PROJECT MANUAL

BRYANT & STRATTON COLLEGE

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DECEMBER 22, 2017

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AIA® Document A201™ – 2007

General Conditions of the Contract for Construction

for the following PROJECT:
(Name and location or address)
BRYANT & STRATTON COLLEGE
RACINE, WI

THE OWNER:
(Name, legal status and address)
BRYANT & STRATTON COLLEGE
10950 WEST POTTER ROAD
WAUWATOSA, WI 53226

THE ARCHITECT:
(Name, legal status and address)
GREGORY A. TOMSIC, ARCHITECT
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TONAWANDA, NY 14150

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.

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 BASIC DEFINITIONS

§ 1.1.1 THE CONTRACT DOCUMENTS

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

§ 1.1.2 THE CONTRACT

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

§ 1.1.3 THE WORK

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

§ 1.1.4 THE PROJECT

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

§ 1.1.5 THE DRAWINGS

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

§ 1.1.6 THE SPECIFICATIONS

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

§ 1.1.7 INSTRUMENTS OF SERVICE

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

§ 1.1.8 INITIAL DECISION MAKER

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

§ 1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

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

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

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

§ 1.3 CAPITALIZATION

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

§ 1.4 INTERPRETATION

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

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

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

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

§ 1.6 TRANSMISSION OF DATA IN DIGITAL FORM

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

ARTICLE 2 OWNER

§ 2.1 GENERAL

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

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

§ 2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

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

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

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

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

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

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

§ 2.3 OWNER'S RIGHT TO STOP THE WORK

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

§ 2.4 OWNER'S RIGHT TO CARRY OUT THE WORK

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

ARTICLE 3 CONTRACTOR

§ 3.1 GENERAL

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

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

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

§ 3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

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

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

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

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

§ 3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

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

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

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

§ 3.4 LABOR AND MATERIALS

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

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

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

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

§ 3.5 WARRANTY

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

§ 3.6 TAXES

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

§ 3.7 PERMITS, FEES, NOTICES AND COMPLIANCE WITH LAWS

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

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

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

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

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

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

§ 3.8 ALLOWANCES

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

§ 3.8.2 Unless otherwise provided in the Contract Documents,

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

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

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

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

§ 3.9 SUPERINTENDENT

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

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

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

§ 3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

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

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

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

§ 3.11 DOCUMENTS AND SAMPLES AT THE SITE

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

§ 3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

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

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

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

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

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

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

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

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

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

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

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

§ 3.13 USE OF SITE

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

§ 3.14 CUTTING AND PATCHING

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

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

§ 3.15 CLEANING UP

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

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

§ 3.16 ACCESS TO WORK

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

§ 3.17 ROYALTIES, PATENTS AND COPYRIGHTS

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

§ 3.18 INDEMNIFICATION

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

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

ARTICLE 4 ARCHITECT

§ 4.1 GENERAL

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

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

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

§ 4.2 ADMINISTRATION OF THE CONTRACT

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

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

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

§ 4.2.4 COMMUNICATIONS FACILITATING CONTRACT ADMINISTRATION

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

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

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

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

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

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

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

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

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

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

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

ARTICLE 5 SUBCONTRACTORS

§ 5.1 DEFINITIONS

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

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

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

§ 5.2.1 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to any such proposed person or entity or (2) that the Architect requires additional time for review. Failure of the Owner or Architect to reply within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

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

§ 5.3 SUBCONTRACTUAL RELATIONS

By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work, which the Contractor, by these Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may

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

§ 5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

.1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor in writing; and

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

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

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

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

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

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

§ 6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided in Article 15.

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

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

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

§ 6.2 MUTUAL RESPONSIBILITY

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

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a separate contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Architect apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgment that

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

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

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

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

§ 6.3 OWNER'S RIGHT TO CLEAN UP

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

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 GENERAL

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

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

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

§ 7.2 CHANGE ORDERS

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

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

§ 7.3 CONSTRUCTION CHANGE DIRECTIVES

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

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

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

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

.4 As provided in Section 7.3.7.

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

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

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

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

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

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

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

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

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

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

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

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

§ 7.4 MINOR CHANGES IN THE WORK

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

ARTICLE 8 TIME

§ 8.1 DEFINITIONS

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

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

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

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

§ 8.2 PROGRESS AND COMPLETION

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

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance.

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

§ 8.3 DELAYS AND EXTENSIONS OF TIME

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner or Architect, or of an employee of either, or of a separate contractor employed by the Owner; or by changes ordered in the Work; or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control; or by delay authorized by the Owner pending mediation and arbitration; or by other causes that the Architect determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

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

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 CONTRACT SUM

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

§ 9.2 SCHEDULE OF VALUES

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

§ 9.3 APPLICATIONS FOR PAYMENT

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to payment as the Owner or Architect may require, such as copies of requisitions from Subcontractors and material suppliers, and shall reflect retainage if provided for in the Contract Documents.

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

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

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

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

§ 9.4 CERTIFICATES FOR PAYMENT

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

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

§ 9.5 DECISIONS TO WITHHOLD CERTIFICATION

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

.1 defective Work not remedied;

.2 third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;

.3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;

.4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;

.5 damage to the Owner or a separate contractor;

.6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or

.7 repeated failure to carry out the Work in accordance with the Contract Documents.

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

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

§ 9.6 PROGRESS PAYMENTS

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

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

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

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

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

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

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

§ 9.7 FAILURE OF PAYMENT

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents the amount certified by the Architect or awarded by binding

dispute resolution, then the Contractor may, upon seven additional days' written notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 SUBSTANTIAL COMPLETION

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

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

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

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

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage applying to such Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 PARTIAL OCCUPANCY OR USE

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer as required under Section 11.3.1.5 and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

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

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

§ 9.10 FINAL COMPLETION AND FINAL PAYMENT

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

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

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

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

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

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 SAFETY PRECAUTIONS AND PROGRAMS

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

§ 10.2 SAFETY OF PERSONS AND PROPERTY

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

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and

.3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

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

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

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

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

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

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 INJURY OR DAMAGE TO PERSON OR PROPERTY

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 HAZARDOUS MATERIALS

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

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

extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shut-down, delay and start-up.

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

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

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

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

§ 10.4 EMERGENCIES

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 CONTRACTOR'S LIABILITY INSURANCE

§ 11.1.1 The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations and completed operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- .1 Claims under workers' compensation, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed;
- .2 Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
- .3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
- .4 Claims for damages insured by usual personal injury liability coverage;
- .5 Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- .6 Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;
- .7 Claims for bodily injury or property damage arising out of completed operations; and
- .8 Claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18.

§ 11.1.2 The insurance required by Section 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the

Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

§ 11.1.3 Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies required by this Section 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment as required by Section 9.10.2 and thereafter upon renewal or replacement of such coverage until the expiration of the time required by Section 11.1.2. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness.

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

§ 11.2 OWNER'S LIABILITY INSURANCE

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

§ 11.3 PROPERTY INSURANCE

§ 11.3.1 Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all-risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract Modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 11.3 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project.

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

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

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

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

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

§ 11.3.2 BOILER AND MACHINERY INSURANCE

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

§ 11.3.3 LOSS OF USE INSURANCE

The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner's property due to fire or other hazards, however caused. The Owner waives all rights of action against the Contractor for loss of use of the Owner's property, including consequential losses due to fire or other hazards however caused.

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

§ 11.3.5 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, the Owner shall waive all rights in accordance with the terms of Section 11.3.7 for damages caused by fire or other causes of loss covered by this separate property insurance. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

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

§ 11.3.7 WAIVERS OF SUBROGATION

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

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

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

§ 11.3.10 The Owner as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power; if such objection is made, the dispute shall be resolved in the manner selected by the Owner and Contractor as the method of binding dispute resolution in the Agreement. If the Owner and Contractor have selected arbitration as the method of binding dispute resolution, the Owner as fiduciary shall make settlement with insurers or, in the case of a dispute over distribution of insurance proceeds, in accordance with the directions of the arbitrators.

§ 11.4 PERFORMANCE BOND AND PAYMENT BOND

§ 11.4.1 The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract.

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

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 UNCOVERING OF WORK

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

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be at the Owner's expense. If such Work is not in accordance with the Contract Documents, such costs and the cost of correction shall be at the Contractor's expense unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

§ 12.2 CORRECTION OF WORK

§ 12.2.1 BEFORE OR AFTER SUBSTANTIAL COMPLETION

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

§ 12.2.2 AFTER SUBSTANTIAL COMPLETION

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct

nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.4.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

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

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

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

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

§ 12.3 ACCEPTANCE OF NONCONFORMING WORK

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

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 GOVERNING LAW

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

§ 13.2 SUCCESSORS AND ASSIGNS

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

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

§ 13.3 WRITTEN NOTICE

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

§ 13.4 RIGHTS AND REMEDIES

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

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

§ 13.5 TESTS AND INSPECTIONS

§ 13.5.1 Tests, inspections and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of (1) tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded, and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating their cost to the Contractor.

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

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

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

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

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

§ 13.6 INTEREST

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

§ 13.7 TIME LIMITS ON CLAIMS

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

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 TERMINATION BY THE CONTRACTOR

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

.1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;

.2 An act of government, such as a declaration of national emergency that requires all Work to be stopped;

.3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or

.4 The Owner has failed to furnish to the Contractor promptly, upon the Contractor's request, reasonable evidence as required by Section 2.2.1.

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

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

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

§ 14.2 TERMINATION BY THE OWNER FOR CAUSE

§ 14.2.1 The Owner may terminate the Contract if the Contractor

.1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;

.2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;

.3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or

.4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

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

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

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

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

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

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 SUSPENSION BY THE OWNER FOR CONVENIENCE

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

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

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

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

§ 14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

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

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

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

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

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

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

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 CLAIMS

§ 15.1.1 DEFINITION

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

§ 15.1.2 NOTICE OF CLAIMS

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

Additions and Deletions Report for
AIA® Document A201™ – 2007

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PAGE 1

BRYANT & STRATTON COLLEGE
RACINE, WI

...

BRYANT & STRATTON COLLEGE
10950 WEST POTTER ROAD
WAUWATOSA, WI 53226

...

(Name, legal status and address)
GREGORY A. TOMSIC, ARCHITECT
145 BATHURST DRIVE
TONAWANDA, NY 14150

SUPPLEMENTARY GENERAL CONDITIONS

1. PROTECTION OF PERSONS AND PROPERTY

(Amend Article 10 of the General Conditions by the addition of the following):

All items of work required for the protection of public, workmen, site and construction operation as required by the General Conditions and/or laws or regulations shall be completed before the work is started on the project.

2. EXECUTION, CORRELATION, INTENT OF DOCUMENTS

Make no changes from Contract Documents without first receiving written permission from the Architect. Where detailed information is lacking, before proceeding with work, refer matter to Architect for information.

If work is required in manner to make it impossible to produce first class work or should discrepancies appear among Contract Documents, request interpretation before proceeding with work. If Contractor fails to make such request, no excuse will thereafter be entertained for failure to carry out work in satisfactory manner. Should conflict occur in or between drawings and specifications, Contractor is deemed to have estimated on more expensive way of doing Work unless he shall have asked for and obtained written decision before submission of proposal as to which method or materials will be required.

Omissions from the drawings or specification, or the misdescription of details for work which are manifestly necessary to carry out the intent of the drawings and specifications or which are customarily performed, shall not relieve the Contractor from performing such omitted or misdescribed details of the work; but they shall be performed to complete the work as it is intended, without any gaps between the various subdivision of work or between the work of the Contractor and all subcontractors, as if fully and correctly set forth and described in the drawings and specifications.

3. SUBCONTRACTORS

(Amend Article 5.2-1 of the General Conditions by the addition of the following):

Within 10 days after awarding of the contracts, the prime Contractors shall submit a list of suppliers and/or Subcontractors he or she proposes to employ in the construction of the project for approval to the architect.

4. SUBSTANTIAL COMPLETION

(Amend Article 9.8 of the General Conditions by the addition of the following):

Substantial completion is defined as the point of time when the owner is able to use the facility in its entirety.

5. PROGRESS PAYMENTS

(Amend Article 9.6 of the General Conditions by the addition of the following):

Payments will be made on the basis of progress and will be made once a month. Application for Payment Form shall be submitted in triplicate on AIA Standard Form Document G702 by the thirtieth of each month for payment by the thirtieth of the following month.

Progress payments shall be made upon monthly requisitions from the contractor in the amount of ninety per cent, (90%), of the contract sum allocated to labor and materials and equipment stored on or off site for that monthly period.

6. CONTRACT

The Form of Agreement Between the Construction Manager and Sub Contractor, (Stipulated Sum), AIA Document A401, Standard Form of the American Institute of Architects, l987 edition, pages 1 through 4, shall be used as the contract and shall form a part of these bidding documents.

This document is kept on file in the architect's office and may be examined upon request by any of the bidders.

END OF SECTION

SECTION 01010 - SUMMARY OF WORK

1.0 GENERAL

A. This project consists of renovations and conversion of an existing building located in Mount Pleasant, Wisconsin.

1.1 CONTRACTS

A. This is a Multiple Contract project to be determined by the Construction Manager may be reviewed on Casilio Companies webpage for this project:
   1. The Construction Manager will be responsible for the construction of the entire project.
   2. The Construction Manager as prime Contractor is responsible for coordination between himself and all his sub-Contractors.
   3. All Contractors, prime or sub are directed to cooperate and coordinate their work with each other, and the lack of such will not be an acceptable excuse for delays.
   4. Any conflicts between the Construction Manager and/or sub-Contractors which will cause delay in construction, must be brought to the attention of the Construction Manager, in writing, within twenty-four (24) hours.

B. All contracts shall include the Instructions to Bidders, Form of Bid, General Conditions and Supplementary Conditions and General Requirements.

C. Extent of Operation - The Contractors shall provide all items, articles, materials, operation or methods listed, indicated, mentioned, or scheduled on the drawings and/or in the specifications, including all labor, materials, equipment and incidentals, necessary and required for their completion and installation in the project.

1.2 EXAMINATION OF SITE, DOCUMENTS, ETC.

A. Each bidder shall visit the site of the proposed work and fully acquaint himself with the conditions as they exist so that he may fully understand the facilities, difficulties, and restrictions attending the execution of the work under the Contract. Bidders shall also thoroughly examine and be familiar with the drawings and the specifications. The failure or omission of any Bidder to receive or examine any form, instrument, document or to visit the site or acquaint himself with conditions there existing shall in no way relieve the Bidder from any obligation with respect to his Bid.

1.3 PERMITS

A. The prime Contractors are responsible for obtaining and paying for all necessary permits as required by laws and ordinances for work required to construct the project.

B. Separate permits will be required by the Sign Contractor, Fire Alarm Contractor and the Fire Sprinkler Contractor. Each of these Contractors shall apply for, submit all necessary and required drawings and calculations and obtain all necessary permits for their work.

1.4 REFERENCES

A. References to known standard specifications shall mean and intend latest edition of such

specifications adopted and published at date of invitation to submit proposals.

B. Reference to technical society, or organization or bodies is made in the specifications in accordance with the following abbreviations:

AIA	American Institute of Architects
ACI	American Concrete Institute
AISC	American Institute of Steel Construction
ASTM	American Society for Testing Materials
AWSC	American Welding Society Code
FS	Federal Specification
NBFU	National Board of Fire Underwriters
NBS	National Bureau of Standards
UL	Underwriters' Laboratories, Inc.
ASA	American Standard Association
SJI	Steel Joist Institute
AASHO	American Association of State Highway Official
CSI	Construction Specifications Institute
NYS	New York State Public Works Specification 1-2-62

1.5 CONSTRUCTION ASSOCIATION, CODES AND SPECIFICATIONS (option to substitute or add to references)

AA	Aluminum Association
AAMA	Architectural Aluminum Manufacturer's Association
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ANSI	American National standard Institute
APA	American Plywood Association
ASHRAE	American Society of Heating, Refrigeration and Air-Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWI	American Woodwork Institute
AWPI	American Wood Preservers Institute
AWS	American Welding Society
BIA	Brick Institute of America
CRCI	Concrete Reinforcing Steel Institute
CS	Commercial Standards
FGMA	Flat Glass Marketing Association
FM	Factory Mutual System
IEEE	Institute of Electrical and Electronic Engineers
NBS	National Bureau of Standards
NEC	National Electric Code
NEMA	National Electrical Manufacturer's Association
NFPA	National Fire Protection Association
NYSDOT	New York State Department of Transportation
NYSDPW	New York State Department of Public Works

PCI	Precast Concrete Institute
PEI	Porcelain Enamel Institute
SAMA	Scientific Apparatus Makers Association
SDI	Steel Deck Institute
SMACNA	Sheet Metal and Air-Conditioning Contractor's National Association
SSPC	Structural Steel Painting Council
UL	Underwriter's Laboratories

1.6 ITEMS PROVIDED BY THIS CONTRACTOR

A. The Construction Manager shall provide and maintain all temporary facilities, such as water, electrical services, telephone and toilets. The Construction Manager is also to provide a temporary field office.
   1. Toilet facilities shall be provided and maintained by the Construction Manager.
   2. Temporary field office shall be provided and maintained by the Construction Manager.
   3. Telephones for the Contractors, workmen and Owners use for business purposes shall be provided by the Construction Manager - provide two (2) push-button phones with locks. Telephones must be capable of receiving incoming call and making outgoing local calls.
   4. Water is available at the site and will be provided by the Construction Manager.
   5. Temporary Electrical Service shall be provided by the Construction Manager.
   6. Staging Area: To be determined by the Construction Manager.

1.7 STORAGE AND PARKING AREAS

A. The Construction Manager shall provide and maintain a temporary area at the site suitable for vehicular parking and for the stockpiling and storage of equipment and materials. These facilities shall be for the use of personnel for all trades of the project.

B. The Construction Manager shall keep such area free of debris, obstructions, standing water and provide necessary barricades.

1.8 GUARANTEES

A. Whenever within one year of beneficial occupancy any of the prime Contractors is notified in writing by either the Architect or the Owner, that any item of equipment, material and/or workmanship has proved defective or is not in any way meeting the specification requirements, he shall immediately replace, repair or otherwise correct the defect or deficiency without cost to the Owner.

B. The Prime Contractor's liability for defects in materials and labor shall not be limited to less than the legal limit of liability in accordance with the laws of the State of New York.

C. The Prime Contractor shall submit all guarantees, warranties, bonds and operating manuals to the Construction Manager and Architect prior to receipt of final payment, for all work, materials and equipment provided under their contract.

1.9 AVAILABILITY OF MATERIALS

A. The Prime Contractor shall review the availability of the materials specified and/or shown on

drawings and must notify the Construction Manager or Architect of any materials that will cause any delays in the construction of the project.

B. The delivery times, plus a list of alternate materials proposed, including additions or deductions in cost must be submitted in writing to the Construction Manager or Architect for his review within two weeks after the award of the contract.

C. All materials must be provided as specified unless approved equal by the Architect.

1.10 PROTECTION OF MATERIALS

A. The Prime Contractor shall bear the sole responsibility for the care and protection of his respective materials and work installed in the building and materials stored on the site for which payment has been made, and for the restoration of damaged or stolen materials, at no additional cost to the Owner.

1.11 REQUIRED INSURANCE

A. Before commencing the work, the Construction Manager shall furnish to the Owner a certificate or certificates of insurance in form satisfactory to the Owner, showing that he has complied with the general conditions.

B. The kinds and amounts of insurance are as follows:

1. Workmens' Compensation Insurance a policy covering the obligations of the Contractor in accordance with the provisions of Chapter 41 as amended of the Workmens Compensation Law, covering all operations under the contract, whether performed by him or by his subContractors.
2. Liability and Property Damage Insurance limits of not less than:

   $ 500,000.00 Each Person
   $1,000,000.00 Each Accident
   $1,000,000.00 Aggregate

   for all damages arising during the policy period, shall be furnished in the following types.

   a. Prime Contractor's Liability Insurance: issued to and covering the liability for damage imposed by law upon each sub-Contractor with respect to all work performed by said sub-Contractor under the contract.
   b. Prime Contractor Protective Liability Insurance: issued to and covering the liability for damages imposed by law upon the Contractor with respect to all work under the contract performed for the Contractor by sub-Contractors.
   c. Protective Liability Insurance: issued to and covering the liability for damages imposed by law upon the Owner.
   d. Completed Operations Liability Insurance: issued to and covering the liability for damages imposed by law upon the Contractor between the date of final cessation of work and the date of final acceptance thereof.
   e. Automobile Liability Insurance: covering all vehicles owned and hired in the amount of $500,000.00/$1,000,000.00 bodily injury and $1,000,000.00 property damage.
   f. All Risk-Builders Risk Insurance provided in the amount equal to the total amount of the Bid.

1.12 NON-ASSIGNABILITY OF CONTRACT

A. Each Prime Contractor is hereby prohibited from assigning, transferring, conveying, subletting or otherwise disposing of this contract, or of his right, title or interest therein, or his power to execute such contract to any other person, company, or corporation, without previous consent in writing of the Owner. If the Contractor shall, without previous written consent herein provided for, assign, transfer, convey, sublet, or otherwise dispose of same, or his right, title, or interest therein, or his power to execute such contract to any other person, company or other corporation, the Owner shall revoke and annul said contract, and the Owner shall thereupon be relieved and discharged from any and all liability and obligations, growing out of this contract to the Contractor and the person, company or other corporation to whom he shall assign, transfer, convey, sublet or otherwise dispose of same, and the Contractor and his assignees, transferees or sublessees, shall forfeit and lose all money theretofore earned under said contract, except so much as may be required to pay his employees; provided that nothing herein contained shall be construed to hinder, prevent, or affect an assignment by the Contractor for the benefit of his creditors made pursuant to the statutes of the State of New York.

1.13 LAYOUT OF THE WORK

A. The prime Contractor shall verify all lines, levels and dimensions as shown on the drawings and he shall report any errors or inconsistencies to the Architect before commencing work.

1.14 INQUIRIES

A. The Owner will not be responsible for any explanations or interpretations of the Construction Documents. All inquiries are to be directed to the office of Gregory A. Tomsic, Architect

1.15 COMPLIANCE WITH FEDERAL, STATE AND MUNICIPAL ORDINANCES

A. Each and every provision of law and clause required by law to be inserted in this contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included therein, and if through omission or otherwise any such provision is not inserted, or it is not correctly inserted, it shall be physically amended to make such insertion.

B. These construction documents, and the joint and several phases of construction hereby contemplated are to be governed, at all time, by applicable provisions of the Federal law(s), including, but not limited to those statutes referred to elsewhere in this contract and the latest amendments thereto.

1.16 RESPONSIBILITY FOR DAMAGE

A. The Subcontractors shall be responsible for all damages to life and property due to his operations. He shall be responsible for all parts of his work, both temporary and permanent, until the work under this contract is accepted by the Owner.

B. He shall protect, indemnify, save harmless and defend the Owner from suits, actions, damages and costs of every name and description, resulting from the work under this contract, and the Owner may retain sufficient monies from the amount due or to become due the Subcontractor as may be necessary to satisfy any claim or damages filed against the Owner.

C. He shall be responsible for damages to work of other Subcontractors which are the result of

his operations. Should the Subcontractor believe that the work shown by the drawings or specifications is not calculated when executed to procure safe and substantial results, or if any discrepancy appears, it is his duty to immediately notify the Architect and the Construction Manager in writing, stop work on same and await the written instructions of the Architect.

1.17 DEFECTIVE WORK AND MATERIALS

A. Any material or work found on inspection to be defective or not in strict conformance with requirements of drawings and specifications, or defaced or injured through the acts of fire or elements or any other cause shall be removed immediately from the premises and satisfactory materials or work or both, substituted therefore without delay.

B. If the Subcontractor does not remove such work or materials condemned by the Construction Manager or Architect within the time limit fixed by written notice, the Owner may cause the same to be done and may store all materials at the expense of the Subcontractor. If the Subcontractor does not pay the expense of such removal within ten (10) days written notice, sell such materials at auction, or at a private sale and shall account for the net proceeds thereof, after deducting all costs and expenses that should have been borne by the Subcontractor.

C. No previous inspection or certificates of payment shall be held as an acceptance of defective work or materials, or to relieve the Subcontractor from the obligations to furnish sound materials and perform satisfactory work in accordance with contract requirements.

1.18 SHOP DRAWINGS

A The prime Contractors shall provide the Architect with a .pdf of all necessary shop drawings and information as may be required for the execution of the work. The manufacture or fabrication of any material or the performance of any work prior to approval of shop drawings will be entirely at the risk of the Contractor.

B. The Construction Manager shall submit to the Architect with such promptness as to cause no delay in his work or in that of any other Contractors employed on this work, copies of all shop or setting drawings required for the proper execution of the work herein specified.

C. Each shipment of drawings must be accompanied by a letter of transmittal, giving name of Subcontractor, list of drawings included, with each drawing marked with the name and location of project and each series of drawings numbered consecutively.

D. All shop drawings and samples be thoroughly checked by the Construction Manager for compliance with the Contract Documents before submitting them to the Architect for approval and all shop drawings shall bear the Construction Manager's stamp of approval certifying that they have so been checked. Any shop drawings submitted without this stamp of approval and certification, and shop drawings which, in the Architect's opinion, are incomplete contain numerous errors or have not been checked or only checked superficially will be returned unchecked by the Architect for resubmission by the Construction Manager. In checking shop drawings, the Construction Manager shall verify all dimensions and field conditions and shall check and coordinate the shop drawings of any section or trade with the requirements of all other sections or trades whose work is related thereto, as required for proper and complete installation of the work.

E. Shop drawings shall be submitted in the order and time required for construction. Shop drawings submitted ahead of time required for construction will be held by the Architect for checking in the order as above set forth.

F. Under no condition will any claim for delay in the completion of contracts due to shop drawings being held by the Architect for the necessary and proper time for checking be recognized.

G. If it is found necessary to make changes in shop drawings, two prints will be returned to the Construction Manager, who, after making correction indicated, shall furnish, without charge, four additional copies. The Construction Manager shall continue to furnish drawings as above mentioned until all drawings are satisfactory to the Architect, who, however, will not be responsible for their accuracy.

H. If, during the checking and return of checked prints, the Construction Manager makes any additional changes or corrections on the original shop drawings, he shall call attention to each marking on the prints by a letter written to the Architect.

I. It is understood that the approval (NO EXCEPTION TAKEN) of any shop drawings by the Architect in no way relieves the Subcontractor from assuming the responsibility for the accuracy of same, nor does it relieve the Subcontractor from any of the required conditions as set forth in these specifications or accompanying drawings.

J. Shop Drawings without the approved stamp of the Architect will not be permitted on the premises. Actual fabrication of the work will not proceed until these shop drawings have received the approved stamp of the Architect.

K. Shop Drawings shall consist of, but not be limited to, fabrication, erection and setting drawings, schedule drawings, manufacturer's scale drawings, wiring and control diagrams, cuts or entire catalogs, pamphlets, descriptive literature and performance and test data. Prior to submission of shop drawings on mechanical and electrical work, the Contractor shall submit lists of such equipment as required, for approval. Where practical, drawings shall be submitted in the form of a reproducible print, along with one set of white prints.

L. Reproductions of Contract Documents for use as shop drawings for materials specified and/or shown, WILL NOT be permitted.

1.19 RECORD DRAWINGS

A. As Built Drawings
   1. All subcontracts shall have prepared and submit at the completion of the project "As Built" drawings for their work at the Subcontractors expense as follows:
      a. One .pdf set

B. Record Drawings
   1. Maintain a white-print set (blue-line or black line) of Contract Drawings and shop drawings in clean, undamaged condition, with mark-up of actual installations which vary substantially from the work as originally shown. Mark whichever drawing is most capable of showing "field" condition fully and accurately; however, where shop drawings are used for mark-up, record a cross-reference at corresponding location on other colors to distinguish between variations in separate categories of work. Mark-

up new information which is recognized to be of importance to Owner, but was for some reason not shown on either Contract Drawings or shop drawings. Give particular attention to concealed work, which would be difficult to measure and record at a later date. Note related change-order numbers where applicable. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on cover of each set.

C. Maintenance Manuals

1. Organize maintenance and operating manual information into suitable sets of manageable size, and bind into individual binders properly identified and indexed (thumb-tabbed). Include emergency instructions, spare parts listing, copies of warranties, wiring diagrams, recommended "turn-around" cycles, inspection procedures, shop drawings, product data, and similar applicable information. Bind each manual of each set in a heavy-duty 2", 3-ring vinyl-covered binder, and include pocket folders for folded sheet information. Mark identification on both front and spine of each binder.

1.20 SUBSTANTIAL COMPLETION AND DATE OF COMPLETION

A. A contract shall be deemed to be "substantially complete" when all work has been satisfactorily completed except for "punch list" items and those of a minor nature which may be, at the present time, beyond the Contractor's control, or delayed in completion with the concurrence of the Owner or Architect.

B. Final certificate will be issued when punch list items of final inspection are complete, with the exception of items that cannot be completed at once through no fault of the Contractor, or when certain pieces of punch list work are held up at Owner's or Architects request. If such items are, in the opinion of the Architect, substantial in nature, an amount sufficient to cover the reasonable cost of their correction as determined by the Architect, may be withheld from payment due under the final certificate until they have been corrected and subsequently approved by the Architect.

1.21 FINAL CERTIFICATE OF OCCUPANCY

A. The Construction Manager, prior to and before turning the building over to the Owner, shall apply for, and obtain a Certificate of Occupancy.

B. All required inspections for Certification of Occupancy by governmental agency shall be the responsibility of the Construction Manager.

1.22 RIGHT OF OCCUPANCY

The Owner shall have the right to take possession of any portion of the project after the Certificate of Substantial Completion and Certificate of Occupancy by the local building officials have been issued.

1.23 CLEAN-UP

A. Periodic Cleaning - The Subcontractor shall at all times, during construction, keep the site free from the accumulation of waste materials and rubbish, resulting from their respective work. Removal of waste materials and rubbish must be done at least once a week.

B. Final Clean-Up

1. Upon completion of the project the Subcontractors shall clean the interior and exterior of the building, so all areas are ready for occupancy by the Owner without need for further cleaning.
2. Provide final cleaning of the work, at time indicated, consisting of cleaning each surface or unit of work to normal "clean" condition expected for a first-class building cleaning and maintenance program. Comply with manufacturer's instruction for cleaning operations. The following are examples, but not by way of limitation, of cleaning levels required:
   a. Remove labels which are not required as permanent labels.
   b. Clean transparent materials, including mirrors and window/door glass, to a polished condition, removing substances which are noticeable as vision-obscuring materials. Replace broken glass and damaged transparent materials.
   c. Clean exposed exterior and interior hard-surfaced finished, to a dirt-free condition, free of dust, stains, films and similar noticeable distracting substances. Except as otherwise indicated, avoid disturbance of natural weathering of exterior surfaces. Restore reflective surfaces to original reflective condition.
   d. Wipe surfaces of mechanical and electrical equipment clean.
   e. Remove debris and surface dust from limited-access spaces.
   f. Vacuum clean carpeted surfaces and similar soft surfaces.
   g. Clean plumbing fixtures to a sanitary condition, free of stains including those resulting from water exposure.
3. Clean kitchenette equipment to a condition of sanitation ready and acceptable for intended food service use.
   a. Clean light fixtures and lamps so as to function with full efficiency.
   b. Clean project site (yard and grounds), including landscape development areas, of litter and foreign substances. Sweep paved areas to a broom-clean condition; remove stains, petrochemical spills and other foreign deposits. Rake grounds which are neither planted nor paved, to a smooth, even textured surface.

C. Damaged Work - Any damages to building materials, finishes or equipment, shall be repaired or replaced by the Subcontractor to the satisfaction of the Architect without cost to the Owner.

1.24 UNLOADING AT SITE

A. Materials shall be unloaded at the site at the expense of the Contractor furnishing such materials, unless otherwise specified.

1.25 OBLIGATION OF CONTRACTOR

A. At the time of awarding contracts, each Contractor will be presumed to have inspected the site and to have read and to be thoroughly familiar with the Plans and Contract Documents (including all addenda). The failure or omission of any Contractor to receive or examine any form, instrument or document shall in no way relieve any Contractor from any obligation in respect of his contract.

1.26 ACCEPTANCE OF PRECEDING WORK

A. Before starting any operation the Prime Contractors shall examine work performed by others to which their work adjoins or is applied and shall report to the Architect any conditions that will prevent satisfactory accomplishment of their contract. Failure to notify the Architect in writing of deficiencies or fault in preceding work will constitute acceptance thereof and waive any claim of unsuitability.

1.27 SUB-SURFACE DATA

A. Sub-surface soil investigations have been made and results are incurred at the end of this section. Data shown is for general information of bidders and is not guaranteed. Bidders are expected to examine the site and record of investigations and then decide for themselves the character of the materials to be encountered.

END OF SECTION

SECTION 01300 - SUBMITTALS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Submit, to the Architect/Engineer for review, shop drawings, product data and samples required by the specification section.

1.02 SHOP DRAWINGS

A. Original drawings, prepared by Contractor, Subcontractor, supplier or distributor, which illustrate some portion of the work showing fabrication, layout, setting or erection details.
   1. Identify details by reference to sheet and detail numbers shown on shop drawings.
   2. Sheet size, multiple for 8-1/2 by 11 inches, not to exceed size of contract drawings when unfolded.
   3. Reproduction for Submittals: .pdf.
   4. Photographic reproductions of contract drawings will not be accepted as shop drawings and will be rejected.

1.03 PRODUCT DATA

A. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts and other standard descriptive data.
   1. Modify product data to delete information which is not applicable to project.
   2. Supplement standard to provide additional information applicable to project.
   3. Clearly mark each copy to identify applicable materials, products or models.
   4. Show dimensions and clearances required.
   5. Show performance characteristics and capacities.
   6. Show wiring or piping diagrams and controls.

1.04 SAMPLES

A. Physical examples to illustrate materials, equipment or workmanship, and to establish standards by which completed work is judged.
   1. Office samples to be of sufficient size and quantity to clearly illustrate:
      a. Functional characteristics of product or material, with related parts and method of attachment.
      b. Full range of color samples.
   2. Field Samples and Mock-Ups
      a. Erect at project site at location acceptable to Architect or Owner’s representative.
      b. Construct samples or mock-up complete, including work of all trades required in finish work.

1.05 CONTRACTOR RESPONSIBILITIES

A. Do not start, fabricate or install work requiring submittals until submittals meeting Contract Requirements have been returned to the Contractor.

B. Review, approve, stamp and sign shop drawings, product data and samples prior to

submission.

C. Verify
   1. Dimensions and Field measurements.
   2. Field construction criteria.
   3. Catalog numbers and other data.

D. Coordinate each submittal with requirements of Work and Contract Documents.

E. Contractor's responsibility for errors and omissions in submittals is not relieved by Construction Manager's or Architect/Engineer's review of submittals.

F. Contractor's responsibility for deviations in submittals from requirements of Contract Documents is not relieved by Construction Manager's or Architect/Engineer's review of submittals unless Architect/Engineer gives written acceptance of the specific deviations.

G. Notify Construction Manager and Architect/Engineer in writing, at time of submission of deviations in submittals from requirements of Contract Documents.

H. After Construction Manager and Architect/Engineer's review, Contractor is to distribute copies of submittals to parties requiring same for coordination of work.

I. Make required copies for distribution of shop drawings and product data that have been stamped and signed by the Architect/Engineer.

J. Shop drawings must be project specific and include coordination of other trades as well as interface with other items.

1.06 SUBMISSION REQUIREMENTS

A. Schedule submissions to allow 10 working days for review.

B. Submit one reproducible transparency and three bond prints of shop drawings.

C. Submit number of copies of product data that will be required for distribution plus two copies that will be retained by Construction Manager and Architect/Engineer.

D. Submit number of samples specified in each technical section.

E. Accompany submittal with transmittal letter, containing:
   1. Date.
   2. General Contractor’s project title and number.
   3. Architect/Engineer's project title and number.
   4. Contractor's name and address.
   5. Notification of deviations from Contract Documents.
   6. Additional pertinent data.

F. Submittals shall include:
   1. Date and revision dates.
   2. General Contractor’s project title and number.
   3. Architect/Engineer's project title and number.

4. The names of:
    a. Architect/Engineer.
    b. Contractor.
    c. Subcontractor.
    d. Supplier.
5. Identification of product.
6. Relation to adjacent structure or materials.
7. Field dimensions, clearly identified as such.
8. Technical Specification section number.
9. Applicable standards.
10. Two blank spaces, 4 x 4 inches, for the General Contractor and Architect/Engineer stamp.
11. Identification of deviations from Contract Documents.
12. Contractor's stamp, initialed or signed, certifying to review of submittal, verification of field measurements and compliance with Contract Documents.
    a. Submittals without Contractor's stamp will be returned without being reviewed.

G. Shop Drawing Submittal Cover Sheet
1. Attach submittal cover sheet, with all blanks filled in for each shop drawing, product data and sample.

1.07 RESUBMISSION REQUIREMENTS

A. Shop Drawings
1. Revise initial drawings as required and resubmit as specified for initial submittal.
2. Indicate on drawings changes which have been made other than those requested by the Architect/Engineer.

B. Product Data and Samples: Submit new data and samples as required for initial submittal.

1.08 CONTRACTOR'S DISTRIBUTION OF SUBMITTALS

A. Distribute copies of shop drawings and product data which carry the Construction Manager and Architect/Engineer stamp to:
1. Contractor's file.
2. Job site file.
3. Record Document file.
4. Other Contractors, as required for coordination.
5. Subcontractors, as required for coordination.
6. Supplier.
7. Fabricator.

B. Distribute samples as directed by Architect/Engineer.

1.09 ARCHITECT/ENGINEER

A. Review design concept of Project.

B. Review of separate items does not constitute review of an assembly in which item functions.

C. Stamp and initial or sign certifying to review of submittal.

D. Explanation of Architect/Engineer's Stamp
   1. NO EXCEPTION TAKEN: No corrections, no marks.
   2. FURNISH AS CORRECTED: Minor amount of corrections; all items can be fabricated at Contractor's risk without further correction; checking is complete and all corrections are obvious without ambiguity.
   3. REVISE AND RESUBMIT: Minor amount of corrections; noted items must not be fabricated without further correction; checking is not complete; details of items noted by checker are to be further clarified; items not noted to be corrected can be fabricated at Contractor's risk under this stamp.
   4. REJECTED: Drawings are rejected as not in accordance with the Contract, too many corrections or other justifiable reason. The drawing must be corrected and resubmitted. No items are to be fabricated under this stamp.
   5. SUBMIT SPECIFIED ITEM: Item is not as specified. Submit named manufacturer.
   6. FOR INFORMATION ONLY: Item is submitted only for information. The design is the responsibility of others.

E. Return submittals to General Contractor for distribution.

1.10 SUBMITTALS REQUIRED FOR REVIEW

A. Contractor is responsible for reviewing each section to determine required submittals.

1.11 CLOSEOUT SUBMITTALS

A. Upon completion of the Work of this Section, Contractor shall submit to the Architect/Owner, all required closeout documents.

B. Contractor shall submit a marked-up set of drawings indicating any changes made during construction to the Architect.

C. Upon completion, submit to the Architect, a Contractor's Affidavit of Payment of Debts and Claims, and Release of Liens.

D. Refer to General Conditions for additional requirements.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01410 - TESTING SERVICES

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

A. Inspections and testing required by laws, ordinances, rules, regulations or orders of public authorities: General Conditions.

B. Certifications of materials, products or equipment: Respective Specifications Sections.

C. Test of materials, adjust and balance of products or equipment: Respective Specification Sections.

D. Test and Standards: Each Specification Section.

1.2 EMPLOYMENT OF TESTING LABORATORY

A. Testing laboratory must demonstrate to the Owner/Architect/Engineers satisfaction, based on evaluation of laboratory submitted criteria conforming to ASTM C-1093, that it has experience and skills to satisfactorily conduct testing indicated without delaying the progress of the work.

B. The Owner will employ and pay for the services of an independent testing laboratory to perform the services specified on the Special Inspections Form; however, the Contractor shall reimburse the Owner for the cost of those services which, in the opinion of the Architect/Engineer (and Construction Manager), are required due to the following:
   1. Failure of materials or workmanship to meet contract requirements.
   2. Materials or practices, not complying with the Specifications which could possibly result in defective work thereby rendering it necessary or advisable to perform tests to determine whether or not work is acceptable.
   3. Changes in source, quality or characteristics of materials.
   4. Site cured cylinders requested by the Contractor.

C. The Contractor shall pay for all other testing specified herein.
   1. Work not meeting the required specified results shall be replaced by the installing contractor at no cost to the Owner.

1.3 PURPOSES

A. Service of a testing laboratory as specified in this section is intended for the Owner's verification of the Contractor's compliance with the requirements of the Contract Documents and shall in no way relieve the Contractor of his responsibility to provide his own inspection and quality control.

B. Services and quantities of testing as specified herein are approximate and may vary. Actual services and quantities of testing will be determined by the Owner and/or Architect during the construction period.

C. Locations for taking sample specimens for testing shall be as directed by the Architect.

1.4 SUBMITTALS

A. Submit three copies of the following:
1. Reports of all tests performed on soils, concrete, masonry, structural steel and paving.

PART 2 - TESTING AND INSPECTION FOR THIS PROJECT

2.1 EXISTING SUBGRADES

A. Field Verification:
1. Observe proofrolling operations.
2. Identify location and extent of soft, loose, or yielded subgrade material that must be removed or undercut.
3. Inspect undercut subgrade.

2.2 SOILS

A. Laboratory Tests:
1. Existing site material
a. Cohesive soils and semi-cohesive soils: Provide one optimum moisture-maximum density curve for each type of subgrade soil encountered in accordance with ASTM D-1557.
b. Non-Cohesive soils: Provide maximum and minimum index densities and relative densities for each type of subgrade soil encountered in accordance with ASTM D-4254.
2. Borrow materials: Analyze each type of borrow materials before acceptance and delivery to the site. Any change in the source or quality of the material will require a new series of tests to determine acceptability.
a. Particle size analysis of soils ASTM D-422, ASTM D-421, ASTM D-420, ASTM C-117 recommended practice.
b. Plasticity index determination ASTM D-4318.
c. Moisture-density curve determination ASTM D-1557 or relative density (ASTM D-4253 or ASTM D-4254) as specified above.
d. Frost susceptibility analysis.

