

A. General: All insulation and adhesives used shall be UL-listed, having a flame-spread rating not exceeding 25 and a smoke developed rating not exceeding 50.

B. Blanket Insulation: 2.2-inch thick, one-pound density, fiberglass blanket having a foil-skrim-kraft vapor facing. Provide minimum k-value of 0.25 at 75 degree F mean temperature. Basis of design: Johns Manville "Microlite." 2.2-inch thick fiberglass blanket insulation having a foil-scrim-kraft vapor barrier. Insulation shall have a density of 0.75 pcf with an out-of-package R-value of 7 .4. Effective installed thickness of 1.5-inches shall result in an installed R-value of 6.0. Basis of Design: Owens Corning "SOFTR" duct wrap.

1. Application: Rectangular and round, low-pressure, single-wall, supply ductwork.

2. Application: Rectangular and round, low-pressure, single-wall, return, relief, and outside air ductwork. Use for concealed ductwork only.

2.11 REFRIGERANT PIPING

A. The contractor shall require the manufacturer of split system refrigeration equipment to generate a detailed schematic of each refrigerant piping system. The schematic shall show all rises and drops in elevation, suction line trap locations, double risers in the suction lines if required for part load performance, direction of slope for all lines, line sizes, insulation type and thickness, and locations of all required accessories such as filter dryers, sight glasses, solenoid valves, etc.

B. Each refrigeration system shall include a liquid line filter dryer, refrigerant sight glass and moisture indicator as a minimum.

C. Refrigerant piping shall be seamless copper tubing, hard drawn, type L conforming to ASTM B 88, except that tubing with outside diameters of 1/4 inch and 3/8 inch shall have nominal wall thickness of not less than 0.03 inch and 0.032 inch respectively.

D. Fittings for copper tubing shall be either wrought copper solder joint fittings or bronze solder joint fittings conforming to ANSI B16.22.

E. Liquid piping shall be sized for a pressure drop corresponding to a 1°F change in saturation temperature. Suction piping and hot gas bypass piping shall be sized for a pressure drop corresponding to a 2°F change in saturation temperature.

F. Insulation shall be applied to suction lines only. Insulation shall be closed cell type. Insulation thickness shall be 3/4 inch. Insulation shall not be applied until the lines have been tested and found free of leaks.

2.12 CONDENSATE PIPING

A. Condensate drain lines, unless otherwise shown on the Drawings, shall be DWV PVC unless located in a return air plenum.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Coordinate ceiling diffuser and register locations with the architect's reflected ceiling plan.

B. Install fire dampers at all rated walls as detailed on the drawings. Install access doors as required for testing and resetting damper assemblies.

C. Where the ceiling cavity is to be used as a return air plenum, the contractor shall be responsible for cleaning and removing all debris from this area.

D. Ductwork to curb mounted roof exhaust fans and outside air intake or exhaust hoods shall be connected to framed openings and sealed airtight and watertight. Provide duct transition piece where required to suit opening.

E. Install volume dampers for balancing as shown on the plans.

F. Install 4" deep p-traps at each cooling coil condensate drain. Route piping as shown on the plans, or to the nearest roof drain when equipment is located on the roof.

END OF SECTION 23 30 00

SECTION 26 00 00

ELECTRICAL - GENERAL PROVISIONS

PART 1 - GENERAL

1.1 SCOPE

A. Furnish all labor, materials, equipment, and services necessary for and reasonably incidental to the complete installation of all electrical as shown on the drawings and as specified herein.

B Principal features of the installation are as follows:

1. A complete system of conduit and conductors to supply electrical energy to renovated facilities throughout the building;

2. Branch panel boards, wiring devices, etc.;

3. Lighting fixtures and lamps;

4. Wiring in connection with mechanical equipment;

5. Outside lighting;

6 Television raceway system;

7. Smoke/Carbon Monoxide Detector System

1.2 CODES AND STANDARDS

A. The entire electrical installation shall be made in strict accordance with the requirements of any and all City, County, State or Federal codes of law having jurisdiction, the requirements and recommendation of the Board of Fire Underwriters, including all amendments and/or additions to laws, requirements and recommendations of the Board of Fire Underwriters, including all amendments and/or additions to the said codes, law requirements and recommendations of the Electric Utility.

B. Should any work shown on the drawings or herein specified be construed as being contrary to or not conforming to the previously mentioned codes, lass, etc., the same shall be brought to the attention of the Owner's Representative to be reviewed, approved, and/or corrected prior to final bid date.

C. Should any work on the drawings or herein specified be more rigid as to requirements than the requirements of the various codes, the drawings and specifications shall be followed in executing the work.

D. The Contractor shall file with proper authorities all necessary drawings as required by various codes, laws, or ordinances, or other requirements.

E. Permits, inspections, and fees: The Contractor shall obtain all permits and inspections required for the work, and pay all costs and fees thereof.

F. The Contractor shall visit the site so as to have a full understanding of the work in connection with the existing site (and existing building).

PART 2 - GENERAL CONDITIONS

2.1 REQUIREMENTS

A. The provisions of the General Conditions and Supplementary Conditions apply to the work under this division.

B. The drawings indicate the general character, scope, and arrangements of the electrical installation. Approval of any changes or departure from the drawings must be secured from the Owner's Representative.

C. Workmanship: All work shall be performed by skilled workman in a manner reflecting the best modern construction practices. It shall present, upon completion, a neat, orderly, finished appearance. All evidence of debris associated with said work shall be removed from the premises.

D. Coordination with other trades to the fullest of ability in relation with others to result in a professional installation shall be complete, and more specifically, as follows:

1. The drawings and specifications are based on the best information available when prepared. Frequently minor changes occur with respect to the architectural plans, construction, and the requirements of equipment furnished by others. The Contractor shall recognize this in bidding, supervising, and in planning construction.

2. Before locating conduit runs, boxes, etc. the architectural drawings shall be fully checked to see that they are in accord with electrical drawings. Required adjustments shall be made with the General Contractor's Superintendent and with the Owner's Representative.

3. Before proceeding with the wiring for the mechanical trades, each item requiring electrical work shall be reviewed with those responsible for their installation.

   The Contractor shall become well acquainted with their characteristics, location, and arrangement for mounting. Changes in wiring shall be reviewed with the Owner's Representative for authorization. This applies also to all equipment for which wiring is required such as HVAC units, water heating, pumps, thermostats, motors, pushbuttons, etc., as they occur.

E. Allowance for Contingencies: No changes in contract price will be allowed for alternate work which requires approximately the same work. An adequate allowance shall be included in the bid price for each contingency and for any additional work required.

F. Record Drawings: The job supervisor shall maintain a set of prints on the job to be used to illustrate and note job changes as they occur. This shall include the locations of concealed or underground lines sized over 1", the type of lighting fixtures provided, and any other information necessary to record the job as actually installed. Upon completion of the prints, the Contractor shall furnish to the Owner's Representative, at the Contractor's expense, a set of reproducible drawings containing the above mentioned field notes.

G. Materials shall be new and unused and shall bear the Underwriter's Seal when applicable.

PART 3 - EXECUTION

3.1 TEST AND GUARANTEES

A. Contractor shall perform, prior to acceptance, an operations test to all electrical equipment. The entire installation shall be free from grounds and short circuits. Before the Owner operates the equipment for the first time, the Contractor shall furnish a man familiar with the equipment to instruct and assist the Owner's personnel in the proper operation and maintenance of said equipment.

B. Warranty-Guarantee: The Contractor shall warrant and the General Contractor shall guarantee that all work executed under this Division of the Specifications will be free from defects in material and workmanship for a period of one year from the date of final acceptance of the building. The above parties agree that they will, at their own expense, repair and replace such defective work and all other work damaged thereby, which becomes defective during the term of the

warranty-guarantee.

3.2 PROTECTION OF MATERIALS

A. All work, fixtures, and materials shall be protected at all times. Fixtures and equipment shall be tightly covered and protected against dirt, water, chemical, or mechanical injury. At final completion, all work shall be thoroughly cleaned and delivered in a perfect, unblemished condition.

B. Contractor shall defer the installation of all electrical fixtures liable to damage until authorized by the Owner's Representative. After fixtures are permanently installed, they shall be completely protected against breaking, damage, or the depositing of any waste or materials therein or thereon until the system is acceptable.

C. Touch up all damaged painted surfaces on equipment to match original paint.

3.3 SHOP DRAWINGS AND MAINTENANCE MANUALS

A. Shop Drawings: Furnish six (6) copies of shop drawings and wiring diagrams of the panel boards for approval.

B. Materials and Equipment Submittals:

1. Furnish catalog sheets or cuts for all items above, and submit catalog data (six sets each) of the following:

(a) Lighting fixtures, exit signs, and standards.
(b) Panelboards.
(c) Wiring devices.
(d) Smoke Detector System

2. Furnish all equipment submittals in one package to Owner's Representative for the Owner's approval. All partial submittals will be returned to the Contractor without being reviewed.

C. Maintenance Manuals: Upon completion of the work, deliver to the Owner's Representative for the Owner's use, two (2) copies each of completed operation and maintenance instructions and data for the electrical equipment furnished under this Division. Data shall include catalogue pages for data sheets for each piece of equipment, wiring diagrams show in the internal and external elements and their connections, manufacturer's maintenance manuals, bills of materials showing necessary data for ordering repair parts, and approved shop drawings. This information shall be furnished for the following systems and items:

1. Lighting fixtures.
2. Exit signs.
3. Panel boards.

3.4 WORK IN CONNECTION WITH EQUIPMENT FURNISHED BY OTHERS.

A. Mechanical: Furnish and install all necessary wiring and over current devices for the supply and control of all mechanical work including plumbing, heating, air conditioning and ventilation. Furnish and install disconnect switches for motors where required by the Codes. The Contractor shall make provisions for variations in the mechanical equipment and make connections as required.

B. Motor Wiring:

1. Services to equipment not in contract shall be checked out against that required by the equipment prior to service connection. Should the equipment require service different from that provided, the Contractor shall call the fact to the attention of the Owner's representative prior to connection of the service. Check equipment to determine whether proper control and safety devices are provided to insure proper operation. Assist Owner in the initial operation of the equipment, and make any necessary adjustments to the service for proper operation.

2. Motor and Motor Controls, Manual Motor Starters, and disconnect switches: The manual motor starters shall be General Electrical Company's CR Series with proper heaters, mounted in a two-gang box with a 120-volt pilot light. The disconnect switches shall be the general duty type, with Economy Fuse Company "Dual-element fuses with a general purpose enclosure, alternate products by Square D or ITE Company.

3. Air Conditioning and heating Equipment: All air conditioning and heating equipment shall have fused disconnect switches or breakers installed at the unit. These switches or breakers shall be sized and be of the type as it appears on the label of the equipment.

C. Work in Connection with Motors:

1. Rotation: All motors shall be checked for proper rotation just as soon as power is available. Should any motor rotate in the wrong direction, it shall be reconnected for proper rotation.

2. Overload Heaters: Check all motor starter overload heater elements for

the proper size to conform to the name plate rating of the motor. Should an improper size unit be installed, the attention of the Owner's Representative and the starter supplier shall be called to that fact.

3. Connection: The raceway connection to the individual motors shall be by means of a short length of flexible conduit. All pump motors shall be connected with type "UA" liquid-tight flexible conduit as manufactured by American Brass Company. Connectors used with liquid tight flexible conduit shall be of a type made for that purpose and that will establish a continuous ground. All motors and all controls therewith shall be connected up completely as required for proper operation of the system involved.

END OF SECTION 26 00 00

SECTION 26 05 00

COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

1.1 SCOPE

A. The work required under this specification consists of basic materials, such as conduit, conductors, boxes, and fittings, etc., as required for a complete system of conductors for lighting and power.

1.2 APPLICABLE STANDARDS

A. Every coil of wire used shall be in the original wrapping and shall bear the National Board of Fire Underwriters Label of Approval.

B. All penetrations of fire-rated assemblies shall be executed in accordance with approved details of the UL Building Materials Directory through-Penetration Firestop Systems or equivalent method as approved by the Local Building Official. Electrical outlet boxes located on opposite sides of fire rated walls shall be separated by horizontal distance of 24 inches.

PART 2 - PRODUCTS

2.1 CONDUIT/CABLE

A. All conduits shall be EMT, except conduit installed in concrete slabs, or conduit buried underground.

B. Conduit meeting one of the prior exceptions shall be PVC plastic conduit. All plastic conduits shall contain a grounding conductor of size as required by Article 250, NEC. Increase conduit size, if required, to accommodate this ground conductor.

C. EMT shall be Youngstown, or approved, complete with Steel City set screw type connectors or couplings. Provide compression type fittings for conduit on exterior of building or when located in “Damp or Wet” locations.

D. Metal Clad “MC” cable with copper conductors shall be used for branch circuit wiring No. 10 AWG size or smaller except locations as described in “A” above. It shall be: Southwire Duralclad HC-AFC with steel sheath. All runs of metal clad cable shall be furnished with code size green ground wire shall be solid,

interlocking metal tape design providing watertight protection. Cable sheath shall be UL label approved for providing an adequate path for equipment grounding. No “MC” cable shall be run exposed or in damp or wet locations. Provide EMT type conduit for runs when shown exposed or installed in damp or wet locations.

E. Non-metallic type "NM-B" (90 degree Celsius) cable with copper conductors and ground wire shall be used for branch circuit wiring in dwelling units only except for location noted to used "mc" cable or "EMT" conduit. No "NM-B" cable shall be run in damp or wet locations or Office / Community Building. Use type "NMC" cable with copper conductors and ground wire for branch circuit wiring in dwelling units in damp or corrosive locations. no type "nm-b" or "NMC" cable shall be run exposed or installed in ducts, plenums & other air handling spaces. all "nm-b" wiring shall be sizes per 60 degree as per NEC 110.14(c)

F. All conduits terminating in other than threaded hubs shall have double Locknuts and an end bushing. All locknuts shall be "Bondnuts" or approved method.

G. All electrical penetrations of fire rated walls, partitions, floors or ceilings and electrical installations in hollow spaces, vertical shafts, and ventilation or air handling ducts shall be made to prevent the possible spread of fire or smoke and toxic fumes. Fire stopping materials used shall be 3M Brand CP-25 fire barrier caulk installed in an approved method in accordance with NEC Articles 300-21, 800-3(c), 110-3(b), UL and the authority having jurisdiction.

2.2 CONDUCTORS

A. All wire shall be 98% conductivity copper and thoroughly insulated unless noted otherwise. All wire insulation (600 volts) for branch circuit wiring shall be THWN-THHN (90 degree C). All wire insulation (600 volts) for service entrance wiring shall be XHHW-2 (90 degree C).

B. All conductors No. 8 and larger shall be stranded. All conductors No. 10 and smaller shall be solid.

C. The minimum size of conductor for all power, lighting, and wiring shall be No. 12 awg.

D. For 20 ampere home runs over 90', use No. 10 awg, and for home runs over 150', use No. 8 awg.

E. Where the number of current carrying conductors in raceway or cable exceeds three, the conductors shall in addition to “E” above be derated in accordance to NEC Section 310-15, paragraph 8a.

F. Sharing of neutral conductors between circuits is prohibited.

2.3 BOXES AND FITTINGS

A. All junction, outlet, switch, and receptacle and panel board boxes shall be galvanized.

B. Ceiling outlet boxes shall be 4" octagonal, 2-1/4" or 3" deep with a fixture stud where required.

C. Flush switch and receptacle boxes shall be standard switch and outlet boxes of sufficient depth to make the box flush with the finished surface of the wall. Where two or more devices occur, they shall be gang mounted. Where plastered walls occur, 4" square boxes with deep plastered rings shall be used for switches and plug receptacles. Boxes shall be Steel City, Raco.

D. Surface switch and receptacle boxes shall be Crouse Hinds Company type "FS", using gang group where possible. Surface switch and receptacle boxes in apartments shall "Wiremold" Co. as specified on drawings.

E. Gang boxes together when grouped in approximately the same horizontal and vertical position on a wall and combine coverplates as necessary.

PART 3 - EXECUTION

3.1 INSTALLATION

A. All wiring shall be continuous from outlet box to outlet box, from outlet box to pull or junction box. Pressure connectors shall be used for conductors No. 10 and larger. No joint or splices shall be pulled into conduit. . Installation shall have no short circuits, open grounds, or shared neutrals.

B. All locknuts shall be drawn up tight to effectively ground boxes to conduit.

C. All bends in conduit shall be made with a conduit bender. Bends which change the cross-sectional area of the conduit will be rejected.

D. All conduit shall be cut and reamed smooth and properly threaded to receive coupling. Couplings shall have tapered threads of the conduit. Job cut male threads shall be painted with rust prohibitive prior to matching up a joint.

E. All conduit shall be installed concealed within the wall, floor or the ceiling construction, except where noted otherwise.

F. All conduit runs shall contain a grounding conductor of size as required by Article 250, NEC.

END OF SECTION 26 05 00

SECTION 26 24 16

PANELBOARDS

PART 1 - GENERAL

1.1 SCOPE

A. The Contractor shall furnish and install where shown on the drawings, panelboards mounted in enclosing cabinets in which shall be mounted the equipment specified in the panel board schedule shown on the drawings. Submit shop drawings for approval.

PART 2 - PRODUCTS

2.1 DISTRIBUTION/LIGHTING AND POWER PANEL BOARDS

A. Distribution panelboards shall be dead front equipped mains and plug-in branch devices as indicated. The main bus shall be copper. Furnish with code gauge galvanized cabinets, painted fronts or trim and bolted removable end walls. Paint shall match other equipment furnished by this manufacturer. Fronts shall have no exposed trim clamps, hinges, screw heads, or raised locks. Concealed trim clamps shall be adjustable to insure that the front is flush with the wall. Provide NEMA 3R type for exterior applications.