B. Field Tests:
1. The Owner's soils testing agency representative shall be present during delivery and compaction of fill materials.
2. Establish suitable bearing grades for foundations and structural fill below foundations and slabs on grade.
3. Verify natural soil and structural fill subgrades for all foundations for a design bearing pressure of 1500 PSF.
4. In-place density tests: Test in accordance with ASTM D-1556 (sand cone method) or ASTM D-2922 (nuclear method) on compacted natural soils or structural fill materials as follows:
a. One test at each column foundation per 8" lift.
b. One test along wall foundations, at maximum 50 ft. intervals, per 8"

lift.

c. One test for each 2000 sq. ft. of slab on grade and pavement subgrade per 8" lift.

d. One test for each 200 cu. yd. of fill and backfill at exterior side of foundation walls and unpaved areas.

5. Verify and monitor all compaction operations and equipment.

6. Monitor all proof-rolling operations for foundation and slab on grade subgrades.

2.3 CONCRETE

A. Sampling:

1. Concrete samples shall be taken in accordance with ASTM C-172 "Sampling Fresh Concrete".
2. Inspection/Testing proposed materials.
3. Aggregate Analysis.
4. Conduct compression tests to verify that design mix complies with Contract Documents.

B. Formwork and Reinforcing:

1. Inspect formwork and reinforcing prior to placing of concrete.

C. Batching Inspection:

1. Inspect batching, mixing and delivery operations for compliances with the Specifications.

D. Compressions Tests:

1. Label each compression test cylinder identifying the truckload of concrete from which sample was taken and the exact location in construction where deposited.
2. Test specimens in accordance with ASTM C-39 "Methods of Tests for Compressive Strength of Molded Concrete Cylinders". Include weight test.
3. One compression test, as used herein shall consist of 3 test cylinders made from composite samples secured from a single truckload of concrete.

E. One compression test will be required for each of the following conditions:

1. Each 50 cu. yd. of concrete or fraction thereof.
2. Each class of concrete placed in one day.

F. Slump Tests:

1. Slump test shall be made in accordance with ASTM C-143 "Methods for Slump of Portland Cement Concrete".
2. Test Slump of concrete at same frequency and from same truckload as compression tests and more often when directed by the Owner's representative.

G. Air Content Tests:

1. Determine air content by ASTM C-231 "Method of Test for Air Content of Freshly Mixed Concrete by the Volumetric Method".

2. Determine air content at same frequency and from same truckload as for compression tests.

2.4 STRUCTURAL STEEL

A. Shop Testing and Inspection:
1. Verify and monitor all welder qualifications, welding procedures and welding processes.
2. Monitor fabrication operations.
3. Review all mill reports.
4. Visually inspect and measure weld profiles, at random, prior to application of paint.
5. Review Shop Quality Control Manual and Procedures with shop foreman.

B. Field Testing and Inspection:
1. Visual inspection:
   a. Verify and monitor welder qualifications and welding processes.
   b. Inspect field erection of structural elements.
   c. Inspect field bolting operations.
   d. Inspect field welding operations.
   e. Inspect anchor bolt installation and tightening.
2. High Strength Bolted Connections
   a. Test all bolted connections for conformance with the AISC "Specification for Structural Joints using ASTM A325 or A490 Bolts", 2000 edition.
3. Magnetic Particle Testing
   a. Test 5% of field fillet welds, at random, final pass only for conformance with ASTM E109.
4. Ultrasonic Testing
   a. Test 100% of all field partial and full penetration welds, at random, for conformance with ASTM E164 and AWS D1.1.

2.5 UNIT MASONRY

A. Concrete masonry units: Test each type, class and grade per ASTMC140.

B. Inspect rebar reinforcing, joint reinforcing, ties and anchors for general compliance with the Contract Documents.

C. Mortar: Test one set of three cubes per ASTM C780 for each days work or every 5000 sq. ft. of wall area, whichever is the lesser.

D. Grout: Test on set of three compression test cylinders per ASTM C-1019 for each days work or every 25 cu. yds., whichever is the lesser.

E. Masonry Prisms:
1. Prism tests shall be performed for the purpose of checking the compressive strength of each masonry assembly, including grouted cells but excluding reinforced cells and face brick.

2. Test one set of three prisms per ASTM E447, Method B, for each 5000 sq. ft. of each type of wall construction or a minimum of three sets for the project, whichever provides the greater number of sets.

PART 3 - CONTRACTOR'S RESPONSIBILITIES

3.1 COOPERATION AND ACCESS

A. Cooperate with laboratory personnel and provide access to the work and to manufacturers. Fabricator's facilities as required for the performance of their services.

3.2 CASUAL LABOR AND FACILITIES

Provide Casual Labor and Facilities:

A. To provide access to the work to be inspected or tested.

B. To obtain and handle samples at the site.

C. To facilitate inspections and tests.

D. To construct a storage box on the site of sufficient size to store cylinders which will afford protection required by ASTM C-31.

3.3 SAMPLES

A. Provide the laboratory with preliminary representative samples of materials to be tested, in requested quantities.

B. When the source, quality or characteristic of an approved material changes or indicates lack of compliance with contract requirements, submit additional samples of materials to testing laboratory.

3.4 MISCELLANEOUS REPORTS, LISTS, ETC.

A. When requested by the Architect/Engineer, or the testing laboratory, the Contractor shall immediately provide copies of mill reports, cutting lists, material bills, shipping bills, time and place of shipment of materials to shop and field and any relevant data on previous testing and investigations of materials.

3.5 NOTIFICATION

A. To facilitate the timely sequence of inspection and testing, the Contractor shall give advanced notification to the testing laboratory and the Architect/Engineer (and Construction Manager) that work has progressed to a point where inspection and testing may proceed.

B. Advanced notification, shall be 48 hours (min.) prior to commencement of the following:

1. Site Preparation
   a. Excavation for foundations and slab on grade.
   b. Proof-rolling of foundation and slab on grade subgrade.
2. Soil Compaction:
   a. Delivery of fill to the site.
   b. Placement and compaction of fill or backfill.
3. Concrete:
   a. Setting of reinforcing and formwork.
   b. Placing concrete.
4. Masonry:
   a. Delivery of masonry units.
   b. Setting of reinforcement.
   c. Installation of mortar, grout and masonry units.
5. Structural Steel:
   a. Shop fabrication.
   b. Delivery.
   c. Erection.
   d. Alignment and leveling of structure.
   e. Welding and bolting of connections.

3.6 CONTRACTOR'S QUALITY CONTROL

A. It is the Contractor's responsibility to provide his own inspection and testing so as to comply with the Contract Documents.

B. Services of testing laboratory retained by the Owner is for verification of Contractor's compliance and if such tests of inspection indicates failure to comply with the Contract Documents, the Contractor shall bear all cost associated with additional testing and inspection, after the work has been corrected, to verify compliance.

3.7 PATCHING

Areas where samples are taken for purposes of testing shall be patched to the satisfaction of the Architect.

END OF SECTION

Statement of Special Inspections

Project: *Bryant and Stratton Collage*

Location: *1320 Warwick Way, Mt. Pleasant, WI 53406*

Owner: *Bryant and Stratton Collage*

Design Professional in Responsible Charge: *Mark Glynn (Glynn Geotechnical Engineering)*

This *Statement of Special Inspections* is submitted as a condition for permit issuance in accordance with the Special Inspection and Structural Testing requirements of the Building Code. It includes a schedule of Special Inspection services applicable to this project as well as the name of the Special Inspection Coordinator and the identity of other approved agencies to be retained for conducting these inspections and tests. This *Statement of Special Inspections* encompass the following disciplines:

☒ Structural ☐ Mechanical/Electrical/Plumbing

☐ Architectural ☐ Other: _____

The Special Inspection Coordinator shall keep records of all inspections and shall furnish inspection reports to the Building Official and the Registered Design Professional in Responsible Charge. Discovered discrepancies shall be brought to the immediate attention of the Contractor for correction. If such discrepancies are not corrected, the discrepancies shall be brought to the attention of the Building Official and the Registered Design Professional in Responsible Charge. The Special Inspection program does not relieve the Contractor of his or her responsibilities.

Interim reports shall be submitted to the Building Official and the Registered Design Professional in Responsible Charge.

A *Final Report of Special Inspections* documenting completion of all required Special Inspections, testing and correction of any discrepancies noted in the inspections shall be submitted prior to issuance of a Certificate of Use and Occupancy.

Job site safety and means and methods of construction are solely the responsibility of the Contractor.

Interim Report Frequency: *Bi-weekly* or ☐ per *attached* schedule.

Prepared by:

Mark Glynn
(type or print name)

8/24/17
Signature Date

Design Professional Seal

Owner's Authorization:

Signature Date

Building Official's Acceptance:

Signature Date

Schedule of Inspection and Testing Agencies

This Statement of Special Inspections / Quality Assurance Plan includes the following building systems:

- ☒ Soils and Foundations
- ☒ Cast-in-Place Concrete
- ☐ Precast Concrete
- ☒ Masonry
- ☒ Structural Steel
- ☐ Cold-Formed Steel Framing
- ☐ Spray Fire Resistant Material
- ☐ Wood Construction
- ☐ Exterior Insulation and Finish System
- ☐ Mechanical & Electrical Systems
- ☐ Architectural Systems
- ☐ Special Cases

Special Inspection Agencies	Firm	Address, Telephone, e-mail
1. **Special Inspection Coordinator**		
2. Inspector		
3. Inspector		
4. Testing Agency		
5. Mechanical Engineer		
6.		

Note: The inspectors and testing agencies shall be engaged by the Owner or the Owner's Agent, and not by the Contractor or Subcontractor whose work is to be inspected or tested. Any conflict of interest must be disclosed to the Building Official, prior to commencing work.

Quality Assurance Plan

Quality Assurance for Seismic Resistance

Seismic Design Category	*B*
Quality Assurance Plan Required (Y/N)	*N*

Description of seismic force resisting system and designated seismic systems:

Quality Assurance for Wind Requirements

Basic Wind Speed (3 second gust)	*105*
Wind Exposure Category	*B*
Quality Assurance Plan Required (Y/N)	*N*

Description of wind force resisting system and designated wind resisting components:

Statement of Responsibility

Each contractor responsible for the construction or fabrication of a system or component designated above must submit a Statement of Responsibility.

Qualifications of Inspectors and Testing Technicians

The qualifications of all personnel performing Special Inspection and testing activities are subject to the approval of the Building Official. The credentials of all Inspectors and testing technicians shall be provided if requested.

Key for Minimum Qualifications of Inspection Agents:

When the Registered Design Professional in Responsible Charge deems it appropriate that the individual performing a stipulated test or inspection have a specific certification or license as indicated below, such designation shall appear below the *Agency Number* on the Schedule.

PE/SE	Structural Engineer – a licensed SE or PE specializing in the design of building structures
PE	Professional Engineer – oversees all special inspections and reviews all reports.

American Concrete Institute (ACI) Certification

ACI-CFTT	Concrete Field Testing Technician – Grade 1
ACI-CCI	Concrete Construction Inspector
ACI-LTT	Laboratory Testing Technician – Grade 1&2
ACI-STT	Strength Testing Technician

American Welding Society (AWS) Certification

AWS-CWI	Certified Welding Inspector
AWS/AISC-SSI	Certified Structural Steel Inspector

American Society of Non-Destructive Testing (ASNT) Certification

ASNT	Non-Destructive Testing Technician – Level II or III.

International Code Council (ICC) Certification

ICC-SMSI	Structural Masonry Special Inspector
ICC-SWSI	Structural Steel and Welding Special Inspector
ICC-SFSI	Spray-Applied Fireproofing Special Inspector
ICC-PCSI	Prestressed Concrete Special Inspector
ICC-RCSI	Reinforced Concrete Special Inspector

National Institute for Certification in Engineering Technologies (NICET)

NICET-CT	Concrete Technician – Levels I, II, III & IV
NICET-ST	Soils Technician - Levels I, II, III & IV
NICET-GET	Geotechnical Engineering Technician - Levels I, II, III & IV

Exterior Design Institute (EDI) Certification

EDI-EIFS	EIFS Third Party Inspector

Other

_____

Soils and Foundations

Item	Agency # (Qualif.)	Scope
1. Shallow Foundations	*PE/GE*	*Inspect soils below footings for adequate bearing capacity and consistency with geotechnical report.* *Inspect removal of unsuitable material and preparation of subgrade prior to placement of controlled fill*
2. Controlled Structural Fill	*PE/GE*	*Perform sieve tests (ASTM D422 & D1140) and modified Proctor tests (ASTM D1557) of each source of fill material.* *Inspect placement, lift thickness and compaction of controlled fill.* *Test density of each lift of fill by nuclear methods (ASTM D2922)* *Verify extent and slope of fill placement.*
3. Deep Foundations		*NA*
4. Load Testing		*NA*
4. Other:		

Cast-in-Place Concrete

Item	Agency # (Qualif.)	Scope
1. Mix Design	*ACI-CCI ICC-RCSI*	*Review concrete batch tickets and verify compliance with approved mix design. Verify that water added at the site does not exceed that allowed by the mix design.*
2. Material Certification		
3. Reinforcement Installation	*ACI-CCI ICC-RCSI*	*Inspect size, spacing, cover, positioning and grade of reinforcing steel. Verify that reinforcing bars are free of form oil or other deleterious materials. Inspect bar laps and mechanical splices. Verify that bars are adequately tied and supported on chairs or bolsters*
4. Post-Tensioning Operations		*NA*
5. Welding of Reinforcing	*AWS-CWI*	*Visually inspect all reinforcing steel welds. Verify weldability of reinforcing steel. Inspect preheating of steel when required.*
6. Anchor Rods	*ACI-CCI*	*Inspect size, positioning and embedment of anchor rods. Inspect concrete placement and consolidation around anchors.*
7. Concrete Placement	*ACI-CCI ICC-RCSI*	*Inspect placement of concrete. Verify that concrete conveyance and depositing avoids segregation or contamination. Verify that concrete is properly consolidated.*
8. Sampling and Testing of Concrete	*ACI-CFTT ACI-STT*	*Test concrete compressive strength (ASTM C31 & C39), slump (ASTM C143), air-content (ASTM C231 or C173) and temperature (ASTM C1064).*
9. Curing and Protection	*ACI-CCI ICC-RCSI*	*Inspect curing, cold weather protection and hot weather protection procedures.*
10. Other:		

Masonry

Required Inspection Level: ☒ 1 ☐ 2

Item	Agency # (Qualif.)	Scope
1. Material Certification	*ICC-SMSI*	*Provide certificates of compliance with project specifications and general notes on page S001*
2. Mixing of Mortar and Grout	*ICC-SMSI*	*Inspect proportioning, mixing and retempering of mortar and grout.*
3. Installation of Masonry	*ICC-SMSI*	*Inspect size, layout, bonding and placement of masonry units.*
4. Mortar Joints	*ICC-SMSI*	*Inspect construction of mortar joints including tooling and filling of head joints.*
5. Reinforcement Installation	*ICC-SMSI* *AWS-CWI*	*Inspect placement, positioning and lapping of reinforcing steel.* *Inspect welding of reinforcing steel.*
6. Prestressed Masonry		*NA*
7. Grouting Operations	*ICC-SMSI*	*Inspect placement and consolidation of grout. Inspect masonry clean-outs for high-lift grouting.*
7. Weather Protection	*ICC-SMSI*	*Inspect cold weather protection and hot weather protection procedures. Verify that wall cavities are protected against precipitation.*
9. Evaluation of Masonry Strength	*ICC-SMSI*	*Test compressive strength of mortar and grout cube samples (ASTM C780).* *Test compressive strength of masonry prisms (ASTM C1314).*
10. Anchors and Ties	*ICC-SMSI*	*Inspect size, location, spacing and embedment of dowels, anchors and ties.*
11. Other:		

Structural Steel

Item	Agency # (Qualif.)	Scope
1. Fabricator Certification/ Quality Control Procedures ☐ Fabricator Exempt	*AWS/AISC-SSI* *ICC-SWSI*	*Review shop fabrication and quality control procedures.*
2. Material Certification	*AWS/AISC-SSI* *ICC-SWSI*	*Review certified mill test reports and identification markings on wide-flange shapes, high-strength bolts, nuts and welding electrodes*
3. Open Web Steel Joists		*NA.*
4. Bolting	*AWS/AISC-SSI* *ICC-SWSI*	*Inspect installation and tightening of high-strength bolts. Verify that splines have separated from tension control bolts. Verify proper tightening sequence. Continuous inspection of bolts in slip-critical connections.*
5. Welding	*AWS-CWI* *ASNT*	*Visually inspect all welds. Inspect pre-heat, post-heat and surface preparation between passes. Verify size and length of fillet welds.* *Ultrasonic testing of all full-penetration welds.*
6. Shear Connectors		*NA*
7. Structural Details	*PE/SE*	*Inspect steel frame for compliance with structural drawings, including bracing, member configuration and connection details.*
8. Metal Deck	*AWS-CWI*	*Inspect welding and side-lap fastening of metal roof and floor deck.*
9. Other:		

SECTION 01700 - PROJECT CLOSEOUT

PART 1 - GENERAL

1.01 DESCRIPTION

A. Related Requirements Specified Elsewhere
   1. Project Record Documents: Section 01720.
   2. Closeout Submittals Required of Trades: The respective sections of specifications.

1.02 SUBSTANTIAL COMPLETION

A. Contractor
   1. Submit written notice to Architect/Engineer that Project, or designated portion of Project, is Substantially Complete.
   2. Submit list of major items to be completed or corrected.

1.03 INSPECTION

A. Contractor shall submit written certification that:
   1. Contract Documents have been reviewed.
   2. Project is completed and is in compliance with Contract Documents.
   3. Equipment and systems have been tested in presence of Owner's Representative and are operational.

B. The Architect/Engineer will make final inspection within seven days after receipt of certification.

C. Should the Architect/Engineer consider that Work is finally complete in accordance with requirements of Contract Documents, he shall request Contractor to make Project Closeout submittals.

1.04 CLOSEOUT SUBMITTALS

A. Upon completion of the Work of this Section, Contractor shall submit to the Architect/Engineer, all required closeout documents.

B. Contractor shall submit a marked-up set of drawings indicating any changes made during construction to the Architect/Engineer.

C. Upon completion, submit to the Architect/Engineer, a Contractor's Affidavit of Payment of Debts and Claims, and Release of Liens.

D. Refer to General Conditions for additional requirements.

1.05 INSTRUCTION OF OWNER'S REPRESENTATIVE

A. Before final acceptance, thoroughly instruct a designated representative of the Owner in the proper operation of all systems and apparatus installed under this contract.

B. The Contractor shall prepare and forward to the Architect/Engineer at the completion of the

job three brochures, each neatly bound, of the following items.

1. Typed or printed instructions covering the care and operation of mechanical and electrical equipment furnished and installed under this Contract.
2. Manufacturer's instruction books, diagrams, and spare parts lists covering all equipment.
3. All approved shop drawings.
4. Air and water systems balancing reports.
5. Certificates of compliance and inspection.

C. Each brochure shall be a hard cover, three-ring binder or binders.

1.06 EVIDENCE OF PAYMENTS AND RELEASE OF LIENS

A. Contractor's Affidavit of Payment of Debts and Claims: AIA G706.

B. Contractor's Affidavit of Release of Liens: AIA G706A, with:
1. Consent of Surety to Final Payment: AIA G707.
2. Separate written releases of waivers of liens for subcontractors, suppliers, and others with lien rights against property of Owner, together with list of those parties.
3. Contractor's written release or waiver of lien upon payment to the Contractor pursuant to New York State Lien Law.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01720 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Related Requirements Specified Elsewhere
   1. Shop Drawings, Product Data and Samples: Section 01300.

1.02 MAINTENANCE OF DOCUMENTS

A. Maintain, at job site, one copy of:
   1. Contract Drawings
   2. Project Manual
   3. Addenda
   4. Approved Shop Drawings, Product Data, and Samples
   5. Supplemental Instructions
   6. Other Modifications to Contract
   7. Field Test Records
   8. Correspondence File

B. Store documents in approved locations, apart from documents used for construction.

C. Provide files and racks for storage of documents.

D. Maintain documents in clean, dry, legible conditions.

E. Do not use record documents for construction purposes.

F. Make documents available at all times for inspection by Construction Manager, Architect/Engineer, and Owner.

G. File documents in accordance with Table of Contents of Project Manual.

1.03 MARKING DEVICES

A. Provide felt marking pen for marking, conforming to following color code:
   1. Red for general construction work.
   2. Blue for plumbing work.
   3. Green for heating, ventilating work.
   4. Brown for electrical work.
   5. Black for other written notations.
   6. Orange for sitework.

1.04 RECORDING

A. Label each document "PROJECT RECORD" in 2 inch high printed letters.

B. Keep record documents current.

C. Do not permanently conceal any work until required information has been recorded.

D. Contract Drawings
   1. Legibly mark to record actual construction:
      a. Depths of various elements of foundation in relation to the finish floor.
      b. Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.
      c. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
      d. Field changes of dimension and detail.
      e. Changes made by Supplemental Instructions or Change Order.
      f. Details not on original Contract Drawings as directed by the General Contractor.

E. Specifications and Addenda
   1. Legibly mark-up each section to record:
      a. Manufacturer, trade name, catalog number and supplier of each product and item of equipment actually installed.
      b. Changes made by Supplemental Instructions or Change Order.
      c. Other matters not originally specified.

F. Shop Drawings, Product Data and Samples: Maintain as record documents. Legibly mark-up approved submittals to show changes made after review.

1.05 SUBMITTAL

A. At completion of project or your portion of work, deliver record documents to General Contractor.

B. Accompany submittal with transmittal letter, in duplicate containing:
   1. Date
   2. Project title and number
   3. Contractor's name and address
   4. Title and number of each record document
   5. Certification that each document as submitted is complete and accurate
   6. Signature of Contractor, or his authorized representative.

1.06 CLOSEOUT SUBMITTALS

A. Upon completion of the Work of this Section, Contractor shall submit to the Architect/Engineer, all required closeout documents.

B. Contractor shall submit a marked-up set of drawings indicating any changes made during construction to the Architect/Engineer.

C. Upon completion, submit to the Architect/Engineer, a Contractor's Affidavit of Payment of Debts and Claims, and Release of Liens.

D. Refer to General Conditions for additional requirements.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01730 - OPERATIONS AND MAINTENANCE DATA

1.0 GENERAL

1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

A. Shop Drawings, Product Data and Samples: Section 01300.

B. Maintenance Manuals for mechanical and electrical work: Refer to the Drawings.

1.2 DESCRIPTION

A. Manuals: Purpose
1. Operation and maintenance manuals will be used for training of, and use by, Owner's personnel in operation and maintenance of mechanical and electrical systems and equipment. A separate manual or chapter within a manual shall be prepared for each class of equipment or system.
2. For additional requirements refer to various specification sections.

B. Required: Manuals are required for all systems and equipment.

C. Contents: Each manual or chapter shall include:
1. Table of contents.
2. Description of system or equipment.
3. Operating sequence and procedures
4. Safety instructions
5. Maintenance instructions and requirements, including preventative and corrective maintenance.
6. Spare parts list.

D. Shop Drawings: Each manual shall be accompanied by shop drawings of the system or equipment as installed.

E. Copies
1. Submit three (3) copies of manuals to Architect for review.
2. After Architect's review, he will submit two (2) copies of manuals to Owner for review and acceptance prior to final payment.

F. Instructions of Owner's Personnel
1. Fully instruct Owner's designated operating and maintenance personnel in operating, adjustments and maintenance of all mechanical and electrical systems and equipment as required by respective and pertinent sections, after all final inspection, tests and repairs have been completed.
2. Operating and maintenance manuals shall constitute the basis of instructions. Contents of manual shall be reviewed in full detail, explaining all aspects of operations and maintenance.
3. Prepare and include additional data when need for such data becomes apparent during instruction and training sessions.
4. Training sessions shall be jointly arranged with Owner during Contractor's normal week and daily hours. The Owner shall have the responsibility of scheduling its shift work personnel accordingly.
5. Owner and Contractor shall coordinate and cooperate to keep training sessions to

a reasonable minimum.

1.3 INSTRUCTIONS FOR MAINTENANCE OF SURFACES

A. Purpose: To instruct Owner's maintenance personnel in proper methods and materials to use in the proper care of all exposed surfaces.

B. Content
1. Recommended cleaning materials.
2. Recommended preventative maintenance.
3. Recommended methods and procedures.

C. Copies
1. Submit three (3) copies of Instructions for Maintenance to Architect for review.
2. After Architect's review, he will submit two (2) copies of Instructions for Maintenance to Owner for review and acceptance prior to final payment.

2.0 PRODUCTS - NOT USED

3.0 EXECUTION - NOT USED

END OF SECTION

SECTION 01750 - WARRANTIES

1.0 GENERAL

1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

A. Operation and Maintenance Data: Section 01730

1.2 DESCRIPTION

A. Warranties shall include
   1. One (1) year warranty as required by General Conditions.
   2. Extended warranties required by various specification sections.

B. Submit warranties to Architect for his review.

C. After Architect's review, he will submit warranties to Owner for review and acceptance, prior to final payment.

2.0 PRODUCTS - NOT USED

3.0 EXECUTION - NOT USED

END OF SECTION

SECTION 02050 DEMOLITION

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 section.

1.2 SUMMARY:

A. Extent of demolition is indicated on drawings and in provisions of this section.

B. Execute removals, extractions, demolition or portions of existing building(s) required for renovation work as indicated on drawings.

C. Erect temporary dust barriers, temporary fire rated barriers, protection barriers, as specified and/or as required for proper execution of work.

D. Remove demolition debris from site.

1.3 QUALITY ASSURANCE:

A. Regulatory Agencies: Conform to applicable regulations, codes, statutes of agencies having jurisdiction over work and transportation incidental thereto. Include but do not limit to following:
   1. State Department of Labor.
   2. State Department of Health.
   3. OSHA.

1.4 PROTECTION:

A. Erect barriers, fences, guard rails, enclosures and shoring to protect personnel, structure and utilities.

B. Protect designated trees and shrubs from damage.

1.5 SHORING AND BRACING SYSTEM:

A. General: Engineer, design, fabricate and erect shoring and bracing system to protect existing buildings, streets, walkways, utilities, and other improvements and excavation against loss of ground, caving embankments or collapse. Design system to withstand loads from winds, gravity, structural movement including movement thermally induced and to resist in-service use conditions that the building will experience including exposure to the weather without failure.

1.6 SUBMITTALS:

A. Professional engineer's certificate prepared and signed by a Professional Engineer, legally authorized to practice in the State, verifying that the shoring and bracing system meets applicable loading requirements and codes of authorities having jurisdiction.

1. Calculations: Submit calculations stamped by a professional engineer registered in the State for the design of the shoring and bracing system.
2. Layout Drawings: Provide layout drawings for shoring and bracing system and other data prepared and stamped by a professional engineer registered in the State for the structural design of the shoring and bracing system.

PART 2 – PRODUCTS

Not Used

PART 3 - EXECUTION

3.1 INSPECTION:

A. Verify that demolition indicated on drawings can be accomplished without damage to remaining portions of building(s) or other improvements indicated to remain.

B. Report to Architect any conditions in building or environs appearing to prevent demolition conforming to these specifications.

C. Do not proceed with execution until unsatisfactory conditions are corrected.

3.2 PREPARATION:

A. Prior to Start and During Execution of Demolition Work:
1. Protect adjacent buildings and property against damage which might occur from falling debris or other causes.
2. Provide protection against damage to existing roof areas on portions of buildings below and/or adjacent to areas where demolition work is required. Assume responsibility for satisfactory repair to existing roof areas damaged by reason of work under this section, without additional cost to Owner.
3. Take precautions against movement or settlement of buildings. Provide, place bearing or shoring necessary or proper in connection therewith. Be responsible for safety, support of such buildings. Be liable for any such movement or settlement, any damage or injury caused thereby or resulting therefrom. If at any time safety of buildings appears to be endangered, cease operation. Notify Architect. If Architect considers additional bracing, or shoring necessary to safeguard, prevent such movement or settlement, install bracing or shoring upon Architect's order. If contractor fails to comply promptly with such order, bracing and shoring may be placed by Architect at contractor's expense.
4. During demolition operations, install dust barriers as required to prevent infiltration of dust to parts of building not effected by demolition work.
5. At existing interior areas of building requiring renovation and at transitions between existing and new construction, erect a temporary one-hour wall constructed between work area(s) and the remainder of functioning area(s).
    a. Any openings required in these walls shall have a solid core wood door with positive latching and closer hardware.
    b. Hold-open devices and/or wedges to hold door open will not be permitted.
6. In areas where existing structures and chimney are indicated to be demolished, provide protection of adjacent structures, erect barricades, establish zones of demolition and any additional precautions necessary in accordance with requirements set forth in the State Department of Labor Rules and Regulations.
    a. Conform to Section No. 23-3.2 "General Requirements, Industrial Code Rule 23, for Preparations Required Prior to Demolition of Existing Structures".

7. Where existing materials are removed from scheduled openings in exterior walls, provide necessary protection for such openings as required for security and to prevent infiltration caused by inclement weather.

3.3 DEMOLITION:

A. Condition of Premises: Accept premises as found; perform demolition work indicated. Owner assumes no responsibility for condition of existing building(s) at site nor continuation of condition existing at time of proposal invitation or thereafter.

B. Materials forming permanent part of building requiring demolition become contractor's property and shall be removed from site unless scheduled to be relocated or reinstalled. Sale of salvaged material at site will not be allowed.

C. Demolish walls and slabs in small sections, remove, lower carefully, structural steel, metal framing or other structural members.

D. Where removal of existing bearing walls affects bearing of structures or concrete slabs above, install new beam or other support of sufficient size to carry load previously imposed on wall.

E. Repair damage done to Owner's property or any other person or persons on or off premises by reason of required work without additional cost to Owner.

F. With exception of structures required to be demolished, any utility line, cable or pipe damaged during demolition shall be repaired and left in complete working condition. Plug or cap any lines no longer required. Work on damaged utilities shall be done by skilled workmen.
   1. All utility lines, in and beneath existing concrete floor slab to be removed shall remain intact and new slab poured over.
   2. All utility lines in existing walls being removed shall be relocated to new partitions and remain in service. Appropriate trade shall relocate at no additional cost to Owner.

G. Carefully extract items of equipment scheduled to be retained by Owner and store where directed by Owner.

H. Examine contract documents carefully for requirements indicating various existing building materials forming parts of building scheduled for demolition that shall be relocated, reinstalled or reused in work required on this project. It is imperative that contractor exercise caution during demolition operations to retain said material intact and to salvage and carefully store materials as required for reuse.

I. Work involving use of noise producing tools and machinery (air hammer, power tools, and any other similar item) shall be coordinated with Owner before proceeding with work.

J. Any blasting work to be performed shall be coordinated with Owner before proceeding with work.

K. Where existing structures are required to be demolished, execute removal of materials by picking method. Do not permit structures to be demolished by collapsing or swing ball methods.

3.4 SPECIAL REQUIREMENTS:

A. Do not block or interfere with designated access to building for emergency vehicles and/or personnel.

B. Do not interfere with designated ingress and egress to existing building(s) required to function normally day to day.

C. Do not interfere with use of designated existing parking lots.

D. Where cranes and/or similar equipment are employed on project, it will be required that operations be licensed as required by governing laws of State of Wisconsin.

3.5 CLEANING:

A. Remove excess debris as it accumulates from demolition operations. Do not store or permit debris to accumulate on site.

B. Transport demolition debris to lawful off-site disposal area.

END OF SECTION

SECTION 02110 CLEARING AND GRUBBING

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 section.

1.2 SUMMARY: Extent of clearing and grubbing is indicated on drawings and in provisions of this section.

1.3 RELATED WORK SPECIFIED ELSEWHERE:

A. DEMOLITION - Section 02050

B. EXCAVATING, FILLING AND GRADING - Section 02210

1.4 REGULATORY AGENCIES: Conform with applicable requirements of local, state and federal codes and regulations.

1.5 PROTECTION:

A. Conduct clearing and grubbing operations in manner avoiding damage to trees, shrubs, fences and incidental structures within contract limits indicated for preservation.

B. Install protective measures such as fencing, barricades, wrapping or other devices required by Architect.

C. Prune tree branches indicated by Architect for removal. Make cuts clean, free from splinters, as close as possible to parent branch or trunk without removing or damaging branch collar.

D. Route all site traffic away from ground surfaces beneath crowns of existing trees indicated for preservation.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

3.1 INSPECTION:

A. Verify that preceding work affecting work under this section has been satisfactorily completed.

B. Verify that limits of clearing and grubbing and features within limits indicated for preservation have been clearly marked.

C. Do not proceed with execution until unsatisfactory conditions are corrected.

3.2 CLEARING:

A. Limit of Clearing:
   1. As indicated on drawings.

B. Remove trees, shrubs, saplings, vines and undergrowth as indicated.

C. Cut stumps that do not require removal flush with adjacent ground surface. When stumps will be covered with 12 or more inches of fill, cutting is not required.

3.3 GRUBBING:

A. Limit of Grubbing:
   1. As indicated on drawings.

B. Remove stumps, roots, 4 or more inches in diameter, and matted roots within grubbing limits to depths below subgrade of following improvements, as listed:
   1. Walks: 12 inches.
   2. Roads: 18 inches.
   3. Parking areas: 12 inches.
   4. Lawn & planting areas: 8 inches.
   5. Fills: 12 inches

3.4 DISPOSAL:

A. Remove debris resulting from clearing and grubbing operations daily.

B. If Contractor elects to continue work beyond normal working hours, do not allow debris to accumulate for more than 48 hours.

C. Dispose of debris in lawful manner.

D. No burning of debris on site will be permitted.

3.5 CLEAN UP:

A. Remove signs, barriers and other protective devices and equipment from project site.

END OF SECTION

SECTION 02210 EXCAVATING, FILLING AND GRADING

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 section.

1.2 SUMMARY: Extent of excavating, filling and grading Is Indicated on drawings and In provisions of this section.

1.3 RELATED WORK SPECIFIED ELSEWHERE:

A. DEMOLITION- Section 02050

B. CLEARING AND GRUBBING-Section 02110

1.4 QUALITY ASSURANCE:

A. Testing Agency: Independent or Government testing laboratory approved by Architect.
   1. Costs of testing subgrade bearing capacity and initial tests for density and moisture-density relations of fill materials will be borne by Owner.
   2. Costs of testing gradation of fill materials shall be borne by Contractor.
   3. Costs of testing for density and moisture-density relations of fill materials falling to comply with requirements of this section during initial testing shall be borne by Contractor.

B. Reference Standards: Latest edition of standards, specifications and codes referred to below, including addenda, revisions and supplements thereto, govern work under this section:
   1. American Society for Testing and Materials (ASTM):
      a. ASTM C-136, sieve or screen analysis of fine and coarse aggregate.
      b. ASTM D-1557, moisture-density relations of soils and soil-aggregate mixtures using 10 pound rammer and 18 inch drop.

C. Regulatory Agencies: Conform to applicable requirements of local, state and federal codes and regulations.

D. Allowable Tolerances:
   1. Completed subgrade: Elevation indicated on drawings, plus tolerance 1 inch, minus tolerance 1 inch.
   2. Moisture content of fill materials: Optimum compaction content ASTM D-1557, plus tolerance 2%, minus tolerance 2%.

1.5 SUBMITTALS:

A. Samples: Provide samples of fill materials for testing.

B. Test Reports:
   1. Gradation of fill materials: ASTM C-136.

2. Density and moisture-density relation of fill materials, compacted in place, failing to comply with requirements of this section during initial testing.

1.6 ENVIRONMENTAL REQUIREMENTS:

A. Provide dewatering and drainage as required to accomplish work under this section.

B. Do not place frozen fill material.

C. Do not place fill on saturated or frozen subgrade.

1.7 PROTECTION:

A. Erect sheeting, shoring, bracing, signs and barriers necessary for protection of persons, property and excavations.

B. Direct vehicular traffic away from subgrades or compacted fill areas evidencing adverse effects from passage of such traffic.

PART 2 - PRODUCTS

2.1 MATERIALS:

A. Type I Fill:
1. Hard durable materials and soil binder, free from clay, highly organic soil - ASTM D-2487PT, topsoil, organic matter, trash, debris or other deleterious materials.
2. Material excavated on site conforming to above requirements, if approved by Architect.

B. Type II Fill:
1. Bank-run gravel conforming to requirements of Type I Fill.
2. Gradation, ASTM C-136:
   a. 100% passing screen having nominal square opening size of 3 inches.
   b. Not less than 90% passing 2 inch sieve.
   c. Not less than 30% nor more than 65% passing 1/4 inch sieve.
   d. Not less than 5% nor more than 40% passing No. 40 Sieve.
   e. Not more than 10% passing No. 200 Sieve.

C. Type III Fill: crushed stone, gravel, slag or screened gravel. Size indicated on drawings.

D. Silt Fence Fabric: "EconoFence" by Webtec, Charlotte, NC; Silt fence with belt by Mirafi, Charlotte, NC; "Silt Fence III" by American Engineering Fabrics, New Bedford, MA; or equivalent.

E. Silt Fence Posts:
1. Wood: Sound hardwood, minimum cross-sectional area of three (3) square inches.

F. Geotextile: Mirafi 500X, as manufactured by Mirafi, Inc., Charlotte, NC; or equivalent.

PART 3 - EXECUTION

3.1 INSPECTION:

A. Verify that preceding work affecting work under this section has been satisfactorily completed.

B. Do not proceed with execution until unsatisfactory conditions have been corrected.

3.2 EROSION CONTROL:

A. Erect perimeter silt fences prior to commencing any excavation. Erect silt fences enclosing drainage structures on completion of excavation for structure. Erect silt fences enclosing topsoil stockpile areas prior to stripping topsoil.

B. Construct silt fences as indicated on drawings. Secure fabric to posts with staples, nails with washers, wire ties, or as directed by manufacturer.

C. Repair silt fences as necessary to maintain them in operational condition. Remove accumulated stilt when fence bulges, redistribute silt over subgrade source and compact.

D. Reinstall silt fence in temporary access openings prior to close of each day's operations.

E. Prior to close of each day's operations, proof roll subgrades disturbed during that day.

F. When placement of topsoil, seeding or pavement subgrade requires removal of silt fence, reinstall silt fence by close of operations on day of its removal.

3.3 TOPSOIL STRIPPING: Strip topsoil from areas affected by construction or grading for full depth as determined by Architect.

A. Do not mix subgrade material with topsoil.

B. Do not strip topsoil beneath spread of branches of trees or shrubs indicated for preservation.

C. Stockpile topsoil acceptable to Architect on site.

D. Remove topsoil unacceptable to Architect from site.

3.4 EXCAVATION:

A. General:
1. Excavate to elevations and limits indicated on drawings, unless otherwise ordered by Architect.
2. Assume all materials encountered in excavation to be removable by hand or standard powered excavation equipment, unless otherwise indicated on drawings.
3. Make required allowance for fill or bedding required under slabs, structures, pipes and cables.
4. Maintain bottoms of foundation excavations true to size, level and free of loose material.
5. Make excavations for structures of size permitting use of required compaction equipment throughout full depth of excavation adjacent to structures.
6. Perform deep excavations, construction and backfilling prior to beginning excavation at upper levels.

7. Where backfill cannot be placed due to subsequent operations, take necessary precautions to prevent undermining of improvements at higher elevations.

B. Rock Excavation: Materials of any nature, in homogeneous mass greater than 1/2 cubic yard in volume and requiring, in opinion of Architect, use of pneumatic hammers, wedging, drilling or blasting for removal.
   1. Payment will be made at established unit price for removal of such material when encountered and not indicated on drawings.
   2. No payment will be made for such materials exposed on or above existing ground surface.
   3. Restrict rock excavation to indicated subgrade elevations, neat lines12 inches from structures indicated, and required trench widths.

C. Additional Excavation: Payment will be made, at established unit price, for excavating to limits and elevations beyond those indicated on drawings, when ordered by Architect.

D. Omitted Excavation: Allow credit to Owner, at established unit price for limits of excavation reduced from those indicated on drawings.

E. Measurement: Payment for additional excavation and credit for omitted excavation based on measurement of volume between limits and elevations indicated on drawings and those ordered by Architect.

F. If excavation is carried beyond limits indicated on drawings, or those ordered by Architect, fill to required limits with material conforming to this section at no additional cost to Owner.

3.5 FILLING:

A. Place no fill or structure on load-bearing strata until bearing capacity is tested and verified by Architect.

B. Fill Location:
   1. Type I Fill: Areas not requiring other fill types.
   2. Type II Fill:
      a. Filling beneath slabs on grade, vehicular pavement.
      b. Backfilling foundations, utility structures and trenches.
   3. Type III Fill: Locations indicated on drawings.

C. Promptly backfill excavations as work permits.

D. Spread material, mechanically or manually, in uniform horizontal lifts not to exceed thickness of 10 inches in load-bearing areas, 15 inches in non-load bearing areas, measured loose.

E. Place Type II fill to minimum compacted thickness of 6 inches under slabs on grade.

3.6 COMPACTION:

A. Use compaction equipment approved by Architect.

B. Compact each lift in load-bearing areas to minimum 95%, each lift in non-load bearing areas to minimum 90%, maximum modified Proctor density determined by ASTM D-1557, unless other method required by Architect.

C. Recompact, or remove and replace any material not compacted in conformity with these requirements.

D. Do not place fill or structure over completed lift until compaction and testing are performed.

3.7 GRADING:

A. Grade lawn and planting areas to elevations Indicated on drawings, less depth of topsoil required.

B. Grade areas to receive pavement to elevations Indicated on drawings less depth of pavement courses required.

C. Eliminate grade irregularities ponding water unless otherwise indicated on drawings.

D. On completion of subgrades, maintain in condition acceptable to Architect, making necessary repairs thereto at no additional cost to Owner, until placement of designated materials thereon.