B. Mains: Mains shall be 120/240 volts, 1-phase, 3-wire with main lugs only or a main molded case circuit breaker as indicated on the drawings.

C. The branches shall be bolt-in molded case circuit breakers as indicated on the plans. with 22,000 amperes RMS symmetrical at 240 volts interrupting capacity unless noted larger on drawings. The main bus shall be copper. Furnish with code gauge galvanized cabinets painted fronts or trims, and bolted, removable end walls. Paint shall match other equipment furnished by this manufacturer. Fronts shall have no exposed trim clamps, hinges, screw heads or raised locks. Concealed trim clamps shall be adjustable to insure that the front is flush with the wall.

`

2.2 LIGHTING AND POWER PANELS:

A. Lighting and power panelboards shall be dead front equipped with mains and plug-in branch devices as indicated. The mains bus shall be copper. Furnish with code gauge galvanized cabinets, painted fronts or trims, bolted, removable end walls. Paint shall match other equipment furnished by this manufacturer. Fronts shall have no exposed trims, clamps, hinges, screws heads or raised locks.

Concealed trim clamps shall be adjustable to insure that the front is flush with the wall. Provide NEMA 3R type for exterior applications.

B. Mains: Mains shall be 120/240 volts, 3-Phase, 4-Wire and shall have main lugs only or main molded case circuit breaker as indicated on the drawings.

C. The branches shall be bolt-in molded case circuit breakers as indicated on plans. Minimum interrupting capacity shall be 22,000 amperes RMS symmetrical at 240 volts. Interrupting capacity may be larger if noted on the drawings.

2.3 TYPICAL APARTMENT PANELS:

A. New Apartment panels are loadcenter type shall be recessed mounted. The mains bus shall be copper. Furnish with code gauge galvanized cabinets, painted fronts or trims, bolted, removable end walls. Paint shall match other equipment furnished by this manufacturer. Fronts shall have no exposed trims, clamps, hinges, heads or raised locks. Concealed trim clamps shall be adjustable to insure that the front is flush with the wall. Panelboards Handicapped Accessible apartments shall be installed so that the highest operable part of the panelboard is no higher than 48" above floor level.

B. Mains: Mains shall be 120/240 volts, 1-Phase, 3-Wire and shall have main lugs only or main molded case circuit breaker as indicated on the drawings.

C. The branches shall be bolt-in molded case circuit breakers as indicated on plans. Minimum interrupting capacity shall be 10,000 amperes RMS symmetrical at 240 volts. Interrupting capacity may be larger if noted on the drawings.

2.4 PANEL BOARD CONSTRUCTION:

A. All new and existing panels shall:

1. Have riveted to the trim pan under the door, a metal nameplate listing the name of the manufacturer, the manufacturer's shop order number panel type system voltage, bus ampacity, date of manufacture.

2. Be marked with its short circuit withstand rating.

3. Have all directories filled out with a typewriter and mounted in a frame and covered with clear plastic.

4. Have located next to each branch device or provision, and individual number with an embossed or engraved number. Numbering tape, painted numbers, or use of more than one number per device is unacceptable.

5. Have the connection between the load side of main breaker to the main bus made with bus bar. The use of insulated wire shall not be permitted.

6. Have as shown on panel schedules and indicated by notes electrically or mechanically held multi-pole contactors for the voltage utilized. Extra space with separate door shall be provided as required to contain contractors specified and shall be 12" minimum size.

7. Shall have dimensions as shown on the panel schedules. These dimensions are critical, and wall space and depth have been provided for sizes shown. Any deviations requiring changes in building construction or additional costs shall be brought to the Architect's attention not less than ten (10) working days before bid date. If approved, these changes will be included in the final addendum.

8. All items on the panel board schedule marked "provisions for future" shall be provided with all necessary bussing and mounting hardware for the type of device indicated. Items marked "space" shall contain main bussing less mounting hardware.

9. Shall meet or exceed NEMA standards PB-l & shall be UL labeled. Panel boards for use as service equipment shall be so labeled.

PART 3 - EXECUTION

3.l INSTALLATION

A. Installation shall be in accordance with manufacturer's instructions.

END OF SECTION 26 24 16

SECTION 26 27 26

WIRING DEVICES

PART 1 - GENERAL.

1.1 SCOPE

A. The work under this section consists of a system of wiring devices.

1.2 DESCRIPTION OF SYSTEM

A. Furnish and install wall switches, plug receptacles, etc., as specified hereafter and as shown on the drawings. Devices offered as a substitute to those specified will be carefully checked to see that quality such as grounding contiguity, retention force for insertion devices. Any devices not listed below, shall be "Specification Grade" or "Heavy Duty" type as established by class of devices listed.

PART 2 - PRODUCTS

2.1 PLUG RECEPTACLES (NON-DWELLING UNIT)

A. 120-volt, 15-ampere, 1-phase: P & S Co. No. CR15.

B. 120-volt, 20 ampere, 1-phase: P & S Co. No. CR20.

C. Range Outlet, 125/250 volts, 3-wire + ground, 50-ampere: P & S Co. No. 3854

D. Flush Floor Outlets: Provide floor box and brass cover plates with lift lids as detailed on the drawings. Box shall be combination electric, telephone, computer, etc. as shown. See detail for more information.

E. 120-volt, 20 ampere, 1-phase GFI (interior): P & S Co. No. 2095TR

F. 120-volt, 20 ampere, 1-phase GFI (exterior): P & S Co. No. 2095TRWR

2.2 DWELLING UNIT PLUG RECEPTACLES

A. All 125-volt, 15 and 20-ampere interior and exterior receptacles for dwelling units shall be listed tamper resistant receptacles: P & S Co. No. TR5262 and TR5263

B. Range Outlet, 125/250 volts, 3-wire + ground, 50-ampere: P & S Co. No. 3854

C. Dryer Outlet, 125/250 volts, 3-wire + ground, 30-ampere: P & S Co. No. 3864

D. 120-volt, 20 ampere, 1-phase GFI (interior): P & S Co. No. 2095TR

E. 120-volt, 20 ampere, 1-phase GFI (exterior): P & S Co. No. 2095TRWR

2.3 WALL SWITCHES

A. General Use, 20-ampere, 120-volts: P&S Co. No. 20AC (Toggle Type) 2621 (Paddle Type)

B. Three-Way Units: P&S Co. No. 20AC3 (Toggle Type) 2623 (Paddle Type)

C. Four-way Units: P&S Co. No. 20AC4 (Toggle Type) 2624 (Paddle Type)

2.4 COVER PLATES

A. All wiring device cover plates shall be plain smooth plastic, a minimum of .100 thick made of non-combustible "marproof" thermosetting material listed by UL with matching screws. Manufacturer shall be P&S Co., "P" Series. Verify plate and device color with Architect before ordering. Submit manufacturer's information on the materials proposed.

PART 3 - EXECUTION

3.1 Installation

A. Ground device by connecting separately pulled ground conductor to ground lug on device.

B. All devices in Handicapped Accessible units shall adhere to latest ADA standards.

END OF SECTION 26 27 26

SECTION 26 51 00

INTERIOR LIGHTING

PART 1 - GENERAL

1.1 SCOPE

A. The work under this section consists of furnishing and installing all lighting fixtures and lamps as shown on drawings. The Contractor shall take cognizance of the variety of ceiling types and of possible changes in Architectural or other areas before procuring fixtures. Refer to "Lighting Schedule" on drawings for specific information on the fixtures.

PART 2 - PRODUCTS

2.1 INTERIOR LIGHTING FIXTURES

A. Conductors within fluorescent fixtures shall not be smaller than #18 awg and stranded with type "CF" insulation. Conductors within incandescent fixtures shall not be smaller than #16 awg and stranded type "AF" insulation.

2.2 LAMPS

A. Fluorescent lamps shall be Sylvania Company or G.E. Company T8 energy saving type with warm white color.

B. Metal Halide lamps shall be G.E. Co. "Multi-Vapor" or Sylvania Co. "Metalarc".

C. Compact fluorescent lamps shall be warm white color.

2.3 BALLAST

A. Fluorescent fixtures shall be as manufactured by Phillips-Advance with trigger start electronic ballasts and ballast disconnects.

B. Metal Halide luminaires shall be furnished with Phillips-Advance "Pulse-Start" ballasts and ballast disconnects.

2.4 INCANDESCENT FIXTURES

A. All incandescent recessed fixtures shall be equipped with a thermal resetting device in compliance with UL. 7571 and the National Electric Code.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Recessed lighting fixtures in acoustical ceilings shall be installed on exposed tee for "lay-in" fixtures unless scheduled otherwise.

B. Recessed lighting fixtures in plastered ceilings shall be installed by use of a plaster ring and flange-type fixtures.

C. Surface or pendant mounted fixtures shall be installed in a manner that engages the building's structural system.

D. Contractor shall not install thermal insulation within 3" of any non-IC rated recessed fixture.

E. Contractor shall install all fixtures in accordance with the manufacturer's guidelines.

F. All recessed fixtures installed in sloped ceilings shall be provided with an appropriate sloped-ceiling adapter as recommended by manufacturer.

END OF SECTION 26 51 00

SECTION 26 56 00

EXTERIOR LIGHTING

PART 1 - GENERAL

1.1 SCOPE

A. The work under this section consists of furnishing and installing all lighting fixtures and lamps as shown on drawings. The Contractor shall take cognizance of the variety of ceiling types and of possible changes in Architectural or other areas before procuring fixtures. Refer to "Lighting Schedule" on drawings for specific information on the fixtures.

PART 2 - PRODUCTS

2.1 EXTERIOR LIGHTING FIXTURES

A. Exterior lights shall be controlled by a photocell to turn lights on and off.

B. All exterior fixtures shall be rated for exterior use.

2.2 LAMPS

A. “LED” lights Only" Rated at L70

PART 3 - EXECUTION

3.1 INSTALLATION

A. All exterior light poles shall be installed as shown on "LIGHTING STANDARD DETAILS".

B. Surface or pendant mounted fixtures shall be installed in a manner that engages the building's structural system.

C. Contractor shall install all fixtures in accordance with the manufacturer's guidelines.

END OF SECTION 26 56 00

SECTION 27 30 00

TELEPHONE/COMPUTER EQUIPMENT

PART 1 - GENERAL

1.1 SCOPE

A. The work required under this section consists of a system of telephone/computer conduit and wiring extending from outlets to telephone terminal boards or computer racks. Work shall include all termination equipment at telephone spaces and all cover plates with plug-in devices. New telephone/computer outlets shall be installed/wired to work with existing telephone/computer system.

B. The telephone system as shown on drawings and as specified herein shall be installed in accordance with the recommendations and requirements of the local Telephone Company's plant equipment, wires, cables etc., and any other incidental items required by them.

C. The building shall be pre-wired; the Contractor shall arrange and coordinate the work to be done by the Telephone Company, taking into account the progress of the work. The Contractor shall pay all fees and secure permits as required by the local Telephone Company.

D. The telephone system required to be installed and/or furnished by the Contractor within the building shall consist of, but shall not necessarily be limited to, installation of necessary conduit runs and sleeves, wiring, outlet boxes, covers, etc., from point of entry of service lateral to connections of location illustrated and as may be required by the Telephone company.

E. All computer racks, routers, switches and related equipment shall be provided by Owner.

F. The extent of telephone conduit required outside the building is shown on the drawings.

G. Contractor shall pay all required fees relating to the telephone service as shown on the drawings and as described herein.

PART 2 - PRODUCTS

2.1 MATERIALS

A. All telephone conduit shall be 3/4" size unless noted larger on the drawings. Telephone conduit shall be extended to telephone space (stubbed out above lay-in ceiling) as shown on the drawings. All computer conduit shall be 3/4" size unless noted larger. Computer conduit shall extend to computer rack/switch located where directed by Owner. Computer racks/switches and equipment within the computer racks shall be by Owner.

B. All phone/computer outlet boxes shall be single gang type and provided with both telephone and computer jacks for use by the Owner. Color of plates shall match electrical devices.

C. Each telephone outlet shall have two four pair Cat 5e No. 22 or 24 AWG copper cables extending to telephone terminal space. Each combination telephone/computer outlet shall have one four pair Cat 5e No. 22 or 24 AWG copper cable extending to telephone terminal space and one four pair Cat 5e No. 22 or 24 AWG cable extending to the computer rack/switch located where directed by Owner. Conductors shall be insulated with a color code high density polyethylene jacket with a PVC outer jacket.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Coordinate telephone service requirements with the Telephone Company and conform to all requirements of this specification and/or of the Telephone Company, as applicable. It shall be the responsibility of the Contractor to ascertain such requirements from the Telephone Company, and no claim for adjustment of Contract price will be considered for such failure to confirm requirements prior to bidding.

B. All splices shall be made in an approved manner and shall be located only in junction boxes or other accessible points. No splices are permitted in conduits or raceways.

C. Cable and wiring routed through inaccessible spaces or spaces where there is risk of damage to conductors shall be installed in conduit supplied by other sections of this specification.

END OF SECTION 27 30 00

SECTION 27 40 00

TELEVISION EQUIPMENT

PART 1 - GENERAL

1.1 SCOPE

A. The television system as shown on drawings and as specified herein shall be installed in accordance with the recommendations and requirements of the local Television Company's plant equipment, wires, cables etc., and any other incidental items required by them.

B. The building shall be pre-wired; the Contractor shall arrange and coordinate the work to be done by the Television Company, taking into account the progress of the work. The Contractor shall pay all fees and secure permits as required by the local Television Company.

C. The television system required to be installed and/or furnished by the Contractor within the building shall consist of, but shall not necessarily be limited to, installation of necessary conduit runs and sleeves, wiring, outlet boxes, covers, etc., from point of entry of service lateral to connections of location illustrated and as may be required by the Television company.

D. The extent of television conduit required outside the building is shown on the drawings.

E. Contractor shall pay all required fees relating to the television service as shown on the drawings and as described herein.

PART 2 - PRODUCTS

2.1 MATERIALS

A. All television outlet boxes shall be equipped with plates to match electrical devices. Covers shall be blank, bushed or punched for jack as required.

B. All television conduits shall be 3/4" size unless noted larger on the drawings.

C. All new television cables shall be RG-6 or larger and terminated with “F” type connectors.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Coordinate requirements and all work with the Television Company and conform to all requirements of this specification and/or of the Television Company, as applicable. It shall be the responsibility of the Contractor to ascertain such requirements from the Television Company, and no claim for adjustment of Contract price will be considered for such failure to confirm requirements prior to bidding.

B. Cable and wiring routed through inaccessible spaces or spaces where there is risk of damage to conductors shall be installed in conduit supplied by other sections of this specification.

END OF SECTION 27 40 00

SECTION 28 60 20

SMOKE DETECTORS

PART 1 - GENERAL

1.1 Work Included:

a. Furnish and install all equipment, accessories, and materials in accordance with these specifications and drawings to provide a complete and operating smoke detector system.

b. System Description – Self contained smoke detectors, combination type.

c. Contractor shall furnish service and maintenance of smoke detectors for a period of one (1) year from the date of substantial completion. The warranty period shall begin at the time of completion or at the time the Owner first receives beneficial use, whichever comes first.

PART 2 - PRODUCTS

2.1 Acceptable Manufacturers

a. Equipment shall be self -contained smoke detectors, with sounder base, equipped with 120 volt supply and battery back-up. Smoke detectors in handicapped units shall be sounder base with additional flashing strobe light. Where specific makes and models are referred to, the intent is to establish a minimum level of performance and features. Equipment of another manufacturer may not be substituted. Approval for installation shall be subject to review and approval by the Architect.

b. All bids shall be based on the equipment as specified herein. The catalog numbers and model designations are that of the Kidde Company.

PART 3 - EXECUTION

3.1 Installation:

a. The contractor shall furnish and install all cable, equipment, miscellaneous parts and

accessories to make a complete and fully operational system as described herein and shown in the drawings.

b. Equipment shall be installed and wired in accordance with accepted engineering and installation practices. Only the highest degree of workmanship will be accepted.

c. Contractor shall be available to demonstrate the operation and use of the system to the Architect/Engineer and to the Owner's representatives if desired.

d. The Contractor's job foreman, in the presence of a representative of the Architect and the local Fire inspector shall operate every smoke detector to ensure proper operation.

END OF SECTION 28 60 20

SECTION 31.10.00 - SITE CLEARING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Clearing and protection of vegetation.

B. Removal of existing debris.

1.02 RELATED REQUIREMENTS

A. Section 01.10.00 - Summary: Limitations on Contractor's use of site and premises.

B. Section 01.50.00 - Temporary Facilities and Controls: Site fences, security, protective barriers, and waste removal.

C. Section 01.57.13 - Temporary Erosion and Sediment Control.

D. Section 01.70.00 - Execution and Closeout Requirements: Project conditions; protection of bench marks, survey control points, and existing construction to remain; reinstallation of removed products.

E. Section 31.22.00 - Grading: Topsoil removal.

F. Section 31.22.00 - Grading: Fill material for filling holes, pits, and excavations generated as a result of removal operations.

PART 2 PRODUCTS

2.01 MATERIALS

A. Fill Material: As specified in Section 31.22.00 - Grading

PART 3 EXECUTION

3.01 SITE CLEARING

A. Comply with other requirements specified in Section 01.70.00.

B. Minimize production of dust due to clearing operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.

3.02 EXISTING UTILITIES AND BUILT ELEMENTS

A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.