3.8 MATERIALS DISPOSAL:

A. Place excess excavated materials in stockpiles on project site, located as indicated on drawings or directed by Architect.

B. Use excess excavated materials to ease slopes and otherwise Improve grading on project site as directed by Architect.

C. Remove excess excavated materials from project site.

3.9 CLEAN UP:

A. Immediately remove spillage and stains from paved and finished surfaces.

B. Restore pavement, removed or damaged in performance of work under this section, to condition required by authorities having jurisdiction.

C. Remove debris, signs, barriers, temporary shoring and equipment from project site.

END OF SECTION

SECTION 02323 GEOFOAM LIGHTWEIGHT FILL

PART 1 GENERAL

1.1 SUMMARY

A. Sections Includes: Provide Foam-Control Geofoam.

1.2 REFERENCES

A. ASTM D6817 - Standard Specification for Rigid, Cellular Polystyrene Geofoam.

B. ASTM D7557 – Standard Guide for Sampling of Expanded Polystyrene Geofoam Specimens.

C. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

D. ISO 17025 - General requirements for the competence of testing and calibration laboratories.

E. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials.

1.3 SUBMITTALS

A. Third Party Documents. Manufacturer literature/technical data not acceptable for submittal:
   1. Third party inspection agency certificate demonstrating physical properties in compliance with ASTM D6817 Type specified.
   2. Third party inspection agency certificate with flame spread and smoke developed indexes.
   3. UL or ICC-ES evaluation report covering ASTM D6817 Type specified.
   4. UL or ICC-ES evaluation report covering termite resistance in accordance with ICC-ES AC 239, Acceptance Criteria for Termite-Resistant Foam Plastics.

B. 10-year compressive resistance warranty.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain geofoam through one source from a single manufacturer.

B. Initial Test Compliance: Testing from an ISO17025 Accredited Laboratory showing compliance with compressive resistance @ 1% deformation and flexural strength requirements of ASTM D6817 for Type specified prior to first shipment.

C. Ongoing Test Compliance: Testing from an ISO17025 Accredited Laboratory showing compliance with compressive resistance @ 1% deformation of ASTM D6817 for Type specified. Testing frequency shall be in compliance with ASTM D7557.

1.5 DELIVERY, STORAGE & HANDLING

A. Deliver geofoam labeled with ASTM D6817 Type.

B. Store protected from moisture and sunlight prior to installation.

C. Product should not be exposed to open flame or other ignition sources.

D. Product should not be exposed to organic solvents, petroleum products and their vapors. Examples include but are not limited to are acetone, paint thinner and gasoline.

E. Provide temporary ballast or other restraint prior to and during installation.

1.6 WARRANTY

A. Provide 10-year physical property warranty.

PART 2 PRODUCTS

2.1 Rigid Cellular Polystyrene Geofoam

A. Rigid Cellular Polystyrene Geofoam: ASTM D6817 Type, compressive resistance indicated below and with flame spread index less than 25 and smoke developed index less than 450 per ASTM E84/UL723.
   1. FOAM-CONTROL EPS12
      a. Minimum compressive resistance @ 1% deformation of 2.2 psi
      b. Minimum flexural strength of 10.0 psi
      c. Minimum density of 0.70 lbs per cubic foot
   2. Size
      a. 4 feet by 8 feet by 10”
   3. Termite Resistance
      a. Perform Guard or Perform Guard treatment
      b. Compliance with ICC-ES AC239, Acceptance Criteria for Termite-Resistant Foam Plastics

2.3 ACCESSORIES

A. GEOGRIPPER PLATES
   1. GeoGripper plates shall be used to restrain Geofoam from moving laterally in layer over layer applications.
   2. The plate shall be made of galvanized steel with two-sided multi-barbed design capable of piercing geofoam. Each plate shall be capable of a lateral holding strength of 60 lbs.
   3. Install a minimum of [specify} GeoGripper plates for each 4 feet x 8 feet section of geofoam.

2.3 MANUFACTURER

A. AFM Corporation, 17645 Juniper Path, Suite 260, Lakeville, MN 55044 or equal.

PART 3 EXECUTION

3.1 INSTALLATION

A. Installation per manufacturer requirements for project conditions.

END OF SECTION

SECTION 02501 – CONCRETE PAVING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Sidewalks, patios & curbs.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples: For each exposed product and for each color and texture specified.

C. Other Submittals:
   1. Design Mixtures: For each concrete paving mixture. Include alternate design mixtures when characteristics of materials, Project conditions, weather, test results or other circumstances warrant adjustments.

1.3 QUALITY ASSURANCE

A. Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

B. ACI Publications: Comply with ACI 301 unless otherwise indicated.

PART 2 - PRODUCTS

2.1 STEEL REINFORCEMENT

A. Plain-Steel Welded Wire Reinforcement: ASTM A 185/A 185M, fabricated from as- drawn steel wire into flat sheets.

B. Deformed-Steel Welded Wire Reinforcement: ASTM A 497/A 497M, flat sheet.

C. Reinforcing Bars: ASTM A 615/A 615M, Grade 60; deformed.

D. Plain-Steel Wire: ASTM A 82/A 82M, as drawn.

E. Deformed-Steel Wire: ASTM A 496/A 496M.

F. Dowel Bars: ASTM A 615/A 615M, Grade 60 plain-steel bars. Cut bars true to length with ends square and free of burrs.

G. Bar Supports: Bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcing bars, welded wire reinforcement and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic or precast concrete of greater compressive strength than concrete specified.

2.2 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of same type, brand, and source throughout Project:
   1. Portland Cement: ASTM C 150, gray Portland cement Type I/II. Supplement with the following:
      a. Fly Ash: ASTM C 618, Class C or Class F.
      b. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.

B. Normal-Weight Aggregates: ASTM C 33 uniformly graded. Provide aggregates from a single source.

C. Water: Potable and complying with ASTM C 94/C 94M.

D. Air-Entraining Admixture: ASTM C 260.

E. Chemical Admixtures: Admixtures certified by manufacturer to be compatible with other admixtures and to contain no more than 0.1 percent water-soluble chloride ions by mass of cementitious material.

2.3 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 3, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. dry.

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap- polyethylene sheet.

C. Water: Potable.

D. Evaporation Retarder: Waterborne, monomolecular, film forming, manufactured for application to fresh concrete.

E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

F. White, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 2, Class B, dissipating.

2.4 RELATED MATERIALS

A. Joint Fillers: ASTM D 1751, asphalt-saturated cellulosic fiber or ASTM D 1752, cork or self-expanding cork in preformed strips.

2.5 CONCRETE MIXTURES

A. Prepare design mixtures, proportioned according to ACI 301, with the following properties:
   1. Compressive Strength (28 Days): 4000 psi.
   2. Maximum Water-Cementitious Materials Ratio at Point of Placement: 0.45.
   3. Slump Limit: 4 inches, plus or minus 1 inch.
   4. Air Content: 6 percent plus or minus 1.5 percent.

B. Chemical Admixtures: Use admixtures according to manufacturer's written instructions.

2.6 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Furnish batch certificates for each batch discharged and used in the Work.

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Proof-roll prepared subbase surface below concrete paving to identify soft pockets and areas of excess yielding.

B. Remove loose material from compacted subbase surface immediately before placing concrete.

C. For utility trenches to be installed in existing concrete: Sawcut with a rotary saw the existing concrete that produces a clean vertical edge. The sawcuts shall be located to allow for installation of utility piping, bedding material and worker protection (i.e. trench shield or step back slopes in accordance with OSHA regulations). No additional payment will be made to the Contractor for the larger sawcut areas to allow for worker protection methods.

3.2 EDGE FORMS AND SCREED CONSTRUCTION

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.

B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.3 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

3.4 JOINTS

A. General: Form construction, isolation, and contraction joints and tool edges true to line, with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline unless otherwise indicated.

B. Construction Joints: Set construction joints at side and end terminations of paving and at locations where paving operations are stopped for more than one-half hour unless paving terminates at isolation joints.

C. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete and granite curbs, catch basins, manholes, inlets, structures, other fixed objects, and where indicated.

D. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness, to match jointing of existing adjacent concrete paving:

E. Edging: After initial floating, tool edges of paving, gutters, curbs, and joints in concrete with an edging tool to a 1/4-inch radius. Repeat tooling of edges after applying surface finishes. Eliminate edging-tool marks on concrete surfaces.

3.5 CONCRETE PLACEMENT

A. Moisten subbase to provide a uniform dampened condition at time concrete is placed.

B. Comply with ACI 301 requirements for measuring, mixing, transporting, placing and consolidating concrete.

C. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.

D. Screed paving surface with a straightedge and strike off.

E. Commence initial floating using bull floats or darbies to impart an open-textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.

3.6 FLOAT FINISHING

A. General: Do not add water to concrete surfaces during finishing operations.

B. Float Finish: Begin the second floating operation when bleed-water sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.

1. Medium-to-Fine-Textured Broom Finish: Draw a soft-bristle broom across float-finished concrete surface perpendicular to line of traffic to provide a uniform, fine-line texture.

3.7 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

B. Comply with ACI 306.1 for cold-weather protection.

C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete but before float finishing.

D. Begin curing after finishing concrete but not before free water has disappeared from concrete

surface.

E. Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, curing compound or a combination of these.

3.8 PAVING TOLERANCES

A. Comply with tolerances in ACI 117 and as follows:
   1. Elevation: 3/4 inch.
   2. Thickness: Plus 3/8 inch, minus 1/4 inch.
   3. Surface: Gap below 10-foot- long, unleveled straightedge not to exceed 1/2 inch.
   4. Joint Spacing: 3 inches.
   5. Contraction Joint Depth: Plus 1/4 inch, no minus.
   6. Joint Width: Plus 1/8 inch, no minus.

3.9 REPAIRS AND PROTECTION

A. Remove and replace concrete paving that is broken, damaged or defective or that does not comply with requirements in this Section. Remove work in complete sections from joint to joint unless otherwise approved by Architect.

B. Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.

C. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep paving not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION

SECTION 04700 - MANUFACTURED MASONRY

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Simulated stone masonry units including trim

B. Building paper

C. Metal lath and related accessories

D. Scratch coat plaster

E. Mortar

1.02 RELATED SECTIONS

A. Section 06100 - Rough Carpentry

B. Section 07900 - Joint Sealers

1.03 REFERENCES

A. American Society for Testing and Materials (ASTM)
1. ASTM C39-01: Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
2. ASTM C67-01: Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile
3. ASTM C78-00 Standard Test Method for Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading)
4. ASTM C91-99 Standard Specification for Masonry Cement
5. ASTM C150-00: Standard Specification for Portland Cement
6. ASTM C177-97: Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus
7. ASTM C192-00 Standard Practice for Making and Curing Concrete Test Specimens in the Laboratory
8. ASTM C270-00: Standard Specification for Mortar for Unit Masonry
9. ASTM C482-81(1996): Standard Test Method for Bond Strength of Ceramic Tile to Portland Cement
10. ASTM C847-95(2000): Standard Specification for Metal Lath
11. ASTM C897-00: Standard Specification for Aggregate for Job-Mixed Portland Cement-Based Plasters
12. ASTM D226-97a: Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing
13. ASTM E84-00a: Standard Test Method for Surface Burning Characteristics of Building Materials

B. American Concrete Institute (ACI)

C. International Code Council
   1. ES Report.
   2. UBC Standard No. 14-1, Kraft Waterproof Building Paper.

D. Masonry Standards Joint Committee (MSJC) of The Masonry Society.

E. Underwriters Laboratories (UL):
   1. Classification File Number.
   2. UL 723, Standard for Safety for Surface Burning Characteristics of Building Materials.

1.04 PERFORMANCE REQUIREMENTS

A. When tested in accordance with the following standards, the simulated masonry shall meet or exceed the following performance requirements, except for special requirements specified herein:

SUMMARY OF TEST RESULTS

	Average of Five	ASTM Specifications
1. Compressive Strength (psi):	3,500	(ASTM:C67) 3,000 min.
2. Water Absorption (%):	15.5	(ASTM:C67) 25 max.
3. Freeze/Thaw (% weight loss after 50 cycles):	2.0	(ASTM:C67) 9.0 max.

4. Fire Hazard Classification: ASTM:E84
   a. Flame Spread: Zero.
   b. Smoke Developed: Zero.
   c. Fuel Contribution: Zero.

1.05 SUBMITTALS

A. Submit the following in accordance with Section 01330:
   1. Product Data: Manufacturer's materials description, installation and maintenance instructions.
   2. Shop Drawings: Prepare shop drawings, including dimensioned building elevations, sections of each condition indicating masonry thickness, anchors and fasteners and their spacing, full details of accessories required and adjacent construction.
   3. Test Reports: Submit manufacturer's test reports showing compliance with performance requirements.
   4. Samples: One sample panel not less than 18 inches by 24 inches (46cm by 61cm) with simulated masonry units in style specified, including corner units and grouted in color specified.

1.06 QUALITY ASSURANCE

A. Manufacturer: A firm regularly involved in the manufacture of simulated masonry units with not less than 5 years of successful experience.

B. Installer: A firm authorized, licensed, certified or otherwise approved by the manufacturer to install simulated masonry units, and which has completed at least 3 projects of a similar size or larger than this Project.

C. Mock-Up: Before starting simulated masonry work, construct a sample wall panel minimum 4 feet long by 4 feet high (1.2 meters long by 1.2 meters high) incorporating back-up construction and all exterior simulated masonry units specified, and representing the proposed color range, texture, bond pattern, mortar color and joint treatment and workmanship for approval by the Architect.
   1. Erect sample panel facing Southwest or West in direct sunlight.
   2. Clean sample panel prior to review.
   3. Panel shall not be a part of the finished work, but shall remain at the Project site protected during the work and removed when directed, or upon completion of the work.

D. Pre-Installation Conference: Prior to installation of simulated masonry and associated work, meet at Project site with installer, simulated masonry manufacturer's representative, installers of related work and other entities concerned with simulated masonry performance, including Architect and Owner, at their discretion. Perform thorough review of details, shop drawings, mock-up, materials and methods of installation. Record discussions and agreements and furnish copy to each participant. Provide at least 72 hours advance notice to participants prior to convening pre-installation conference.

1.07 DELIVERY, STORAGE AND HANDLING

A. Deliver simulated masonry units and related materials to the Project site in manufacturer's protective cartons or packaging and store above ground protected. Damaged and otherwise unsuitable material when so determined shall be immediately removed from the Project site.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURER

A. Boral Stone Products LLC, One Owens Corning Parkway, Toledo, OH 43659, Tel: Fax: (800) 255-1727 (419) 325-3995, www.culturedstone.com

B. Other manufacturers seeking approval of their products must submit to the Owner and Architect prior to bidding.

2.02 MATERIALS

A. Simulated Masonry Units: Lightweight, freeze-thaw resistant, precast stone.
   1. Style and Model: Ethos Pro-Fit Terrain Ledgestone.

B. Building Paper: Type I (No. 15) asphalt-saturated, non-perforated felt, ASTM D226.

C. Metal Lath: ASTM C847
   1. Diamond Mesh: Self-furring expanded galvanized metal lath formed from copper bearing steel weighing not less than 3.4 lbs. per sq. yd. (1.54 kg per sq. m.) with indentations if necessary to hold lath 1/4 inch (6mm) away from substrate and steel surfaces.

D. Mortar Materials: Stone manufacturer's prepackaged Type N mortar or site blended Type N mortar mixed using components and proportions following manufactured masonry manufacturer’s installation instructions. Comply with ASTM C 270.

1. Mortar Color: Selected by the Architect from manufacturer's full range of available colors.

E. Weep screed as required for installation.

2.03 MORTAR MIXES

A. Mortar: Thoroughly mix mortar and grout fill ingredients in quantities needed for immediate use in accordance with ASTM C270.
   1. Do not use antifreeze compounds.
   2. If water is lost by evaporation, re-temper within 2 hours of mixing. Do not re-temper mortar after 2 hours.
   3. For colored Portland cement mortar, use the minimum quantity of color pigments to produce desired result. Premix color with the Portland cement in large controlled quantities.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine the areas and conditions under which the simulated masonry work is to be installed, and notify the Contractor, in writing, of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until satisfactory conditions have been corrected.

3.02 INSTALLATION

A. Install simulated stone units in accordance with manufacturer's instructions and as specified herein.

B. Over wall sheathing apply one layer of building paper beginning at the base of the wall, applied shingle style, followed by galvanized self-furring lath and 3/8 inch (9mm) thick scratch coat of plaster. Cross-scratch plaster upon attaining its initial set. Over cured scratch coat, set simulated stone in mortar with uniform joints throughout, concave tooled.

C. Over masonry set simulated stone direct to masonry in full mortar.

D. Remove and replace units which are loose, chipped, broken, stained and otherwise damaged and if units do not match adjoining units as intended. Provide new units to match adjoining units and install in fresh mortar or grout, pointed to eliminate evidence of replacement.

3.03 CLEANING

A. Clean mortar droppings from exposed simulated masonry surfaces in accordance with manufacture's instructions.

B. During the tooling of joints, enlarge voids and holes and completely fill with mortar. Point-up joints at corners, openings and adjacent work to provide a neat, uniform appearance, properly prepared for installation application of caulking and sealant compounds.

C. During the progress of the work, wipe off excess mortar as the work progresses. Dry brush at the end of each day's work.

D. After mortar is thoroughly set and cured, dry clean simulated masonry units to remove large particles of mortar using wood paddles and scrapers. Use chisel or wire brush if required. Presoak wall by saturating with water and flush off loose mortar and dirt. Scrub down wall with stiff fiber brush and a solution of 1/2 cup (118.3 cc) of trisodium phosphate and 1/2 cup (118.3 cc) of household detergent dissolved in one gallon of water. Rinse walls by washing off cleaning solution, dirt and mortar crumbs using clean, pressurized water. Acid cleaning of masonry will NOT be permitted. Verify cleaning procedure with unit masonry and mortar manufacturers before beginning.

E. At the conclusion of masonry work, remove scaffolding and equipment used in the work, clean up debris, refuse and surplus material and remove same from premises.

3.04 PROTECTION

A. Protect simulated masonry materials during storage and construction against wetting by rain, snow and ground water, and against soilage and intermixture with earth and other types of materials.

B. During erection, at the end of each day's work, during a shutdown and during adverse weather conditions, cover tops of walls with strong non-staining waterproof membrane. Cover partially completed walls when work is not in progress. Extend cover 24 inch (61cm) down wall face and secure in place.
   1. Walls left unprotected or not properly protected may be subject to rejection, subsequent removal and replacement at no additional cost to Owner.

C. Protect simulated masonry work from damage and against staining. Brace simulated masonry as necessary during construction.

D. Protect simulated masonry work from excessive changes in temperature when protective shelters are removed. Changes in temperature of the masonry shall be as uniform as possible and shall not exceed 5 degrees F. (-15 degrees C.) in any 1 (one) hour, and 50 degrees F. (10 degrees C.) in any 24-hour period.

END OF SECTION

SECTION 05400 - COLD-FORMED METAL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:
   1. Interior load-bearing wall framing.

B. Related Sections include the following:
   1. Division 5 Section "Metal Fabrications" for masonry shelf angles and connections.
   2. Division 9 Section "Gypsum Board Assemblies" for interior non-load-bearing, metal-stud framing and ceiling-suspension assemblies.

1.3 PERFORMANCE REQUIREMENTS

A. Structural Performance: Provide cold-formed metal framing capable of withstanding design loads within limits and under conditions as indicated on the drawings.
   1. Deflection Limits: Design framing systems to withstand design loads without deflections greater than the following:
   2. Provide for movement of framing members without damage or overstressing, sheathing failure, connection failure, undue strain on fasteners and anchors, or other detrimental effects when subject to a maximum ambient temperature change of 120 deg F (67 deg C).
   3. Design framing system to maintain clearances at openings, to allow for construction tolerances, and to accommodate live load deflection of primary building structure as follows:
      a. Upward and downward movement of 1/2 inch (13 mm).

B. Cold-Formed Steel Framing, General: Design according to AISI's "Standard for Cold-Formed Steel Framing - General Provisions."

1.4 SUBMITTALS

A. Product Data: For each type of cold-formed metal framing product and accessory indicated.

B. Cold-formed metal framing shall comply with the design loads as indicated on the construction documents, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.5 QUALITY ASSURANCE

A. Engineering Responsibility: Preparation of Shop Drawings, design calculations, and other structural data by a qualified professional engineer.

B. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing

engineering services of the kind indicated. Engineering services are defined as those performed for installations of cold-formed metal framing that are similar to those indicated for this Project in material, design, and extent.

C. Testing Agency Qualifications: An independent testing agency, acceptable to authorities having jurisdiction, qualified according to ASTM E 329 to conduct the testing indicated.

D. Product Tests: Mill certificates or data from a qualified independent testing agency indicating steel sheet complies with requirements including base-metal thickness, yield strength, tensile strength, total elongation, chemical requirements and metallic-coating thickness.

E. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code--Steel" and AWS D1.3, "Structural Welding Code--Sheet Steel."

F. Fire-Test-Response Characteristics: Where indicated, provide cold-formed metal framing identical to that of assemblies tested for fire resistance per ASTM E 119 by a testing and inspecting agency acceptable to authorities having jurisdiction.

G. AISI Specifications and Standards: Comply with AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members" and its "Standard for Cold-Formed Steel Framing - General Provisions."
   1. Comply with AISI's "Standard for Cold-Formed Steel Framing - Truss Design.

1.6 DELIVERY, STORAGE AND HANDLING

A. Protect cold-formed metal framing from corrosion, deformation and other damage during delivery, storage and handling.

B. Store cold-formed metal framing, protect with a waterproof covering, and ventilate to avoid condensation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering cold-formed metal framing that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide cold-formed metal framing by one of the following:
   1. Allied Studco.
   2. AllSteel Products, Inc.
   3. California Expanded Metal Products Company.
   4. Clark Steel Framing.
   5. Consolidated Fabricators Corp.; Building Products Division.
   6. Craco Metals Manufacturing, LLC.
   7. Custom Stud, Inc.
   8. Dale/Incor.
   9. Design Shapes in Steel.
   10. Dietrich Metal Framing; a Worthington Industries Company.

11. Formetal Co. Inc. (The).
12. Innovative Steel Systems.
13. MarinoWare; a division of Ware Industries.
14. Quail Run Building Materials, Inc.
15. SCAFCO Corporation.
16. Southeastern Stud & Components, Inc.
17. Steel Construction Systems.
18. Steeler, Inc.
19. Super Stud Building Products, Inc.
20. United Metal Products, Inc.

2.2 MATERIALS

A. Steel Sheet: ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of grade and coating weight as follows:
   1. Grade: ST33H or as required by structural performance. (33KSI)
   2. Coating: G60.

B. Steel Sheet for Clips: ASTM A 653/A 653M, structural steel, zinc coated, of grade and coating as follows:
   1. Grade: 50, Class 1
   2. Coating:

2.3 INTERIOR WALL FRAMINTG

A. Steel Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges as indicated on the drawings. 1-5/8” flanges, 18 GA.

B Steel Track: Manufacturer's standard U-shaped steel track, of web depths indicated, unpunched, with unstiffened flanges.

C. Vertical Deflection Clips: Manufacturer's standard clips, capable of accommodating upward and downward vertical displacement of primary structure through positive mechanical attachment to stud web.
   1. Available Manufacturers: Subject to compliance with requirements, manufacturer offering products that may be incorporated into the Work include, but are not limited to the following:
   2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Dietrich Metal Framing; a Worthington Industries Company
      b. MarinoWare, a division of Ware Industries.
      c. SCAFCO Corporation.
      d. The Steel Network, Inc.

D. Single Deflection Track: Manufacturer's single, deep-leg, U-shaped steel track; unpunched, with unstiffened flanges, of web depth to contain studs while allowing free vertical movement, with flanges designed to support horizontal and lateral loads and transfer them to the primary structure.

E. Double Deflection Tracks: Manufacturer's double, deep-leg, U-shaped steel tracks, consisting of nested inner and outer tracks; unpunched with unstiffened flanges.

1. Outer Track: Of web depth to allow free vertical movement of inner track, with flanges designed to support horizontal and lateral loads and transfer them to the primary structure.
2. Inner Track: Of web depth indicated, and as follows:
   a. Minimum Base-Metal Thickness: 0.0538 inch.

2.5 FRAMING ACCESSORIES

A Fabricate steel-framing accessories from steel sheet, ASTM A 1003/A 1003M, Structural Grade, TypeH, metallic coated, of same grade and coating weight used for framing members.

B. Provide accessories of manufacturer's standard thickness and configuration, unless otherwise indicated, as follows:
1. Supplementary framing.
2. Bracing, bridging, and solid blocking.
3. Web stiffeners.
4. Anchor clips.
5. End clips.
6. Foundation clips.
7. Gusset plates.
8. Stud kickers, knee braces, and girts.
9. Joist hangers and end closures.
10. Hole reinforcing plates.
11. Backer plates.

2.10 ANCHORS, CLIPS AND FASTENERS

A. Steel Shapes and Clips: ASTM A 36/A 36M, zinc coated by hot-dip process according to ASTM A 123/A 123M.

B. Expansion Anchors: Fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 5 times design load, as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.

C. Power-Actuated Anchors: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 10 times design load, as determined by testing per ASTM E 1190 conducted by a qualified independent testing agency.

D. Mechanical Fasteners: ASTM C 1513, corrosion-resistant-coated, self-drilling, self-tapping steel drill screws.
1. Head Type: Low-profile head beneath sheathing, manufacturer’s standard elsewhere.

E. Welding Electrodes: Comply with AWS standards.

2.11 MISCELLANEOUS MATERIALS

A. Galvanizing Repair Paint: SSPC-Paint 20 -ASTM A 780.

B. Shims: Load bearing, high-density multi-monomer plastic, non-leaching.

C. Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch (6.4 mm) thick, selected from manufacturer's standard widths to match width of bottom track or rim track members

2.12. FABRICATION

A. Fabricate cold-formed metal framing and accessories plumb, square, and true to line, and with connections securely fastened, according to referenced AISI's specifications and standards, manufacturer's written instructions, and requirements in this Section.
   1. Fabricate framing assemblies using jigs or templates.
   2. Cut framing members by sawing or shearing; do not torch cut.
   3. Fasten cold-formed metal framing members by welding, screw fastening, clinch fastening, or riveting as standard with fabricator. Wire tying of framing members is not permitted.
      a. Comply with AWS D1.3 requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
      b. Locate mechanical fasteners and install according to Shop Drawings, with screw penetrating joined members by not less than three exposed screw threads.
   4. Fasten other materials to cold-formed metal framing by welding, bolting, or screw fastening, according to Shop Drawings.

B. Reinforce, stiffen and brace framing assemblies to withstand handling, delivery and erection stresses. Lift fabricated assemblies to prevent damage or permanent distortion.

C. Fabrication Tolerances: Fabricate assemblies level, plumb and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet (1:960) and as follows:
   1. Spacing: Space individual framing members no more than plus or minus 1/8 inch (3 mm) from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.
   2. Squareness: Fabricate each cold-formed metal framing assembly to a maximum out-of-square tolerance of 1/8 inch (3 mm).

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine supporting substrates and abutting structural framing for compliance with requirements for installation tolerances and other conditions affecting performance.
   1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Before sprayed fire-resistive materials are applied, attach continuous angles, supplementary framing or tracks to structural members indicated to receive sprayed fire-resistive materials.

B. After applying sprayed fire-resistive materials, remove only as much of these materials as needed to complete installation of cold-formed framing without reducing thickness of fire-resistive materials below that are required to obtain fire-resistance rating indicated. Protect remaining fire-resistive materials from damage.

C. Install load bearing shims or grout between the underside of wall bottom track or rim track and the top of foundation wall or slab at stud or joist locations to ensure a uniform bearing surface on supporting concrete or masonry construction.

D. Install sealer gaskets to isolate the underside of wall bottom track or rim track and the top of foundation wall or slab at stud or joist locations.

3.3 INSTALLATION, GENERAL

A. Cold-formed metal framing may be shop or field fabricated for installation, or it may be field assembled.

B. Install cold-formed metal framing according to AISI's "Standard for Cold-Formed Steel Framing - General Provisions" and to manufacturer's written instructions unless more stringent requirements are indicated.

C. Install shop or field-fabricated cold-formed framing and securely anchor to supporting structure.
   1. Screw, bolt, or weld wall panels at horizontal and vertical junctures to produce flush, even, true-to-line joints with maximum variation in plane and true position between fabricated panels not exceeding 1/16 inch (1.6 mm).

D. Install cold-formed metal framing and accessories plumb, square, and true to line, and with connections securely fastened.
   1. Cut framing members by sawing or shearing; do not torch cut.
   2. Fasten cold-formed metal framing members by welding, screw fastening, clinch fastening, or riveting. Wire tying of framing members is not permitted.
      a. Comply with AWS D1.3 requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
      b. Locate mechanical fasteners and install according to Shop Drawings, and complying with requirements for spacing, edge distances, and screw penetration.

E. Install framing members in one-piece lengths unless splice connections are indicated for track or tension members.

F. Install temporary bracing and supports to secure framing and support loads comparable in intensity to those for which structure was designed. Maintain braces and supports in place, undisturbed, until entire integrated supporting structure has been completed and permanent connections to framing are secured.

G. Do not bridge building expansion and control joints with cold-formed metal framing. Independently frame both sides of joints.

H. Install insulation, specified in Division 7 Section "Building Insulation," in built-up exterior framing members, such as headers, sills, boxed joists, and multiple studs at openings, that are inaccessible on completion of framing work.

I. Fasten hole reinforcing plate over web penetrations that exceed size of manufacturer's standard punched openings.

J. Erection Tolerances: Install cold-formed metal framing level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet (1:960) and as follows:

1. Space individual framing members no more than plus or minus 1/8 inch (3 mm) from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.

3.4 LOAD-BEARING WALL INSTALLATION

A. Install continuous top and bottom tracks sized to match studs. Align tracks accurately and securely anchor at corners and ends, and at spacings as indicated on the drawings.

B. Squarely seat studs against top and bottom tracks with gap not exceeding of 1/8 inch (3 mm) between the end of wall framing member and the web of track. Fasten both flanges of studs to top and bottom tracks.

C. Set studs plumb, except as needed for diagonal bracing or required for nonplumb walls or warped surfaces and similar configurations.

D. Align studs vertically where floor framing interrupts wall-framing continuity. Where studs cannot be aligned, continuously reinforce track to transfer loads.

E. Align floor and roof framing over studs. Where framing cannot be aligned, continuously reinforce track to transfer loads.

F. Anchor studs abutting structural columns or walls, including masonry walls to supporting structure as indicated.

G. Install headers over wall openings wider than stud spacing. Locate headers above openings as indicated. Fabricate headers of compound shapes indicated or required to transfer load to supporting studs, complete with clip-angle connectors, web stiffeners or gusset plates.
   1. Frame wall openings with not less than a double stud at each jamb of frame as indicated on Shop Drawings. Fasten jamb members together to uniformly distribute loads.
   2. Install runner tracks and jack studs above and below wall openings. Anchor tracks to jamb studs with clip angles or by welding and space jack studs same as full-height wall studs.

H. Install supplementary framing, blocking and bracing in stud framing indicated to support fixtures, equipment, services, casework, heavy trim, furnishings and similar work requiring attachment to framing.
   1. If type of supplementary support is not indicated, comply with stud manufacturer's written recommendations and industry standards in each case, considering weight or load resulting from item supported.

I. Install horizontal bridging in stud system, spaced 48 inches (1220 mm). Fasten at each stud intersection.
   1. Bridging: Cold-rolled steel channel, welded or mechanically fastened to webs of punched studs with a minimum of 2 screws into each flange of the clip angle for framing members up to 6 inches (150 mm) deep.
   2. Bridging: Combination of flat, taut, steel sheet straps of width and thickness indicated and stud-track solid blocking of width and thickness to match studs. Fasten flat straps to stud flanges and secure solid blocking to stud webs or flanges.
   3. Bridging: Proprietary bridging bars installed according to manufacturer's written instructions.

J. Install miscellaneous framing and connections, including supplementary framing, web stiffeners, clip angles, continuous angles, anchors and fasteners to provide a complete and stable wall-framing system.

3.5 EXTERIOR NON-LOAD-BEARING WALL INSTALLATION

A. Install continuous tracks sized to match studs. Align tracks accurately and securely anchor to supporting structure as indicated.

B. Fasten both flanges of studs to top and bottom track, unless otherwise indicated.

C. Set studs plumb except as needed for diagonal bracing or required for nonplumb walls or warped surfaces and similar requirements.

D. Isolate non-load-bearing steel framing from building structure to prevent transfer of vertical loads while providing lateral support.
   1. Install single-leg deflection tracks and anchor to building structure.
   2. Install double deep-leg deflection tracks and anchor outer track to building structure.
   3. Connect vertical deflection clips to studs and anchor to building structure.
   4. Connect drift clips to cold formed metal framing and anchor to building structure.

E. Install horizontal bridging in wall studs, spaced in rows indicated on Shop Drawings but not more than 48 inches (1220 mm) apart. Fasten at each stud intersection.
   1. Top Bridging for Single Deflection Track: Install row of horizontal bridging within 12 inches (305 mm) of single deflection track. Install a combination of flat, taut, steel sheet straps of width and thickness indicated and stud or stud-track solid blocking of width and thickness matching studs. Fasten flat straps to stud flanges and secure solid blocking to stud webs or flanges.
      a. Install solid blocking at 96-inch (2440-mm) centers.
   2. Bridging: Cold-rolled steel channel, welded or mechanically fastened to webs of punched studs.
   3. Bridging: Combination of flat, taut, steel sheet straps of width and thickness indicated and stud-track solid blocking of width and thickness to match studs. Fasten flat straps to stud flanges and secure solid blocking to stud webs or flanges.
   4. Bridging: Proprietary bridging bars installed according to manufacturer's written instructions.

F. Install miscellaneous framing and connections, including stud kickers, web stiffeners, clip angles, continuous angles, anchors, fasteners and stud girts to provide a complete and stable wall-framing system.

3.6 FIELD QUALITY CONTROL

A. Testing: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.

B. Field and shop welds will be subject to testing and inspecting.

C. Testing agency will report test results promptly and in writing to Contractor and Architect.

D. Remove and replace work where test results indicate that it does not comply with specified requirements.

E. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.7 REPAIRS AND PROTECTION

A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed metal framing with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.

B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure that cold-formed metal framing is without damage or deterioration at time of Substantial Completion.

END OF SECTION

SECTION 05500 - METAL FABRICATION

1.0 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This section includes the following metal fabrications:
   1. Rough hardware.
   2. Steel Ladders.
   3. Loose steel lintels.
   4. Miscellaneous framing and supports for the following:
      Applications where framing and supports are not specified in other sections.
   5. Steel pipe railings.
   6. Metal stairs.
   7. Bollards

B. Related Sections: The following sections contain requirements that relate to this section:
   1. Division 5 Section "Structural Steel" for structural steel framing systems components.

1.3 DEFINITIONS

A. Definitions in ASTM E 985 for railing-related terms apply to this section.

1.4 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

B. Product data for products used in miscellaneous metal fabrications, including paint products and grout.

C. Shop drawings detailing fabrication and erection of each metal fabrication indicated. Include plans, elevations, sections and details of metal fabrications and their connections. Show anchorage and accessory items. Provide templates for anchors and bolts specified for installation under other sections.

D. Samples representative of materials and finished projects as may be requested by Architect.

E. Welder certificates signed by Contractor certifying that welders comply with requirements specified under "Quality Assurance" article.

F. Qualification data for firms and persons specified in "Quality Assurance" article to demonstrate their capabilities and experience. Include list of completed projects with project name, addresses, names of Architects and Owners and other information specified.

1.5 QUALITY ASSURANCE

A. Fabricator Qualifications: Firm experienced in successfully producing metal fabrications similar to that indicated for this Project, with sufficient production capacity to produce required units without causing delay in the Work.

B. Installer Qualifications: Arrange for installation of metal fabrications specified in this section by same firm that fabricated them.

C. Qualify welding processes and welding operators in accordance with AWS D1.1 "Structural Welding Code - Steel," D1.3 "Structural Welding Code - Sheet Steel" and D1.2 "Structural Welding Code - Aluminum."
   1. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

1.6 CLOSEOUT SUBMITTALS

A. Upon completion of the Work of this Section, Contractor shall submit to the Architect/Engineer all required closeout documents.

B. Contractor shall submit a marked-up set of drawings indicating any changes made during construction to the Architect/Engineer.

C. Upon completion, submit to the Architect/Engineer, a Contractor's Affidavit of Payment of Debts and Claims and Release of Liens.

D. Refer to General Conditions for additional requirements.

1.7 PROJECT CONDITIONS

A. Field Measurements: Check actual locations of walls and other construction to which metal fabrications must fit, by accurate field measurements before fabrication; show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delay of Work.
   1. Where field measurements cannot be made without delaying the Work, guarantee dimensions and proceed with fabrication of products without field measurements. Coordinate construction to ensure that actual opening dimensions correspond to guaranteed dimensions. Allow for trimming and fitting.

2.0 PRODUCTS

2.1 FERROUS METALS

A. Metal Surfaces, General: For metal fabrications exposed to view upon completion of the Work, provide materials selected for their surface flatness, smoothness, and freedom from surface blemishes. Do not use materials whose exposed surfaces exhibit pitting, seam marks, roller marks, rolled trade names, roughness and for steel sheet, variations in flatness exceeding those permitted by reference standards for stretcher-leveled sheet.

B. Steel Plates, Shapes and Bars: ASTM A 36.

C. Uncoated Structural Steel Sheet: Product type (manufacturing method), quality, and grade, as

follows:

1. Cold-Rolled Structural Steel Sheet: ASTM A611, grade as follows:
   a. Grade A, unless otherwise indicated or required by design loading.

D. Steel Pipe: ASTM A 53; finish, type, and weight class as follows:
1. Black finish, unless otherwise indicated.
2. Galvanized finish for exterior installations and where indicated.
3. Type F, standard weight (schedule 40), unless otherwise indicated, or another weight, type and grade required by structural loads.

E. Malleable Iron Castings: ASTM A 47, grade 32510.

F. Brackets, Flanges and Anchors: Cast or formed metal of the same type material and finish as supported rails, unless otherwise indicated.

G. Concrete Inserts: Threaded or wedge type; galvanized ferrous castings, either malleable iron, ASTM A 47, or cast steel, ASTM A 27. Provide bolts, washers, and shims as required, hot-dip galvanized per ASTM A 153.

H. Welding Rods and Bare Electrodes: Select in accordance with AWS specifications of the metal alloy to be welded.

2.2 GROUT AND ANCHORING CEMENT

A. Non-shrink Nonmetallic Grout: Premixed, factory-packaged, non-staining, noncorrosive, nongaseous grout complying with CE CRD - C 621. Provide grout specifically recommended by manufacturer for interior and exterior applications of type specified in this section.

B. Interior Anchoring Cement: Factory-prepackaged, non-shrink, non-staining, hydraulic controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching and grouting compound. Use for interior applications only.

C. Erosion-Resistant Anchoring Cement: Factory-prepackaged, non-shrink, non-staining, hydraulic controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching and grouting compound. Provide formulation that is resistant to erosion from water exposure without need for protection by a sealer or waterproof coating and is recommended for exterior use by manufacturer.

D. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include but are not limited to the following:

E. Products: Subject to compliance with requirements, provide one of the following:
1. Non-shrink Nonmetallic Grouts:
   a. "Bonsal Construction Grout"; W.R. Bonsal Co.
   b. "Masterflow 713"; Master Builders.
   c. "Sealtight 588 Grout"; W.R. Meadows, Inc.
   d. "Sonogrout"; Sonneborn Building Products Div., Rexnord Chemical Products, Inc.
   e. "Stoncrete NM1"; Stonhard, Inc.
2. Interior Anchoring Cement:
   a. "Bonsal Anchor Cement"; W.R. Bonsal Co.

b. "Por-Rok"; Minwax Construction Products Division

2.3 FASTENERS

A. General: Provide zinc-coated fasteners for exterior use or where built into exterior walls. Select fasteners for the type, grade and class required.

B. Fasteners
1. Bolts and nuts: Regular hexagon head type, ASTM A 307, Grade A.
2. Lag Bolts: Square head type, FS FF-B-561.
3. Machine Screws: Cadmium plated steel, FS FF-S-92.
4. Wood Screws: Flat head carbon steel, FS FF-S-111.
5. Plain Washers: Round, carbon steel, FS FF-W-92.
6. Drilled-In Expansion Anchors: Expansion anchors complying with FS FF-S-325, Group VIII (anchors, expansion, nondrilling), Type I (internally threaded tubular expansion anchor) and machine bolts complying with FS FF-B-575, Grade 5.
7. Toggle Bolts: Tumble-wing type, FS FF-B-588, type, class, and style as required.
8. Lock Washers: Helical spring type carbon steel, FS FF-W-84.

2.4 PAINT

A. Shop Primer for Ferrous Metal: Manufacturer's or fabricator's standard, fast-curing, lead-free, universal modified alkyd primer selected for good resistance to normal atmospheric corrosion, for compatibility with finish paint systems indicated, and for capability to provide a sound foundation for field-applied topcoats despite prolonged exposure complying with performance requirements of FS TT-P-645.

2.5 CONCRETE FILL AND REINFORCING MATERIALS

A. Concrete Materials and Properties: Comply with requirements of Division 3 section "Concrete Work" for normal weight, ready-mix concrete with minimum 28-day compressive strength of 2,500 psi, 440 lb cement per cu. ft. minimum, and W/C ratio of 0.65 maximum, unless higher strengths indicated.

2.6 FABRICATION, GENERAL

A. Form metal fabrications from materials of size, thickness, and shapes indicated but not less than that needed to comply with performance requirements indicated. Work to dimensions indicated or accepted on shop drawings, using proven details of fabrication and support. Use type of materials indicated or specified for various components of each metal fabrication.

B. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges.

C. Allow for thermal movement resulting from the following maximum change (range) in ambient temperature in the design, fabrication and installation of installed metal assemblies to prevent buckling, opening up of joints, and overstressing of welds and fasteners. Base design calculations on actual surface temperatures of metals due to both solar heat gain and nighttime sky heat loss.
1. Temperature Change (Range): 100□F (55.5□C).

D. Shear and punch metals cleanly and accurately. Remove burrs.

E. Ease exposed edges to a radius of approximately 1/32 inch, unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

F. Remove sharp or rough areas on exposed traffic surfaces.

G. Weld corners and seams continuously to comply with AWS recommendations and the following:
   1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
   2. Obtain fusion without undercut or overlap.
   3. Remove welding flux immediately.
   4. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing and contour of welded surface matches those adjacent.

H. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of type indicated or, if not indicated, Phillips flat-head (countersunk) screws or bolts. Locate joints where least conspicuous.

I. Provide for anchorage of type indicated; coordinate with supporting structure. Fabricate and space anchoring devices to provide adequate support for intended use.

J. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

K. Cut, reinforce, drill and tap miscellaneous metal work as indicated to receive finish hardware, screws and similar items.

L. Fabricate joints that will be exposed to weather in a manner to exclude water or provide weep holes where water may accumulate.

2.7 ROUGH HARDWARE

A. Furnish bent or otherwise custom fabricated bolts, plates, anchors, hangers, dowels and other miscellaneous steel and iron shapes as required for framing and supporting woodwork and for anchoring or securing woodwork to concrete or other structures. Straight bolts and other stock rough hardware items are specified in Division 6 sections.

B. Fabricate items to sizes, shapes and dimensions required. Furnish malleable-iron washers for heads and nuts which bear on wood structural connections; elsewhere, furnish steel washers.

2.8 LOOSE BEARING AND LEVELING PLATES

A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction, made flat, free from warps or twists, and of required thickness and bearing area. Drill plates to receive anchor bolts and from grouting as required. Galvanize after fabrication.

2.9 MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Provide steel framing and supports for applications indicated or which are not a part of structural steel framework, as required to complete work.

B. Fabricate units to sizes, shapes and profiles indicated and required to receive adjacent other construction retained by framing and supports. Fabricate from structural steel shapes, plates and steel bars of welded construction using mitered joints for field connection. Cut, drill and tap units to receive hardware, hangers and similar items.
   1. Equip units with integrally welded anchors for casting into concrete or building into masonry. Furnish inserts if units must be installed after concrete is placed.
      a. Except as otherwise indicated, space anchors 24 inches o.c. and provide minimum anchor units in the form of steel straps 1¼" W x ¼" x 8" long.

C. Galvanize miscellaneous framing and supports in the following locations:
   1. Exterior locations.
   2. Interior locations where indicated.

2.10 MISCELLANEOUS STEEL TRIM

A. Provide shapes and sizes indicated for profiles shown. Unless otherwise indicated, fabricate units from structural steel shapes, plates and steel bars with continuously welded joints and smooth exposed edges. Use concealed field splices wherever possible. Provide cutouts, fittings and anchorages as required for coordination of assembly and installation with other work.

B. Galvanize miscellaneous framing and supports in the following locations:
   1. Exterior locations.
   2. Interior locations where indicated.

2.11 FINISHES, GENERAL

A. Comply with NAAMM "Metal Finishes Manual" for recommendations relative to application and designations of finishes.

B. Finish metal fabrications after assembly.

2.12 STEEL AND IRON FINISHES

A. Preparation for Shop Priming: Prepare uncoated ferrous metal surfaces to comply with minimum requirements indicated below for SSPC surface preparation specifications and environmental exposure conditions of installed metal fabrications:
   1. Exteriors (SSPC Zone 1B): SSPC-SP6 "Commercial Blast Cleaning."
   2. Interiors (SSPC Zone 1A): SSPC-SP3 "Power Tool Cleaning."

B. Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finish or to be embedded in concrete, sprayed-on fireproofing, or masonry, unless otherwise indicated. Comply with requirements of SSPC-PA1 "Paint Application Specification No. 1" for shop painting.
   1. Stripe paint all edges, corners, crevices, bolts, welds and sharp edges.

2.13 ROOF OPENING FRAMING

A. Furnish and weld in place all angles and channels required to frame roof opening.

2.14 LADDERS

A. Fabricate ladders indicated for conditions encountered.

B. Provide safety cage and safety post at top of ladder.

2.15 BOLLARDS

A. Fabricate from 6” diameter schedule 80 steel pipe. Include #4 deformed bars to anchor bollard to concrete encasement.

2.16 STEEL PIPE RAILING

A. General: Fabricate pipe railings to comply with requirements indicated for design, dimensions, details, finish and member sizes including wall thickness of pipe, post spacings and anchorage but not less than that required to support structural loads.

B. Interconnect railing members by butt-welding or welding with internal connectors, at fabricator's option, unless otherwise indicated.
   1. At tee and cross intersections, notch ends of intersecting members to fit contour of pipe to which end is joined and weld all around.

C. Form changes in direction of railing members as follows:
   1. By insertion of prefabricated elbow fittings.
   2. By radius bends of radius indicated.
   3. By bending.
   4. By any method indicated above, applicable to change of direction involved.

D. Form simple and compound curves by bending pipe in jigs to produce uniform curvature for each repetitive configuration required; maintain cylindrical cross-section of pipe throughout entire bend without buckling, twisting, cracking or otherwise deforming exposed surfaces of pipe.

E. Close exposed ends of pipe by welding 3/16 inch thick steel plate in place or by use of prefabricated fittings, except where clearance of end of pipe and adjoining wall surface is ¼" or less.

F. Toe Boards: Where indicated, provide toe boards at railings around openings and at the edge of open-sided floors and platforms. Fabricate to dimensions and details indicated, or if not indicated, use 4" H x 3/16" steel plate welded to, and centered between, each railing post.

G. Brackets, Flanges, Fittings and Anchors: Provide wall brackets, end closures, flanges, miscellaneous fittings and anchors for interconnections of pipe and attachment of railings and handrails to other work. Furnish inserts and other anchorage devices for connecting railings and handrails to concrete or masonry work.

H. Fillers: Provide steel sheet or plate fillers of thickness and size indicated or required to support structural loads of handrails where needed to transfer wall bracket loads through wall finishes to structural supports. Size fillers to suit wall finish thicknesses. Size fillers to produce adequate bearing to prevent bracket rotation and overstressing of substrate.

3.0 EXECUTION

3.1 PREPARATION

A. Coordinate and furnish anchorages, setting drawings, diagrams, templates, instructions and directions for installation of anchorages, including concrete inserts, sleeves, anchor bolts, and miscellaneous items having integral anchors that are to be embedded in concrete or masonry construction. Coordinate delivery of such items to project site.

3.2 INSTALLATION, GENERAL

A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction; include threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws and other connectors as required.

B. Cutting, Fitting and Placement: Perform cutting, drilling and fitting required for installation of miscellaneous metal fabrications. Set metal fabrication accurately in location, alignment and elevation; with edges and surfaces level, plumb, true and free of rack; and measured from established lines and levels.

C. Provide temporary bracing or anchors in formwork for items that are to be build into concrete masonry or similar construction.

D. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations. Do not weld, cut or abrade the surfaces of exterior units which have been hot-dip galvanized after fabrication and are intended for bolted or screwed field connections.

E. Field Welding: Comply with AWS Code for procedures of manual shielded metal-arc welding, appearance and quality of welds made, methods used in correcting welding work, and the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing and contour of welded surface matches those adjacent.

F. Corrosion Protection: Coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood or dissimilar metals with a heavy coat of bituminous paint or zinc chromate primer.

G. Steel Stair and Stair Railing System:

1. Securely anchor stringers to structural members, headers or walls.
2. Install subtreads and risers plumb and level with relation to floor and landing surface and secure to stringers by bolting through supporting angles or welding.
3. Install treads level across width of stair.
4. Pipe handrails and railings:
    a. Weld railing supports to top flange of stair stringers. Grind fillet of welds smooth, free of excessive grind marks. Exercise care not to deface stringers and rail supports in grinding operation.
    b. Anchor handrail brackets to walls using anchors appropriate for conditions.
    c. Return discontinuous ends of railings to wall and/or railing supports.
    d. Install wall brackets equally along length of railing spaced maximum 4 feet O.C. Secure railing to brackets with minimum two (2) #10 FHMS of sufficient length to penetrate through pipe wall at least ¼ inch.

3.3 SETTING LOOSE PLATES

A. Clean concrete and masonry bearing surfaces of any bond-reducing materials and roughen to improve bond to surfaces. Clean bottom surface of bearing plates.

B. Set loose leveling and bearing plates on wedges or other adjustable devices. After the bearing members have been positioned and plumbed, tighten the anchor bolts. Do not remove wedges or shims, but if protruding, cut off flush with the edge of the bearing plate before packing with grout.
    1. Use metallic non-shrink grout in concealed locations where not exposed to moisture; use nonmetallic non-shrink grout in exposed locations, unless otherwise indicated.
    2. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

3.5 ADJUSTING AND CLEANING

A. Touch-Up Painting: Immediately after erection, clean field welds, bolted connections and abraded areas of shop paint and paint exposed areas with same material as used for shop painting to comply with SSPC-PA 1 requirements for touch-up of field painted surfaces.
    1. Apply by brush or spray to provide a minimum dry film thickness of 2.0 mils.

B. Touch-Up Painting: Cleaning and touch-up painting of field welds, bolted connections and abraded areas of the shop paint on miscellaneous metal is specified in Division 9 Section "Painting" of these specifications.

END OF SECTION

SECTION 06100 - ROUGH CARPENTRY

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 section.

1.2 SUMMARY:

A. Types of work in this section include rough carpentry:
   1. Preservative treated wood blocking/nailers for roofing.
   2. Wood grounds, nailers and blocking.

1.3 SUBMITTALS:

A. Wood Treatment Data: Submit chemical treatment manufacturer's instructions for handling, storing, installation and finishing of treated material.
   1. Preservative treatment: For each type specified, include certification by treating plant stating type of preservative solution and pressure process used, net amount of preservative retained and conformance with applicable standards.

1.4 PRODUCT HANDLING:

A. Delivery and Storage: Keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Stack lumber as well as plywood and other panels; provide for air circulation within and around stacks and under temporary coverings including polyethylene and similar materials.
   1. For lumber and plywood pressure treated with waterborne chemicals, sticker between each course to provide air circulation.

1.5 PROJECT CONDITIONS:

A. Coordination: Fit carpentry work to other work; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds and similar supports to allow attachment of other work.

PART 2 - PRODUCTS

2.1 LUMBER, GENERAL:

A. Lumber Standards: Manufacture lumber to comply with PS 20 "American Softwood Lumber Standard" and with applicable grading rules of inspection agencies certified by American Lumber Standards Committee's (ALSC) Board of Review.

B. Inspection Agencies: Inspection agencies and the abbreviations used to reference with lumber grades and species include the following:
   1. NLGA - National Lumber Grades Authority (Canadian).
   2. SPIB - Southern Pine Inspection Bureau.
   3. WCLIB - West Coast Lumber Inspection Bureau.
   4. WWPA - Western Wood Products Association.

C. Grade Stamps: Factory-mark each piece of lumber with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency, grade, species, moisture content at time of surfacing, and mill.

D. Nominal sizes are indicated, except as shown by detail dimensions. Provide actual sizes as required by PS 20, for moisture content specified for each use.
   1. Provide dressed lumber, S4S, unless otherwise indicated.
   2. Provide seasoned lumber with 19 percent maximum moisture content at time of dressing and shipment for sizes 2 inches or less in nominal thickness, unless otherwise indicated.
   3. Provide lumber with 15 percent maximum moisture content at time of dressing and shipment for sizes 2 inches or less in nominal thickness, unless otherwise indicated.

2.2 DIMENSION LUMBER:

A. Light lumber framing, wood blocking and grounds:
   1. Dimensions:
      a. Where indicated and/or specified, lumber dimensions are nominal.
      b. Actual dimensions to conform to PS20 for structural framing.
   2. Surfacing: Surface four sides (S4S) unless specified otherwise.
   3. Grades shall conform to the grading rules of manufacturer's association for the kinds of wood. Lumber shall bear the grade and trademark of the association under whose rule it is produced and shipped and a mark of the mill identification.
   4. Species: Douglas fir-larch, hem-fir or southern pine graded under SPIB, WCLIB or WWPA Rules.
   5. Grade: SPF No. 2 or better.
   6. Moisture content: 19% or less.
   7. Sizes: As indicated on drawings and/or as required to suit conditions encountered.

B. Shoring Lumber: Dimensions, species and adequate stress characteristics as required to suit conditions encountered.

2.3 WOOD TREATMENT BY PRESSURE PROCESS:

A. Preservative Treatment: Where lumber or plywood is indicated as "Trt-Wd" or "Treated", or “PT” is specified herein to be treated, comply with applicable requirements of AWPA Standards C2 (Lumber) and C9 (Plywood) and of AWPB Standards listed below. Mark each treated item with the AWPB Quality Mark Requirements.
   1. Pressure-treat aboveground items with water-borne preservatives to comply with AWPB LP-2. After treatment, kiln-dry lumber and plywood to a maximum moisture content, respectively, of 19 percent and 15 percent. Treat indicated items and the following:
      a. Wood nailers, curbs, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers and waterproofing.
      b. Blocking, furring, stripping and similar concealed members in contact with masonry or concrete.
   2. Treat coated cut surfaces with heavy brush coat of same chemical used for treatment and to comply with AWPA M4.

2.5 MISCELLANEOUS MATERIALS:

A. Fasteners and Anchorages: Provide size, type, material and finish as indicated and as recommended by applicable standards, complying with applicable Federal Specifications for nails, staples, screws, bolts, nuts, washers and anchoring devices. Provide metal hangers and

framing anchors of the size and type recommended by the manufacturer for each use including recommended nails.

1. Where rough carpentry work is exposed to weather, used with preservative treated wood, or in area of high relative humidity, provide fasteners and anchorages with a hot-dip zinc coating (ASTM A-153).

2.6 FIRE RETARDANT LUMBER

A. Provide fire retardant lumber at all interior concealed locations and as required by the applicable authorities as required by Code.

PART 3 - EXECUTION

3.1 INSPECTION:

A. Verify that surfaces to receive rough carpentry materials are prepared to required grades and dimensions and that they are reasonably clean, smooth, level and/or plumb.

B. Assure that anchor bolts required to secure blocking and nailers are properly located and installed.

C. Assure that preservative treatment used on blocking and nailers is compatible with roof deck insulation and membrane roofing materials.

3.2 INSTALLATION, GENERAL:

A. Discard units of material with defects which might impair quality of work and units which are too small to use in fabricating work with minimum joints or optimum joint arrangement.

B. Set carpentry work to required levels and lines with members plumb and true and cut and fitted.

C. Securely attach carpentry work to substrate by anchoring and fastening as shown and as required by recognized standards.

3.3 INSTALLATION:

A. Wood Blocking and Nailers: Used in conjunction with roof deck insulation, membrane roofing, fascia, copings and flashings:

1. Coordinate wood blocking and nailer requirements with appropriate applicators and approved shop drawings.

2. In general, install preservative treated wood nailers at perimeter of each roof level, curb flashing, roof hatch, similar penetrations and as required for fascia, copings, and at other locations as indicated on drawings and/or as required.

3. Firmly anchor all roof nailers to meet FM Loss Prevention Data Bulletin 1-49.

4. Unless otherwise indicated, thickness of nailers used in conjunction with roofing membrane shall be such that top of nailer is flush with surface to which roofing membrane is applied and/or attached (top of roof deck insulation) at horizontal plane.

5. Coordinate installation of vertical nailers, where required, with work of roofing material applicator.

6. Provide and install solid blocking at all wall door bumper locations.

B. Properly frame, closely fit, accurately set all framing, blocking, grounds, nailers, furring and other rough woodwork to required lines and levels and rigidly secure in place.

C. Install all woodwork level, plumb, square and true to details.

D. Expansion Joints: Worked to permit section to expand or contract without buckling.

E. Furnish and set all grounds, bucks and nailing clips required throughout building for work of other trades. Provide grounds or blocking ample to take nailing and securely anchored to studs.

F. Shoring Timber: Install all shoring and miscellaneous timber required to complete work properly.

G. Patch or repair any work of this section that may be cut or damaged by other trades.

H. Supervise all cutting for work by others and be responsible for any damage. Furnish means for proper access to different portions of work to Architect or his representative.

I. Details showing intent of design and construction are indicated on drawings and should be followed as closely as possible in keeping with best construction practices of trade involved. Work shall meet with approval of Architect.

J. Take and verify all measurements required for proper execution and fit of work. Check Architect's dimensions against field conditions. Report to Architect any discrepancies which will involve corrections. Adjust before fabrication. Be responsible for proper connections to adjoining work.

END OF SECTION

SECTION 062000 - FINISH CARPENTRY AND MILLWORK

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 section.

1.2 SUMMARY:

A. Extent of finish carpentry and millwork is indicated on drawings and provisions of this section.

B. Work Shall Include, But Not Be Limited To:
1. Plastic laminate tops, aprons, panels, shelves, except as otherwise specified in casework sections.
   a. Cut openings in countertops for sinks where indicated on drawings from templates furnished by P.C.
2. Solid Surface countertops.
3. Quartz Countertops.
4. ECOresin (3form)
5. Epoxy Resin (lab countertops)
6. Finish carpentry and millwork to carry out intent of drawings and specifications.
7. Screws, fasteners and anchors required for fabrication and installation.

1.3 RELATED WORK SPECIFIED ELSEWHERE:

A. Carpentry is specified in another Division 6 section.

B. Painting as specified in Division 9.

C. Mechanical as specified in Division 23.

D. Plumbing as specified in Division 22.

1.4 QUALITY ASSURANCE:

**Exact material selections to be followed as shown in architectural drawings A-600's.*

A. Job Conditions: Prior to delivery and installation of finish carpentry and millwork materials, assure that following conditions exist -
1. Temperature and humidity conditions closely approximate those which will exist when building is occupied.
2. Building is not damp and cold or dry and hot.
3. Concrete flooring, plastering and other wet work has been allowed to dry properly.
4. Windows and doors are in place and glazed.
5. Heating system is installed and operating where necessary to maintain proper conditions before, during and after finish carpentry and millwork is in progress.

B. Fabricate materials to conform with details and design indicated on drawings in accordance with best millwork practices. Work must meet approval of Architect. Remove and build over, any mediocre work disapproved by Architect.

C. Coordination:
1. Take and verify all measurements required for proper execution and fit of work.
2. Verify dimensions on Architect's drawings with field conditions.
3. Report discrepancies and conflicts involving changes, including those between different installations, to Architect for correction prior to fabrication of materials.
4. Coordinate work with various other trades providing adjoining work.

1.5 SUBMITTALS:

A. Shop Drawings: Submit shop drawings of millwork, indicating:
1. Elevations and sections.
2. Details of joinery and fastening.
3. Material species and grade.
   a. Plastic Laminate
   b. Core material to receive plastic laminate application
   c. Solid Surface
   d. Core material to receive solid surface material
4. Surfaces to receive plastic laminate finish and solid surface finish.
5. Adhesives types and grades.
   a. Plastic laminate adhesive
   b. Solid surface adhesive
   c. Quartz adhesive
6. Actual field verified dimensions.

B. Samples:
1. Two pieces of each species of solid wood adequate to indicate standard of quality for materials to be used on project.
2. Samples of specified plastic laminate for Architect's approval.
3. Samples of specified solid surface for Architect’s approval.
4. Samples of specified ECOresin surface for Architect’s approval.

1.6 PRODUCT DELIVERY, HANDLING AND STORAGE:

A. Provide necessary protection for delivery, handling and storage of materials to prevent damage.

B. Store materials in an enclosed space protected from weather and with environmental conditions specified for job conditions.

C. Provide manufacturer’s 10-year warranty against defects in materials. Warranty shall provide material and labor to repair or replace defective materials. Damage caused by physical or chemical abuse or damage from excessive heat not warranted.

PART 2 - PRODUCTS

2.1 MATERIALS:

A. Plastic Laminate:
1. Conform to National Electric Manufacturer's Association (NEMA) LD3-1995, GP50, standard grade, minimum 0.050 inch thick.

** Refer to drawings A-600’s for exact finish selections.*

2. Backing sheet: LD3-1995, BK20, 0.020 inch thick.
3. Plastic Laminate Core:
   a. Particleboard: 47 pound density, conforming to ANSI A208-1, Grade 1-M-3 "Mat Formed Wood Particleboard".
      1) Vertical applications: Minimum 1/2 inch thick.
      2) Horizontal applications: Minimum 3/4 inch thick.

B. Solid Surface:
1. Conform to all manufacturers recommended installation requirements.
   ** Refer to drawings A-600's for exact finish selections.*
2. Characteristics:
   a. Non-porous homogeneous blend of polyester/acrylic alloys and fillers.
      1) Superficial damage to a depth of 0.10" shall be repairable by sanding or polishing.
      2) Stain and chemical resistance: NEMA LD 3-3.9. tested to 29 common agents.
   b. Thickness: Provide materials of thickness as shown on the drawings.

C. Quartz:
1. Conform to all manufacturers recommended installation requirements.
   ** Refer to drawings A-600's for exact finish selections.*
2. Characteristics:
   a. Cast, filled, acrylic; not coated, laminated or of composite construction, meeting ANSE Z124-1980, Type Six, and Fed. Spec. WW-P-541E/GEN dated August 1, 1980.
      1) Superficial damage to a depth of 0.10" shall be repairable by sanding or polishing.
   b. Thickness: Provide materials of thickness as shown on the drawings.

D. Ecoresin (3form):
1. Conform to all manufacturers recommended installation requirements.
   ** Refer to drawings A-600's for exact finish selections.*
2. Thickness: 1/4"

E. Solid Woods: Hardwood, clear and free from defects. Kiln dry to insure moisture content of 6 to 8 %. After kiln drying, temper all solid woods to moisture content of 7 to 10 %.
1. Hardwood for exposed edges of plywood:
   a. Plain Sliced Maple (See drawings to verify species and locations)
2. Hardwood:
   a. Plain Sliced Maple: Grade No. 2 or better.
3. Wood stair treads, moldings, trim and solid wood: Plain Sliced Maple.
4. Finish stain to be selected by Architect

F. Adhesives:
1. Millwork: As recommended by millwork fabricator for conditions encountered.
2. Plastic laminate: Natural-setting hybrid P.V.A. Type III water resistant adhesives that cure through chemical reaction, containing no health or environmentally hazardous ingredients.
3. Solid Surface:
   a. Joint Adhesive: Manufacturer's standard two part adhesive kit to create inconspicuous, non-porous joints.

G. Screws and Fastenings:
1. Stainless Steel for Plastic Laminate.
2. Millwork Assembly: Rustproof type as required for conditions encountered.

2.2 WARRANTY:

A. Provide manufacturer's 10-year warranty against defects in materials. Warranty shall provide material and labor to repair or replace defective materials. Damage caused by physical or chemical abuse or damage from excessive heat not warranted.

2.3 CASEWORK

A. Countertops with high pressure laminate finish.
** Refer to drawings A-600's for exact finish selections.*
1. Construction: See Details.
2. Exposed surfaces acceptable manufacturers, others acceptable if specified in architectural drawings)
   a. Formica Corporation
   b. Wilsonart
   c. Pionite
   d. Nevamar
   e. Laminart
3. Colors and patterns: See architectural drawings for exact selections.
4. Backing sheet: Clear.
5. Thickness: Horizontal surfaces 1/l6" vertical surfaces l/32"
6. Adhesive: Contact type as recommended by the laminated plastic manufacturer.
7. Semi-exposed surfaces: As required by AWI quality grade.

B. Particleboard Core:
1. Medium density conforming to CS236, type 1-B2.
2. Particleboard shall not be used for shelves.

C. Solid Surface Counters:
** Refer to drawings A-600's for exact finish selections.*
1. Provide sizes and configuration as shown on drawings and specified.
2. Provide all necessary blocking and brackets for support.
3. Solid Polymer surface shall be applied to ¾" particleboard in strict accordance with manufacturer's instructions and recommendations.
4. Exposed surfaces (acceptable manufacturers)

D. Ecoresin (3form):
** Refer to drawings A-600's for exact finish selections.*
1. Provide sizes and configurations as shown on drawings and specified.
2. Provide all necessary blocking and brackets for support.
3. Ecoresin (3form) panels, support system, and hardware shall be provided by: RB Marketing Group, 6470 Creek Road, Oneida, NY 13421;315-363-2683
   a. Manufacturer shall Factory cut and seal edges to sizes and configurations as shown on drawings and specified.
   b. Full size templates shall be provided to manufacturer.
4. Exposed surfaces: (acceptable manufacturer)

2.4 MILLWORK

Shall include the following:

A. All Counters:
1. Provide sizes and configuration as shown on drawings and specified herein (field measure and scribe to walls).
2. Provide all hardware required. Hardware for millwork is not included in hardware Section 8.
3. Provide all necessary blocking and brackets for support and attachment to walls.
4. Solid Polymer surface shall be applied to 3/4" particle board in strict accordance with manufacturer's instructions and recommendation.
5. Solid Polymer surface shall be fabricated and installed per manufacturer's recommended instructions.
6. Ecoresin (3form) panels shall be fabricated and installer per manufacturers recommended instructions.

B. Coat Rod & Shelf, and all other millwork specified in drawings to receive plastic laminate:
1. Provide sizes and configuration as shown on drawings and specified herein (field measure and scribe to walls). All shelves to receive plastic laminate finish as per drawing details.
2. Provide all hardware required. Hardware for millwork is not included in hardware Section 8.
3. Provide all necessary blocking and brackets for support and attachment to walls.
4. Plastic laminate shall be applied to 3/4" particle board in strict accordance with laminate manufacturers instructions and recommendation.

2.5 FABRICATION, GENERAL:

A. Fabrications to dimensions, profiles, and details indicated on drawings, with openings and mortises precut, where required, to receive hardware and other items and work.

B. Complete fabrication, assembly, finishing, hardware application, and other work before shipment to project site to maximum extent possible. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

C. Pre-cut Openings: Fabricate with pre-cut openings, where required, to receive hardware, appliances, plumbing fixtures, electrical work and similar items. Locate openings accurately and use templates or roughing-in diagrams for proper size and shape. Smooth edges of cutoffs.

D. Measurements: Before proceeding with fabrication of solid polymer fabrications required to be fitted to other construction, obtain field measurements and verify dimensions and shop drawing details as required for accurate fit.

E. Millwork:
1. Assemble millwork items neatly and carefully.
2. Glue shop assembled surfaces where possible and block at concealed locations.
3. Cope intersecting moldings where possible.
4. Join mill assemblies with concealed nails and screws where practical.
5. Glue, mortise and tenon joints.
6. Install splines at mitered corners.
7. Make all jointing over solid bearing.

8. Where drawers are required, fabricate heads, sides and backs from solid hardwood material. Particleboard, not acceptable.

F. Plastic Laminate Application:
   1. Apply plastic laminate over solid backing of thickness indicated on drawings and/or specified herein.
   2. Use adhesive specified in accordance with manufacturer's recommendations.
   3. Adhere plastic laminate to backing under pressure as recommended by laminated plastic manufacturer.
   4. Apply plastic laminate to exposed faces, ends and edges of core material.
   5. Where possible, apply plastic laminate without seams.
   6. Apply backing sheets on rear face of core material in all cases where rear face is not exposed to view.
   7. Seal all exposed core edges at cutouts with approved waterproof sealer.
   8. Prepare plastic laminate tops and panels for fastening with concealed screws and anchors.

G. Solid Surface:
   1. Fabrications to dimensions, profiles and details indicated on drawings with openings and mortises precut where required to receive hardware and other items and work.
   2. Complete fabrication, assembly, finishing, hardware application and other work before shipment to project site to maximum extent possible. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
   3. Pre-cut Openings: Fabricate with pre-cut openings, where required, to receive hardware, appliances, plumbing fixtures, electrical work and similar items. Locate openings accurately and use templates or roughing-in diagrams for proper size and shape. Smooth edges of cutoffs.
   4. Measurements: Before proceeding with fabrication of solid polymer fabrications required to be fitted to other construction obtain field measurements and verify dimension and shop drawing details as required for accurate fit.

H. Ecoresin (3form):
   1. Fabricate to dimensions, profiles and details indicated on drawings with field verification to coordinate with millwork. All openings and shapes precut, where required, to receive hardware and other items and work.
   2. Complete fabrication, assembly, finishing, hardware application and other work before shipment to project site to maximum extent possible. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
   3. Measurements: Before proceeding with fabrication of Ecoresin (3form), fabricationsrequired to be fitted to other construction must be field measured to verify dimensions and shop drawing details for an accurate fit.

2.6 BLOCKING, GROUNDS AND FRAMING

Shall be of thickness required for intended purpose.

A. Framing: Frame, fit closely, set framing accurately to required lines, levels, secure rigidly in place. Provide special framing or construction not indicated or specified, as required to complete work in best workmanlike manner. Do nailing, and fastening in a thorough manner; use nails and fasteners of ample size: l6d spikes where practicable.

B. Provide dressed wood grounds and furring where required and herein described.

C. Set grounds rigidly, in perfect alignment, true up with long straight edge.

D. Fastening: To concrete and solid masonry with expansion bolts. Fasten to hollow masonry with toggle bolts or with nails in metal wall plugs. Fasten to metal with stove bolts and fasten to metal lath with wire. The use of wood plugs will not be permitted.

E. Install rough wood blocking, rough hardware metal fastenings for proper installation of finish work and accessories.

F. Install furring as indicated.

2.7 FINISH HARDWARE

Shall be delivered from Division 8 for installation after painting.

A. Install hardware in accordance with manufacturer's instructions. Fit accurately, apply securely and adjust carefully.

PART 3 - EXECUTION

3.1 INTERIOR FINISH:

A. General character and intent as indicated on drawings.

B. Perform all cutting and fitting neatly and, in general, make fastenings with finishing nails.

C. Set exposed nails for putty stopping.

D. Space splice joints in wood trim not less than 12 feet on center. Miter and glue splices. Where transparent finish is scheduled, match grain at splices as closely as possible.

E. Finish Work: Free from open joints and tool marks.

3.2 INSTALLATION:

A. Install work level, plumb, true to detail.

B. Fasten work securely in place.

C. Back prime all interior woodwork with one liberal coat of approved sealer.

D. Unless otherwise indicated, provide concealed fastenings and anchors to secure plastic laminated tops and panels to blocking or other materials indicated.

E. Form field joints using manufacturer's recommended adhesive, with joints inconspicuous in finished work. Keep components and hands clean when making joints.

F. Provide backsplashes and end splashes as indicated on the drawings.

G. Install sinks in countertops using manufacturers/installers recommended product installation details.

H. Keep components and hands clean during installation. Remove adhesives, sealants and other stains. Components shall be clean on date of substantial completion.

I. Clean and prepare finish carpentry and millwork to receive scheduled finish.

J. Allowable tolerances: Fabricate to the following tolerances:
   1. Variation in component size: $\pm$ 1/8".
   2. Location of openings: $\pm$ 1/8" form indicated location.
   3. Anchors: Select material, type, size and finish required.

3.3 PROTECTION:

A. Provide protection for finish carpentry and millwork against damage by construction work until completion of project.

B. Repair or replace damaged work as directed by Architect, at no additional cost to Owner.

END OF SECTION

SECTION 07200 - INSULATION

1.0 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DESCRIPTION OF WORK

A. Extent of insulation work is shown on drawings and indicated by provisions of this section.

B. Applications of insulation specified in this section include the following:
1. Safing insulation.
2. Blanket-type building insulation.
3. Acoustical Insulation

C. Roof insulation is specified in the Division-7 section in which other roofing products, including roofing membrane is covered.

1.3 QUALITY ASSURANCE

A. Thermal Resistivity: Where thermal resistivity properties of insulation materials are designated by r-values they represent the rate of heat flow through a homogenous material exactly 1" thick, measured by test method included in referenced material standard or otherwise indicated. They are expressed by the temperature difference in degrees F between the two exposed faces required to cause one BTU to flow through one square foot per hour at mean temperatures indicated.

B. Fire Performance Characteristics: Provide insulation materials which are identical to those whose fire performance characteristics, as listed for each material or assembly of which insulation is a part, have been determined by testing, per methods indicated below by UL or other testing and inspecting agency acceptable to authorities having jurisdiction.
1. Surface Burning Characteristics: ASTM E84.
2. Fire Resistance Ratings: ASTM E119.

1.4 SUBMITTALS

A. Product Data: Submit manufacturer's product literature and installation instructions for each type of insulation and air infiltration material required.

B. Certified Test Reports: With product data, submit copies of certified test reports showing compliance with specified performance values, including r-values (aged values for plastic insulations), densities, compression strengths, fire performance characteristics, perm ratings, water absorption ratings and similar properties.

1.5 DELIVERY, STORAGE AND HANDLING

A. General Protection: Protect insulations from physical damage and from becoming wet, soiled, or covered with ice or snow. Comply with manufacturer's recommendations for handling,

storage and protection during installation.

1.6 CLOSEOUT SUBMITTALS

A. Upon completion of the Work of this Section, Contractor shall submit to the Construction Manager, all required closeout documents.

B. Contractor shall submit a marked-up set of drawings indicating any changes made during construction to the Construction Manager.

C. Upon completion, submit to the Construction Manager, a Contractor's Affidavit of Payment of Debts and Claims, and Release of Liens.

D. Refer to General Conditions for additional requirements.

2.0 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:
   1. Manufacturers of Glass Fiber Insulation:
      a. CertainTeed Corp.
      b. Manville Corp.
      c. Owens-Corning Fiberglas Corp.
   2. Manufacturers of Semi-Refractory Fiber Insulation:
      a. Manville Corp.
      b. United States Gypsum Co.

2.2 INSULATING MATERIALS

A. General: Provide insulating materials which comply with requirements indicated for materials, compliance with referenced standards, and other characteristics.

B. Faced Fiberglass Batt Insulation: Thermal insulation produced by glass, Class A (blankets with reflective vapor-retarder membrane facing with flame spread of 25 or less; foil vapor-retarder membrane on one face, respectively; and as follows:
   1. Surface Burning Characteristics: Maximum flame spread and smoke developed values of 25 and 50 respectively. R Value of R-21.

C. Un-faced Fiberglass Batt Insulation: Thermal insulation produced by glass, Class A (blankets with reflective vapor-retarder membrane facing with flame spread of 25 or less for filling voids around doors and windows.
   1. Surface Burning Characteristics: Maximum flame spread and smoke developed values of 25 and 50 respectively. R Value of R-21.

D. Acoustical Insulation: Thermafiber sound attenuation blankets by USG.

3.0 EXECUTION

3.1 INSPECTION AND PREPARATION

A. Require Installer to examine substrates and conditions under which insulation work is to be performed. A satisfactory substrate is one that complies with requirements of the section in which substrate and related work is specified. Obtain Installer's written report listing conditions detrimental to performance of work in this section. Do not proceed with installation of insulation until unsatisfactory conditions have been corrected.

B. Clean substrates of substances harmful to insulations or air infiltration materials, including removal of projections which might puncture air infiltration materials.

3.2 INSTALLATION, GENERAL

A. Comply with manufacturer's instructions for particular conditions of installation in each case. If printed instructions are not available or do not apply to project conditions, consult manufacturer's technical representative for specific recommendations before proceeding with work.

B. Extend insulation full thickness as shown over entire area to be insulated. Cut and fit tightly around obstructions, and fill voids with insulation. Remove projections which interfere with placement.

C. Apply a single layer of insulation of required thickness, unless otherwise shown or required to make up total thickness.

3.3 INSTALLATION OF GENERAL BUILDING INSULATION

A. Apply insulation units to substrate by method indicated, complying with manufacturer's recommendations. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.

B. Seal joints between closed-cell (non-breathing) insulation units by applying mastic or sealant to edges of each unit to form a tight seal as units are shoved into place. Fill voids in completed installation with mastic or sealant.

C. At all exterior walls, set air infiltration faced units with air infiltration to warm side of construction, except as otherwise indicated. Do not obstruct ventilation spaces, except for firestopping. Seal to existing insulation.

D. Stuff fiberglass insulation into miscellaneous voids and cavity spaces where shown. Compact to approximately 40% of normal maximum volume (to a density of approximately 2.5 lbs. per cu. ft.).

END OF SECTION

SECTION 07424 COMPOSITE WALL PANELS

Part 1 - GENERAL

1.1 SECTION INCLUDES:

A. Exterior, panelized fiber cement cladding system and accessories to complete a drained and back-ventilated rainscreen.

B. Interior fiber cement panelized cladding system and accessories.

1.2 RELATED SECTIONS

A. Section 06100 - Rough Carpentry

B. Section 07 90 00 - Joint Protection

1.3 REFERENCES

A. American Architectural Manufacturers Association (AAMA):
   1. AAMA 509-09 – Voluntary Test and Classification Method of Drained and Back Ventilated Rain Screen Wall Cladding Systems

B. ASTM International (ASTM):
   1. ASTM C 518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
   2. ASTM C 1185 - Standard Test Methods for Sampling and Testing Non-Asbestos Fiber Cement.
      a. ASTM C 1186 – Standard Specification for Flat Fiber-Cement Sheets.
   3. ASTM E-84 - Standard Test for Surface Burning Characteristics of Building Materials.
   4. ASTM E 119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
   5. ASTM E 228 - Standard Test Method for Linear Thermal Expansion of Solid Materials with a Vitreous Silica Dilatometer.
   6. ASTM E 330 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
   7. ASTM E 331 - Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
   8. ASTM G 23 - Standard Practice for Operating Light-Exposure Apparatus (Carbon-Arc Type) with and without Water for Exposure of Nonmetallic Materials, Replaced by G152 and G153.

C. Florida Building Code - Test Protocol HVHZ
   1. Testing Application Standard (TAS) 201, 202, 203 – Impact Test Procedures

D. National Fire Protection Association (NFPA):
   1. NFPA 285 - Fire Test Method for Exterior Wall Assemblies Containing Combustible Material.
   2. NFPA 268 – Ignition Resistance of Exterior Wall Assemblies.

E. Standards Council of Canada & Underwriters Laboratories Canada (ULC):
   1. CAN/ULC S-102 – Standard Method of Test for Surface Burning Characteristics.
   2. CAN/ULC S-134 – Standard Method of Fire Test of Exterior Wall Assembly.

1.4 SUBMITTALS

A. Product Data: Submit manufacturer's product description, storage and handling requirements and installation instructions.

B. Product Test Reports and Code Compliance: Documents demonstrating product compliance with local building code, such as test reports or Evaluation Reports from qualified, independent testing agencies.

C. Manufacturer's Details: Submit drawings (.pdf formats) including plans, sections, showing installation details that demonstrate product dimensions, edge/termination conditions/treatments, compression and control joints, corners, openings and penetrations.

D. Samples: Submit samples of each product type proposed for use.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications:
   1. All fiber cement panels specified in this section must be supplied by a manufacturer with a minimum of 10 years of experience in fabricating and supplying fiber cement cladding systems.
      a. Products covered under this section are to be manufactured in an ISO 9001 certified facility.
   2. Provide technical and design support as needed regarding installation requirements and warranty compliance provisions.

B. Installer Qualifications: All products listed in this section are to be installed by a single installer trained by manufacturer or representative.

C. Mock-Up Wall: Provide a mock-up wall as evaluation tool for product and installation workmanship.

D. Pre-Installation Meetings: Prior to beginning installation, conduct conference to verify and discuss substrate conditions, manufacturer's installation instructions and warranty requirements, and project requirements.

1.6 DELIVERY, STORAGE AND HANDLING

A. Panels must be stored flat and kept dry before installation. A waterproof cover over panels and accessories should be used at all times prior to installation.

B. If panels are exposed to water or water vapor prior to installation, allow to completely dry before installing. Failure to do so may result in panel shrinkage at ship lap joints, and such action may void warranty.

C. Panels MUST be carried on edge. Do not carry or lift panels flat. Improper handling may cause cracking or panel damage.

D. Direct contact between the panels and the ground should be avoided at all times. It is necessary to keep panels clean during installation process.

1.7 WARRANTY

A. Provide manufacturer's 15-year warranty against manufactured defects in fiber cement panels. Additional 5-year extension available when refinished in year 14-15.

B. Provide manufacturer's 15-year warranty against manufactured defects in panel finish.

C. Warranty provides for the original purchaser. See warranty for detailed information on terms, conditions and limitations.

PART 2: PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Nichiha Corporation, 18-19 Nishiki 2-chome Naka-ku, Nagoya, Aichi 460-8610, Japan.

B. Acceptable Manufacturer's Representative: Nichiha USA, Inc., 6465 E. Johns Crossing, Suite 250, Johns Creek, GA 30097. Toll free: 1.866.424.4421, Office: 770.805.9466, Fax: 770.805.9467, www.nichiha.com.
   1. Basis of Design Product: Nichiha RoughSawn.
      a. Profile colors: Espresso, Smoke, and Tobacco.
      b. Profiles: Sawn wood texture with three grooves - 3/8" wide - running lengthwise, spaced 4-1/8" apart.
      c. Accessory/Component Options:
         1) Manufactured Corners with 3-1/2" returns for each profile color.
         2) Aluminum trim to be painted per finish schedule: Outside corners (Corner Key, Open Outside Corner), vertical joints (H-Mold), terminations (J-Mold)
         3) Essential Flashing System: Starter, Compression Joint, Overhang.
      d. Dimensions - AWP-3030: 455mm (17-7/8") (h) x 3,030 mm (119-5/16") (l).
      e. Panel Thickness: 16 mm (5/8").
      f. Weight: 57.32 lbs. per panel.
      g. Coverage: 14.81 sq. ft. per panel.
      h. Factory sealed on six [6] sides.

C. Substitutions will be considered after approval by Architect.

2.2 MATERIALS

A. Fiber cement panels manufactured from a pressed, stamped, and autoclaved mix of Portland cement, fly ash, silica, recycled rejects, and wood fiber bundles.

B. Panel surface pre-finished and machine applied.

C. Panels profiled along 3030mm edges so that the long joints between the installed panels are ship-lapped.

D. Factory-applied sealant gasket added to top panel edge; all 3030mm edge joints contain a factory sealant.

2.3 PERFORMANCE REQUIREMENTS:

A. Fiber Cement Cladding – Must comply with ASTM C-1186, Type A, Grade II requirements:
1. Wet Flexural Strength, lower limit: 1015 psi.
2. Water Tightness: No water droplets observed on any specimen.
3. Freeze-thaw: No damage or defects observed.
4. Warm Water: No evidence of cracking, delamination, swelling, or other defects observed.
5. Heat-Rain: No crazing, cracking, or other deleterious effects, surface or joint changes observed in any specimen.

B. Mean Coefficient of Linear Thermal Expansion (ASTM E-228): Max 1.0*10^-5 in./in. F.

C. Surface Burning (CAN-ULC S102/ASTM E-84): Flame Spread: 0, Smoke Developed: 5.

D. Wind Load (ASTM E-330): Contact manufacturer for ultimate test pressure data corresponding to framing type, dimensions, fastener type, and attachment clips. Project engineer(s) must determine Zone 4 and 5 design pressures based on project specifics.
1. Minimum lateral deflection: L/120.

E. Water Penetration (ASTM E-331): No water leakage observed into wall cavity.

F. Weather Resistant (ASTM G-23): No cracking, checking, crazing, erosion, or other detrimental effects observed.

G. Steady-State Heat Flux and Thermal Transmission Properties Test (ASTM C-518): thermal resistance R Value of 1.23.

H. Fire Resistant (ASTM E-119): The wall assembly must successfully endure 60-minute fire exposure without developing excessive unexposed surface temperature or allowing flaming on the unexposed side of the assembly.

I. Ignition Resistance (NFPA 268): No sustained flaming of panels, assembly when subjected to a minimum radiant heat flux of 12.5 kW/m2 ± 5% in the presence of a pilot ignition source for a 20-minute period.

J. Fire Propagation (NFPA 285): Wall assembly of Nichiha AWP, Ultimate Clips and Starter Track, Tyvek Commercial Wrap, ½” Densglass Gold Sheathing, 16” o.c. 18 gauge steel studs, mineral wool in-cavity insulation, and interior 5/8” Type X gypsum met the acceptance criteria of NFPA 285.

K. Fire Propagation (CAN/ULC S-134): Wall assembly of Nichiha AWP, Ultimate Clips and Starter Track, Tyvek Housewrap, 5/8" FRT plywood, 16" o.c. 2x wood studs, fiberglass in-cavity insulation, and interior 5/8" Type X gypsum met the acceptance criteria of CAN/ULC S-134.

L. Drained and Back Ventilated Rainscreen (AAMA 509-09): System must pass all component tests.

M. Florida Building Code - Test Protocol HVHZ (TAS 201, 202, 203): Passed.

2.4 INSTALLATION COMPONENTS

A. Ultimate Clip System:
   1. Starter Track:
      a. Horizontal Panel Installations - FA 700 – 3,030mm (l) galvalume coated steel.
      b. Vertical Panel Installations (AWP-3030 only) – FA 710T – 3,030mm (l) galvalume coated steel.
   2. Panel Clips: JEL 777 "Ultimate Clip" (10mm rainscreen for 16mm AWP) – Zinc-Aluminum-Magnesium alloy coated steel.
      a. Joint Tab Attachments (included) – used at all AWP-1818 panel to panel vertical joints – NOT used with AWP-3030 installations.
   3. Single Flange Sealant Backer – FHK 1017 (10mm) – 6.5' (l) fluorine coated galvalume.
   4. Double Flange Sealant Backer – FH 1020 (10mm) – 10' (l) fluorine coated galvalume.
   5. Corrugated Spacer – FS 1005 (5mm), FS 1010 (10mm) – 4' (l).
   6. Finish Clip – JE310 (5mm)

B. Aluminum Trim (optional): Paint as specified in finish schedule.

C. Essential Flashing System (optional):
   1. Starter – main segments (3,030mm), inside corners, outside corners
   2. Compression Joint – main segments (3,030mm)
   3. Overhang – main segments (3,030mm), inside corners, outside corners, joint clips

D. Fasteners: Corrosion resistant fasteners, such as hot-dipped galvanized screws appropriate to local building codes and practices must be used. Use Stainless Steel fasteners in high humidity and high-moisture regions. Panel manufacturer is not liable for corrosion resistance of fasteners. Do not use aluminum fasteners, staples or fasteners that are not rated or designed for intended use. See manufacturer's instructions for appropriate fasteners for construction method used.

E. Flashing: Flash all areas specified in manufacturer's instructions. Do not use raw aluminum flashing. Flashing must be galvanized, anodized, or PVC coated.

F. Sealant: Sealant shall comply with ASTM C920, Class 35.

PART 3: EXECUTION

3.1 EXAMINATION

A. Verification of Conditions:
   1. Fiber cement panels can be installed over braced wood, steel studs and sheathing including plywood, OSB, plastic foam or fiberboard sheathing. Fiber cement panels can also be installed over Structural Insulated Panels (SIP's), Concrete Masonry Units (CMU's) and Concrete Block Structures (CBS's) with furring strips, and Pre-Engineered Metal Construction. Insulated Concrete Forms (ICFs) are NOT an approved substrate under any condition.
   2. Allowable stud spacing: 16" o.c. maximum.
   3. A weather resistive barrier is required when installing fiber cement panels. Use an approved weather resistive barrier (WRB) as defined by the 2015 IBC or IRC. Refer to local building codes.
   4. Appropriate metal flashing should be used to prevent moisture penetration around all doors, windows, wall bottoms, material transitions and penetrations. Refer to local building codes for best practices.

B. Examine site to ensure substrate conditions are within alignment tolerances for proper installation.

C. Do not begin installation until unacceptable conditions have been corrected.

D. Do not install panels or components that appear to be damaged or defective. Do not install wet panels.

3.2 TOLERANCE

A. Wall surface plane must be plumb and level within +/- ¼ inch in 20 feet in any direction.
   1. One layer of Nichiha 5mm (~3/16") Spacer may be used as shim.

3.3 INSTALLATION

A. General: Install products in accordance with the latest installation guidelines of the manufacturer and all applicable building codes and other laws, rules, regulations and ordinances. Review all manufacturer installation, maintenance instructions, and other applicable documents before installation.
   1. Consult with your local dealer or Nichiha Technical Department before installing any Nichiha fiber cement product on a building higher than 45 feet or three stories or for conditions not matching prescribed standard installation guide requirements and methods. Special installation conditions may be required via a Technical Review and Special Applications Form (SAF) process.
   2. Vertical Control/Expansion Joints are required within 2-10 feet of outside corners finished with metal trim *and* approximately every 30 feet thereafter.
   3. Horizontal/Compression Joints are required for multi-story installations of AWP. Locate joints at floor lines. Joints are flashed minimum ½" breaks. Do not caulk. Refer to installation guide(s).

B. Panel Cutting

1. Always cut fiber cement panels outside or in a well-ventilated area. Do not cut the products in an enclosed area.
2. Always wear safety glasses and NIOSH/OSHA approved respirator whenever cutting, drilling, sawing, sanding or abrading the products. Refer to manufacturer SDS for more information.
3. Use a dust-reducing circular saw with a diamond-tipped or carbide-tipped blade as recommended by manufacturer
4. Silica Dust Warning: Fiber cement products may contain some amounts of crystalline silica, a naturally occurring, potentially hazardous mineral when airborne in dust form. Consult product SDS, Manufacturer and https://www.osha.gov/dsg/topics/silicacrystalline/ for recommended personal protection.
5. Consult panel manufacturer for treating/sealing panel cuts.

3.4 CLEANING AND MAINTENANCE

A. Review manufacturer guidelines for detailed care instructions.

END OF SECTION

SECTION 07535 - FULLY ADHERED EPDM

1.0 GENERAL

A. The drawings, Instructions to Bidders, Form of Proposal, General Conditions, Supplementary General Conditions, and Division 1 are included herein and govern work under this section.

1.1 SCOPE

A. Furnish all labor, materials and equipment necessary and incidentals to execute the complete installation of the Fully Adhered Roofing System as indicated on the drawings and specified herein.

B. Furnish and install membrane roofing system in strict accordance with drawings, specifications, manufacturer recommendations and instructions. This specification is written around the membrane roofing system as manufactured by Firestone Building Products Company to establish standards of quality of materials construction and workmanship.

C. Furnish roof insulation related to Fully Adhered Roof System as specified in this section.

1.2 RELATED WORK SPECIFIED ELSEWHERE:

A. Wood Nailers: Section 06100

B. Flashing and Sheet Metal: Section 07600

1.3 QUALITY ASSURANCE

A. Applicator:
   1. Applicator must be licensed to install roof system by Firestone Building Products Company.
   2. Applicator must have a minimum of three (3) successive years experience.

B. Store materials on clean raised platforms under weather protective coverings when store outside. Store adhesives, caulking, primers, etc. at room temperature (60-80 degrees F). If stored at lower temperature, restore to proper temperature before using.

C. Damaged materials shall be replaced at roofing contractors expense.

1.4 JOB CONDITIONS

A. Proceed with roofing work when existing and forecasted weather conditions permit work to be performed in accordance with manufacturers recommendations and warranty requirements.

B. Do not allow oil based products (petroleum, grease, oil, solvents, etc.), mineral oil, animal fat or direct steam vents to come in direct contact with EPDM membrane.

C. Coordinate roofing work with other trades.

D. All surfaces to receive roofing shall be thoroughly dry and free of dew or frost.

1.5 WARRANTY

A. The contractor shall guarantee the roof for a period od two years from date of acceptance and provide a 10 year Manufacturer's Warranty against defective workmanship and manufacturers 20 year warranty against defective materials.
   1. The contractor guarantees that the total roof installation together with all related composition flashing, metal flashing, roof insulation, blocking and adhesives installed in connection with the roof, will be watertight and free of defects of material and workmanship for a period of two (2) years from final acceptance of the completed roof.
   2. During this two year period, the roofing contractor agrees that within 48 hours of being notified, he will inspect and make all repairs necessary at no cost to the owner with exception of natural disaster.

B. Firestone Building Products Company shall issue a ten (10) year warranty against material workmanship and labor not limited to the dollar value of the original contract and a 20 year warranty against defective material.
   1. The Firestone agrees to make all repairs necessary within 72 hours of notification.
   2. Two copies of the properly executed warranty shall be delivered to the owners representative before final payment will be made.

1.6 PRE-ROOFING CONFERENCE

A. Prior to the beginning of work, a pre-roofing conference is to be held, attended by the Architect, the Roofing Contractor, a representative of Firestone and the Owner’s representative if required. The purpose of this conference is to review the specifications, details, application, storage areas, protection and safety precautions and establish lines of communications with other subcontractors of this project.

2.0 PRODUCTS

2.1 MANUFACTURER

A. The components of this roof system are to be products of the Firestone Building Products Company or as approved by Firestone in writing.

2.2 MEMBRANE MATERIAL

A. The membrane shall be free to streaks, particles of foreign matter, pinholes, cracks, tears and must be uniform in thickness. When unrolled in the relaxed position, the membrane must be free of wrinkles, distortions and blisters.

B. Membrane shall be Unreinforced .060 "FR" EPDM (Ethylene Propylene Diene Terpolymer)
   1. Tensile Strength: 1305 psi minimum ASTM-D-412
   2. Elongation: 300% minimum ASTM-D-412
   3. Tear Resistance: 150 lbs/in minimum ASTM-D-624
   4. Ozone Resistance: No cracks ASTM-D-1149
   5. Heat Aging: Tensile minimum 1205 psi, minimum elongation 200% ASTM-D-573

6. Brittle Temperature: -49F (-45C) ASTM-D-746
7. Water Vapor Permeability Maximum Per Mil: 2.0 ASTM-E-96
8. Thickness: 0.060"

C. Flashing shall be uncured EPDM or cured EPDM.
1. Tensile Strength: 1306 psi minimum ASTM-D-412
2. Elongation: 300% minimum ASTM-D-412
3. Brittleness Temperature: -49F (-45C) ASTM-D-746
4. Tear Resistance: 150 lbs/in minimum ASTM-D-624
5. Thickness: 0.060"

D. Related Materials
1. Bonding Adhesive: Compatible with materials to which the membrane is to be bonded, furnished by Firestone.
2. Cleaner/Primer: A wash supplied by Firestone clean mica or talc on the surface of membrane and to prepare surface for splicing, bonding or tapes.
3. Splice Adhesive: Furnished by Firestone.
4. Lap Sealant: Compatible with material with which it is used and supplied by Firestone.
5. Water-Block Seal: Compatible with materials with which it is used and supplied by Firestone.
6. Molded Pipe Boots: Furnished with a stainless steel clamping ring and supplied by Firestone.
7. Pourable Sealer: Two-part polybutadine/polyethylene formula compatible with material with which it is to be used and supplied by Firestone.
8. Termination Bar, Batten Strip, Reinforced Strip: Furnished by Firestone.
9. Walkway Pads: 30" x 30" x .300 thick supplied by Firestone.
10. Sponge Tubing and Compressible Filler: As recommended by Firestone.

E. Other Related Materials

1. Wood Nailers: Pressure treated for rot resistance (Womanized or Osmose K-33) #2 or better lumber. Asphaltic or creosote treated lumber is not acceptable.

2.3 INSULATION

A. Insulation shall be flat or tapered Firestone ISO 95+ Polyisocyaniurate with a black glass fiber mat facer.
1. To meet Federal Spec #HH-I-1972/2 Class 1
2. Flame Spread: 25 maximum ASTM-E-84
3. Density: Nom. 2pcf ASTM-D-1622
4. Compressive Strength: 20 psi ASTM-D-1621
5. Factory Mutual Approved for Class 1 insulated steel roof deck construction and concrete roof slab construction.
6. Underwriters Laboratory classified as a roof deck material with resistance to internal fire exposure for construction #120 and 123. UL-1256.

B. Minimum Aged R Value shall be as determined in accordance with the PIMA conditioning procedure as outlined in PIMA Tech. Bulletin 101. (Minimum R value R19)

C. Provide tapered insulation where shown on roof plan.

2.4 INSULATION FASTENERS

A. Fasteners specifically designed to be used in roofing applications for the attachment of roof insulation (with metal insulation plates), batten bars, termination bars, and other accessories to steel, wood and structural concrete surfaces by Firestone (AP or HD fasteners type.)
   1. Determine length as follows:
      a. Steel Deck: Penetrate deck minimum 1/2"
   2. Corrosion Coating: Fluorocarbon Polymer.

B. Metal Plates: Specifically designed for insulation attachment and having a Factory Mutual approval.

2.5 VAPOR RETARDER

A. A six (6) mil poly vapor retarder shall be provided on the sheathing below the first layer of insulation. Seams shall be lapped a minimum of 4" and sealed with a pressure sensitive tape a minimum of 2" wide.

2.6 SHEATHING

A. Exterior grade gypsum board or Dens Glass, 5/8” thickness.

2.7 EDGE FLASHING

A. Equal to Metal Era Anchor Tite Standard Fascia for single ply roofing.
   1. 24 ga Kynar finished steel, color to be selected by Architect.

2.8 GUTTERS AND DOWNSPOUTS

A. Gutter equal to Metal Era IG1-C7.
   1. 24 ga Kynar finished steel, color to be selected by Architect.
   2. Pitch at 1/16” per foot to downspouts.
   3. Provide all couplers, fittings, straps and hangers required for a complete installation.

B. Downspouts equal to Metal Era Closed Face, 2” deep, 4” wide.
   1. 24 ga Kynar finished steel, color to be selected by Architect.
   2. Provide all couplers, fittings, straps and hangers required for a complete installation.
   3. Connect into existing storm drainage system. If no storm drainage system, provide concrete splash block with bottom elbow.

3.0 EXECUTION

3.1 GENERAL

A. Comply with manufacturer’s recommendations, except where more stringent requirements are indicated by architect.

3.2 SUBSTRATE PREPARATION

A. Substrate shall be structurally sound, clean, smooth free of fins, sharp edges, oil, grease, water and roof cement.

3.3 EXAMINATION

A. Verify proper placement of all roof openings, pipes, curbs, sleeves ducts, vents and drains.

3.4 VAPOR RETARDER

A. Install vapor retarder directly over roof deck lapping edges a minimum of 4" and seal joints with pressure sensitive tape. Do not apply more than can be covered and sealed in one day.

3.5 INSULATION INSTALLATION

A. Extend insulation over entire area to be insulated, neatly cutting and fitting around obstructions. Install in layers no more than 2" thick. Joints shall be 1/4" or less. Cover crickets, saddles, and tapered areas with material as required for proper drainage of membrane. Install only dry insulation and only as much as can be covered the same day with membrane and completed.
   1. Secure insulation to the deck with Firestone fasteners at the rate of 1 every 2 square feet of surface area or as recommended by Firestone to meet an RM I-90 wind uplift.
   2. A minimum of 300 lbs pull-out is required on all decks.

3.6 ELASTOMERIC SHEET ROOFING INSULATION

A. Install membrane to Firestone's printed instructions.
   1. Loosely lay EPDM membrane over roof insulation. Allow membrane to relax 30 minutes minimum.
   2. After making sure the sheet is placed in its final position, fold it back onto itself so as to expose the underside.
   3. Remove excess dusting agent, or other contaminants from the mating surfaces.
   4. Apply bonding adhesive at about the same time to both the underside of the membrane and the substrate to which it is to be bonded to with heavy napped roller or spray equipment. Do not allow globs or puddles to form. Note coverage rate as recommended by the manufacturer.
   5. Care must be taken not to apply bonding adhesive over the area that is to be later cleaned and spliced to another sheet.
   6. Allow bonding adhesive to flash off until slightly tacky to the touch with a clean dry finger and does not string. Also push forward to ensure that the adhesive is ready throughout its thickness. Flash off time will vary depending on ambient air conditions.
   7. Starting at the fold, roll the previously coated portion of the sheet into the coated substrate slowly and evenly to minimize wrinkles.
   8. To insure proper contact, compress the bonded membrane to the substrate with a stiff push broom.
   9. Repeat procedure on second half of sheet.

B. Membrane Splicing

1. Position membrane to overlap a minimum of 3" along the entire length of the splice.
2. Clean and dry mating surfaces using clean cotton cloths with splice cleaner or splice primer to remove all contaminants that will affect the finished seam strength. Allow to dry. Additional cleaning may be required. Discard cotton cloth as it becomes dirty and replace with clean one to assure proper cleaning.
3. Thoroughly stir splice adhesive before and during use. Apply splice adhesive using a 3" or 4" wide by 1/2" thick solvent resistant paint brush in a thick, even, smooth coat with long painting type strokes, yielding a smooth glossy adhesive surface. Apply splice adhesive to both mating surfaces at about the same time to allow approximately the same drying time. (DO NOT USE CIRCULAR MOTIONS WITH BRUSH OR ROLLERS TO APPLY SPLICE ADHESIVE.)
4. Apply splice adhesive at specified coverage rate as recommended by the manufacturer.
5. Allow adhesive to flash off. Touch with clean dry finger to be certain that the adhesive does not stick or string. Roll top sheet into the bottom allowing to fall freely as not to stretch or wrinkle the membrane.
6. Apply hand pressure along the entire lap. Then using a steel 2" or 3" wide steel roller, roll the entire splice applying pressure toward the outside edge of the lap.
7. Wait a minimum of 4 hours before applying lap sealant, weather permitting. Clean lap edge and apply a continuous bead of lap sealant approximately 3/8" x 1/4" centered over the lap edge. Feather lap sealant immediately using special lap sealant tool.

3.7 MEMBRANE SECUREMENT

A. Provide membrane securement (base tie-in) where the membrane ends or goes through an angle change greater than 2" in 12" (i.e. roof edge, curbs, walls). Round pipes 18" or smaller in diameter and square penetrations less than 4" do not require a base tie-in, but must be flashed to Firestone's details and specifications.

B. Install Firestone metal batter strip, polymer batten strip or reinforced perimeter fastening strips as required using standard printed manufacturer's details.

3.8 GRAVEL STOPS

A. Metal flange of gravel stop shall be secured to wood blocking at perimeter making sure that metal flange is completely supported by wood. Clean metal using Firestone Splice Primer #SP-1924. Apply Quick Seam Flashing PS-4020 per Firestone's specifications and standard details.

B. Special considerations must be given to copper edging. Copper may be weathered or lacquer coating and require special cleaning with acetone or lacquer thinner.

3.9 FLASHING - CURBS, WALLS, ETC.

A. Using longest pieces practical flash all walls, curbs, etc. to the height specified by project designer.

B. The following substrates require an over layment of 5/8" exterior grade sheathing.
   1. Gypsum board

2. Stucco
3. Textured masonry
4. Corrugated metal panels
5. Other uneven substrates

C. Install all flashing to current Firestone specifications and details.

3.10 PENETRATIONS

A. Pipes: Flash using pre-molded EPDM pipe flashing where practical.

B. Pipe Clusters: Fabricate metal penetration pocket with a minimum of 1" clearance on all sides. Secure penetration pocket to deck as required. Fill with Pourable Sealer to shed water. A 2" minimum depth is required.

C. Hot Pipes: Protect rubber components from direct contact with steam or heat sources when in-service temperature exceeds 180 degrees F.

D. Flexible Penetrations: Provide a weathertight gooseneck set in water block seal and secured to the deck. Flash in accordance with "Pipes" as listed above.

E. Expansion Joints: Flash as detailed and in accordance with manufacturer's specifications.

END OF SECTION

SECTION 07900 - CAULKING AND SEALANTS

1.0 GENERAL

A. The drawings, Instructions to Bidders, Form of Proposal, General Conditions, Supplementary General Conditions and Division 1 are included herein and govern work under this section.

1.1 DESCRIPTION OF WORK

A. The work covered by this section of the specifications consists of providing all equipment, materials and labor, and performing all the work as required for the complete execution of caulking and sealing as indicated. Included, but not necessarily limited to, are the following:
   1. Sealing all joints between masonry, wood, vinyl and aluminum frames.
   2. Sealing all around all exterior door frames, louvers and other items built into exterior walls.
   3. Sealing all joints between exterior architectural metal work and other materials.
   4. Caulking all exterior door saddles.
   5. Caulking all joints between flashing and other work beneath flashings.
   6. Sealing or caulking at all other locations where sealant or caulking is indicated.
   7. Sealing at all countertop backsplashes where they intersect with wall.
   8. Sealing at perimeter of all door casings.
   9. Sealing at all cabinets where they meet the wall.
   10. Caulk and seal all perimeter openings, doors and window penetrations.

B. The following work is specified under other divisions and/or sections of the specifications:
   1. Vinyl Windows - Division 8.
   2. Joint filler and sealer for sidewalks - Division 2.

1.2 GENERAL PERFORMANCE

A. Except as otherwise indicated, joint sealers are required to establish and maintain airtight and waterproof continuous seals on a permanent basis, within recognized limitations of wear and aging as indicated for each application. Failures of installed sealers to comply with this requirement will be recognized as failures of materials and workmanship.

1.3 SUBMITTALS

A. Product Data
   1. Submit manufacturer's product specifications, handling, installation, curing instructions, and performance tested data sheets for each elastomeric product required.

B. Certified Tests
   1. With product data submit test reports for elastomeric sealants on aged performances as specified, including hardness, stain resistance, adhesion, cohesion or tensile strength, elongation, low-temperature flexibility, compression set, modulus of elasticity, water absorption, and resistance (aging, weight loss, deterioration) to heat and exposures to ozone and ultraviolet.

1.4 JOB CONDITIONS

A. Weather Conditions
   1. Do not proceed with installation of liquid sealants under unfavorable weather conditions. Install elastomeric sealants when temperature is in lower third of temperature range recommended by manufacturer for installation.

1.5 SAMPLES

A. Submit in duplicate, samples of all material specified herein, for approval of General Contractor.

B. Approved samples shall be the standard for comparison of all installed work.

2.0 PRODUCTS

2.1 BUTYL CAULKING COMPOUND

A. Use plain caulking compound under door saddles.

B. Butyl caulking compound shall be the best grade manufactured by one of the following companies and shall comply with specification requirements:
   1. Tremco Butyl Sealant
   2. Pecora BC-158

C. It shall be furnished in proper consistency for gun or knife application as required.

D. Color shall be approved by the Architect.

2.2 SILICONE SEALANT

A. Except as otherwise specified or recommended by product manufacturer, all sealant and caulking work shall be done with silicone sealant.

B. All silicone sealants shall be 1-part. Primer shall be used in accordance with manufacturer's recommendations.

C. It shall have a Shore Hardness Durometer reading of 25 to 35 as recommended by manufacturer for specific conditions and shall withstand temperature extremes from minus degrees F. to plus 260 degrees F.

D. It shall absorb movement not to exceed 100% of its applied width after ten (10) years exposure without loss of adhesion or cohesion.

E. It must be non-staining and non-blushing after contact with masonry terra cotta, mortar or metal of any kind.

F. Color shall be selected by the Architect.

G. All silicone furnished under this section shall be of the same brand unless otherwise approved by the Architect in writing.

H. Silicone sealant shall be of a brand and as manufactured by a firm listed below:
   1. Tremco Proglaze.
   2. Sonneborn Sonolastic Omniplus.
   3. Dow 786.
   4. Bostik Pure Silicone

2.3 JOINT BACKUP

A. Joint backup material shall be compatible with sealant used.

B. Size of backup material shall be determined by the condition and as recommended by the manufacturer.

C. One of the following brands and manufacturers shall be used providing they are compatible with sealant used:
   1. Aerocor PL-336 fiberglass as manufactured by Owens Corning Fiberglass Corp.
   2. Ethafoam as manufactured by Dow Corning Corp.
   3. Foam Polyethylene as manufactured by the Tremco Manufacturing Co.
   4. Sonofoam Backer Rod as manufactured by Sonneborn, Inc.

3.0 EXECUTION

3.1 INSPECTION

A. Installer must examine substrates, (joint surfaces) and conditions under which joint sealer work is to be performed, and must notify Contractor in writing of unsatisfactory conditions. Do not proceed with joint sealer work until unsatisfactory conditions have been corrected in a manner acceptable to Installer.

3.2 JOINT PREPARATION

A. Clean joint surfaces immediately before installation of gaskets, sealants or caulking compounds. Remove dirt, insecure coatings, moisture and other substrate which could interfere with seal of gasket or bond of sealant or caulking compound. Etch concrete and masonry joint surfaces as recommended by sealant manufacturer. Roughen vitreous and glazed joint surfaces as recommended by sealant manufacturer.

B. Prime or seal joint surfaces where recommended by sealant manufacturer. Confine primer/sealer to areas of sealant bond; do not allow spillage or migration onto adjoining surfaces.

3.3 INSTALLATION

A. Comply with manufacturer's printed instructions except where more stringent requirements are shown or specified and except where manufacturer's technical representative directs otherwise.

B. Rake out, clean out thoroughly all joints and recesses to be caulked or sealed so as to be free of all loose or foreign material, just prior to sealing.

C. Remove all foreign matter including methacrylate lacquer that would prohibit bond adhering to metal with a solvent recommended by manufacturer of compound.

D. Pack all joints deeper than 3/8" with joint filler to 3/8" from face of as detailed on drawings.

E. Apply manufacturer's recommended primer to concrete, masonry and stone surfaces before sealing if recommended by manufacturer.

F. Apply compound only to dry surfaces, preferably only when temperature is above 40 degrees F.

G. Fill all joints and recesses completely. Finish all compounds against stop where this is provided. Elsewhere finish to a neat uniform bevel. Finish all joints with beading tool.

H. Consistency of compound shall be such as to prevent sagging.

I. Use all possible precautions to avoid smearing any compound of finished work.

J. Remove immediately all compound smeared on any adjacent surfaces, using a non-staining solvent recommended by manufacturer of compound.

3.4 CURE AND PROTECTION

A. Cure sealants and caulking compounds in compliance with manufacturer's instructions and recommendations, to obtain high early bond strength, internal cohesive strength and surface durability. Advise Contractor of procedures required for cure and protection of joint sealers during construction period, so that they will be without deterioration or damage (other than normal wear and weathering) at time of substantial completion.

B. All existing work shall be adequately protected from damage and staining during all caulking and sealing operations.

END OF SECTION

SECTION 08110 STEEL DOORS AND FRAMES

PART 1 - GENERAL

1.01 Work Included

A. The work under this section shall include the furnishing of all items of steel doors and frames as listed hereinafter except items which are specifically excluded from this section.

B. Steel Doors, 18 ga., A60 galvanized at exterior locations, factory primed.

C. Louvers Installed in Steel Doors

D. Glass lites installed in steel doors

E. Job site Delivery

F. Field Measuring

G. Job site Service

H. Project close out information for owner.

1.02 Related Work

A. Items not included in this section but listed elsewhere
1. Aluminum Doors and Frames section 08411
2. Finish Hardware section 08710
3. Glass and Glazing section 08800
4. Installation see Section 06100 Finish Carpentry.
5. Finish painting see Section 09900 Painting & Finishing.

1.03 Quality Assurance

A. Provide Steel Doors and Frames manufactured by a single firm specializing in the production of this type of work.

B. Provide Steel Doors and Frames complying with the Steel Door Institute recommended specifications for Standard Steel Doors and Frames (ANSI/SDI 100-91), and as herein specified.

C. Compliance with all standards listed under paragraph 1:04 "References" is required.

D. Compliance with all building, fire and life safety codes as listed by State and local codes along with those listed under paragraph 1:04 "References" is required.

E. Insulation properties: Polyurethane core doors shall have a U factor of 0.67. Tests must be performed in accordance with SDI-113.

1.04 References

A. Steel Doors and Frames in this section must meet all standards as established by the following listing.
   1. Door and Hardware Preparation ANSI 115.1.
   2. Life Safety Codes NFPA101 (Latest edition).
   3. Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doorsand Hardware Reinforcing ANSI A151.1. ANSI/SDI-100-91

1.05 SUBMITTALS

A. The steel door and frame supplier shall furnish to the architect (6) complete copies of the proposed steel door and frames schedule and/or shop drawings. Using the same reference number for details and openings as those on the contract drawings. This is to be done within (10) days of acceptance of the General Contractor's purchase order. After receipt of the approved door schedule the steel door and frame supplier shall make any corrections to the door schedule and submit to the architect (4) sets of corrected schedules for file and field use.

B. All door openings including wood, aluminum, overhead etc. must be listed on the door schedule. If any opening is not by the steel door manufacturer only the door opening number should be shown along with the type of door (wood, etc.) and a "not by steel manufacturer." Include details of each frame type, elevations of door designs, types, conditions at openings, details of construction, location and installation requirements for finish hardware on all reinforcements, and details of joints and connections, show anchorage and accessory items.

C. Coordinate approved shop drawings with all other trades and manufacturers whose products are used in conjunction with the Steel Doors and Frames as listed under Section 08100.

D. Templates: Finish hardware supplier is to furnish templates, template reference number and/or physical hardware to the steel supplier in order to cut, reinforce or otherwise prepare the doors and frames to receive the finish hardware items.

1.06 Delivery, Storage and Handling

A. All steel doors and frames being supplied under section 08100 of this specification must be properly marked with door opening mark number to correspond with the door schedule.

B. Steel doors and frames shall be delivered to the General Contractor according to the contractors, Architect's, or construction manager's request to insure the proper and timely completion of the work.

C. Deliver all steel doors and KD frames cartoned and/or palletized to provide protection during transit and job storage. Welded frames will not be palletized.

D. Inspect doors and frames upon delivery for damage. Minor damage may be repaired, provided the finish items are equal in all respects to new work and acceptable to the architect, otherwise, remove and replace damaged items as directed.

E. Store doors and frames at the building site under cover. Place units on at least 4 inch high wood sills or on the floor in a manner that will prevent rust and damage. Avoid the use of non-vented plastic or canvas shelters which could create a humidity chamber. If the

cardboard wrapper on the door becomes wet, remove the carton immediately. Provide a 1/4 inch space between stacked doors to promote air circulation.

1.07 Job Conditions

A. Installer must examine the substrate and conditions under which steel doors and frames are to be installed and notify the contractor in writing of any condition detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the installer.

PART 2 - PRODUCTS

2.01 Acceptable Manufacturers

A. Ceco Door Products

B. Pioneer Industries

C. Steelcraft Manufacturing Company

D. Curries Company

E. Republic Builder's Products

F. Amweld Building Products, Inc.

2.02 Hardware Locations

A. Location of hardware on doors and frames shall be the steel and frame manufacturer’s standard published locations.

B. Prepare steel units to receive mortised and concealed hardware, including cutouts, reinforcing, drilling and tapping in accordance with final Finish Hardware Schedule and templates provided by hardware supplier. Comply with applicable requirements of American National Standards Institute (ANSI) A115 "Specifications for Door and Frame Preparations for Hardware".

1. For concealed overhead door closers or holders, provide space, cutouts, reinforcing and provisions for fastening in tops of doors or in frame heads as applicable.
2. Reinforce steel units to receive surface applied hardware. Drilling and tapping for surface applied finish hardware shall be done at the project site.

C. Locate finish hardware at door frame manufacturer's standard published locations in accordance with "Recommended Locations for Builder's Hardware", published by the Door and Hardware Institute.

2.03 Clearances

A. Edge clearances shall be as follows:

1. Between doors and frames, at head and jambs - 1/8 inch
2. At door sills where no threshold is used - 3/4 inch standard except if otherwise shown on architectural drawings.
3. At door sills where a threshold is used, 1/4 inch maximum between door and threshold.
4. At door sills when carpet is used, 1/4 inch higher than the thickness of the carpet.
5. Between meeting edges of pairs of doors 1/8 inch.
6. Doors with vertical rod exit devices as required by the exit device template.

2.04 Steel Doors

A. Materials
1. Doors shall be made of commercial quality, level, cold rolled steel conforming to ASTM A-366 or A-620 and ASTM A568 and free of scale, pitting or other surface defects. **Face sheets shall not be less than 18 gauge.**
2. Hot dipped zinc coated steel shall comply with ASTM designations A526 or A642 and A525. The coating weights shall meet or exceed the minimum requirements shown for 60 in the case of alloyed coatings and G60 for spangled coatings.

B. Fabrication
1. General Design and Construction
   a. All doors shall be of the types and sizes shown on Architect's drawings. Door thickness shall be 1 3/4". Exterior doors to be hot dipped galvanized. Interior doors to be cold rolled steel
   b. All doors shall be strong, rigid and neat in appearance, free from warpage or buckle.
   c. All doors shall be constructed with smooth, flush surfaces, without visible joints or seams or exposed faces, except around glass lite trim or louvered panel inserts.
   d. Seamless vertical edges: Not required.
      1) Join door faces at their vertical edges by a continuous weld extending the full height of the door. Grind, fill and dress smooth all welds to make them invisible and provide a smooth flush surface.
2. Hardware Reinforcements
   a. Minimum gauges for reinforcing doors for required finish hardware is as follows:
      1) Hinges and pivots steel plate - 7 gauge thick x 1-1/4 inches wide X 9 inches secured by not less than 6 spot welds.
      2) Mortise locksets (Govt # 86 Series) and deadlocks 16 gauge steel, secured with not less than 4 spot welds.
      3) Cylindrical locksets (Govt #160 and 161 Series) 16 gauge steel, secured with not less than 4 spot welds.
      4) Flush bolts 12 gauge steel, secured with not less than 4 spot welds.
      5) Surface - applied closers - 12 gauge steel.
      6) Surface - applied exit devices - 14 gauge steel.
      7) Automatic door bottoms - 16 gauge steel for mortise type.
3. Doors shall be mortised, reinforced drilled and tapped at the factory for fully

templated hardware only, in accordance with the approved hardware schedule and templates provided by the hardware supplier. Where surface-mounted hardware is to be applied, doors shall have reinforcing only, drilling and tapping shall be done by others.

4. Top and Bottom Channels
   a. Reinforce tops and bottoms of all doors with a continuous steel, channel not less than 16 gauge, extending the full width of the door and spot welded to the face sheet. Top channel to be flush steel. Plastic fillers not acceptable.
5. Lip type glass stops and moldings
   a. Where specified or scheduled, door shall be provided with either aluminum or steel moldings to secure glazing by others in accordance with glass opening sizes as shown on approved shop drawings.
   b. On non label doors, doors prepared for glass lights shall have the openings framed and securely attached. Molding shall be made of steel with beads made of not less than 20 gauge, secured to the framed opening by cadmium or zinc coated counter-sunk screws. Corner joints can be butted or mitered type.
6. Door Cores
   a. The following are acceptable cores for doors
      1) Exterior doors: polyurethane core.
7. Finish:
   a. Factory Prime Finish
      1) Doors and frames are to be thoroughly cleaned, and chemically treated to insure maximum paint adhesion. All surfaces of the door and frame exposed to view shall receive a factory applied coat of rust inhibiting primer, either air-dried or baked-on. The finish shall meet the requirements for acceptance stated in ANSI A224.1 "Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces." The prime finish is not intended to be the final layer of protection from the outside elements. Field painting shall be performed in accordance with the recommendations of the door and frame manufacturer. For specialty types of finished coatings, the paint supplier should also be consulted.

2.05 Steel Frames 16 ga.

A. Materials
   1. Frames shall be either cold rolled steel conforming to ASTM A366- 68 or commercial grade hot rolled and picked steel conforming to ASTM A569-66T, or not less than 16 gauge, unless otherwise specified.
   2. Hot dipped zinc coated steel shall comply with ASTM designations A526 or A642 and A525. The coating weights shall meet or exceed the minimum requirements shown for A40 in the case of alloyed coatings and G60 for spangled coatings.

B. Fabrication
   1. General design and construction
      a. Provide steel frames for doors, transoms, sidelites, borrowed lites, and other openings to the size and design as shown on the architectural

drawings. Exterior frames to be hot dipped galvanized. Interior frames to be cold rolled steel.

2. All finished work shall be strong and rigid, neat in appearance square, true and free of defects, warp or buckle.
3. Jamb depths, trim, profile and backbends shall be as scheduled by the architect and shown on approved shop drawings.
4. Minimum depth of stops shall be 5/8 inches, cut off (sanitary or hospital type) stops, where scheduled, shall be capped 45 degrees at heights shown on approved shop drawings, and all jamb joints below cut-off stops shall be ground and filled smooth.
5. When shipping limitations so dictate, frames for large openings shall be fabricated in sections designed for splicing in the field by others.
6. Hardware reinforcements
   a. Frames shall be mortised, reinforced, drilled and tapped at the factory for fully templated mortised hardware only, in accordance with approved hardware schedule and templates provided by the hardware contractor. Where surface-mounted hardware is to be applied, frames shall have reinforcing plates only; all drilling and tapping shall be done by others.
7. Interior door frames shall be knockdown unless they have adjacent sidelites in which case they shall be welded. All exterior hollow metal door frames shall be welded.

C. Reinforce frames for finish hardware as follows:
1. Hinge reinforcements for 1 3/4 inches thick doors steel plate 7 gauge thick x 1 1/4 inches wide x 9" inches long. Reinforcement shall be attached to the door frames by not less than 6 spot welds.
2. Strike reinforcements - steel plate 12 gauge x 1-1/2 inches wide.
3. Flush bolts - steel plate 12 gauge.
4. Surface applied closers - 14 gauge steel.
5. Concealed closers - not used
6. Reinforcements for - Surface mounted hardware 14 gauge steel Hold open arms 14 gauge steel Surface mounted exit devices 14 gauge steel
7. Floor Anchors
   a. Floor anchors shall be securely welded or screwed inside each jamb, with two holes provided at each jamb for floor anchorage.
   b. Where so scheduled or specified adjustable floor anchors providing not less than 1" height adjustment.
   c. Minimum thickness of floor anchors shall be 16 gauge.
8. Jamb Anchors
   a. Frames for installation in masonry walls shall be provided with adjustable jamb anchors of the wire type. Anchors shall be not less than 0.156 inch diameter steel wire. The number of anchors provided on each jamb shall be as follows:

      Frames up to 90" height 3 anchors
      Frames 90" to 96" height 4 anchors
      Frames over 96" height 1 anchor for each 2' or fraction there of over 96"

   b. Frames for installation in stud partitions shall be provided with steel anchors of suitable design, not less than18 gauge thickness, securely

welded inside each jamb or insert type with notched clip to engage stud inserted to back of the frame as follows:

Frames up to 90" height 4 anchors
Frames 90" to 96" height 5 anchors
Frames over 96" height 5 anchors plus one additional anchor for every 24 inches or fraction there of over 96"

c. Frames to be anchored to previously placed concrete, masonry or structural steel shall be provided with anchors of suitable design as shown on approved shop drawings. Fasteners for such anchors shall be provided by others.

9. Dust cover boxes (or mortar guards) of not thinner than 26 gauge steel shall be provided at all hardware mortises on frames to be set in masonry or plaster partitions.
10. All frames that are to be welded shall be provided with 2 steel spreaders temporarily attached to the feet of both jambs to serve as a brace during shipping and handling. Spreader bars are for bracing only and shall not be used to size the frame.
11. Welded Frames
    a. Assemble frame, bend the tabs after assuring that the face miter seam is "closed and tight". Weld the entire face miter seam. Grind the exterior face and dress the face miter seam (exterior) and spot paint, inside and out.
12. Finish: Factory Prime Finish - See 2.04 - 11.

PART 3 - EXECUTION

3.01 Inspection

A. Examine the substrate and conditions under which steel work is to be installed and remedy conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the installer.

B. It is the responsibility of the General Contractor to make sure that all dimensions for existing opening or existing frames (strike height, hinge spacing, hinge backset, etc.) given to the steel manufacturer are accurate.

C. It is the responsibility of the General Contractor to see that any scratches or disfigurements caused in shipping or handling are properly cleaned and touched up with a rust inhibitive primer.