B. Protect existing utilities to remain from damage.

C. Do not disrupt public utilities without permit from authority having jurisdiction.

D. Protect existing structures and other elements that are not to be removed.

3.03 VEGETATION

A. Scope: Remove trees, shrubs, brush, and stumps in areas to be covered by building structure, paving, playing fields, lawns, and planting beds.

B. Do not remove or damage vegetation beyond the limits indicated on drawings.

C. Install substantial, highly visible fences at least 3 feet high to prevent inadvertent damage to vegetation to remain:
   1. At vegetation removal limits.

D. In areas where vegetation must be removed but no construction will occur other than pervious paving, remove vegetation with minimum disturbance of the subsoil.

E. Vegetation Removed: Do not burn, bury, landfill, or leave on site, except as indicated.
   1. Chip, grind, crush, or shred vegetation for mulching, composting, or other purposes; preference should be given to on-site uses.
   2. Trees: Sell if marketable; if not, treat as specified for other vegetation removed; remove stumps and roots to depth of 18 inches.
   3. Sod: Re-use on site if possible; otherwise sell if marketable, and if not, treat as specified for other vegetation removed.
   4. Fill holes left by removal of stumps and roots, using suitable fill material, with top surface neat in appearance and smooth enough not to constitute a hazard to pedestrians.

F. Restoration: If vegetation outside removal limits or within specified protective fences is damaged or destroyed due to subsequent construction operations, replace at no cost to Owner.

3.04 DEBRIS

A. Remove debris, junk, and trash from site.

B. Leave site in clean condition, ready for subsequent work.

C. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

SECTION 31.22.00 - GRADING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Removal of topsoil.

B. Rough grading the site for site structures, building pads.

C. Finish grading.

1.02 RELATED REQUIREMENTS

A. Section 31.23.16 - Excavation.

B. Section 31.23.23 - Fill: Filling and compaction.

C. Section 31.23.16 - Trenching.

1.03 QUALITY ASSURANCE

A. Perform Work in accordance with TDOT standards.

PART 2 PRODUCTS

2.01 MATERIALS

A. Topsoil: See Section 31.23.23.

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 from damage above- and below-grade utilities to remain.

D. Protect site features to remain, including but not limited to bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs, from damage by grading equipment and vehicular traffic.

E. Protect trees to remain by providing substantial fencing around entire tree at the outer tips of its branches; no grading is to be performed inside this line.

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

3.05 FINISH GRADING

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

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

C. Where topsoil is to be placed, scarify surface to depth of 3 inches.

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

E. Place topsoil in areas where seeding and sodding are indicated.

F. Place topsoil during dry weather.

G. Remove roots, weeds, rocks, and foreign material while spreading.

H. Near plants spread topsoil manually to prevent damage.

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

J. Lightly compact placed topsoil.

3.06 REPAIR AND RESTORATION

A. Existing Facilities, Utilities, and Site Features to Remain: If damaged due to this work, repair or replace to original condition.

3.07 FIELD QUALITY CONTROL

A. See Section 31.23.23 for compaction density testing.

3.08 CLEANING

A. Remove unused stockpiled topsoil. Grade stockpile area to prevent standing water.

B. Leave site clean and raked, ready to receive landscaping.

END OF SECTION

SECTION 31.23.16 - EXCAVATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Excavating for building volume below grade, footings, pile caps, slabs-on-grade, paving, site structures, and utilities within the building.

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

1.02 RELATED REQUIREMENTS

A. Section 31.22.00 - Grading: Grading.

B. Section 31.23.23 - Fill: Fill materials, filling, and compacting.

C. Section 31.23.16 - Trenching.

1.03 PRICE AND PAYMENT PROCEDURES

See Section 01.22.00 - Unit Prices, for general requirements applicable to unit prices for excavation.

PART 2 EXECUTION

2.01 EXAMINATION

2.02 PREPARATION

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

B. See Section 31.22.00 for additional requirements.

2.03 EXCAVATING

A. Excavate to accommodate new structures and construction operations.

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

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

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

E. Hand trim excavations. Remove loose matter.

F. Correct areas that are over-excavated and load-bearing surfaces that are disturbed; see Section 31.23.23.

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

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

I. Stockpile excavated material to be re-used in area designated on site in accordance with Section 31.22.00.

J. Remove excess excavated material from site.

2.04 FIELD QUALITY CONTROL

A. See Section 01.40.00 - Quality Requirements, for general requirements for field inspection and testing.

B. Provide for visual inspection of load-bearing excavated surfaces before placement of foundations.

2.05 PROTECTION

A. Prevent displacement of banks and keep loose soil from falling into excavation; maintain soil stability.

B. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.

END OF SECTION

SECTION 31.23.16.13 - TRENCHING

PART 1 GENERAL

1.01 SECTION INCLUDES

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

1.02 RELATED REQUIREMENTS

A. Section 31.22.00 - Grading: Site grading.

B. Section 31.23.16 - Excavation: Building and foundation excavating.

C. Section 31.23.23 - Fill: Backfilling at building and foundations.

D. Section 31.23.16.26 - Rock Removal: Removal of rock during excavating.

1.03 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)); 2007.

C. ASTM D 1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method; 2007.

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)); 2007.

E. ASTM D 2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method; 2008.

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.

PART 3 EXECUTION

2.01 EXAMINATION

2.02 PREPARATION

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

B. See Section 31.22.00 for additional requirements.

2.03 TRENCHING

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

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

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

D. Cut trenches wide enough to allow inspection of installed utilities.

E. Hand trim excavations. Remove loose matter.

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

G. Remove excess excavated material from site.

2.04 PREPARATION FOR UTILITY PLACEMENT

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

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

C. Until ready to backfill, maintain excavations and prevent loose soil from falling into excavation.

2.05 BACKFILLING

A. Backfill 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:

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

2.06 BEDDING AND FILL AT SPECIFIC LOCATIONS

A. Use general fill unless otherwise specified or indicated.

B. Utility Piping, Conduits, and Duct Bank:
   1. Bedding: Use general fill.
   2. Cover with general fill.
   3. Fill up to subgrade elevation.
   4. Compact in maximum 8 inch lifts to 95 percent of maximum dry density.

C. At French Drains:
   1. Use granular fill.
   2. Compact to 95 percent of maximum dry density.

2.07 FIELD QUALITY CONTROL

A. See Section 01.40.00 - Quality Requirements, for general requirements for field inspection and testing.

B. Perform compaction density testing on compacted fill in accordance with ASTM D1556, ASTM D2167, ASTM D2922, or ASTM D3017.

C. Evaluate results in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D 698 ("standard Proctor"), ASTM D 1557 ("modified Proctor"), or AASHTO T 180.

D. If tests indicate work does not meet specified requirements, remove work, replace and retest.

2.08 CLEANING

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 31.23.23 - FILL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Filling, backfilling, and compacting for building volume below grade.

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 RELATED REQUIREMENTS

A. Section 31.23.16 - Excavation: Removal and handling of soil to be re-used.

B. Section 31.23.16 - Trenching.

1.03 DEFINITIONS

A. Finish Grade Elevations: Indicated on drawings.

1.04 REFERENCE STANDARDS

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)); 2007.

C. ASTM D 1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method; 2007.

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)); 2007.

E. ASTM D 2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method; 2008.

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.

1.05 SUBMITTALS

A. See Section 01.30.00 - Administrative Requirements, for submittal procedures.

B. Materials Sources: Submit name of imported materials source.

C. Fill Composition Test Reports: Results of laboratory tests on proposed and actual materials used.

D. Compaction Density Test Reports.

PART 2 PRODUCTS

2.01 FILL MATERIALS

A. General Fill: Conforming to DOT standard.

B. Structural Fill: Conforming to DOT standard.

C. Granular Fill: Coarse aggregate, conforming to DOT standard.

2.02 ACCESSORIES

A. Geotextile Fabric: Non-biodegradable, non-woven.

PART 3 EXECUTION

3.01 EXAMINATION

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

B. See Section 31.22.00 for additional requirements.

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

F. Correct areas that are over-excavated.
   1. Load-bearing foundation surfaces: Use structural fill, flush to required elevation, compacted to 100 percent of maximum dry density.
   2. Other areas: Use general fill, flush to required elevation, compacted to minimum 98 percent of maximum dry density.

G. Compaction Density Unless Otherwise Specified or Indicated:
   1. Under paving, slabs-on-grade, and similar construction: 98 percent of maximum dry density.

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

3.04 FIELD QUALITY CONTROL

A. See Section 01.40.00 - Quality Requirements, for general requirements for field inspection and testing.

B. Perform compaction density testing on compacted fill in accordance with ASTM D1556, ASTM D2167, ASTM D2922, or ASTM D3017.

C. Evaluate results in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D 698 ("standard Proctor"), ASTM D 1557 ("modified Proctor"), or AASHTO T 180.

D. If tests indicate work does not meet specified requirements, remove work, replace and retest.

E. Frequency of Tests: 1 test per 1,000 cubic yards of fill placed.

END OF SECTION

SECTION 32.11.23 - AGGREGATE BASE COURSES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Aggregate base course.