3.02 Installation

A. Door Frames
1. Prior to installation, all frames must be checked for rack, twist and out of square.
2. Except for frames located at in-place concrete or masonry and at drywall installation, place frames prior to construction of enclosing walls and ceilings. Set frames accurately in position, plumbed, aligned and braced securely until

permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders leaving surfaces smooth and undamaged.

3. Fill frames in masonry walls with mortar as the wall is laid up. Frames in solid plaster or steel stud walls may be completely filled with plaster except when drywall is used.
4. When temperature conditions necessitate an additive to be used in the plaster or mortar to prevent freezing, the contractor installing the frames shall coat the inside of the frames in the field with a corrosion inhibiting bituminous material.
5. SDI-105, "Recommended Erection Instructions for Steel Frames" and SDI-110 "Standard Steel Doors and Frames for Modular Masonry Construction" shall indicate the proper installation procedures.
6. Anchors
   a. In masonry construction, locate wall anchors in jambs at hinge and strike levels.
   b. At in-place concrete or masonry construction, set frame and secure to adjacent construction with machine screws and masonry anchorage devices.
   c. In metal stud partitions, install wall anchors in jambs at hinge and strike levels. In open steel stud partitions, place studs in wall anchor notches and wire tie. In closed steel stud partitions, attach studs to wall anchors with self drilling screws.
7. Make field splices in frames as detailed on final shop drawings.

B. Doors
1. Install doors plumb and in true alignment in a prepared opening and fasten them to achieve the maximum operational effectiveness and appearance of the unit.
2. Proper door clearance must be maintained in accordance with Part 2, Section 2.03, except for special conditions otherwise noted.
3. Where necessary, metal hinge shims are acceptable to maintain clearances.
4. "The Installation of Commercial Steel Doors and Steel Frames, Insulated Steel Doors in Wood Frames, and Builders Hardware" published by DHI is recommended for further details.

C. Hardware must be applied in accordance with hardware manufacturer's templates and instructions. Also in compliance with installation instructions as specified under the "Finish Hardware Section of Division 8".

3.03 Adjust and Clean

A. Final adjustments
1. Check and re-adjust operating finish hardware items in hollow metal work just prior to final inspection. Leave work in complete and proper condition. Remove and replace defective work, including doors or frames which are warped, bowed or otherwise unacceptable.

B. Prime Coat Touch-Up
1. Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply touch-up of compatible air-drying primer.

3.04 Schedules and Close Out Documents

A. Follow Architect's instructions to provide project close out documents. These documents will include, but are not limited to:

Copies of hollow metal schedule "as built"
Warranty
Care and maintenance instructions to owner.
Manufacturer's painting recommendations.
Other documents required Division 1 of the specifications.
Other Documents required by the Construction Manager.

END OF SECTION

SECTION 08211 - WOOD DOORS

1.0 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Extent and location of each type of wood door is indicated on drawings and in schedules.

B. Types of doors required include the following:
1. 4 Panel Lite Solid core wood doors prefinished with maple wood veneer faces.

C. Metal door frames for wood doors are specified in another Division-8 section.

1.3 SUBMITTALS

A. Product Data: Door manufacturer's technical data for each type of door, including details of core and edge construction, trim for openings and louvers and factory-finishing specifications.

B. Shop Drawings
1. Submit shop drawings indicating location and size of each door, elevation of each kind of door, details of construction, location and extent of hardware blocking, fire ratings, requirements for factory finishing and other pertinent data.

1.4 CLOSEOUT SUBMITTALS

A. Upon completion of the Work of this Section, Contractor shall submit to the Architect/Engineer, all required closeout documents.

B. Contractor shall submit a marked-up set of drawings indicating any changes made during construction to the Architect/Engineer.

C. Upon completion, submit to the Architect/Engineer, a Contractor's Affidavit of Payment of Debts and Claims, and Release of Liens.

D. Refer to General Conditions for additional requirements.

1.5 QUALITY ASSURANCE

A. Quality Standards: Comply with the following standards:
1. NWWDA Quality Standard: I.S.1 "Industry Standard for Wood Doors", of National Wood Window and Door Association (NWWDA).

B. NWWMA Quality Marking: Mark each wood door with NWWDA Wood Door Certification Hallmark certifying compliance with applicable requirements of NWWDA I.S. 1 Series.
1. For manufacturers not participating in NWWDA Hallmark Program, a certification of compliance may be substituted for marking of individual doors.

C. Manufacturer: Obtain doors from a single manufacturer.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Protect doors during transit, storage and handling to prevent damage, soiling and deterioration. Comply with requirements of referenced standards and recommendations of NWWDA pamphlet "How to Store, Handle, Finish, Install and Maintain Wood Doors", as well as with manufacturer's instructions.

B. Identify each door with individual opening numbers which correlate with designation system used on shop drawings for door, frames and hardware, using temporary, removable or concealed markings.

1.7 PROJECT CONDITIONS

A. Conditioning: Do not deliver or install doors until conditions for temperature and relative humidity have been stabilized and will be maintained in storage and installation areas during remainder of construction period to comply with the following requirements applicable to project's geographical location:
   1. Referenced AWI quality standard including Section 100-S-3 "Moisture Content".

1.8 WARRANTY

A. General: Warranties shall be in addition to, and not a limitation of, other rights the Owner may have under the Contract Documents.

B. Door Manufacturer's Warranty: Submit written agreement in door manufacturer's standard form signed by Manufacturer, Installer and Contractor, agreeing to repair or replace defective doors that have warped (bow, cup or twist) or that show telegraphing of core construction in face veneers, or do not conform to tolerance limitations of referenced quality standards.
   1. Warranty shall also include reinstallation which may be required due to repair or replacement of defective doors where defect was not apparent prior to hanging.
   2. Warranty shall be in effect during following period of time after date of Substantial Completion.
   3. Solid Core Interior Doors:
      a. Life of installation.

C. Contractor's Responsibilities: Replace or refinish doors where Contractor's work contributed to rejection or to voiding of manufacturer's warranty.

2.0 PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering doors which may be incorporated in the work include, but are not limited to, the following:

B. Manufacturer: Subject to compliance with requirements, provide products of one of the following:
   1. 4 Panel Lite with Wood Veneer Faces (Maple Unfinished, 5 ply):

a. Masonite
b. Glen-Mar Door Mfg. Co.
c. Mohawk Doors, Inc.
d. Weyerhauser Company.

2. Finish: Unfinished.

C. Faces and AWI Grade: Provide faces and grade to match non-rated doors in same area of building, unless otherwise indicated.
1. Construction: Manufacturer's standard core construction as required to provide fire-resistance rating indicated.
2. Edge Construction: Provide manufacturer's standard laminated edge construction for improved screw-holding capability and split resistance as compared to edges composed of a single layer of treated lumber.
3. Pairs: Furnished formed steel edges and astragals for pairs of fire-rated doors, unless otherwise indicated.
a. Provide fire-rated pairs with fire-retardant stiles which are labeled and listed for kinds of applications indicated without formed steel edges and astragals.

2.2 LOUVERS AND LIGHT FRAMES

A. Metal Frames for Light Openings in Fire Doors: Manufacturer's standard frame formed of 18-gage cold-rolled steel, factory-primed, and approved for use in door of fire-rating indicated.

2.3 FABRICATION

A. Fabricate wood doors to produce doors complying with following requirements:
1. In sizes indicated for job-site fitting.
2. Factory-pre-fit and pre-machine doors to fit frame opening sizes indicated with the following uniform clearances and bevels:
a. Comply with tolerance requirements of AWI for pre-fitting. Comply with final hardware schedules and door frame shop drawings and with hardware templates.
b. Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before proceeding with factory pre-machining.

B. Transom and Side Panels: Fabricate matching panels with same construction, exposed surfaces and finish as specified for associated doors.
1. Fixed Transom Panels: Fabricate fixed panels with solid lumber transom bottom rail and door top rail, both rabbeted as indicated, and factory-installed springbolts for concealed attachment into jambs of metal door frames.

D. Openings: Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of doors required.
1. Light Openings: Trim openings with moldings of material and profile indicated.

3.0 EXECUTION

3.1 EXAMINATION

A. Examine installed door frames prior to hanging door:

1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with plumb jambs and level heads.
2. Reject doors with defects.

B. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Hardware: For installation see Division-8 "Finish Hardware" section of these specifications.

B. Manufacturer's Instructions: Install wood doors to comply with manufacturer's instructions and of referenced AWI standard and as indicated.
1. Install fire-rated doors in corresponding fire-rated frames in accordance with requirements of NFPA No. 80.

C. Job-Fit Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer. Machine doors for hardware. Seal cut surfaces after fitting and machining.
1. Fitting Clearances for Non-Rated Doors: Provide 1/8" at jambs and heads; 1/16" per leaf at meeting stiles for pairs of doors; and 1/8" from bottom of door to top of decorative floor finish or covering. Where threshold is shown or scheduled, provide 1/4" clearance from bottom of door to top of threshold.
2. Bevel non-rated doors 1/8" in 2" at lock and hinge edges.

D. Prefinishing:
1. Wood veneer doors: Factory finish door faces, moldings and side edges in accordance with AWI Quality Standard 1500.

3.3 ADJUSTING AND PROTECTION

A. Operation: Rehang or replace doors which do not swing or operate freely.

B. Finished Doors: Refinish or replace doors damaged during installation.

C. Protect doors as recommended by door manufacturer to ensure that wood doors will be without damage or deterioration at time of Substantial Completion.

END OF SECTION

SECTION 08410 - ALUMINUM ENTRANCES AND CURTAINWALL

1.0 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Extent of aluminum entrances and curtainwall is indicated on drawings and schedules.

B. Aluminum entrances and curtainwall types required for the project include:
   1. Exterior entrance doors and frames.
   2. Hardware for aluminum doors are specified in Division 08710 Finish Hardware.

C. Glazing: Refer to "Glass and Glazing" section of Division 8 for glazing requirements for aluminum entrances and curtainwall including doors specified to be factory-pre-glazed.

1.3 SYSTEM DESCRIPTION

A. Performance Requirements: Provide aluminum entrance and curtainwall assemblies that comply with specified performance characteristics of 1600 Wall System for curtain wall and #350 Series swing doors as manufactured by Kawneer (Med Style).

1.4 SUBMITTALS

A. Shop Drawings: Submit shop drawings for fabrication and installation of entrances and curtainwall including the following:
   1. Elevations.
   2. Detail sections of typical composite members.
   3. Hardware, mounting heights.
   4. Anchorages and reinforcements.
   5. Expansion provisions.
   6. Glazing details.

1.5 PROJECT CONDITIONS

A. Field Measurements: Check openings by field measurement before fabrication to ensure proper fitting of work; show measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delay in the work. Where necessary, proceed with fabrication without field measurements and coordinate fabrication tolerances to ensure proper fit.

1.6 CLOSEOUT SUBMITTALS

A. Upon completion of the Work in this Section, Contractor shall submit to the Construction Manager, all required closeout documents.

B. Contractor shall submit a marked-up set of drawings indicating any changes made during

construction to the Construction Manager.

C. Upon completion, submit to the Construction Manager, a Contractor's Affidavit of Payments of Debts and Claims, and Release of Liens.

D. Refer to General Conditions for additional requirements.

2.0 PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:

B. Manufacturer: Subject to compliance with requirements, provide products of one of the following:
1. Amarlite/Arco Metals Co.
2. Kawneer Company, Inc.
3. Tubelite Div., Indal Inc.
4. Vista Wall

2.2 MATERIALS

A. Aluminum Members: Provide alloy and temper recommended by the manufacturer.

B. Fasteners: Provide fasteners of aluminum, nonmagnetic stainless steel or other materials warranted by the manufacturer.
1. Reinforcement: Where fasteners screw-anchor into aluminum less than 0.125" thick, reinforce the interior with aluminum or nonmagnetic stainless steel to receive screw threads.
2. Exposed Fasteners: Except where unavoidable for application of hardware, do not use exposed fasteners.
   a. Provide Phillips flat-head machine screws for exposed fasteners.

C. Compression Weatherstripping: Provide the manufacturer's standard replaceable compressible weatherstripping gaskets of molded neoprene.

D. Glass and Glazing Materials: Glass and glazing materials shall comply with requirements of "Glass and Glazing" section of these specifications.

2.3 HARDWARE

A. Provide hardware as indicated in Division 08710.

2.4 FABRICATION

A. General: Sizes of door and frame units, and profile requirements, are indicated on drawings. Variable dimensions are indicated, with maximum and minimum dimensions required to achieve design requirements and coordination with other work.

B. Prefabrication: Before shipment to the project site, complete fabrication, assembly, finishing, hardware application and other work to the greatest extent possible. Disassemble components only as necessary for shipment and installation.

C. Weatherstripping: For exterior doors, provide compression weatherstripping against fixed stops; at other edges, provide sliding weatherstripping retained in adjustable strip mortised into door edge.

D. Doors and frames to be fabricated of aluminum extrusions AA-6063-T5 aluminum alloy with clear anodized finish.

E. Provide reinforcement of curtainwall system as required for project conditions. Reinforcement determination shall be by curtain wall manufacturer.

2.5 FINISH

A. Dark Bronze.

3.0 EXECUTION

3.1 INSTALLATION

A. Comply with manufacturer's instructions and recommendations for installation.

B. Drill and tap frames and doors and apply surface-mounted hardware items. Comply with hardware manufacturer's instructions and template requirements. Use concealed fasteners wherever possible.

C. Set sill members and other members in bed of sealant as indicated, or with joint fillers or gaskets as indicated to provide weather tight construction. Comply with requirements of Division 7 for sealants, fillers and gaskets.

3.2 ADJUSTING

A. Adjust operating hardware to function properly, for smooth operation without binding, and for weather tight closure.

3.3 CLEANING

A. Clean the completed system, inside and out, promptly after installation, exercising care to avoid damage to coatings.

3.4 PROTECTION

A. Institute protective measures required throughout the remainder of the construction period to ensure that aluminum entrances and curtainwall will be without damage or deterioration other than normal weathering at time of acceptance.

END OF SECTION

SECTION 08520 - ALUMINUM WINDOWS

1.0 GENERAL

A. The drawings, Instructions to Bidders, Form of Proposal, General Conditions, Supplementary General Conditions, and Division 1 are included herein and govern work under this section.

1.1 SCOPE OF WORK

A. Furnish all labor and materials necessary to complete all Aluminum Window work shown on drawings and specified herein:
1. Metal Windows
2. All misc. hardware screws, bolts, etc.

B. Related work specified elsewhere:
1. Glass and Glazing - see Section 08800.

1.2 SHOP DRAWINGS

A. Submit one (1) print and one (1) sepia reproducible showing construction details and installation details and intended method of glazing. Contractor to field verify all dimensions.

1.3 PERFORMANCE REQUIREMENTS

A. Air infiltration shall be tested in accordance with ASTM E 283. Infiltration shall not exceed, 0.06 CFM per square foot (.003 M3/S-M2) of fixed area.

B. Water infiltration shall be tested in accordance with ASTM E 331. No water penetration at a test pressure of 6.24 P.S.F. (300 Pa).

C. Structural performance shall be based on maximum deflection of 1/175 of the span and allowable stress with a safety factor of 1.65

D. Thermal Performance
1. Mullion and perimeter gutters shall be separated from mullion and perimeter faces by a special designed clip, eliminating all metal to metal contact between exterior and interior of the frame. Performance shall be such that condensation will appear on the interior surface of 1" insulated glass before on the metal. When tested in accordance with AAMA 1502.7-1981 and 1503.1-1980, the following results should be attained:
a. U - Maximum of 0.36, CRF - Minimum of 57

E. The Aluminum Window Contractor shall be responsible for verification of all window frame sizes in order to meet manufacturer's structural performance and wind load requirements. The Window Subcontractor shall be responsible for any internal frame reinforcing or frame upsizing as required to meet manufacturer's requirements at no cost to the Owner.

2.0 PRODUCTS

2.1 APPROVED MANUFACTURERS

A. This Specification is based on the standard items as manufactured by Kawneer, Bloomsburg,

PA., (717) 784-8000. A manufacturer considered equal to Kawneer is Vistawall.

2.2 MATERIALS

A. Extrusions shall be 6063-T5 alloy and temper (ASTM B221 alloy G.S. 10A-T5). Fasteners, where exposed, shall be aluminum, stainless steel or zinc plated steel in accordance with ASTM A 164. Perimeter anchors shall be aluminum or steel, providing the steel is properly isolated from the aluminum. Glazing gaskets shall be elastomeric. Single acting entrance frame weathering shall be nonporous, polymeric material.

B. All exterior windows shall be “Encore" system as manufactured by Kawneer Co., Inc.

2.3 FABRICATION

A. Mullion and perimeter framing shall be of two-part construction consisting of gutter and face sections, designed to permit unobstructed face glazing with through site lines and no protecting stops. All exterior face members will be seamless. Typical vertical and horizontal framing members shall have a nominal face dimension of 1 3/4". Overall depth shall be 4-1/2" as shown on drawings.

B. All assemblies shall be secured internally be means of face clips of special form, in such manner as to be positively held against accidental disassembly in the event of glass breakage. Face clips shall be such a design as to provide a non-reversible snap action, and prevent metal to metal contact of the face and gutter sections.

C. Provide muntins as shown on drawings with muntin installed in the air space between two sheets of glass.

2.4 FINISH

A. All exposed framing surfaces shall be free of scratches and other serious blemishes.

B. Finish shall be Dark Bronze AA-M12C22A44. Architectural Class 1 Anodic Coating.

3.0 EXECUTION

3.1 INSTALLATION

A. All glass framing shall be set in correct locations as shown in the details and shall be level, square, plumb and in alignment with other work in accordance with the manufacturer's installation instructions and approved shop drawings. All joints between framing and the building structure shall be sealed in order to secure a watertight installation.

3.2 COMPLETION

A. After installation, the General Contractor shall adequately protect exposed portions of aluminum surfaces from damage by grinding and polishing compounds, plaster, lime, acid, cement or other contaminants. The General Contractor shall be responsible for final cleaning.

END OF SECTION

SECTION 08710 – DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes commercial door hardware for the following:
   1. Swinging doors.
   2. Sliding Doors
   3. Other doors to the extent indicated.

B. Door hardware includes, but is not necessarily limited to, the following:
   1. Mechanical door hardware.
   2. Electromechanical door hardware, power supplies, back-ups and surge protection.
   3. Automatic operators.
   4. Cylinders specified for doors in other sections.

C. Related Sections:
   1. Section 06 10 00 – Rough Carpentry.
   2. Section 06 20 00 – Finish Carpentry.
   3. Section 08 01 00 – Operations and Maintenance.
   4. Section 08 11 13 – Hollow Metal Doors and Frames.
   5. Section 08 14 16 – Flush Wood Doors.
   6. Section 08 14 33 – Stile and Rail Wood Doors.
   7. Section 08 41 13 – Aluminum-Framed Entrances and Storefronts.
   8. Section 08 81 00 – Glass and Glazing.
   9. Section 09 90 00 – Painting and Coating.

D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
   1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
   2. ANSI/SDI A250.13 - Testing and Rating of Severe Windstorm Resistant Components for Swing Door Assemblies.
   3. ASTM E1886 - Test Method for Performance of Exterior Windows, Curtin Walls, Doors and Shutters Impacted by Missiles and Exposed to Cyclic Pressure Differentials.
   4. ASTM E330 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure difference.
   5. ASTM E1996 - Standard specification for performance of exterior windows, curtain walls, doors and storm shutters impacted by Windborne Debris in Hurricanes.
   6. FEMA 361 2008 - Design and Construction Guidance for Community Safe Rooms.
   7. ICC 500 - ICC/NSSA Standard for the Design and Construction of Storm Shelters.
   8. ICC/IBC - International Building Code.
   9. NFPA 70 - National Electrical Code.
   10. NFPA 80 - Fire Doors and Windows.
   11. NFPA 101 - Life Safety Code.
   12. NFPA 105 - Installation of Smoke Door Assemblies.
   13. TAS-201-94 - Impact Test Procedures.

14. TAS-202-94 - Criteria for Testing Impact and Non-Impact Resistant Building Envelope Components using Uniform Static Air Pressure.
15. TAS-203-94 - Criteria for Testing Products Subject to Cyclic Wind Pressure Loading.

E. Standards: All hardware specified herein shall comply with the following industry standards:
1. ANSI/BHMA Certified Product Standards - A156 Series
2. UL10C – Positive Pressure Fire Tests of Door Assemblies

1.3 SUBMITTALS

A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.

B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
3. Content: Include the following information:
    a. Type, style, function, size, label, hand, and finish of each door hardware item.
    b. Manufacturer of each item.
    c. Fastenings and other pertinent information.
    d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
    e. Explanation of abbreviations, symbols, and codes contained in schedule.
    f. Mounting locations for door hardware.
    g. Door and frame sizes and materials.
4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.

C. Proof of Certification: Provide copy of manufacturer(s) official certification or accreditation document indicating proof of status as a qualified and authorized provider of the primary Integrated Wiegand Access Control Products.

D. Keying Schedule: Prepared under the supervision of the Owner, separate schedule detailing final keying instructions for locksets and cylinders in writing. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner to approve submitted keying schedule prior to the ordering of permanent cylinders.

E. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Submittals. The manual to include the name, address, and contact information of the manufacturers providing the hardware and their nearest service

representatives. The final copies delivered after completion of the installation test to include "as built" modifications made during installation, checkout and acceptance.

F. Warranties and Maintenance: Special warranties and maintenance agreements specified in this Section.

1.4 QUALITY ASSURANCE

A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.

B. Installer Qualifications: Installers, trained by the primary product manufacturers, with a minimum 3 years documented experience installing both standard and electrified builders hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

C. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor in good standing by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.
   1. Scheduling Responsibility: Preparation of door hardware and keying schedules.

D. Source Limitations: Obtain each type and variety of Door Hardware specified in this Section from a single source, qualified supplier unless otherwise indicated.
   1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.
   2. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.

E. Regulatory Requirements: Comply with NFPA 70, NFPA 80, NFPA 101 and ANSI A117.1 requirements and guidelines as directed in the model building code including, but not limited to, the following:
   1. NFPA 70 "National Electrical Code", including electrical components, devices, and accessories listed and labeled as defined in Article 100 by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
   2. Where indicated to comply with accessibility requirements, comply with Americans with Disabilities Act (ADA), "Accessibility Guidelines for Buildings and Facilities (ADAAG)," ANSI A117.1 as follows:
      a. Handles, Pulls, Latches, Locks, and other Operating Devices: Shape that is easy to grasp with one hand and does not require tight grasping, tight pinching, or twisting of the wrist.
      b. Door Closers: Comply with the following maximum opening-force requirements indicated:
         1) Interior Hinged Doors: 5 lbf applied perpendicular to door.
         2) Fire Doors: Minimum opening force allowable by authorities having jurisdiction.
      c. Thresholds: Not more than 1/2 inch high. Bevel raised thresholds with a slope of not more than 1:2.

3. NFPA 101: Comply with the following for means of egress doors:
   a. Latches, Locks, and Exit Devices: Not more than 15 lbf to release the latch. Locks shall not require the use of a key, tool, or special knowledge for operation.
   b. Thresholds: Not more than 1/2 inch high.
4. Fire-Rated Door Assemblies: Provide door hardware for assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 252 (neutral pressure at 40" above sill) or UL-10C.
   a. Test Pressure: Positive pressure labeling.

F. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.

G. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:
1. Function of building, purpose of each area and degree of security required.
2. Plans for existing and future key system expansion.
3. Requirements for key control storage and software.
4. Installation of permanent keys, cylinder cores and software.
5. Address and requirements for delivery of keys.

H. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.
1. Prior to installation of door hardware, arrange for manufacturers' representatives to hold a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
2. Inspect and discuss electrical roughing-in, power supply connections and other preparatory work performed by other trades.
3. Review sequence of operation narratives for each unique access controlled opening.
4. Review and finalize construction schedule and verify availability of materials.
5. Review the required inspecting, testing, commissioning and demonstration procedures.

1.5 DELIVERY, STORAGE AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.

B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.

C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.6 COORDINATION

A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.

B. Door Hardware and Electrical Connections: Coordinate the layout and installation of scheduled electrified door hardware and related access control equipment with required connections to source power junction boxes, low voltage power supplies, detection and monitoring hardware, and fire and detection alarm systems.

C. Door and Frame Preparation: Related Division 08 Sections (Steel, Aluminum and Wood) doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.7 WARRANTY

A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
   1. Structural failures including excessive deflection, cracking, or breakage.
   2. Faulty operation of the hardware.
   3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
   4. Electrical component defects and failures within the systems operation.

C. Standard Warranty Period: One year from date of Substantial Completion, unless otherwise indicated.

D. Special Warranty Periods:
   1. Ten years for mortise locks and latches.
   2. Five years for exit hardware.
   3. Ten years for manual door closers.

1.8 MAINTENANCE SERVICE

A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

B. Continuing Service: Beginning at Substantial Completion, and running concurrent with the specified warranty period, provide continuous (6) months full maintenance including repair and replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper door opening operation. Provide parts and supplies as used in the manufacture and installation of original products.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.
   1. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:
      a. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.
   2. Products furnished, but not installed, under this Section include the following. Coordinating, purchasing, delivering, and scheduling remain requirements of this Section.
      a. Permanent cylinders, cores and keys to be installed by Owner.

B. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.2 HANGING DEVICES

A. Hinges: ANSI/BHMA A156.1 certified butt hinges with number of hinge knuckles as specified in the Door Hardware Sets.
   1. Quantity: Provide the following hinge quantity, unless otherwise indicated:
      a. Two Hinges: For doors with heights up to 60 inches.
      b. Three Hinges: For doors with heights 61 to 90 inches.
      c. Four Hinges: For doors with heights 91 to 120 inches.
      d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.
   2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:
      a. Widths up to 3’0”: 4-1/2” standard or heavy weight as specified.
      b. Sizes from 3’1” to 4’0”: 5” standard or heavy weight as specified.
   3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:
      a. Exterior Doors: Heavy weight, non-ferrous, ball bearing hinges.
      b. Interior Doors: Standard weight, steel, ball bearing hinges.
   4. Hinge Options: Comply with the following where indicated in the Hardware Sets or on Drawings:
      a. Non-removable Pins: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the following applications:
         1) Out-swinging exterior doors.
         2) Out-swinging access controlled doors.
   5. Acceptable Manufacturers:
      a. Hager Companies (HA).
      b. McKinney Products (MK).
      c. Stanley Hardware (ST).

B. Continuous Geared Hinges: ANSI/BHMA A156.26 certified continuous geared hinge with minimum 0.120-inch thick extruded 6060 T6 aluminum alloy hinge leaves and a minimum overall width of 4 inches. Hinges are non-handed, reversible and fabricated to template screw locations. Provide concealed flush mount (with or without inset), full surface, or half surface, in standard and heavy duty models, as specified in the Hardware Sets. Concealed continuous hinges to be U.L. listed for use on up to and including 90 minute rated door installations and U.L. listed for windstorm components where applicable. Factory cut hinges for door size and provide with removable service power transfer panel where indicated at electrified openings.
   1. Acceptable Manufacturers:
      a. McKinney Products (MK).
      b. Pemko Manufacturing (PE).
      c. Stanley Hardware (ST).

2.3 DOOR OPERATING TRIM

A. Door Push Plates and Pulls: ANS/BHMA A156.6 certified door pushes and pulls of type and design specified below or in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.
   1. Push/Pull Plates: Minimum .050 inch thick, 4-inches wide by 16-inches high, with square corners and beveled edges, secured with exposed screws unless otherwise indicated.
   2. Straight Pull Design: Minimum 1-inch round diameter stainless steel bar or tube stock pulls with 2 1/2-inch projection from face of door unless otherwise indicated.
   3. Offset Pull Design: Minimum 1-inch round diameter stainless steel bar or tube stock pulls with 2 1/2-inch projection and offset of 90 degrees unless otherwise indicated.
   4. Push Bars: Minimum 1-inch round diameter horizontal push bars with minimum clearance of 2 1/2-inch projection from face of door unless otherwise indicated.
   5. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets.
      a. Acceptable Manufacturers:
         1) McKinney Architectural Hardware (MK).
         2) Rockwood Manufacturing (RO).
         3) Trimco (TC).

2.4 CYLINDERS AND KEYING

A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.

B. Source Limitations: Obtain each type of keyed cylinder and keys from the same source manufacturer as locksets and exit devices, unless otherwise indicated.

C. Cylinders: Original manufacturer cylinders complying with the following:
   1. Mortise Type: Threaded cylinders with rings and straight- or clover-type cam.
   2. Rim Type: Cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
   3. Bored-Lock Type: Cylinders with tailpieces to suit locks.
   4. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.

D. Patented Cylinders: ANSI/BHMA A156.5, Grade 1, certified cylinders employing a utility patented and restricted keyway requiring the use of patented controlled keys. Provide bump resistant, fixed core cylinders as standard with solid recessed cylinder collars. Cylinders are to be factory keyed where permanent keying records will be established and maintained.

1. Provide a 6 pin multi-level master key system comprised of patented controlled keys and security and high security cylinders operated by one (1) key of the highest level. Geographical exclusivity to be provided for all security and high security cylinders and UL437 certification where specified.
    a. DG1 Cylinders: Provide utility patented controlled keyway cylinders that are furnished with patented keys available only from authorized distribution.
    b. DG2 Cylinders: Provide utility patented controlled keyway and side bar locking incorporating unique angled bottom pins for geographical exclusivity. Cylinders constructed to provide protection against bumping and picking.
    c. DG3 Cylinders: Provide utility patented controlled keyway and side bar locking incorporating unique angled bottom pins for geographical exclusivity. Cylinders constructed to provide protection against bumping, picking, and drilling
2. Acceptable Manufacturer:
    a. Confirm core manufacturer and style with Owner.

E. Keying System: Each type of lock and cylinders to be factory keyed. Conduct specified "Keying Conference" to define and document keying system instructions and requirements. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner. Confirm keying with Owner. Incorporate decisions made in keying conference, and as follows:
1. Master Key System: Cylinders are operated by a change key and a master key.
2. Grand Master Key System: Cylinders are operated by a change key, a master key, and a grand master key.
3. Great-Grand Master Key System: Cylinders are operated by a change key, a master key, a grand master key, and a great-grand master key.
4. Existing System: Master key or grand master key locks to Owner's existing system.
5. Keyed Alike: Key all cylinders to same change key.

F. Key Quantity: Provide the following minimum number of keys:
1. Top Master Key: One (1)
2. Change Keys per Cylinder: Two (2)
3. Master Keys (per Master Key Group): Two (2)
4. Grand Master Keys (per Grand Master Key Group): Two (2)
5. Construction Control Keys (where required): Two (2)
6. Permanent Control Keys (where required): Two (2)

G. Construction Keying: Provide construction master keyed cylinders or temporary keyed construction cores where specified. Provide construction master keys in quantity as required by project Contractor. Replace construction cores with permanent cores. Furnish permanent cores for installation as directed under specified "Keying Conference".

H. Key Registration List: Provide keying transcript list to Owner's representative in the proper format for importing into key control software.

2.5 MECHANICAL LOCKS AND LATCHING DEVICES

A. Mortise Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.13, Series 1000, Operational Grade 1 certified mortise locksets furnished in the functions as specified in the Hardware Sets. Locksets to be manufactured with a corrosion resistant, stamped 12 gauge minimum formed steel case and be field-reversible for handing without disassembly of the lock body. Lockset trim (including knobs, levers, escutcheons, roses) to be the product of a single manufacturer. Furnish with standard 2 3/4" backset, 3/4" throw anti-friction stainless steel latchbolt and a full 1" throw stainless steel bolt for deadbolt functions.

1. Acceptable Manufacturers:
   a. Corbin Russwin Hardware (RU) – ML2000 Series.
   b. Sargent Manufacturing (SA) – (R)8200 Series.
   c. Yale Locks and Hardware (YA) – 8800FL Series.

B. Lock Trim Design: As specified in Hardware Sets.

C. Knurling: Where specified provide knurling or abrasive coating to all levers on doors leading to hazardous areas such as mechanical rooms, boiler and furnace rooms, janitor closets, and as otherwise required by the Illinois Accessibility Code.

2.6 AUXILIARY LOCKS

A. Mortise Deadlocks, Small Case: ANSI/BHMA A156.5, Grade 1, certified small case mortise type deadlocks constructed of heavy gauge wrought corrosion resistant steel. Steel or stainless steel bolts with a 1" throw and hardened steel roller pins. Deadlocks to be products of the same source manufacturer and keyway as other specified locksets.
   1. Acceptable Manufacturers:
      a. Corbin Russwin Hardware (RU) - DL4100 Series.
      b. Sargent Manufacturing (SA) - 4870 Series.
      c. Yale Locks and Hardware (YA) - 350 Series.

2.7 LOCK AND LATCH STRIKES

A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:
   1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
   2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
   3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.

B. Standards: Comply with the following:
   1. Strikes for Mortise Locks and Latches: BHMA A156.13.
   2. Strikes for Bored Locks and Latches: BHMA A156.2.
   3. Strikes for Auxiliary Deadlocks: BHMA A156.5.
   4. Dustproof Strikes: BHMA A156.16.

2.8 EXIT DEVICES

A. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 certified panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Mounting rails to be formed from smooth stainless steel, brass or bronze architectural materials no less than 0.072" thick, with push rails a minimum of 0.062" thickness. Painted or aluminum metal rails are not acceptable. Exit device latch to be investment cast stainless steel, pullman type, with deadlock feature. Exit devices shall be electrified where indicated in schedule for rod retraction. Such devices shall be coordinated with and connected to building security system. UL listed.
   1. Acceptable Manufacturers:
      a. Corbin Russwin Hardware (RU) - ED4000 / ED5000 Series.
      b. Sargent Manufacturing (SA) - 80 Series.
      c. Yale Locks and Hardware (YA) - 7000 Series.

B. Narrow Stile Exit Devices: Touch pad type finish to match balance of door hardware. Exit Devices shall be of one manufacturer as listed for continuity of design. UL listed. Devices shall be coordinated with and connected to building security system.
   1. Standards: Manufacturer to be certified by the following:
      a. ANSI/BHMA A156.3 Grade 1
   2. Touch pad shall extend a minimum of one half-door width.
   3. Lock and latch functions: Function numbers and descriptions of manufacturer's series and lever styles indicated in door hardware sets.
   4. Mounting: 2" minimum stile width.
   5. Acceptable Manufacturers:
      a. Detex
      b. Von Duprin
      c. Sargent

2.9 DOOR CLOSERS

A. Door Closers, Surface Mounted (Heavy Duty): ANSI/BHMA A156.4, Grade 1 surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control. Provide non-handed units and high impact, non-corrosive plastic covers standard complete with appropriate arms.
   1. Acceptable Manufacturers:
      a. Corbin Russwin Hardware (RU) - DC8000 Series.
      b. Sargent Manufacturing (SA) - 351 Series.
      c. Norton Door Controls (NO) - 7500 Series.
      d. Yale Locks and Hardware (YA) - 4400 Series.

B. Door Closers, Surface Mounted (Unitrol): ANSI/BHMA 156.4, Grade 1 certified surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Unitrol arms to have door stop mechanism to absorb dead stop shock on arm and top hinge. Hold-open arms to have a spring loaded mechanism in addition to shock absorber assembly. Arms to be provided with rigid steel main arm and secondary arm lengths proportional to the door width. Provide high impact, non-corrosive plastic covers standard complete with appropriate arms.
   1. Acceptable Manufacturers:
      a. Corbin Russwin Hardware (RU) - Unitrol DC8000 Series.
      b. Norton Door Controls (NO) - Unitrol 7500 Series.
      c. Yale Locks and Hardware (YA) - Unitrol 4400 Series.

2.10 ARCHITECTURAL TRIM

A. Door Protective Trim
   1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.
   2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.
   3. Metal Protection Plates: ANSI/BHMA A156.6 certified metal protection plates (kick, armor, or mop), beveled on four edges (B4E), fabricated from the following.

a. Stainless Steel: 050-inch thick, with countersunk screw holes (CSK).
b. Brass or Bronze: 050-inch thick, with countersunk screw holes (CSK).
c. Laminate Plastic or Acrylic: 1/8-inch thick, with countersunk screw holes (CSK).

4. Fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets.
5. Metal Door Edging: Door protection edging fabricated from a minimum .050-inch thick metal sheet, formed into an angle or "U" cap shapes, surface or mortised mounted onto edge of door. Provide appropriate leg overlap to account for protection plates as required. Height to be as specified in the Hardware Sets.
6. Acceptable Manufacturers:
   a. McKinney Architectural Hardware (MK).
   b. Rockwood Manufacturing (RO).

2.11 DOOR STOPS AND HOLDERS

A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.

B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.
1. Acceptable Manufacturers:
   a. McKinney Architectural Hardware (MK).
   b. Rockwood Manufacturing (RO).

C. Overhead Door Stops and Holders: ANSI/BHMA A156.6, Grade 1 certified overhead stops and holders to be surface or concealed types as indicated in Hardware Sets. Track, slide, arm and jamb bracket to be constructed of extruded bronze and shock absorber spring of heavy tempered steel. Provide non-handed design with mounting brackets as required for proper operation and function.
1. Acceptable Manufacturers:
   a. Rixson Door Controls (RF).
   b. Rockwood Manufacturing (RO).
   c. Sargent Manufacturing (SA).

2.12 ARCHITECTURAL SEALS

A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.

B. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.

C. Acceptable Manufacturers:
1. McKinney Weatherstripping Products (MW).
2. Pemko Manufacturing (PE).

2.13 POWER ASSIST OPERATORS

A. DORMA ED800 Series low energy operators with selectable low energy or power assist, UL Listed, or equal. 120VAC.
   1. Adjustable Spring Size (manual/powered operation) between 0.5 and 5 lb force.
   2. Controlled Closing with two adjustment valves (manual/powered operation).
   3. Adjustable Backcheck (manual operation).
   4. Radio Frequency Activation.
   5. Push & Go (door movement activates operator). Adjustable automatic door closing.
   6. 12 VDC Output for Powering Accessories.
   7. Additional features: delay time, opening time/opening force, opening angle and door width selector. Operators to have selectable slide switch to accommodate push or pull side applications. Operators to have on/off strike delay switch when the ED800 must delay while a locking device releases. Push side (top jamb) and pull side (track) arms to be available.
   8. Provide wireless wall switches including battery, tamper resistant, 6x6 wall plate with handicapped symbol and words “PRESS TO OPEN” device including mounting box.
   9. Operator shall be connected to building security system. When security system is engaged, operator is non-functioning. Deactivation of the security system energizes the operator.

2.14 MAGNETIC LOCK

A. Equal to Kantech, Tyco Security, surface mounted. Included power supply, proximity motion sensors and all other equipment for a fully operational system. UL listed.

B. Lock shall be connected to and release upon activation of building fire alarm system.

C. Lock shall deactivate via card reader access system on secured side and proximity motion sensor on secure side.

2.15 ACCESS CONTROL (System shall be provided by the Owner.All raceways, conduits, boxes, etc shall remain in contract as support for the system)

2.16 ELECTRIC DOOR STRIKES

A. Equal to Kantech, Tyco Security, recessed mounted. Included power supply and all other equipment for a fully operational system. UL and ANSI/BHMA listed.

2.17 THRESHOLDS

A. Secured with lead expansion shields and stainless steel machine screws. Notched in field to fit frame by hardware installer.

B. Standards: Manufacturer to be certified by the following:
   1. Thresholds: ANSI/BHMA A156.21.
   2. Americans with Disabilities Act Accessibility Guidelines (ADAAG).

C. Acceptable Manufactures:
   1. Hager Companies
   2. Pemko
   3. National Guard

2.18 ROLLER CATCHES

A. Spring loaded with nylon roller and adjustable tension. Steel construction.

B. Acceptable Manufacturers:
   1. Stanley Hardware
   2. Ives
   3. Baldwin Hardware

2.19 FABRICATION

A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.20 FINISHES

A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.

B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware.

C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

D. All hardware shall be satin nickel (619) or closely matching

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.

B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.

B. Wood Doors: Comply with ANSI/DHI A115-W series.

3.3 INSTALLATION

A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.
   1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.

B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
   1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
   2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
   3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
   4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.

C. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."

D. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 FIELD QUALITY CONTROL

A. Field Inspection: Supplier will perform a final inspection of installed door hardware and state in report whether work complies with or deviates from requirements, including whether door hardware is properly installed, operating and adjusted.

3.5 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.6 CLEANING AND PROTECTION

A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.

B. Clean adjacent surfaces soiled by door hardware installation.

C. Clean operating items as necessary to restore proper finish. and provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.7 DEMONSTRATION

A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.8 DOOR HARDWARE SCHEDULE

A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with

corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.

B. Manufacturer's Abbreviations:
   1. MK – McKinney
   2. SA – Sargent
   3. RO – Rockwood
   4. RF – Rixson
   5. NO – Norton
   6. PE – Pemko

Set 1.0
Doors: E1, E2

2 Continuous Hinges
1 Exit Device (CVR) with Entry Lockset and electric rod retraction
1 Exit Device (CVR, pull)
1 Automatic operator with 2 push button activators
2 Concealed Security Contacts
1 Door Closer with Stops
1 Access Control Card Reader
2 Weatherstripping 3 sides of each door
2 Door Sweeps
1 Threshold (full width of opening)

Access control system retracts exit device latches and disarms security system.

Set 2.0
Doors 101

1 Continuous Hinge
1 Exit Device with passage set
1 Auto Operator with 2 push button activators
1 Threshold

Set 2.1
Doors 152

3 Hinge
1 Exit Device with passage set
1 Closer
1 Threshold

Set 3.0
Doors 102, 111, 112, 114, 115, 128, 145, 147

3 Hinges
1 Passage Set
1 Wall Stop

Set 4.0
Doors 104, 116, 133, 134, 138, 139

3 Hinges
1 Closer
1 Classroom Lockset
1 Wall Stop

Set 4.1
Doors 103

3 Hinges
1 Closer
1 Classroom Lockset
1 Electric Strike
1 Access Control Card Reader
1 Wall Stop

Set 5.0
Doors 105, 124, 132, 137, 140, 151, 153

3 Hinges
1 Closer
1 Storeroom Lockset
1 Wall Stop

Set 6 – Not Used

Set 7.0
Doors 107

6 Hinges
2 Closers
2 Push/Pulls
1 Threshold (full width of opening)
2 Wall Stops

Set 8.0
Doors 113

3 Hinges
1 Closer
1 Storeroom Lockset
1 Electric Strike
1 Access Control Card Reader
1 Wall Stop

Card reader releases electric strike.