B. Paving aggregates.

1.02 RELATED REQUIREMENTS

A. Section 31.22.00 - Grading: Preparation of site for base course.

B. Section 31.23.23 - Fill: Compacted fill under base course.

C. Section 31.23.16.13 - Trenching: Compacted fill over utility trenches under base course.

D. Section 33.05.13 - Manholes and Structures: Manholes including frames.

E. Section 32.12.16 - Asphalt Paving: Binder and finish asphalt courses.

F. Section 32.13.13 - Concrete Paving: Finish concrete surface course.

1.03 REFERENCE STANDARDS

A. AASHTO M 147 - Standard Specification for Materials for Aggregate and Soil-Aggregate Subbase, Base and Surface Courses; American Association of State Highway and Transportation Officials; 1965 (2004).

B. 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).

C. ASTM C 136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates; 2006.

D. ASTM D 698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3)); 2007.

E. ASTM D 1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method; 2007.

F. 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)); 2007.

G. ASTM D 2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method; 2008.

H. ASTM D 2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System); 2006.

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

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

K. ASTM D 4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils; 2005.

1.04 SUBMITTALS

A. See Section 01.30.00 - Administrative Requirements, for submittal procedures.

B. Aggregate Composition Test Reports: Results of laboratory tests on proposed and actual materials used.

PART 2 PRODUCTS

2.01 MATERIALS

A. Coarse Aggregate: Coarse aggregate, conforming to State of Tennessee Highway Department standard.

B. Blended Aggregate: Pit run washed stone; free of shale, clay, friable material and debris.

C. Fine Aggregate: Sand; conforming to State of Tennessee Highway Department standard.

D. Geotextile Fabric: Non-biodegradable, non-woven.

2.02 SOURCE QUALITY CONTROL

A. See Section 01.40.00 - Quality Requirements, for general requirements for testing and analysis of aggregate materials.

B. Where aggregate materials are specified using ASTM D 2487 classification, test and analyze samples for compliance before delivery to site.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that survey bench marks and intended elevations for the work are as indicated.

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

3.02 PREPARATION

A. Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re-compacting.

B. Do not place aggregate on soft, muddy, or frozen surfaces.

3.03 INSTALLATION

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

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

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

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

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

3.04 TOLERANCES

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

B. Scheduled Compacted Thickness: Within 1/4 inch.

C. Variation From Design Elevation: Within 1/2 inch.

3.05 FIELD QUALITY CONTROL

A. See Section 01.40.00 - Quality Requirements, for general requirements for field inspection and testing.

B. Compaction density testing will be performed on compacted aggregate base course in accordance with

ASTM D1556.

C. Results will be evaluated in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D 698 ("standard Proctor").

D. If tests indicate work does not meet specified requirements, remove work, replace and retest.

3.06 CLEANING

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 32 12 16 - HOT MIXED ASPHALTIC PAVING

PART ONE - GENERAL

1.01 SUMMARY

A. This Section includes provisions for hot-mixed asphalt paving over existing subbase.

1.02 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

B. Material Certificates signed by material producer and Contractor, certifying that each material item complies with or exceeds specified requirements.

C. Pavement Marking plan indicating lane separations and defined parking spaces. Note dedicated handicapped spaces with international graphics symbol.

1.03 SITE CONDITIONS

A. Weather Limitations: Apply prime and tack coats when ambient temperature is above 50 deg F (10 deg C) and when temperature has not been below 35 deg F (1 deg C) for 12 hours immediately prior to application. Do not apply when base is wet or contains an excess of moisture.

B. Construct hot-mixed asphalt surface course when atmospheric temperature is above 40 deg F (4 deg C) and when base is dry. Base course may be placed when air temperature is above 30 deg F (minus 1 deg C) and rising.

C. Grade Control: Establish and maintain required lines and elevations.

PART TWO - PRODUCTS

2.01 MATERIALS

A. General: Use locally available materials and gradations that exhibit a satisfactory record of previous installations.

B. Coarse Aggregate: Sound, angular crushed stone, crushed gravel, or properly cured crushed blast furnace slag, complying with ASTM D 692-88.

C. Fine Aggregate: Sharp-edged natural sand prepared from stone, properly cured blast furnace slag, gravel, or combinations thereof, complying with ASTM D 1073.

D. Mineral Filler: Rock or slag dust, hydraulic cement, or other inert material complying with ASTM D 242.

E. Asphalt Cement: ASTM D 3381 for viscosity-graded material; ASTM D 946 for penetration-graded material.

F. Prime Coat: Cut-back asphalt type, ASTM D 2027; MC-30, MC-70 or MC-250.

G. Tack Coat: Emulsified asphalt; ASTM D 977.

H. Herbicide Treatment: Commercial Chemical for weed control, registered by Environmental Protection Agency. Provide granular, liquid, or wettable powder form.

I. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include, but are not limited to, the following:

1. Ciba-Geigy Corp.

2. Dow Chemical, USA

3. Du Pont de Nemours & Co., Inc.

4. FMC Corp.

5. Thompson-Hayward Chemical Corp.

6. Borax and Chemical Corp.

J. Lane Marking Paint: Alkyd-resin type, ready-mixed complying with AASHTO M 248, Type l. Color: White.

2.02 ASPHALT-AGGREGATE MIXTURE

A. Provide plant-mixed, hot -laid asphalt-aggregate mixture complying with ASTM D 3515 and as recommended by local paving authorities to suit project conditions.

B. Pavement section shall be as follows: 1.5”min. topping mixture, refer to Civil drawings.

PART THREE - EXECUTION

3.01 SURFACE PREPARATION

A. General: Remove existing pavement. Loose material from compacted sub base surface immediately before applying herbicide treatment or prime coat.

B. Proof-roll sub base surface to check for unstable areas and areas requiring additional compaction.

C. Notify Contractor of unsatisfactory conditions. Do not begin paving work until deficient sub base areas have been corrected and are ready to receive paving.

D. Herbicide Treatment: Apply chemical weed control agent in strict compliance with manufacturer’s recommended dosages and application instructions. Apply to compacted, dry sub base prior to application of prime coat.

E. Prime Coat: Apply at a rate of 0.20 to 0.50 gal. per sq. yd over sub base. Apply material to penetrate and seal, but not flood, surface. Cure and dry as long as necessary to attain penetration and evaporation of volatile.

F. Tack Coat: Apply to contact surfaces of previously constructed asphalt or Portland cement concrete and surfaces abutting of projecting into hot-mixed asphalt pavement. Distribute at rate of 0.05 to 0.15 gal. per sq. yd of surface.

G. Allow to dry until at proper condition to receive paving.

H. Exercise care in applying bituminous materials to avoid smearing of adjoining concrete surfaces. Remove and clean damaged surfaces.

3.02 PLACING MIX

A. General: Place hot-mixed asphalt mixture on prepared surface, spread, and strike off. Spread mixture at minimum temperature of 225 deg F (107 deg C). Place areas inaccessible to equipment by hand. Place each course to required grade, cross-section, and compacted thickness.

B. Paver Placing: Place in strips not less than 10 feet wide, unless otherwise acceptable to Architect. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Complete base course for a section before placing surface course.

C. Immediately correct surface irregularities in finish course behind paver. Remove excess material forming high spots with shovel or lute.

D. Joints: Make joints between successive days' work, to ensure continuous bond between adjoining work. Construct joints to have same texture, density, and smoothness as other sections of hot-mixed asphalt course. Clean contact surfaces and apply tack coat.

E. Curbs: Construct curbs over compacted pavement surfaces. Apply light tack coat unless pavement surface is still tacky and free from dust.

F. Place curb materials to cross-section indicated or, if not indicated, to local standard shapes, by machine or by hand in wood or metal forms. Tamp hand placed materials and screed to a smooth finish. Remove forms as soon as material has cooled.

3.03 ROLLING

A. General: Begin rolling when mixture will bear roller weight without excessive displacement.

B. Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.

C. Breakdown rolling: Accomplish breakdown or initial rolling immediately following rolling of joints and outside edge. Check surface after breakdown rolling and repair displaced areas by loosening and filling, if required, with hot material.

D. Second Rolling: Follow breakdown rolling as soon as possible, while mixture is hot. Continue second rolling until mixture has been evenly compacted.

E. Finish Rolling: Perform finish rolling while mixture is still warm enough for removal of roller marks. Continue rolling until roller marks are eliminated and course has attained 95 percent laboratory density.

F. Patching: Remove and replace paving areas mixed with foreign materials and defective areas. Cut out such areas and fill with fresh, hot-mixed asphalt. Compact by rolling to specified surface density and smoothness.

G. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.

H. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.04 TRAFFIC AND LANE MARKINGS

A. Cleaning: Sweep and clean surface to eliminate loose material and dust.

B. Striping: Use chlorinated-rubber base traffic lane-marking paint, factory mixed, quick drying, and nonbleeding.

C. Do not apply traffic and lane marking paint until layout and placement have been verified with Architect.

D. Apply paint with mechanical equipment to produce uniform straight edges. Apply at manufacturers recommended rates to provide minimum 15 to 20 mils dry thickness.

3.05 FIELD QUALITY CONTROL

A. General: Testing in-place hot-mixed asphalt courses for compliance with requirements for thickness and surface smoothness will be done by the Owner's testing laboratory. Repair or remove and replace unacceptable paving as directed by Architect.

B. Thickness: In-place compacted thickness tested in accordance with ASTM D 3549 will not be acceptable if exceeding following allowable variations:

C. Base Course: Plus or minus 1/2 inch.

D. Surface Course: Plus or minus 1/4 inch.

E. Surface smoothness: Test finished surface of each hot-mixed asphalt course for smoothness, using 10-foot straightedge applied parallel with and at right angles to centerline of paved area. Surfaces will not be acceptable if exceeding the following tolerances for smoothness:

F. Base Course Surface: 1/4 inch.

G. Wearing Course Surface: 3/16 inch.

H. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is 1/4 inch.

I. Check surface areas at intervals as directed by the Architect.

END OF SECTION 32 12 16

SECTION 32.13.13 - CONCRETE PAVING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Concrete sidewalks, stair steps, integral curbs, gutters, median barriers, parking areas, and roads.

1.02 RELATED REQUIREMENTS

A. Section 31.22.00 - Grading: Preparation of site for paving and base and preparation of subsoil at pavement perimeter for planting.

B. Section 31.23.23 - Fill: Compacted subbase for paving.

C. Section 32.11.23 - Aggregate Base.

1.03 REFERENCE STANDARDS

A. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; American Concrete Institute International; 1991 (Reapproved 2002).

B. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International; 2005.

C. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; American Concrete Institute International; 2000.

D. ACI 305R - Hot Weather Concreting; American Concrete Institute International; 1999.

E. ACI 306R - Cold Weather Concreting; American Concrete Institute International; 1988 (Reapproved 2002).

F. ASTM A 185/A 185M - Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete; 2007.

G. ASTM A 497/A 497M - Standard Specification for Steel Welded Wire Reinforcement, Deformed, for Concrete; 2007.

H. ASTM A 615/A 615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement; 2007.

I. ASTM C 33 - Standard Specification for Concrete Aggregates; 2007.

J. ASTM C 39/C 39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2005.

K. ASTM C 94/C 94M - Standard Specification for Ready-Mixed Concrete; 2007.

L. ASTM C 150 - Standard Specification for Portland Cement; 2007.

M. ASTM C 173/C 173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 2008a.

N. ASTM C 260 - Standard Specification for Air-Entraining Admixtures for Concrete; 2006.

O. ASTM C 309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 2007.

P. ASTM C 494/C 494M - Standard Specification for Chemical Admixtures for Concrete; 2008a.

Q. ASTM C 618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2008a.

R. ASTM C 685/C 685M - Standard Specification for Concrete Made by Volumetric Batching and

Continuous Mixing; 2007.

S. ASTM D 1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (nonextruding and Resilient Bituminous Types); 2004 (Reapproved 2008).

T. ASTM D 1752 - Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction; 2004a (Reapproved 2008).

1.04 SUBMITTALS

A. See Section 01.30.00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on joint filler, admixtures, and curing compound.

PART 2 PRODUCTS

2.01 FORM MATERIALS

A. Form Materials: Conform to ACI 301.

B. Joint Filler: Preformed; non-extruding bituminous type (ASTM D 1751) or sponge rubber or cork (ASTM D 1752).
   1. Thickness: 1/2 inch.

2.02 REINFORCEMENT

A. Reinforcing Steel and Welded Wire Reinforcement: Types specified on plans.

2.03 CONCRETE MATERIALS

A. Concrete Materials: As specified in Section 03.30.00.

PART 3 EXECUTION

3.01 EXAMINATION

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

B. Verify gradients and elevations of base are correct.

3.02 SUBBASE

A. See Section 32.11.23 for construction of base course for work of this Section.

3.03 PREPARATION

A. Moisten base to minimize absorption of water from fresh concrete.

3.04 FORMING

A. Place and secure forms to correct location, dimension, profile, and gradient.

B. Assemble formwork to permit easy stripping and dismantling without damaging concrete.

C. Place joint filler vertical in position, in straight lines. Secure to formwork during concrete placement.

3.05 REINFORCEMENT

A. Place reinforcement at midheight of slabs-on-grade.

B. Interrupt reinforcement at contraction joints.

C. Place dowels to achieve pavement and curb alignment as detailed.

3.06 COLD AND HOT WEATHER CONCRETING

A. Follow recommendations of ACI 305R when concreting during hot weather.

B. Follow recommendations of ACI 306R when concreting during cold weather.

C. Do not place concrete when base surface temperature is less than 40 degrees F, or surface is wet or frozen.

3.07 PLACING CONCRETE

A. Place concrete in accordance with ACI 304R.

B. Ensure reinforcement, inserts, embedded parts, formed joints are not disturbed during concrete placement.

C. Place concrete continuously over the full width of the panel and between predetermined construction joints. Do not break or interrupt successive pours such that cold joints occur.

3.08 JOINTS

A. Align curb, gutter, and sidewalk joints.

B. Place 3/8 inch wide expansion joints at 20 foot intervals and to separate paving from vertical surfaces and other components and in pattern indicated.

C. Provide keyed joints as indicated.

3.09 FINISHING

A. Area Paving: Light broom, texture perpendicular to pavement direction. Apply Clemons super seal MS.

B. Sidewalk Paving: Light broom, texture perpendicular to direction of travel with troweled and radiused edge 1/4 inch radius. Apply Clemons super seal MS.

C. Curbs and Gutters: Light broom, texture parallel to pavement direction.

3.10 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 01.40.00.
   1. Provide free access to concrete operations at project site and cooperate with appointed firm.
   2. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of concrete operations.
   3. Tests of concrete and concrete materials may be performed at any time to ensure conformance with specified requirements.

B. Compressive Strength Tests: ASTM C 39/C 39M. For each test, mold and cure three concrete test cylinders. Obtain test samples for every 100 cu yd or less of each class of concrete placed.
   1. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.

3.11 PROTECTION

A. Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures, and mechanical injury.

B. Protect installed concrete from construction activities. Any concrete damaged or stain shall be replaced at Contractors expense.

END OF SECTION

SECTION 32 31 19 - ORNAMENTAL METAL FENCE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Ornamental picket fencing and accessories.

1.2 RELATED SECTIONS

A. Section 09900 Painting

1.3 SUBMITTALS:

A. Shop Drawings: Layout of fence and gates with dimensions, details, and finishes of component accessories and post foundations.

B. Product Data: Manufacturer's catalogue cuts indicating material compliance and specified options.

C. Samples: Color selections for oil base enamel finishes. If requested, samples of materials, (e.g. finials, caps, and accessories).

1.4 SPECIAL WARRANTY

A. Provide manufacturer's standard limited warranty that its ornamental fence system is free from defects in material and workmanship including cracking, peeling, blistering and corroding for a period of 3 years from the date of
purchase.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Ornamental Picket Fence: Style: 4" Picket. Height: 5'

B. Supplier: J&J Ornamental, L&M Ornamental, Ameristar Fence Products.

2.2 ORNAMENTAL PICKET FENCE

A. Pickets: Square steel tubular members manufactured per ASTM A-924/A-924M, having a 45,000 psi (310 MPa) yield strength. Minimum size pickets 3/4". Space pickets 3-15/16" maximum face to face.

B. Rails: 2" x 1" x 1-1/8", 11 gauge thick steel "U" channel per ASTM A-653/A-653M, having a 50,000 psi (344 MPa) yield strength. Punch rails to receive pickets and rivets and attach rails to rail brackets with 2 each, 1/4" industrial drive rivets or self tapping screws.

C. Posts: Square steel tubular members manufactured per ASTM A-653/A-653M having a 45,000 psi (310 MPa) yield strength.

D. Accessories: Assembled panels with ornamental accessories attached using industrial drive rivets to prevent removal and vandalism or field welded.

E. Finish: All pickets, channels, posts, fittings and accessories shop primed and painted individually after drilling and layout, to ensure maximum corrosion protection. All components are given a 2-

stage cleaning using exylene that cleans and prepares the surface to assure complete adhesion of the finish coat. All metal then given 1 coat shop applied primer and 2 coats finish paint. Color Black.

2.3 GATES

A. Ornamental picket swing gates.

2.4 ACCESSORIES

A. Rail Attachment Brackets - Will be shop and or field welded.

B. Industrial Drive Rivets: Of sufficient length to attach items in a secure no rattling position. Rivet and or self tapping screws to have a minimum of 1100 lbs. (4894 N) holding power and a shear strength of 1500 lbs. (6674 N).

C. Ornamental Picket Fence Accessories: Provide indicated items required to complete fence system.

C. Post Caps: Formed steel, cast of malleable iron or aluminum alloy, weather tight closure cap.

2.5 SETTING MATERIAL

A. Concrete: Minimum 28 day compressive strength of 3500 psi (20 MPa).

B. Flanged Posts: Provide flange type base plates with 4 holes for surface mounting of posts where indicated.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify areas to receive fencing are completed to final grades and elevations.

B. Ensure property lines and legal boundaries of work are clearly established.

3.2 INSTALLATION

A. Install fence in accordance with manufacturer's instructions.

B. Space posts uniformly at 7'8-3/4" (2356 mm) maximum face to face unless otherwise indicated.

C. Concrete Set Posts: Drill hole in firm, undisturbed or compacted soil. Holes shall have diameter 4 times greater than nominal outside dimension of post, and depths approximately 6" (152 mm) deeper than post bottom. Excavate deeper as required for adequate support in soft and loose soils, and for posts with heavy lateral loads. Set post bottom 36" (914 mm) below surface when in firm, undisturbed soil. Place concrete around post in a continuous pour. Trowel finish around posts and slope to direct water away from posts.

1. Gate Posts and Hardware: Set keepers, stops, sleeves and other accessories into concrete.

D. Surface mount (wall mount) posts with mounting plates where indicated. Fasten with lag bolts and shields.

E. Check each post for vertical and top alignment, and maintain in position during placement and finishing operation.

F. Align fence panels between posts. Firmly attach rail brackets to posts with 1/4" (6 mm) bolt and lock nut or ¼" self tapping screws, ensuring panels and posts remain plumb.

3.3 GATE INSTALLATION

A. Install gates plumb, level and secure for full opening without interference.

B. Attach hardware by means, which will prevent unauthorized removal.

C. Adjust hardware for smooth operation.

3.4 ACCESSORIES

A. Install post caps and other accessories to complete fence.

3.5 CLEANING

A. Clean up debris and unused material, and remove from site.

END OF SECTION 32 31 19

SECTION32 92 01 - SODDING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Preparation of subsoil.

B. Placing topsoil.

C. Fertilizing.

D. Sod installation.

E. Maintenance.

1.2 REFERENCES

A. ASPA (American Sod Producers Association) - Guideline Specifications to Sodding.

B. FS O-F-241 - Fertilizers, Mixed, Commercial.

1.3 MAINTENANCE DATA

A. Submit under provisions of Section017000.

1.4 QUALITY ASSURANCE

A. Sod: Root development that will support its own weight without tearing, when suspended vertically by holding the upper two corners.

1.5 REGULATORY REQUIREMENTS

A. Comply with regulatory agencies for fertilizer and herbicide composition.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect and handle products to site under provisions of Section016000.

1.7 COORDINATION

A. Coordinate work under provisions of Section013300.

1.8 MAINTENANCE SERVICE

A. Maintain sod areas immediately after placement (to include watering) until two (2) month past Project Substantial Completion Date established by Architect.

PART 2 PRODUCTS

2.1 SOD

A. All sod shall be as recommended by landscaping contractor. All existing bare areas prior to construction and areas disturbed by construction activities shall receive sod upon completion of construction.

2.2 SOIL MATERIALS

A. Topsoil: Fertile, agricultural soil, typical for locality, capable of sustaining vigorous plant growth, taken from drained site; free of subsoil, clay, or impurities, plants, weeds and roots; pH value of minimum 5.4 and maximum 7.0.

2.3 FERTILIZER

A. All fertilizer shall be FS O-F-241, recommended for grass, with fifty percent of the elements derived from organic sources; of proportion necessary to eliminate any deficiencies of topsoil.

2.4 ACCESSORIES

A. Shall be as recommended by landscaping contractor including, but not limited to wood pegs, wire mesh e.t.c.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that prepared soil base is ready to receive the work of this Section.

3.2 PREPARATION OF SUBSOIL

A. Prepare sub-soil to eliminate uneven areas and low spots. Maintain lines, levels, profiles and contours. Make changes in grade gradual. Blend slopes into level areas.

B. Remove foreign materials, rocks, weeds and undesirable plants and their roots. Remove contaminated sub-soil.

C. Scarify subsoil to a depth of 3 inches where topsoil is to be placed. Repeat cultivation in areas where equipment, used for hauling and spreading topsoil, has compacted sub-soil.

3.3 PLACING TOPSOIL

A. Spread topsoil to a minimum depth of 2 inches over area to be sodded. Rake until smooth.

B. Place topsoil during dry weather and on dry unfrozen subgrade.

C. Remove vegetable matter and foreign non-organic material from topsoil while spreading.

D. Grade topsoil to eliminate rough, low or soft areas, and to ensure positive drainage.

E. Install edging at periphery of sodded areas in straight lines to consistent depth.

3.4 SODDING

A. Moisten prepared surface immediately prior to laying sod.

B. Lay sod within 24 hours after harvesting to prevent deterioration.

C. Lay sod smooth and tight with no open joints visible, and no overlapping; stagger end joints 12 inches minimum.

D. On slopes 6 inches per foot and steeper, lay sod perpendicular to slope and secure every row with wodden pegs at maximum 2 feet on center. Drive pegs flush with soil portion of sod.

3.5 MAINTENANCE

A. Maintain sod areas until two (2) months past Substantial Completion of Project to include watering.

END OF SECTION

APPENDIX ‘A’

SOILS REPORT

APPENDIX ‘B’

ACM ABATEMENT PROTOCOL

APPENDIX ‘C’

SEWER REPORT

APPENDIX ‘D’

RADON REPORT

APPENDIX ‘E’

WORK WRITE UP

White River Apartments
"Work Write UP"
2-15-16

Exterior:
The White River Apartment Buildings will not substantially change in character in terms of its exterior appearance but will be updated as a result of this work. Apartment Building exterior doors and windows will be replaced. Vinyl siding and vertical trim will be replaced with Hard Lap siding, trim, soffits and fascia painted. All parking lot pavement areas repaired and overlaid. Concrete flat-work (sidewalks) and curbing will be replaced and curb ramps added to site to provide accessible routes. A new Mail Gazebo, Picnic Shelter and Play structure are being installed. A new Development monuments sign and landscaping bed will be installed for identification.

Roof:
The existing roofing shingles gutters and downspouts will be removed and new 30 year AR shingles installed. Roof insulation upgraded to R-42 and Radiant Barrier installed within attic space.

Leasing Office/Community Room
New Building will be constructed to provide a Leasing Office, Community Room, Computer Center, Kitchenette, Restrooms, File room and Maintenance Area with overhead door.

Interior:
Apartment Units
Typical Apartment Units fifty-nine (59) will receive, vinyl plank flooring, vinyl base, wall patching and painting, ceiling painting, door lever hardware, Kitchen cabinets, laminate countertops, sinks with low flow faucet and garbage disposal, New appliances (ES refrigerator, ES dishwasher, electric range, microwave/vent, ES clothes washer and dryer, Bathroom vanity, cultured marble sinks, tubs and surrounds, low flow shower heads, low flow toilets, water heater EF-0.93, HVAC heat pump unit SEER 15/HSPF 8, Energy Star lighting/bulbs, ceiling fans, CATV extended into Living Room and all Bedrooms, outlet and switch devices and cover plates, and smoke detectors. Four (4) of these units will also be equipped for sight/hearing occupants.

Accessible Apartment Units five (5) in addition to all the items listed for Typical Units will have interior layout modified to provide accessible route throughout the Unit to include compliant door widths, Kitchen layout and cabinets to meet accessibility standards, Bathroom layout with roll in shower to meet accessibility standards, and smoke detectors with horn/strobes.

Stairs:
Exterior Breezeway – The existing elevated walkway and stairs will be replaced and guardrails extended to correct height and picket spacing will be reworked, handrails will be added on each side of stair and painted. Breezeway ceilings will be replaced with 1hr rating, painted, lighting upgraded, and emergency lighting added.

HVAC:
Apartment Units will have indoor and outdoor equipment replaced with new energy efficient equipment (15SEER/8HSPF), existing ductwork will remain above existing sheet rock ceilings except in Accessible units where routing will change due to walls being moved. Toilet exhaust fans will be replaced.

Plumbing:
The existing Plumbing Waste System piping and water piping will remain. New sinks, low flow faucets, tubs, low flow shower heads, low flow toilets, laundry washer boxes and energy efficient water heaters EF 0.93 shall be installed within each unit.

Electrical:
The existing Electrical Service will remain. New lighting, ceiling fans, GFCI receptacles, light switches and smoke detector devices will be installed as required by code. Site lighting will be upgraded with new poles and LED fixtures. Site security cameras will be installed throughout site with monitor and recording device located in new office.

If you should have any questions or require additional information with regards to the Scope of Work related to the Renovation of the White River Apartments please give me a call.

Sincerely;

Mark D. Allan AIA