Set 8.1
Doors 109, 146

3 Hinges
1 Closer
1 Office Lockset
1 Electric Strike
1 Access Control Card Reader
1 Wall Stop

Card reader releases electric strike.

Set 8.2
Doors 117, 118, 119, 120, 122, 129

3 Hinges
1 Office Lockset
1 Wall Stop

Set 9.0
Doors 110, 127, 141

3 Hinges
1 Closer
1 Exit Device with Storeroom Lockset
1 Electric Strike
1 Access Control Card Reader
1 Wall Stop

Card reader releases electric strike.

Set 9.1
Door 154, 155, 156

3 Hinges
1 Closer
1 Classroom Lockset
1 Electric Strike
1 Access Control Card Readers
1 Wall Stop

Card reader releases electric strike.

Set 10.0
Doors 125, 126, 149, 150

6 Hinges
2 Dummy Trims
2 Roller Catchs

Set 11.0
Doors 148

3 Hinges
1 Passage Set
1 Wall Stop

Set 12.0
Doors 135, 136

3 Hinges
1 Closer
1 Push / Pull
1 Wall Stop

Set 12.1
Doors 106

6 Hinges
2 Closers
2 Push / Pulls
2 Overhead Stops
1 Threshold (full width of opening)

END OF SECTION

SECTION 08800 - GLASS AND GLAZING

1.0 GENERAL

A. The drawings, Instructions to Bidders, Form of Proposal, General Conditions, Supplementary General Conditions and Division 1 are included herein and govern work under this section.

1.1 DESCRIPTION OF WORK

A. Definitions: "Glass" includes prime glass, processed glass, and fabricated glass products. "Glazing" includes glass installation and materials used to install glass.

B. Included, but not necessarily limited to, are the following:
   1. Plate glass
   2. Tempered glass
   3. Glazing of windows, doors, transoms, side lights and all other glazed openings as indicated.
   4. Spandrel glass

1.2 QUALITY ASSURANCE

A. Prime Glass Manufacturer: One of the following for each type of glass:
   1. ASG Industries, Inc.
   2. C-E Glass Division
   3. Ford Glass Company
   4. Libbey-Owens-Ford Company
   5. PPG Industries, Inc.

B. Reference Standards:
   1. American National Standards Institute: (ANSI)
      a. ANSI Z97.1-1984, Performance Specifications and Methods of Test for Safety Glazing Material Used in Buildings. American Society for Testing Materials.
   2. Flat Glass Marketing Association: (FGMA)
      a. Glazing manual.
      b. Glazing sealing systems manual.
   3. Sealed Insulation Glass Manufacturers Association: (SIGMA)
      a. No. 65-7-2, latest edition, Sealed Insulating Glass Units.
      b. No. 70-7-1, latest edition, Glazing Specifications for Sealed Insulating Glass Units.
   4. American Society for Testing Materials (ASTM):
      a. ASTM C-1036.
      b. ASTM C-1048.
   5. Consumer Product Safety Commission (CPSC)
      a. CPSC 16 CFR 1201 Safety Standard for Architectural Glazing Material.

C. Safety Glazing Labeling
   1. Permanently mark glazing with certification label of the SGCC or another certification agency acceptable to authorities having jurisdiction. Label shall indicate manufacturer's name, type of glass, thickness and safety glazing standard with which glass complies.

a. Category I Glazing in doors where exposed glass area is 9 SF or less.
b. Category II Glazing in doors and panels where exposed glass area is more than 9 SF.

D. Specified Product Warrantee
0. Warrantee on Hermetic Seals: Provide insulating glass manufacturer's written warrantee, agreeing to, within specified period, furnish FOB project site, replacement units for insulating glass units which have defective hermetic seals (excluding that due to glass breakage); defined to include intrusion of moisture or dirt, internal condensation at temperatures above -20 degrees F (-31 degrees C), deterioration of internal glass coatings, and other visual evidence of seal failure or performance failure, provided manufacturer's instructions for handling, installation, protection and maintenance have been adhered to during warrantee period.

1.3 SUBMITTALS

A. Lancer Glass and Door: Exterior glass - **solar bronze** plate lite with mutins encased between the glass. Interior glass will be clear plate lite. Reflective coating shall be provided on the No. 1 face of glass.

B. Samples: Furnish duplicate samples, for approval, of the various types of glass specified herein. Samples shall be 12" x 12" and shall include an assembled 12" x 12" insulating glass sample. Samples of other glazing materials shall be submitted in duplicate if requested by Architect.

C. Approved samples shall become the standard for comparison for all installed work.

D. Shop Drawings: Submit shop drawings and descriptive literature for all products for use. Shop drawings shall include full scale glazing details of window wall.
1. Shop drawings shall be submitted in accordance with Division 1.

1.4 JOB CONDITIONS

A. Pre-installation: Meet with Glazier and other trades affected by glass installation, prior to beginning of installation. Do not perform work under adverse weather or job conditions. Install liquid sealants when temperatures are within lower or middle third of temperature range by manufacturer.

2.0 PRODUCTS

2.1 GLASS PRODUCTS

A. Polished Plate Glass
1. All polished plate glass shall be 1/4" thick, unless otherwise indicated, glazing quality. Equal quality float glass will be acceptable. Solar Heat Gain Coefficient shall be at least 0.40. Provide solar bronze glass at all exterior windows.

B. Tempered Plate Glass
1. Tempered plate glass shall be heat tempered of sizes indicated. Thickness shall be 1/4" unless otherwise indicated or unless a thicker glass is recommended by manufacturer for size of opening in which used.

2. Tempered glass shall be "Tuf-Flex" as manufactured by Libbey-Owens-Ford Glass Co. or equal product of PPG Industries or ASG Industries. Glass shall conform to federal Specification DD-G-1403B. Solar Heat Gain Coefficient shall be at least 0.40.

C. Insulating Glass and Textured Insulated Glass
1. Insulating glass shall be RIG-Glass Products as manufactured by RIG-Glass Products, or equal product.
2. Where indicated "1" Insulating Glass", provide the following:
Units shall consist of ¼" solar bronze glass outer pane, a ½" air space and a ¼" clear glass inner pane. Refer to drawings for locations of tempered and non-tempered glazing. At tempered insulating glass provide: Units shall consist of tinted ¼" Solar Cool Bronze Reflective tempered glass outer panes, a ½" air space and a ¼" clear tempered glass inner pane.
3. Panes shall be hermetically sealed with a metal to glass bond and separated with a dehydrated air space.
4. Separators between glass panes shall be hot dipped galvanized with welded corners, bronze color. Glass to be metal shall be sealed with a primary seal of polyisobutalene and two-part polysulphide for the secondary seal. Unit shall be bonded with a continuous metal band and sealed with a two-part polysulphide between metal and glass.
5. "U" factor for glass assembly shall be 0.32 or better. Solar Heat Gain Coefficient shall be at least 0.40. Separator to be bronze finish.
a. Refer to system performance under the Windows Section, Aluminum Curtainwall and Aluminum Storefront Section for overall system performance. That system performance will govern the glass "U" requirement but in no case shall not be less than indicated above.

D. Spandrel Glass
1. Outboard Lite: Heat strengthened float glass, ¼" thick. Clear reflective.
2. Air Space: ½", argon filled
3. Inboard Lite: Heat strengthened float glass, ¼" thick.
a. Clear
b. Opacifier: Coating on #4 Surface
c. Opacifier: Bronze
4. Total Thickness: 1"

2.2 GLAZING SEALANTS AND COMPONENTS

A. General: Provide color of exposed sealant/compound as selected by Architect from manufacturer's standard colors. Comply with manufacturer's recommendation for selection of hardness, depending upon the location of each application of each application, conditions at the time of installation and performance requirements as indicated. Select materials and variations or modifications, carefully for compatibility with surfaces contacted in the installation.

B. Silicone Glazing Compound
1. Silicone sealant 1200 as manufactured by general Electric Company or equal product of Dow Corning shall be used to set all joints as shown on drawings. Color shall be as selected by Architect from stock.

C. Elastomeric Glazing Compound
   1. All channel glazing shall be with a one part, 100% liquid polymer, acrylic base sealant. Product shall be "Mono-Lasto-Metric" as manufactured by the Tremco Manufacturing Company or equal product of Pecora, Inc. or Toch Brothers, and shall be used in strict conformance with manufacturer's instructions. Color as selected by Architect.
   2. Primers shall be used if and as recommended by manufacturer.

D. Elastomeric Glazing Compound
   1. Elastic glazing compound shall be oleo-resinous, knife consistency sealant, for use on non-porous surfaces under compression. It shall be non-corrosive on metal.
   2. Color shall be approximately the same as adjacent surfaces and shall be approved by Architect.
   3. This compound shall be as manufactured by Tremco Manufacturing Company, Pecora, Incorporated, or Presstite Division of Martin Marietta Corp.
   4. All elastic glazing compound shall be formulated from selected processed oils and pigments which will remain plastic and resilient over a long period of time. Comply with latest revision of the Aluminum Window Manufacturer's Association, dated July 15, 1967.

2.3 MISCELLANEOUS GLAZING MATERIALS

A. Cleaners, Primers and Sealers: Type recommended by sealant or gasket manufacturer.

B. Glazing Tape
   1. Glazing tape shall be a polyisobutylene-butyl base with an integral shim equal to Tremco 440 Shimmed Tape, as manufactured by the Tremco Manufacturing Company. Tape and elastomeric sealing compound shall be by same manufacturer.
   2. Verify thickness of tape required by glazing a sample window on the job. Sample shall be inspected and approved by Architect before proceeding with glazing work.

C. Spacer Shims and Setting Blocks:
   1. All spacer shims shall be of 40 to 50 durometer neopreme.
   2. All setting blocks shall be lead or 80 durometer neopreme as recommended by glass manufacturer based on weight of glass.
   3. All spacer shims and setting blocks shall be at least 1/4" thick by 3" long by width of recess.

3.0 EXECUTION

3.1 STANDARDS AND PERFORMANCE

A. Watertight and airtight installation of each glass product is required, except as otherwise shown. Each installation must withstand normal temperature changes, wind loading, impact loading (for operating sash and doors), without failure including loss or breakage of glass, failure of sealants or gaskets to remain watertight and air tight, deterioration of glazing materials and other defects in the work.

B. Protect glass from edge damage during handling and installation, and subsequent operation of glazed components of the work. During installation, discard units with significant edge damage or other imperfections.

C. Labels
   1. Deliver all glass on the job carefully paper packed and protected, each pane bearing manufacturer's identifying label, giving name, quality and grade of glass.

D. Glazing channel dimensions as shown are intended to provide for necessary bite on glass, minimum edge clearance, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by job conditions at time of installation.

E. Comply with combined recommendations and technical reports by manufacturers of glass and glazing products as used in each glazing channel, and with recommendations of Flat Glass Marketing Association "Glazing Manual", except where more stringent requirements are indicated.

F. Install insulating glass units to comply with recommendations by Sealed Insulating Glass Manufacturers Association, except as otherwise specifically indicated or recommended by glass and sealant manufacturers.

3.2 PREPARATION FOR GLAZING

A. Clean glazing channel and other framing members to receive glass, immediately before glazing. Remove lacquer from metal surfaces where elastomeric sealants are used.

B. Remove all coatings in glazing rebate area with a solvent that will not etch or mar surface of metal, recommended be manufacturer of glazing compound.

C. All surfaces to be glazed shall be free of moisture.

D. Avoid glazing at temperature below 40 degrees F. If glazing schedule requires work during cold periods, warm the glass and rabbeted surfaces to avoid condensation.

E. Remove manufacturer's instruction tags from windows.

F. Cover metal surfaces liable to be damaged by smear of sealing compound with tape. Remove tape after glazing.

G. Prepare all glazing compounds in strict accordance with manufacturer's instructions. Compounds shall not be cut or thinned.

H. Apply primer or sealant to joint surfaces where recommended by sealant manufacturer.

3.3 GLAZING

A. Install setting blocks of proper size in still rabbet, located 1/4th of glass width from each corner. Set blocks in thin course of heel-bead compound, if any.

B. Provide spacers inside and out, of proper size and spacing, for glass sizes larger the 50 united inches, except where gaskets or pre-shimmed tapes are used for glazing. Provide 1/8" minimum bite of spacers on glass and use thickness equal to sealant width, except with sealant tape use thickness slightly less than final compresses thickness of tape.

C. Set units of glass in each series with uniformity of pattern, draw, bow and similar characteristics.

D. Voids and Filler Rods Prevent exudation of sealant or compound by reforming voids or installing filler rods in channel at heel of jamb and head (do not leave voids in sill channels), except as otherwise indicated and depending on light size, thickness and type of glass, and complying with manufacturer's recommendations.

E. Force sealants into channel to eliminate voids and to ensure complete "wetting' or bond of sealant to glass and channel surfaces.

F. Tool exposed surfaces of glazing liquids and compounds to provide a substantial "wash" away from glass. Install pressurized tapes and gaskets to protrude slightly out of channel, so as to eliminate dirt and moisture pockets.

G. Clean and trim excess glazing materials from glass and stops or frames promptly after installation, and eliminate stains and discolorations.

H. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage to ensure that gasket will not "walk" out when installation is subjected to movement. Anchor gasket to stop with matching ribs, or by proven adhesives, including embedment of gasket tail in cured heel bead.

I. Gasket Glazing: Miter cut and bond ends together at corners where gaskets are used for channel glazing, so that gaskets will no pull away from corners and result in voids or leaks in glazing system.

3.4 CURE, PROTECTION AND CLEANING

A. Protect exterior glass from breakage immediately upon installation, by use of crossed streamers attached to framing and held away from glass. Do not apply markers to surfaces of glass. Remove nonpermanent labels and clean surfaces. Cure sealants for high early strength and durability.

B. Remove and replace glass which is broken, chipped, cracked, abraded or damaged in other ways during construction period, including natural causes, accidents and vandalism.

C. Wash and polish glass on both faces not more than 4 days prior to date scheduled for inspections intended to establish date of substantial completion in each area of project. Comply with glass product manufacturer's recommendations for final cleaning.

END OF SECTION

SECTION 08900 – ALUMINUM CURTAIN WALL

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes: Aluminum Curtain Wall Systems, including perimeter trims, stools, accessories, shims and anchors and perimeter sealing of curtain wall framing.
   1. Types of Curtain Wall include:
      a. See drawings for size increments, outside glazed pressure plate format.

B. Related Sections:
   1. Section 08410 – Aluminum Entrances and Storefronts

1.03 SYSTEM DESCRIPTION

A. Curtain Wall System Performance Requirements:
   1. Air Infiltration: The test specimen shall be tested in accordance with ASTM E 283. Air infiltration rate shall not exceed 0.06 cfm/ft^2 at a static air pressure differential of 6.24 psf.
   2. Water Resistance, (static): The test specimen shall be tested in accordance with ASTM E 331. There shall be no leakage at a static air pressure differential of 12 psf as defined in AAMA 501.
   3. Water Resistance, (dynamic): The test specimen shall be tested in accordance with AAMA 501.1. There shall be no leakage at an air pressure differential of 12 psf as defined in AAMA 501.
   4. Uniform Load: A static air design load of 40 psf shall be applied in the positive and negative direction in accordance with ASTM E 330. There shall be no deflection in excess of L/175 of the span of any framing member at design load. At structural test load equal to 1.5 times the specified design load, no glass breakage or permanent set in the framing members in excess of 0.2% of their clear spans shall occur.
   5. Thermal Transmittance (U-factor): When tested to AAMA Specification 1503, the thermal transmittance (U-factor) shall not be more than: 0.48 (low-e).
   6. Condensation Resistance (CRF): When tested to AAMA Specification 1503, the condensation resistance factor shall not be less than 73_{frame} and 68_{glass} (low-e).
   7. Seismic: When tested to AAMA 501.4, system must meet design displacement of 0.010 x the story height and ultimate displacement of 1.5 x the design displacement.
   8. Sound Transmission Loss: When tested to ASTM E90, the Sound Transmission Class (STC) shall not be less than 34 based upon 1” insulating glass.

1.04 SUBMITTALS

A. General: Prepare, review, approve, and submit specified submittals in accordance with “Conditions of the Contract” and Division 1 Submittals Sections. Product data, shop drawings, samples, and similar submittals are defined in “Conditions of the Contract.”

B. Quality Assurance/Control Submittals:
   1. Test Reports: Submit certified test reports showing compliance with specified performance characteristics.

1.05 WARRANTY

A. Project Warranty: Refer to “Conditions of the Contract” for project warranty provisions.

B. Manufacturer’s Product Warranty: Submit, for Owner’s acceptance, manufacturer’s warranty for curtain wall system as follows:
   1. Warranty Period: Two (2) years from Date of Substantial Completion of the project provided however that the Limited Warranty shall begin in no event later than six months from date of shipment by Kawneer.

1.06 QUALITY ASSURANCE

A. Qualifications:
   1. Installer Qualifications: Installer experienced (as determined by contractor) to perform work of this section who has specialized in the installation of work similar to that required for this project and who is acceptable to product manufacturer.
   2. Manufacturer Qualifications: Manufacturer capable of providing field service representation during construction, approving acceptable installer and approving application method.

1.07 DELIVERY, STORAGE AND HANDLING

A. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.

B. Packing, Shipping, Handling, and Unloading: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

C. Storage and Protection: Store materials protected from exposure to harmful weather conditions. Handle storefront material and components to avoid damage. Protect curtainwall material against damage from elements, construction activities, and other hazards before, during and after curtainwall installation.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Acceptable Manufacturers:
   1. Kawneer Company, Inc., 555 Guthridge Court, Technology Park, Atlanta, Norcross, GA 30092, .Telephone:770 449 5555 Fax:770 734 1560
   2. System: Kawneer Aluminum Curtain Wall, Series: 1600 Wall System

B. Substitutions:
   1. Substitution Documentation
      a. Product Literature and Drawings: Submit product literature and drawings modified to suit specific project requirements and job conditions.

b. Certificates: Submit certificate(s) certifying substitute manufacturer (1) attesting to adherence to specification requirements for curtain wall system performance criteria, and (2) has been engaged in the design, manufacturer and fabrication of aluminum curtain wall for a period of not less than ten (10) years. (Company Name)

c. Test Reports: Submit test reports verifying compliance with each test requirement for curtain wall required by the project.

d. Product Sample and Finish: Submit product sample, representative of storefront for the project, with specified finish and color.

2.02 MATERIALS

A. Aluminum (Curtain Wall and Components):

1. Material Standard: Extruded Aluminum, ASTM B 221, 6063-T5 or 6063-T6 alloy and temper.
2. Member Wall Thickness: Each framing member shall have a wall thickness sufficient to meet the specified structural requirements.
3. Tolerances: Reference to tolerances for wall thickness and other cross-sectional dimensions of curtain wall members are nominal and in compliance with AA Aluminum Standards and Data.

2.03 ACCESSORIES

A. Fasteners: Where exposed, shall be Stainless Steel.

B. Gaskets: Glazing gaskets shall comply with ASTM C 864 and be extruded of a silicone compatible EPDM rubber that provides for silicone adhesion.

C. Perimeter Anchors: Aluminum. When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic action.

D. Thermal Barrier: Thermal separator shall be extruded of a silicone compatible elastomer that provides for silicone adhesion.

2.04 RELATED MATERIALS

A. Sealants: Refer to Joint Treatment (Sealants) Section.

B. Glass: Refer to Glass and Glazing Section.

2.05 FABRICATION

A. General:

1. Fabricate components per manufacturer's installation instructions and with minimum clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.
2. Accurately fit and secure joints and corners. Make joints flush, hairline and weatherproof.
3. Prepare components to receive anchor devices. Fabricate anchors.
4. Arrange fasteners and attachments to conceal from view.

2.06 FINISHES

A. Shop Finishing:
1. Kawneer Permanodic® AA-M12C22A44, Architectural Class I Color Anodic Coating. Color: #18 Champagne.

2.07 SOURCE QUALITY CONTROL

A. Source Quality: Provide aluminum curtain walls specified herein from a single source.
1. Building Enclosure System: When aluminum curtain wall is part of a building enclosure system, including entrances, entrance hardware, windows, storefront framing and related products, provide building enclosure system products from a single source manufacturer.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Site Verification of Conditions: Verify substrate conditions (which have been previously installed under other sections) are acceptable for product installation in accordance with manufacturer's instructions. Verify openings are sized to receive curtain wall system and sill plate is level in accordance with manufacturer's acceptable tolerances.
1. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements, fabrication schedule with construction progress to avoid construction delays.

3.02 INSTALLATION

A. General: Install curtain wall systems plumb, level, and true to line, without warp or rack of frames with manufacturer's prescribed tolerances and installation instructions. Provide support and anchor in place.
1. Dissimilar Materials: Provide separation of aluminum materials from sources of corrosion or electrolytic action contact points.
2. Glazing: Glass shall be outside glazed and held in place with extruded aluminum pressure plates anchored to the mullion using stainless steel fasteners spaced no greater than 9" on center.
3. Water Drainage: Each light of glass shall be compartmentalized using joint plugs and silicone sealant to divert water to the horizontal weep locations. Weep holes shall be located in the horizontal pressure plates and covers to divert water to the exterior of the building.

B. Related Products Installation Requirements:
1. Sealants (Perimeter): Refer to Division 7 Joint Treatment (Sealants) Section.
2. Glass: Refer to Division 8 Glass and Glazing Section.
a. Reference: ANSI Z97.1, CPSC 16 CFR 1201 and GANA Glazing Manual

3.03 FIELD QUALITY CONTROL

A. Field Tests: Architect shall select curtain wall units to be tested as soon as a representative portion of the project has been installed, glazed, perimeter caulked and cured. Conduct tests for air infiltration and water penetration with manufacturer's representative present. Tests not meeting specified performance requirements and units having deficiencies shall be corrected as part of the contract amount.
   1. Testing: Testing shall be performed per AAMA 503 by a qualified independent testing agency. Refer to Division 1 Testing Section for payment of testing and testing requirements.
      a. Air Infiltration Tests: Conduct tests in accordance with ASTM E 783. Allowable air infiltration shall not exceed 1.5 times the amount indicated in the performance requirements or 0.09 cfm/ft^2, which ever is greater.
      b. Water Infiltration Tests: Conduct tests in accordance with ASTM E 1105. No uncontrolled water leakage is permitted when tested at a static test pressure of two-thirds the specified water penetration pressure but not less than 8 psf.

B. Manufacturer's Field Services: Upon Owner's request, provide manufacturer's field service consisting of product use recommendations and periodic site visit for inspection of product installation in accordance with manufacturer's instructions.

3.04 PROTECTION AND CLEANING

A. Protection: Protect installed product's finish surfaces from damage during construction. Protect aluminum curtain wall system from damage from grinding and polishing compounds, plaster, lime, acid, cement, or other harmful contaminants.

B. Cleaning: Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to owner's acceptance. Remove construction debris from project site and legally dispose of debris.

END OF SECTION

SECTION 09250 - METAL STUDS, GYPSUM WALLBOARD & GYPSUM SHEATHING

1.0 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 Section.

1.2 SUMMARY

A. Extent of each type of gypsum drywall construction required is indicated on Drawings.

B. This Section includes the following types of gypsum board construction and metal studs.
1. Exterior Gypsum Sheathing
2 Interior Gypsum Board
3 Interior Metal Stud – Non-Load Bearing Partitions

1.3 DEFINITIONS

A. Gypsum Board Construction Terminology: Refer to ASTM C 11 and GA 505 for definitions of terms for gypsum board construction not otherwise defined in this section or other referenced standards.

1.4 SUBMITTALS

A. Product data from manufacturers for each type of product specified.

1.5 CLOSEOUT SUBMITTALS

A. Upon completion of the Work of this Section, Contractor shall submit to the Construction Manager, all required closeout documents.

B. Contractor shall submit a marked-up set of drawings indicating any changes made during construction to the Construction Manager.

C. Upon completion, submit to the Construction Manager, a Contractor's Affidavit of Payment of Debts and Claims, and Release of Liens.

D. Refer to General Conditions for additional requirements.

1.6 QUALITY ASSURANCE

A. Single Source Responsibility: Obtain each type of gypsum board and related joint treatment materials from a single manufacturer.

B. Fire-Resistance Ratings: Where indicated, provide materials and construction which are identical to those of assemblies whose fire resistance rating has been determined per ASTM E 119 by a testing and inspecting organization acceptable to authorities having jurisdiction.
1. Provide fire-resistance-rated assemblies identical to those indicated by reference to

GA File No's. in GA-600 "Fire Resistance Design Manual" or to design designations in U.L. "Fire Resistance Directory" or in listing of other testing and agencies acceptable to authorities having jurisdiction.

a. Construct rated assemblies in accordance with the gypsum board manufacturer printed tested assembly.

C. Comply with the gypsum association recommendations for levels of finish and applications of gypsum panel products. Specifically, for this project:
   1. Level 4
      a. In all areas where gypsum board will be painted.
   2. Level 1
      a. Above ceilings.

1.7 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in original packages, containers or bundles bearing brand name and identification of manufacturer or supplier.

B. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic and other causes. Neatly stack gypsum boards flat to prevent sagging.

C. Handle gypsum boards to prevent damage to edges, ends, and surfaces. Do not bend or otherwise damage metal corner beads and trim.

1.8 PROJECT CONDITIONS

A. Ventilate building spaces to remove water and moisture. Avoid drafts during dry, hot weather.

2.0 PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the Work include, but are not limited to, the following:

B. Manufacturer: Subject to compliance with requirements, provide products of one of the following:
   1. Steel Framing and Furring:
      a. Gold Bond Building Products Div., National Gypsum Co.
      b. Marino Industries Corp.
      c. United States Gypsum Co.

   2. Gypsum Boards and Related Products:
      a. Domtar Gypsum Co.
      b. Georgia-Pacific Corp.
      c. Gold Bond Building Products Div., National Gypsum Co.
      d. United States Gypsum Co.

2.2 STEEL FRAMING FOR WALLS AND PARTITIONS

A. Steel Studs and Runners: ASTM C 645, with flange edges of studs bent back 90 deg and doubled over to form 3/16" minimum lip (return) and complying with the following requirements for minimum thickness of base (uncoated) metal and for depth:
   1. Thickness: As indicated.
   2. Depth: 3-5/8 inches, unless otherwise indicated.
   3. All metal studs less than 10’ in length and associated runners shall be 25 gauge. Studs greater than 10’ in length to under 13’ in length and associated runners shall be 20 gauge. Refer to Section 05400 for studs greater than 13’ in length. All studs shall be rolled formed from galvanized steel with matching sill and plate runners. Studs shall be 16" o.c. in sizes as shown on drawings.

B. Steel Rigid Furring Channels: ASTM C 645, hat-shaped, depth and minimum thickness of base (uncoated) metal as follows:
   1. Depth: 7/8 inch.
   2. Thickness: 0.0329 inch, unless otherwise indicated.

C. Z-Furring Members: Manufacturer's standard zee-shaped furring members with slotted or nonslotted web, fabricated from hot-dip galvanized steel sheet complying with ASTM A 525, Coating Designation G60; with a minimum base metal (uncoated) thickness of 0.0179 inch, face flange of 1-1/4 inch, wall-attachment flange of 7/8 inch, and of depth required to fit insulation thickness indicated.

D. Fasteners: Provide fasteners of type, material, size, corrosion resistance, holding power and other properties required to fasten steel framing and furring members securely to substrates involved; complying with the recommendations of gypsum drywall manufacturers for applications indicated.

2.3 GYPSUM BOARD

A. General: Provide gypsum board of types indicated in maximum lengths available to minimize end-to-end joints.
   1. Thickness: Provide gypsum board in thicknesses indicated, or if not otherwise indicated, in either 1/2 inch or 5/8 inch thicknesses to comply with ASTM C 840 for application system and support spacing indicated.
      a. Gypsum Wallboard: ASTM C 36 and as follows:
         1) Type: Regular, unless otherwise indicated.
         2) Type: Type (fire code) for fire-resistance-rated assemblies.
         3) Edges: Tapered.
         4) Thickness: 5/8" or as indicated.
         5) Use sag resistant or ceiling rated panels on ceilings.
      b. Water and Mold Resistant Gypsum Backing Board: ASTM C 630, and as follows (walls and ceiling surfaces for all bathrooms):
         1. Type: Regular, unless otherwise indicated.
         2. Type: Type (fire code) for fire-resistance-rated assemblies.
         3. Thickness: 5/8" or as indicated.

B. Trim Accessories

1. Cornerbead and Edge Trim for Interior Installation: Provide corner beads, edge trim and control joints which comply with ASTM C 1047 and requirements indicated below
   a. Material: Formed metal, or metal combined with paper, with metal complying with the following requirement: Sheet steel zinc-coated by hot-dip process.
   b. Edge trim shapes indicated below by reference to designations of Fig. 1 in ASTM C 1047:
      1) "LC" Bead, unless otherwise indicated.
      2) "L" Bead where indicated.
   c. One-Piece Control Joint: Formed with vee-shaped slot per Fig. 1 in ASTM C 1047, with slot opening covered with removable strip.

C. Joint Treatment Materials
   1. General: Provide materials complying with ASTM C 475, ASTM C 840, and recommendations of manufacturer of both gypsum board and joint treatment materials for the application indicated.
   2. Joint Tape: Paper reinforcing tape.
   3. Drying-Type Joint Compounds: Factory-prepackaged vinyl-based products complying with the following requirements for formulation and intended use
      a. Job-Mixed Formulation: Powder product for mixing with water at Project site.
      b. Taping compound formulated for embedding tape and for first coat over fasteners and flanges of corner beads and edge trim.
      c. Topping compound formulated for fill (second) and finish (third) coats.
      d. All-purpose compound formulated for use as both taping and topping compound.

D. Miscellaneous Materials
   1. Spot Grout: ASTM C 475, setting-type joint compound of type recommended for spot grouting hollow metal door frames.
   2. Gypsum Board Screws: ASTM C 1002.

3.0 EXECUTION

3.1 EXAMINATION

A. Examine substrates to which drywall construction attaches or abuts, preset hollow metal frames, cast-in-anchors, and structural framing, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of drywall construction. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF STEEL FRAMING, GENERAL

A. Steel Framing Installation Standard: Install steel framing to comply with ASTM C 754 and with ASTM C 840 requirements that apply to framing installation.

B. Install supplementary framing, blocking and bracing at terminations in the work and for support of fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings,

and similar construction to comply with details indicated and with recommendations of gypsum board manufacturer, or if none available, with "Gypsum Construction Handbook" published by United States Gypsum Co.

C. Isolate steel framing from building structure to prevent transfer of loading imposed by structural movement at locations indicated below to comply with details shown on Drawings:
   1. Where edges of suspended ceilings abut building structure horizontally at ceiling perimeters or penetration of structural elements.
   2. Where partition and wall framing abuts overhead structure.
      a. Provide slip or cushioned type joints as detailed to attain lateral support and avoid axial loading.

D. Do not bridge building expansion and control joints with steel framing or furring members; independently frame both sides of joints with framing or furring members or as indicated.

3.3 INSTALLATION OF STEEL FRAMING FOR WALLS AND PARTITIONS

A. Install runners (tracks) at floors, ceilings and structural walls and columns where gypsum drywall stud system abuts other construction.

B. Installation Tolerances: Install each steel framing and furring member so that fastening surface do not vary more than 1/8 inch from plane of faces of adjacent framing.

C. Terminate partition framing at suspended ceilings where indicated.

D. Install steel studs and furring in sizes and at spacings indicated but not less than that required by referenced steel framing installation standard.
   1. For single layer construction: 16 inches on center.

E. Install steel studs so that flanges point in the same direction and gypsum boards can be installed in the direction opposite to that of the flange.

F. Frame door openings to comply with details indicated, with GA-219 and with applicable published recommendations of gypsum board manufacturer. Attach vertical studs at jambs with screws either directly to frames or to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
   1. Extend vertical jamb studs through suspended ceilings and attach to underside of floor or roof structure above as detailed on drawings.

G. Frame openings other than door openings to comply with details indicated, or if none indicated, in same manner as required for door openings; and install framing below sills of openings to match framing required above door heads.

3.4 APPLICATION AND FINISHING OF GYPSUM SHEATHING, GENERAL

A. Gypsum Board Application and Finishing Standard: Install and finish gypsum to comply with ASTM C 840.

B. Locate exposed end-butt joints as far from center of walls and ceilings as possible, and stagger not less than 24 inches in alternate courses of board.

C. Stagger end joints at least 24 inches.

D. Install wall/sheathing in manner which minimizes the number of end-butt joints or avoids them entirely where possible.

E. Install gypsum sheathing with face side out. Do not install imperfect, damaged or damp boards. Butt boards together for a light contact at edges and ends with not more than 1/16 inch open space between boards. Do not force into place.

F. Locate either edge or end joints over supports, except in horizontal applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Position boards so that like edges abut, tapered edges against tapered edges and mill-cut or field-cut ends against mill-cut or field-cut ends. Do not place tapered edges against cut edges or ends. Stagger vertical joints over different studs on opposite sides of partitions.

G. Attach gypsum board to steel studs so that leading edge or end of each board is attached to open (unsupported) edge of stud flange first.

H. Attach gypsum board to supplementary framing and blocking provided for additional support at openings and cutouts.

I. Spot grout hollow metal door frames for solid core wood doors, hollow metal doors and doors over 32 inches wide. Apply spot grout at each jamb anchor clip just before inserting board into frame.

J. Form control joints and expansion joints at locations indicated, with space between edges of boards, prepared to receive trim accessories.

K. Space fasteners in gypsum boards in accordance with referenced gypsum board application and finishing standard and manufacturer's recommendations.

3.5 METHODS OF GYPSUM APPLICATION

A. Single-Layer Application: Install gypsum wallboard as follows:
   1. Apply gypsum vertically (parallel to framing), unless otherwise indicated and provide sheet lengths which will minimize end joints.

B. Single-Layer Fastening Methods: Apply gypsum boards to supports as follows:
   1. Fasten with screws.

3.6 PROTECTION

A. Provide final protection and maintain conditions, in a manner suitable to Installer, which ensures gypsum sheathing construction being without damage or deterioration at time of veneer installation.

END OF SECTION

SECTION 09300 - TILE

1.0 GENERAL

A. The drawings, Instructions to Bidders, Form of Proposal, General Conditions, Supplementary General Conditions and Division 1 are included herein and govern work under this section.

1.1 DESCRIPTION OF WORK

A. Definitions: Tile includes ceramic surfacing units made from clay or other ceramic materials. The types of work of this section include:
1. Tile, floors/walls
2. Special shapes as required or indicated
3. Tile base, treads and trim
4. Setting beds as required or indicated
5. Grout and setting materials
6. Cutting and setting materials
7. Cutting, drilling and fitting tile work in connection with work by others
8. Waterproofing, uncoupling and drainage membranes
9. Edge protection and control joints
10. Crack isolation and sound reduction membrane

1.2 RELATED SECTIONS

A. Section 03300- Cast In Place Concrete

B. Section 06100- Rough Carpentry

C. Section 07900- Joint Sealers

E. Section 09250-Gypsum Board

F. Plumbing Fixtures and Equipment, Refer to drawings.

1.3 REFERENCES

A. ANSI
1. ANSI A108.1-1999: Installation of Ceramic Tile
2. ANSI A137.1-1998: Ceramic Tile
3. ANSI C144-99: Standard Specification for Masonry Aggregates
4. ANSI C150-90: Standard Specification for Portland Cement

B. ASTM
1. ASTM C207-91 (1992): Standard Specification for Hydrated Lime
2. ASTM C503-99: Standard Specification for marble Dimension Stone
3. ASTM C568-99: Standard Specification for Limestone Dimension Stone
4. ASTM C615-99: Standard Specification for Granite Dimension Stone
5. ASTM C629-99: Standard Specification for Slate Dimension Stone
6. ASTM C847-95: Standard Specification for Reinforcing Metal lath

1.4 QUALITY ASSURANCE

A. Manufacturer: Provide products by the following for type of tile:
   1. Tile
      a. Olympia Tile
      b. Best Tile
      c. Dal Tile
      d. Approved equal or other specified manufacturer in architectural drawings
   2. Grout
      a. Laticrete
      b. FlexTile
      c. Hydorment
      d. Approved equal or other specified manufacturer

B. Tile Manufacturing Standard: TCA 137.1 Furnish tile complying with Standard Grade requirements unless indicated otherwise.

C. Proprietary Materials: Handle, store, mix and apply proprietary setting and grouting materials in compliance with manufacturer's instructions.
   1. Provide materials obtained from one source for each type and color of tile, grout, and setting materials.

D. Certificates:
   1. Master Grade Certificates:
      a. Conform to ANSI A 137.1, standard grade

1.5 SUBMITTALS

A. Product Data: Submit manufacturer's technical information and installation instructions for materials required, except bulk materials. Include certifications and other data to show compliance with these specifications.

B. Submit Manufacturer’s maintenance guides for Owner’s use in maintaining all ceramic tile work included for project.

C. Submit shop drawings for architect’s review showing location of expansion joints based on building control joints, cold joints, sawed joints and recommended expansion joints based on TCA Specifications.

1.6 SAMPLES

A. Submit samples in duplicate for approval showing quality, color, texture and finish for each kind of tile. Submit 12" x 12" panels of floor tile patterns and all custom patterns.
   1. Glazed Wall Tile:
      a. Panel for each color, pattern and type
      b. Approximate panel size: 12” x 12”, mounted to ¾” plywood backer
   2. Porcelain Tile:
      a. Panel for each color, pattern, and type
      b. Minimum panel size: 8” x 8”
   3. Porcelain Tile Base:
      a. Each color, size and shape

B. No work for which such samples are required shall proceed until samples have been approved by the Architect, and all tile work shall be executed in strict accordance with the approved samples.

1.7 DELIVERY AND STORAGE OF TILE

A. All tile shall be graded, sealed and delivered in accordance with Department of Commerce Simplified Practice Recommendation R-61, latest issue, and this specification.

B. Deliver all tile in unbroken packages bearing the brand and manufacturer's name and store them on platforms, properly covered to protect them from moisture, damage and contamination.

C. Keep all containers in which tiles are packed, dry until tiles are removed. Take every precaution to see that tiles are not stained.

D. Manufactured mortars and grouts to contain hallmarks certifying compliance with referenced standards and be types recommended by the tile manufacturer for application.

1.8 CERTIFICATION

A. The Contractor shall furnish a master grade certificate bearing the certification mark of the Tile Council of America, signed by the manufacturer of the tile and the tile applicator. Certificates shall state the type and quality of the material furnished.

1.9 MAINTENANCE INSTRUCTIONS

A. Furnish in triplicate (3) copies of instructions for the care, cleaning, and maintenance of ceramic tile.

1.10 EXTRA TILE

A. Upon completion of work, deliver to Owner, tile of same size, color, pattern and type as used on the project for use in future repair and maintenance work.
   1. 2% if resultant quantity exceeds 5 sq. ft.
   2. Minimum, 5 sq. ft.
   3. Include each trim shape, inside/outside corners, and any other special pieces in quantities in keeping with the conditions encountered.

B. Provide extra tile in above noted quantities for each color, tile, pattern and type employed on project.

C. Clearly mark extra stock to identify:
   1. Manufacturer’s name
   2. Product name
   3. Product color and pattern

D. Package tile products neatly in original containers, to prevent damage.

1.11 JOB CONDITIONS

A. Environmental:
   1. Maintain temperature no lower than 50 degrees F and no higher than 100 degrees F during

tile work and for seven (7) days after completion.

2. Vent temporary heaters to outside to avoid carbon dioxide damage to new tile work.
3. Provide adequate lighting for good grouting and clean up.

B. Protection: Protect adjoining work surfaces before tile work begins.

2.0 PRODUCTS

2.1 KINDS OF TILE

A. All tile shall be of domestic manufacture, standard grade, meeting the requirements of recommended standard Specification for Ceramic Tile TCA 137.1-1980. All packages shall bear quality triangle of Tile Council of America, Inc.

B. All porcelain and slate as specified in Finish Schedule by Architect. Edges shall be plain or cushion as selected.

C. All base shall be coved and match floor tile. Refer to drawings where tile base is used.

D. Include all special shapes required such as bullnose, cove, trim, caps, etc. These shall be of the same kind and finish as adjacent tile.

2.2 COLOR, PATTERNS, SIZES OF TILE AND GROUT SELECTIONS

A. All colors of tile shall be as selected by the Architect from manufacturer's complete line of styles, patterns and colors. Refer to finish plans and schedule for products, colors and locations.

B. TILES:

1. *All exact tile styles and colors to be confirmed by architectural drawings in A-600's. Refer to A-400's for wall tile layouts.*

2.3 TERMINAL EDGES

A. Furnish and install bullnose tiles at terminal edges of porcelain tile (tile base and wall tile wainscot)

B. If bullnose is unavailable use Schluter Systems, Inc. L-Channel Top cap. Color and finish to be satin nickel or aluminum.

C. Tile Edge Protection: Provide appropriate Schluter Systems, Inc. edge protection to transition between floor types when applicable. Submit samples for approval by Architect.

D. Tile Expansion and Control Joints: Provide appropriate Schulter Systems, Inc., tile expansion and control joint profile when applicable. Submit samples for approval by Architect.

E. Waterproofing Membrane System: Provide Schluter Systems, Inc or approved equal waterproof membrane in shower areas or other wet locations. Install per manufacturer's recommended instructions.

F. Waterproofing & Crack Isolation Membrane: Provide Flextile Ltd, WP-980 waterproof membrane system in areas where large expanses of tile are installed. Install per manufacturer's recommended

instructions.

2.4 MORTAR AND GROUTING MATERIALS

A. All cement shall be Portland Cement conforming to ASTM Specifications C150, latest edition, type 1.

B. All hydrated lime shall comply with ASTM Specifications C206 and C207, type S.

C. All sand shall be clean, sharp, durable, fine natural aggregate, free from salt, loam, clay, soluble salts organic impurities, conforming to ASTM C144.
   1. Sand for floor setting beds shall be well graded, passing #8 sieve, not over 5% passing #100 mesh screen.
   2. Sand for grout shall pass #30 mesh sieve, not over 5% passing #100 mesh screen.

D. Water shall be clean, free from injurious amount of oil, acid, soluble salts, organic impurities.

E. Dry-set mortar - conform with ANSI A118.1, and be prepared under Tile Council Formula. Package shall bear quality triangle of Tile Council of American, Inc.

F. Latex-Portland cement mortars to conform to ANSI A118.4.

G. Organic adhesives to conform to ANSI A136.1.

H. Epoxies:
   a. Floor and wall adhesive: Equivalent to Mapei Corp. Kerapoxy adhesive.
   b. Heavy duty floor mortar:
      1. Equivalent to Mapei Corp. Kerapoxy epoxy mortar.
      2. Conform to ANSI A118.3

I. All materials shall be measured accurately by volume thoroughly mixed and placed within a reasonable time after mixing. Do not re-temper.

3.0 EXECUTION

3.1 EXAMINATION

A. Verify existing condition are ready to receive work.

B. Ensure substrates are clean, dimensionally stable, cured and free of contamination such as oil, sealers and curing compounds.

C. Ensure concrete has been allowed to cure for a minimum of 28 days.

D. Ensure that floor substrate is troweled to a fine broom finish.

E. Notify architect in writing of unacceptable substrate conditions.

3.2 SETTING METHODS

A. All ceramic tile installation work shall be in accordance with latest recommendations of the Tile

Council of America, Inc. and as indicated on drawings and specified herein. In case of confliction, the more stringent shall apply.

B. Porcelain tile floors and walls shall be applied direct, using dry set mortar (thin set method).

C. Average thickness of thin set mortar bed shall be 1/8" and shall not exceed 1/4".

D. Coordinate with concrete work for recess at area of tile.

E. Providing waterproofing membrane at all shower walls.

F. Verify size and field dimensions for Entry Mat at Vestibules

3.3 STANDARD FOR TILE WORK

A. Except as otherwise specified, all details of tile setting and workmanship shall conform with the requirements of the "2003-2004 Handbook for Ceramic Tile Installation" of the Tile Council of America, Inc.

3.4 TILE SETTING PROCEDURE

A. A detailed inspection of all surfaces on which tile is to be placed shall be made. A report, in writing, of any defects found as a result of this inspection, shall be made to the Contractor, who shall immediately remedy such defects before the placing of the tile.

B. All rooms or spaces in which tile floors are being laid, shall be closed to traffic or other work, and kept closed until the floors are completed and the tile firmly set.

C. No tile shall be set on surfaces where other work is specified or shown to be embedded in the tile work until such work has been installed and approved.

D. Tile work shall be laid out so as to avoid small cuts. All cuts shall be rubbed smooth and even.

E. Replace All tile misfits with properly cut tile.

F. No tile shall be placed or allowed to set in temperatures below 40 degrees F.

3.5 SETTING TILE

A. Installation of the tile shall comply with standards previously specified and with ANSI 108.5.

B. Clean surface of all dust, deleterious film and non-compatible matter, moisten well with water, allow no free water to remain on surface. Do not saturate.

C. Spread specified setting mortar, screen to true plane at proper height, sloped to drains or level as indicated.

D. Do not spread more setting mortar at one time than can be covered during same working period.

E. Lay all tiles to straight edge, maintain uniform joint between tiles. All joints shall align in all directions.

F. Press tile into still plastic mortar and beat to true surface, using approved tools.

G. Provide expansion joints in locations and as required by recommendations of Tile Council of America, Inc.

3.6 GROUTING

A. After removal of paper, grout all tile joints. Fill be screening or brushing specified grout until joints are full, avoiding air traps or voids.

B. Pre-seal tiles requiring protection from grout staining.

C. Tool all cushion edge joints to depth of cushion.

D. Remove all surplus grout from tile, using diagonal strokes across joints. Check for gaps or air holes, filling same.

3.7 PROTECTION

A. Immediately after initial set of grout, apply a coat of non-corrosive soap to all wall tile or cover it completely with heavy gauge plastic sheets, properly secured and joints well taped.

B. Cover all tile floors with building paper with taped joints. Where necessary to truck over tile floors, General Contractor shall provide planking.

C. Close all rooms to traffic for ten (10) days after grouting tile.

D. Protect all finished work until the Architect authorizes the removal of protection.

3.8 CLEANING

A. After grout has set, wash and rinse all tile work with sponge and clean water. Polish with dry cloth.

B. Avoid the use of acid if possible. If absolutely necessary, obtain approval of Architect and use 10% muriatic solution and rinse thoroughly with clean water.

B. All cleaning shall be done in such a manner as not to adversely affect mortar joints and finish of tile.

3.9 REPAIR AND REPLACEMENT

A. Remove all broken tiles and replace with new tile. Provide adequate “back up” in base coat to prevent further cracking tile. Provide protection to replaced floor tile as specified.

END OF SECTION

SECTION 09510 - ACOUSTICAL CEILING TREATMENT

1.0 GENERAL

1.1 RELATED DOCUMENTS

The drawings, Instructions to Bidders, Form of Proposal, General Conditions, Supplementary General Conditions and Division 1 are included herein and govern work under this section.

1.2 DESCRIPTION OF WORK

A. Extent of each type of acoustical ceiling is shown and scheduled on drawings.
   1. Refer to Room Finish Schedule, reflected ceiling plans and other pertinent details as indicated on drawings.

B. Types of acoustical ceilings specified in this section include the following:
   1. Acoustical panel ceilings, exposed suspension.

1.3 QUALITY ASSURANCE

A. Installer: Firm with not less than three years of successful experience in installation of acoustical ceilings similar to requirements for this project.

B. All acoustical tile panels specified herein, shall have a flame spread rating of 25 or less when tested by an independent Testing Laboratory in accordance with ASTM E84-70.

C. Manufacturer shall submit substantiating data as evidence of compliance.

1.4 SUBMITTALS

A. Product Data: Manufacturer's product specifications and installation instructions for each acoustical ceiling material required, and for each suspension system, including certified laboratory test reports and other data as required to show compliance with these specifications. Include manufacturer's recommendations for cleaning and refinishing acoustical units, including precautions against materials and methods which may be detrimental to finishes and acoustical performances.

B. Samples: Set of 12" square samples for each acoustical unit required showing full range of exposed color and texture to be expected in completed work. Set of 12" long samples of each exposed runner and molding.

C. Maintenance Stock: At time of completing installation, deliver stock of maintenance material to Owner. Furnish full size units matching units installed, packaged with protective covering for storage, and identified with appropriate labels. Furnish amount equal to 2.0% of each type of acoustical units and exposed suspension installed.

1.5 CLOSEOUT SUBMITTALS

A. Upon completion of the Work of this Section, Contractor shall submit to the Construction

Manager, all required closeout documents.

B. Contractor shall submit a marked-up set of drawings indicating any changes made during construction to the Construction Manager.

C. Upon completion, submit to the Construction Manager, a Contractor's Affidavit of Payment of Debts and Claims, and Release of Liens.

D. Refer to General Conditions for additional requirements.

1.6 JOB CONDITIONS

A. Recommendations of the Acoustical Materials Association in their latest bulletin shall apply. Acoustical materials shall be installed under temperature and humidity conditions closely approximating those which will exist when the building is occupied. They should not be installed when buildings are damp and cold or dry and hot. Plastering, concrete and flooring shall be completed and then allowed to dry before the installation of acoustical tiles. All windows and doors shall be in place and glazed. Heating system should be installed and operating where necessary to maintain proper conditions before, during and after the acoustical ceiling installation. Concrete should be thoroughly dry.

2.0 PRODUCTS

2.1 CEILING UNITS

A. Acceptable manufacturers: Armstrong World Ind. and USG Interiors, Inc.

Type A:	Manufacturer:	See drawings for selection.
	Product:	See drawings for selection.
	Style:	See drawings for selection.
	Size:	See drawings for selection.
	Edge:	See drawings for selection.
	Color:	See drawings for selection.
	Fire Rating:	Class A – Conforms with ASTM 84

2.2 CEILING SUSPENSION MATERIALS

A. Exposed Tee Suspension System

1. System shall include all hangers, wire, carrying tees, cross tees, edge angles, clips and all other components to complete installation. Provide proper amount and proper type of "hold down" clips as required to prevent "uplift" and "shifting" of tiles.
2. Suspension system for type A ceiling tile shall be as manufactured by USG or equal as follows:
   a. Grid to be 15/16" “Prelude” (intermediate duty).
3. All lights in exposed grid suspension system shall be supported by the suspension system. Diffusers, grilles, etc. shall be independently supported.
4. Main tees shall be sufficiently supported to carry load imposed, which shall include weight of lights. A minimum of four hangers per light shall be used and for lights over 4'-0" long, and additional two hangers for each additional 2'-0" of length shall be

used.

5. Main tees and cross tees shall be made of fully zinc coated steel of gauges as previously noted. All connections of main tees, cross tee, perimeter moldings, etc., shall be mechanically interlocked. All work shall be level, square and at proper height. Provide perimeter moldings where ceiling abuts walls or partitions.
6. Hanger wire shall be No. 12 annealed galvanized wire, spaced not to exceed 4'-0" o.c.
7. All ceiling suspension shall be supported from floor and roof construction above. Provide all supplementary framing as required to adequately support the suspended ceiling.

3.0 EXECUTION

3.1 INSPECTION

A. Installer must examine conditions under which acoustical ceiling work is to be performed and must notify Contractor in writing of unsatisfactory conditions. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

3.2 PREPARATION

A. Coordination: Furnish layouts for inserts, clips, or other supports required to be installed by other trades for support of acoustical ceilings.

B. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less-than-half width units at borders and comply with reflected ceiling plans wherever possible.

3.3 INSTALLATION

A. General: Install materials in accordance with manufacturer's printed instructions, and to comply with governing regulations, fire resistance rating requirements as indicated, and industry standards applicable to work.

B. Installation

1. Attach to carrying channels, at right angles, the tee bars or exposed grid at spacing determined by the tile size. Provide additional support to exposed grid carrying tees at recessed lights. (light to bear on tees). Ceiling diffusers to be supported independently by Heating Contractor. Provide tee bar splices as required.
2. Ceiling contractor to coordinate his work with that of electrical and heating contractors to insure satisfactory installation of lights, diffusers and ceiling and with metal deck installer to assure proper placement of strap hangers. Frame around ceiling diffusers to support ceiling tile as required.
3. Furnish and install all accessories and items necessary for proper suspension.
4. Acoustical ceiling tile shall be placed in an approved manner as recommended by the manufacturer.
5. Lay out work to avoid small pieces at room perimeters. All damaged ceiling tile shall be replaced before final acceptance of structure and all acoustical installations shall

be made by an acoustical contractor approved by the manufacturer of the acoustical materials as being thoroughly experienced in erection of acoustical materials.

6. Anchorage and fastenings shall be secure and adequate for the use intended.
7. Acoustical ceilings shall be erected in a rigid and secure manner, level with tight joints, free from wave, buckles and sags. All acoustical tile shall be properly supported.
8. Cut and fit all acoustical units neatly and accurately against beams and walls and around pipes, electrical outlets and equipment so that flanges will cover units where cut.
9. All joints shall be kept in proper alignment and parallel to walls, unless otherwise indicated.
10. All finished ceiling areas shall be flat with not tile or edges of the tile protruding or recessed in relation to adjacent tile.
11. Metal edge channels, fillers, moldings, etc., shall be in as long pieces as possible and joints shall be neatly and as inconspicuously as possible. Trim shall be attached with approved concealed fastenings. All angles, corners and filler shall have mitered joints.
12. Insert for support of suspended ceilings from slab above and for attachment of suspension wire shall be of type recommended by manufacturer and shall be of a type to support ceiling loads imposed.

3.4 ADJUST AND CLEAN

A. Upon completion, all exposed surfaces of factory finished acoustical work shall be cleaned and left in a condition entirely satisfactory to the Architect. Remove all debris, equipment and material from premises.

END OF SECTION

SECTION 09650 –RESILIENT FLOORING

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 section.

1.2 DESCRIPTION OF WORK:

A. Extent of vinyl sheet, vinyl composition tile, and rubber base drawings, schedules and in provisions of this section.

1.3 RELATED WORK:

A. Cast-In-Place Concrete as specified in Division 3.

B. Ceramic Tile is specified in another Division 9 section.

C. Quarry Tile is specified in another Division 9 section.

D. Carpet as specified in Division 9.

1.4 QUALITY ASSURANCE:

A. All resilient flooring covered by this specification shall establish minimum standards for materials, finish, construction, design, function, and workmanship.

B. Installer Qualifications:
   1. Minimum 3 years experience installing resilient floor covering materials.
   2. Demonstrated quality of workmanship:
      a. Minimum number of installations - 5.
      b. Age of installations: Maximum - 3 yrs.; minimum - 1 yr.

1.5 SUBMITTALS:

A. Samples:
   1. Submit minimum of 3 samples of each type and color or pattern of resilient flooring and base materials as follows:
      a. Vinyl composition tile: 3" x 3".
      b. Rubber base: 2" length.
      c. Sheet vinyl: 12” x 12”
      d. Vinyl Plank Flooring: 3”x6”
   2. Mark samples with name of Contractor, project identification, and area where materials are to be used.

B. Maintenance Data and Instructions: Upon completion and prior to acceptance of work, furnish three (3) copies of a list of recommended maintenance products and recommended maintenance methods and procedures for each product specified.

C. Maintenance Materials:

1. Furnish additional floor covering materials for replacement and maintenance.
2. Furnish materials of each size, color, pattern, and type of material included in work.
   a. VCT: 3% overage.
   b. Rubber base: 20 linear feet where installed quantity is 200 linear feet or more. 10 linear feet where installed quantity is less than 200 linear feet.
   c. Sheet vinyl: 5% overage.
   d. Plank vinyl: 5% overage

1.6 PRODUCT DELIVERY AND STORAGE:

A. Deliver materials to project site in manufacturer's original, unopened containers with labels indicating brand names, colors and patterns, and quality designations legible and intact.

B. Do not open containers or remove markings until materials are inspected and accepted.

C. Store and protect accepted materials in accordance with manufacturer's directions and recommendations.

D. Unless otherwise directed or recommended by manufacturer, store materials in original containers at not less than 70° F (21° C) for not less than 24 hours immediately before installation.

1.7 ENVIRONMENTAL REQUIREMENTS:

A. Maintain a minimum temperature of 65° F in space to receive flooring and accessories for at least 48 hours before, during, and for not less than 48 hours after, installation.

B. Maintain minimum temperature of 55° F after flooring is installed except as specified in Paragraph 1.7 A.

C. Ventilation:
   1. Provide ventilation during and following adhesives applications.
   2. Use temporary air circulators in enclosed areas lacking natural ventilation.

1.8 WARRANTY

A. Vinyl composition tile and vinyl plank flooring: 10 year limited warranty

PART 2 - PRODUCTS

2.1 MANUFACTURER: Products of the following manufacturers, subject to compliance with requirements, will be acceptable:
** See A-600's for all specified product information and coordinating base material.*

A. Vinyl Composition Tile:
Acceptable Manufacturers: Tarkett
Armstrong
Mannington
Or equal

B. Rubber Base:
Acceptable Manufacturers: Johnsonite
Roppe
Or equal

C. Vinyl Tile & Plank
Acceptable Manufacturers: Interface
Shaw Contract Group
Patcraft
Or Equal

D. Sheet Vinyl
Acceptable Manufacturers: Armstrong
Tarkett
Or Equal

E. Architect to select from manufacturer's full line of styles and colors.

2.2 FLOOR COVERING MATERIALS:

A. General:
1. Uniform in thickness and size.
2. Edges cut accurately and square.
3. Uniform color with variations in variegated patterns kept to a minimum.
4. Colors and/or patterns selected by Architect from manufacturer's standard.

B. Vinyl Composition Tile:
1. 12" x 12" face size x 1/8" thick.
2. Fire hazard classification:
   a. Smoke developed (ASTM E-662): 450 or less.
   b. Critical radiant flux (ASTM E-648): 0.45 watts/sq. cm. or more, Class I.

C. Tile Reducers and Feature Strips:
1. Transition between vinyl composition tile and dissimilar materials: 1/8" thick x 1" wide, tile reducer as manufactured by Johnsonite Corporation or approved equivalent.
2. Feature strips: 1/8" x 1" feature strips as manufactured by Johnsonite Corporation or approved equivalent.

D. Sheet Vinyl:
1. 6' x 6' wide rolls, up to 82 ft in length
2. Fire hazard Classification:
   a. Flooring Radiant Panel (ASTM E648)- Class 1.
   b. Smoke Density (ASTM E662)- Less than 450.
3. Heat weld seam with matching vinyl welding thread. Unless otherwise specified on finish schedule in A-600's.
4. Color and Style: To be selected from manufacturer's complete product line.

E. Vinyl Plank:
1. 9"w x 39"l x 0.178" thick, see A-600's for exact product
2. Characteristics:
   a. ASTM E648, Critical Radiant Flux: Class I
   b. ASTM E662, Smoke Density: <450
   c. ASTM F970, Static Load Limit: 1500psi

2.3 BASE MATERIALS:

A. General:
1. Uniform in thickness.
2. As long lengths as practicable to suit conditions of installation.
3. Colors as selected by Architect from manufacturer's full range of styles and colors.

B. Rubber Base:
1. Cove base: 4 inch high, or height as indicated on drawings, 1/8 inch thickness, with 5/8 inch standard toe base.
2. Factory premolded inside and outside corners: Match base materials.
3. Equivalent to extruded ASTM F-1861 - Type TP, thermoplastic rubber base.
4. Fire Hazard Classification:
   a. Smoke developed (ASTM E-662): 450 or less.
   b. Critical radiant flux (ASTM E-648): 0.45 watts/sq. cm. or more, Class I.

2.4 APPLICATION MATERIALS:

A. Adhesive: Provide waterproof type and brands of adhesive as recommended by manufacturer of covering materials for conditions of installation.

B. Cleaner: As recommended by floor covering manufacturer for particular type of flooring material.

2.5 FLOOR PATCH AND LEVELING MATERIALS:

A. Floor Patch: Equivalent to Armstrong S-175 floor patch.

B. Fill and Leveling: Equivalent to Armstrong S-180 latex underlayment, Ardex V-800.

C. Liquid Underlayment: Equivalent to Crossfield Products Corp., A-81 underlayment. Use where fill or leveling exceeds more than 1/8 inch.

PART 3 - EXECUTION

3.1 INSPECTION OF SURFACES:

A. Examine substrate for excessive moisture content and unevenness which would prevent execution and quality of resilient flooring as specified. Notify Architect in writing of any defect in subfloor.

B. Do not proceed with installation of flooring until defects have been corrected except where correction is indicated under "Preparation" in this section.

3.2 PREPARATION:

A. Remove dirt, oil, grease, or other foreign matter from surfaces to receive floor covering materials.

B. Fill cracks, as required, in subfloor with approved non-shrinking crack filler.

C. Fill subfloor cracks, etc. Clean subfloor of grease or other dirt. Do not begin until work of other trades, including painting, has been completed.

D. Construction contractor: Maintain rooms and subfloors at 70 degrees F. minimum for at least 48 hours before, during, and 48 hours after flooring operations.

E. Use only experienced workmen. Lay tiles with even joints and with finished surfaces in true plane, smooth. Lay tiles square and symmetrical with room axis. Cut, fit, scribe to wall.

F. Install protective edgings where flooring edges are exposed and where required to saddle difference of finished floor elevation between ceramic tile and resilient tile.

G. Cement base firmly to walls using proper adhesive for surface to which it is to be applied. Scribe base accurately to trim.

H. The floor shall be installed using manufacturers' recommended adhesives and in strict compliance with written installation specification.

3.3 APPLICATION OF ADHESIVES:

A. Mix and apply adhesives in accordance with manufacturer's instructions.

B. Provide safety precautions during mixing and applications as recommended by adhesive manufacturer.

C. Apply uniformly over surfaces.
1. Cover only that amount of area which can be covered by flooring material within recommended working time of adhesive.
2. Remove any adhesive which dries or films over.
3. Do not soil walls, bases, or adjacent areas with adhesives.
4. Promptly remove any spillage.
5. Use waterproof adhesive at all areas.

D. Apply adhesives with notched trowel or other suitable tool.

E. Clean trowel and rework notches as necessary to insure proper application of adhesive.

3.4 INSTALLATION

A. Lay tile in center of space.

B. Work toward perimeter.

C. Do not lay tile less than 1/2 width of field tile except where accepted by Architect for irregularly shaped rooms or spaces.

D. Cut border tile neatly and accurately to fit within 1/64 inch of abutting surfaces.

E. Fit flooring material neatly and tightly into breaks and recesses, against bases, around pipes and penetrations, under saddles or thresholds, and around permanent cabinets and equipment.

F. Lay tile parallel to room axis in straight courses with cross joints as directed; lay tile with grain or pattern running in direction between adjacent tile as directed.

G. Roll tile thoroughly in both directions with a 100-lb. or heavier roller.

H. Tile Reducers and Feature Strips: Install tile reducers or feature strips at all doorways or in areas where tile meets dissimilar materials. Set tile reducers or feature strips in mastic recommended by manufacturer with top of edging flush with top of tile.

I. Provide patterns in arrangements as determined by Architect.

3.5 INSTALLATION OF BASE:

A. General:
1. Install base around perimeter of rooms or space where scheduled or indicated on drawings.
2. Include furnishing and installing rubber base on exposed sub-base surfaces of cabinets and/or casework installed as part of work on project.
3. Match edges at all seams.
4. Install with tight butt joints with no joint widths greater than 1/64 inch.

B. Top-Set Base:
1. Apply adhesive and firmly adhere to wall surfaces.
2. Press down so that bottom cove edge follows floor profile.
3. Form internal corners by using premolded corners.
4. Form external corners by using premolded corners.
5. Scribe base accurately to abutting materials.
6. Provide flat toeless base where carpeting is scheduled.

3.6 INSTALLATION OF SHEET VINYL:

A. General:
1. Install sheet vinyl per manufacturer’s recommended installation instruction.
2. Prepare subfloor per manufacturer’s recommendation. Floors must be clean and dry. Any surface materials such as paint, wax, oil adhesive residues, etc. must be removed. Floors must be free pf any sealers, curing, hardening or parting compounds.
3. If concrete floor, install moisture barrier as recommended by manufacturer.
4. If wood subfloor, wood floors must be double construction with a minimum thickness of 1”. Top layer of wood must be Underlayment Grade Plywood.
5. Adhere sheet vinyl flooring with manufacturer’s recommended adhesive.
6. Heat welded seams: Underscribe seams. Rout seams with had router or and electric router. Heat weld with matching vinyl welding thread.
7. Refer to AI-604 for installation pattern of sheet vinyl.

3.8 FINISHING AND CLEANING:

A. Upon completion of installation of floor covering, adjacent work, and after materials have set, clean surfaces with a neutral cleaner as recommended by manufacturer for type of floor covering material installed.

B. Leave surfaces clean, ready to receive wax application by Owner.

C. Protect completed work from traffic and damage until acceptance by Owner.

END OF SECTION

SECTION 09680 - CARPETING

1.0 GENERAL

1.1 RELATED DOCUMENTS

A. Applicable provisions of following documents govern work under this section:
   1. General Conditions
   2. Supplementary General Conditions
   3. General Requirements - Division 1

1.2 SCOPE

A. Provide labor, materials and equipment required to furnish and install carpeting in locations as scheduled on drawings. Include, but not limited to:
   1. Preparation of substrate surfaces as specified and/or as required by carpet manufacturer.
   2. Adhesive application.
   3. Carpet installation.
   4. Necessary cleaning operations.

1.3 QUALITY ASSURANCE

A. Carpeting specified herein shall be considered a standard of type and quality acceptable.

B. Manufacturer's qualifications: Actively engaged in manufacturing types of materials specified.

C. Installer qualifications
   1. Installer of at least ten projects equal in yardage to work specified.
   2. Minimum five years experience.
   3. Approved by and acceptable to carpet manufacturer.

D. Reference standards
   1. American Society for Testing and Materials ASTM E-648 test for critical radiant flux or floor covering systems using a radiant heat energy source.
   2. Federal Flammability Standard DOC-FF-1-70.

1.4 SUBMITTALS

A. Samples: two pieces 18" x 18" of each type, color and pattern employed on project.

B. Shop drawings
   1. Dimensions of carpeted areas.
   2. Pattern direction and/or pile direction.
   3. Layout of contrasting borders, etc.
   4. Details of transitions between carpeting and other finish floor material.
   5. Seaming diagram

C. Manufacturer's literature

1. Descriptive literature and specifications for carpeting and adhesive.
2. Installation instructions including:
   a. Preparation requirements for existing and new floor substrates.
   b. Allowable temperature range.
3. Maintenance and cleaning instructions.

D. Test reports
1. Fire hazard classification.
2. Static control.

E. Certificates
1. Manufacturer's certification that materials furnished conform to specification requirements.
2. Manufacturer's certification that installer is acceptable.
3. Installers list of comparable installations and years of experience.

F. Maintenance material
1. Furnish Owner with 3 percent overage of each color and pattern of carpeting employed on project.
2. In addition to overage, properly package remnants and usable scraps and deliver to Owner upon completion of work on project.

1.5 GUARANTEE

A. Wear: Provide carpet manufacturer's written guarantee that, excluding stairs, no part of carpet wearing surface shall wear more than 10 percent by weight in fifteen (15) years.

B. Static: Provide carpet manufacturer's written guarantee that carpet will maintain static generation at less than 3.0 KV at 70□F and 20 percent R.H. throughout life of product.

C. Seams: Installer shall guarantee in writing failure of seams for a period of three (3) years from date of certificate of substantial completion.

1.6 COORDINATION

A. Coordinate carpet installation with work of other trades.

B. Do not install carpeting until drywall, ceiling installation, finishing, etc., scheduled for walls, ceilings, trim, panels, doors, etc., has been completed.

2.0 PRODUCTS

2.1 CARPETING

A. Refer to Finish Schedule for locations of carpet types.
** See A-600's for all specified product information and coordinating base material.*

2.2 PHYSICAL PROPERTIES

A. Flammability: Meets ASTM E-648 Flooring Radiant Panel- Class 1

B. Smoke chamber: Meets ASTM E-662 NBS- less than 450

2.3 ADHESIVE

A. Carpet Adhesive: Equal to Para-chem Southern, Inc. M-433 and the W.W. Henry Company 429.

B. Seam Adhesive: Equal to Para-chem Southern, Inc. M-263 and the W.W. Henry Company 246.

2.4 PRIMER AND SEALER

A. As recommended by adhesive manufacturer to suit conditions encountered.

B. Do not proceed with installation of carpeting until defects have been corrected.

2.5 FLOOR PATCH AND LEVELING MATERIALS

A. Floor Patch: Equal to Armstrong S-175.

B. Fill and Leveling: Equal to Armstrong S-180 latex underlayment; Crossfield Products Corp. "Dex-O-Tex" G26 underlayment.

C. Transition materials, carpeting to other surfaces, to suit conditions encountered.

3.0 EXECUTION

3.1 INSPECTION OF SURFACES

A. Examine surfaces for properly bonded substrate and unevenness which would prevent execution and quality of carpet installation.

B. Do not proceed with installation of carpeting until defects have been corrected.

3.2 PREPARATION

A. General: All floor substrates indicated to receive carpeting shall be free of dust, dirt, wax, old or existing adhesives, debris, etc. as required by carpet manufacturer for proper carpet installation. Remove all existing carpet to allow for new carpet.

B. It shall be responsibility of carpet manufacturer or his authorized installer to arrange for and bear cost of floor preparation work, except that work required for new concrete floor substrates installed on this project and found to be in an unacceptable condition to receive new carpeting, shall be responsibility of trade who installed new concrete to prepare substrate so as to be acceptable for carpeting.

C. Flash patch existing concrete floors to provide a flush, uniform surface for new carpet finish at area of studio entrances. Flash patch from corridor a minimum of 1:20 pitch to meet studio

threshold.

3.3 INSTALLATION OF CARPET

A. Application of adhesives
   1. Mix and apply adhesives in accordance with manufacturer's instructions.
   2. Provide safety precautions during mixing and applications as recommended by adhesive manufacturer.

B. Carpet Installation

*** Contact architect for installation guide**

   1. Install carpeting in accordance with manufacturer's instructions and approved submissions.
   2. Adhere to patterns and pile directions indicated on approved shop drawings.
   3. Do not permit loose joints or too much pressure. Install joints tight but not compressed. Accurately check tightness in accordance with manufacturer's instructions as work progresses.

3.4 CLEANING

A. Remove spots; and smears of cement from carpet immediately with solvent.

B. Remove rubbish, wrapping paper, salvages, and scraps not suitable for use as maintenance materials.

C. Upon completion, vacuum with a commercial beater bar type vacuum cleaner.

END OF SECTION

SECTION 09770 – SPECIAL WALL SURFACES (FIBERGLASS REINFORCED PLASTIC PANELS):

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes: Special wall surfaces, including fiberglass reinforced plastic panels.

1.02 SYSTEM DESCRIPTION

A. Performance Requirements: Provide fiberglass reinforced plastic (FRP) panels which have been manufactured and installed to maintain performance criteria stated by manufacturer without defects, damage or failure.

1.03 SUBMITTALS

A. General: Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures Section.

B. Product Data: Submit product data, including manufacturer's SPEC-DATA product sheet, for specified products.

C. Shop Drawings: Submit shop drawings showing layout, profiles and product components, including anchorage, accessories, finish colors, patterns and textures. Indicate location and dimension of joints and fastener attachment.

D. Samples: Submit selection and verification samples for finishes, colors and textures. Submit 2 samples of each type of panel, trim and fastener.

E. Quality Assurance Submittals: Submit the following:
   1. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
   2. Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics, criteria and physical requirements.
   3. Manufacturer's Instructions: Manufacturer's installation instructions. Submit manufacturer's *Installation Guide.*

F. Closeout Submittals: Submit the following:
   1. Operation and Maintenance Data: Operation and maintenance data for installed products in accordance with Division 1 Closeout Submittals (Maintenance Data and Operation Date) Section. Include methods for maintaining installed products and precautions against cleaning materials and methods detrimental to finishes and performance.
   2. Warranty: Warranty documents specified herein.

1.04 QUALITY ASSURANCE

A. Qualifications:

1. Installer Qualifications: Installer should be experienced in performing work of this section and should have specialized in installation of work similar to that required for this project.
2. Installer must have a minimum of three (5) years experience.
3. Manufacturer Qualifications: Manufacturer should be capable of providing field service representation during construction and should be capable of approving application method.

B. Surface-Burning Characteristics:
1. Determined by testing identical products according to ASTM E 84 by a testing agency acceptable to authorities having jurisdiction.

C. FM Approved:
1. Crane Composites “Glasbord FXE”

D. Environmental Ceritifaction:
1. Greenguard Certification UL2818

E. Mock-ups:
1. Install at project site a mock-up using acceptable products and manufacturer approved installation methods.
2. Construct mock-up at location determined by architect.
3. Obtain architect approval and acceptance of finish, color, texture, pattern, trim, fasteners, and quality of installation.

1.05 DELIVERY, STORAGE & HANDLING

A. General: Comply with Division 1 Product Requirements Sections.

B. Ordering: Comply with manufacturer’s ordering instructions and lead time requirements to avoid construction delays.

C. Delivery: Deliver materials in manufacturer’s original, unopened, undamaged containers with identification labels intact. Package sheets on skids or pallets for shipment to project site.

D. Storage and Protection: Store materials protected from exposure to harmful weather conditions and at temperature and humidity conditions recommended by manufacturer. Store panels indoors in a dry place at the project site.

E. Handling: Remove foreign matter from face of panel by using a soft bristle brush, avoiding abrasive action.

1.06 PROJECT CONDITIONS

A. Environmental Requirements:
1. Installation shall not begin until building is enclosed, permanent heating and cooling equipment is in operation, and residual moisture from plaster, concrete or terrazzo work has dissipated.

1. During installation, and for not less than 48 hours before, maintain an ambient temperature and relative humidity within limits required by type of adhesive used and recommendation of adhesive manufacturer.

2. Provide ventilation to disperse fumes during application of adhesive as recommended by adhesive manufacturer.

B. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.

1.07 WARRANTY

A. Project Warranty: Refer to Conditions of the Contract for project warranty provisions.

B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.
1. Warranty Period: Ten (10) years commencing on Date of Substantial Completion.

1.08 MAINTENANCE

A. Extra Materials: Deliver to Owner extra materials from same production run as products installed. Package products with protective covering and identify with descriptive labels. Comply with Division 1 Closeout Submittals (Maintenance Materials) Section.
1. Quantity: Furnish quantity of Glasbord –FXE Panel units equal to 3% of amount installed.
2. Delivery, Storage and Protection: Comply with Owner's requirements for delivery, storage and protection of extra materials.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Manufacturer: Crane Composites, Inc. (formerly Kemlite) 23525 West Eames Street, Channahon, Illinois 60410. Toll Free 800-435-0080. Phone 815-467-8600. Fax 815-467-8666. Website www.cranecomposites.com Email salesbp@cranecomposites.com

B. Fiberglass Reinforced Plastic (FRP) Panels: Crane Composites FM

C. Surfaseal Surface Protection: Provide manufacturer's proprietary Surfaseal surface protection for fiberglass reinforced plastic (FRP) panels.

D. Division Bars, Corner Trim: Panel manufacturer's standard length extruded vinyl pieces; longest length possible to eliminate end joints.

E. Fasteners: Noncorrosive drive rivets.

2.02 PRODUCT SUBSTITUTIONS

A. Substitutions: No substitutions permitted.

2.03 MANUFACTURED UNITS

A. Crane Composities FM Approved Glasbord FXE Fiberglass Panels with Surfaseal Surface Protection:
   1. Rating:
   a. Fire-X Glasbord Underwriters Laboratories, Inc. (UL) classified, Class (A) Interior Finish Material.
   2. Wall Panels: Finish, thickness and color shall be:
   a. Pebble Embossed 0.75" (1.9mm) Glasbord FXE with Surfaseal Color: Pearl Grey 48
   b. Class A flamespread of less than 25, smoke developed less than 450 per ASTM E84 latest version.
   c. Barcol Hardness (scratch resistance) of 55 as per ASTM D2583.
   d. Panels will exhibit no more than a 0.038% weight loss after a 25 cycle Taber Abrasion Test using CS-17 abrasive wheels with 1000 g weight.
   e. Impact strength, ASTM D 5420: 11in-lbs showing no visible damage on finish side.
   f. Meets USDA/FSIS requirements.
   g. Complies with ICBO report Number4583.
   h. Panel Surface protection: "Surfaseal" molecularly bonded surface protection film for impact, abrasion, and scratch resistance.

2.4 ACCESSORIES

A. Moldings, trim, and caps: 1-piece extruded polypropylene or PVC, configured to cover panel edges and corners. Color to match FRP panels.

B. Panel Adhesive: As recommended by FRP panel manufacturer.

C. Panel Seam Sealant: Bright-white, 2 part urethane sealant, as recommended by FRP panel manufacturer.

D. Rivets: Match FRP panels

PART 3 - EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

A. Compliance: Comply with manufacturer's product data, including product technical bulletins, product catalog installation instructions and product carton instructions for installation.

3.02 EXAMINATION

A. Site Verification of Conditions: Verify that substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions.
   1. Examine backup surfaces to determine that corners are plumb and straight, surfaces are smooth, uniform, clean and free from foreign matter, nails are countersunk and joints and cracks are filled flush and smooth with the adjoining surface.
   2. Do not begin installation until backup surfaces are in satisfactory condition.

3.03 PREPARATION

A. Surface Preparation: Per manufacturer's instructions.

3.04 INSTALLATION

A. Fiberglass Reinforced Panel (FRP) Installation:
   1. Cut and frill panels with carbide tipped saw blades or drill bits, or cut with snips.
   2. Install panels with manufacturer's recommended gap for panel field and corner joints.
   3. Pre-drill fastener holes in panels with 1/8" (3.2mm) oversize.
   4. For trowel type and application of adhesive, follow adhesive manufacturer's recommendations.
   5. Use products acceptable to panel manufacturer and install FRP system in accordance with panel manufacturer's printed instructions. Comply with panel manufacturer's Installation Guide.

3.05 CLEANING

A. Cleaning: Remove temporary coverings and protection of adjacent work areas. Repair or replace products that have been installed and are damaged. Clean installed products in accordance with manufacturer's instructions prior to Owner's acceptance. Remove construction debris from project site and legally dispose of debris.
   1. Remove any adhesive or excessive sealant from panel face using solvent or cleaner recommended by panel manufacturer.

3.06 PROTECTION

A. Protection: Protect installed product and finish surfaces from damage during construction.

END OF SECTION

SECTION 09900 - PAINTING

1.0 GENERAL

A. The drawings, Instructions to Bidders, Form of Proposal, General Conditions, Supplementary General Conditions and Division 1 are included herein and govern work under this section.

1.1 DESCRIPTION OF WORK

A. Extent of painting work is shown on drawings and schedules, and as herein specified.

B. The work includes painting and finishing of interior exposed items and surfaces throughout the project, except as otherwise indicated.
   1. Surface preparation, priming and coats of paint specified are in addition to shop-priming and surface treatment specified under other sections of work.

C. "Paint" as used herein means all coating systems materials, including primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate or finish coats.

D. Paint exposed surfaces whether or not colors are designated in "schedules", except where natural finish of material is specifically mentioned, paint same as adjacent similar materials or areas. If color or finish is not designated, Architect will select these from colors available for materials systems specified.

E. Paint in accordance with Room Finish Schedule, all drywall, wood trim and base.

F. Paint all exposed surfaces that are shop or job primed under other sections of the specifications. Touch-up all primed surfaces where prime coat has been marred or damaged.

G. Finish all architectural woodwork, millwork, including counters and all other millwork items that cannot be completely prefinished at the factory.

H. Paint all hollow metal doors, frames and other hollow metal work of a ferrous material.

I. Back prime all wood trim.

1.2 FOLLOWING CATEGORIES OF WORK ARE NOT INCLUDED AS PART OF FIELD-APPLIED FINISH WORK, OR ARE INCLUDED IN OTHER SECTIONS OF THE SPECIFICATIONS.

A. Shop Priming: Unless otherwise specified, shop priming of ferrous metal items is included under various sections for structural steel, miscellaneous metal, hollow metal work, and similar items. Also, for fabricated components such as architectural work, and similar items. Also, for fabricated or factory-built mechanical and electrical equipment or accessories.

B. Pre-Finished Items: Unless otherwise indicated, do not include painting when factory-finishing or installer finishing is specified for such items as (but not limited to) architectural woodwork and casework, finished mechanical and electrical equipment, including light fixtures, distribution cabinets, doors and equipment.

C. Concealed Surfaces: Unless otherwise indicated, painting is not required on surfaces such as

walls or ceilings in concealed areas and generally inaccessible areas.

D. Finished Metal Surfaces: Metal surfaces of anodized aluminum, stainless steel, chromium plate, copper, bronze, and similar finished materials will not require finish painting, unless otherwise indicated.

E. Operating Parts and Labels: Moving parts of operating units, mechanical and electrical parts, such as valve and damper operators, linkages, sinks, sensing devices, motor and fan shafts will not require finish painting unless otherwise indicated.

F. Do not paint over any code-required labels, such as underwriters' Laboratories and Factory Mutual, or any equipment identification, performance rating, name or nomenclature plates.

1.3 SUBMITTALS

A. Product Data: Submit manufacturer's technical information including paint label analysis and application instructions for each material proposed for use.

B. Samples: Submit samples for Consulting Officer's review of color and texture only. Provide a listing of material and application for each coat of each finished sample.
1. On 12" x 12" hardboard, provide two samples of each color and materials, with texture to simulate actual conditions. Resubmit samples as requested by the Architect until acceptable sheen, color and texture is achieved.
2. On actual wood surfaces, provide two 4" x 8" samples of natural and stained wood finish. Label and identify each as to location and application.

1.4 DELIVERY AND STORAGE

A. Deliver materials to job site in original, new and unopened packages and containers, bearing manufacturer's name and label, and following information:
1 Name or title of material
2. Manufacturer's stock number and date of manufacturer
3. Manufacturer's name
4. Contents of volume, for major pigment and vehicle constituents.
5. Thinning instructions
6. Application instructions
7. Color name and number

B. Storage of materials: Store and mix all materials only in such rooms as may be assigned for this purpose. Take all necessary precautions in storage of painting materials and implements to prevent fire.
1. Provide galvanized iron pans of suitable size in which all mixing pails must be placed. No mixing shall be done outside of these pans. Pay for repairs for all damage caused be mixing or spillage.
2. Remove all oily rags and waste each night after being placed in a covered metal receptacle during the day.

1.5 JOB CONDITIONS

A. Before commencing painting, make certain that surfaces to be coated are in perfect condition to receive the coating by being clean, dry, smooth, and at the proper temperature. No materials

shall be applied if and when unfavorable atmospheric conditions prevail which could adversely affect the drying, appearance, color or adhesion of the materials. If surface, atmospheric, or other conditions to be improper for paint or finishing are found,report such conditions to the Architect at once and do not proceed until the situation is corrected. Commencement of work in any given areas shall be construed to mean acceptance of such areas by the Contractor.

B. Apply solvent-thinned paints only when temperature of surfaces to be painted and surrounding air temperatures are between 45 degrees F (7 degrees C) and 95 degrees F (35 degrees C), unless otherwise permitted by paint manufacturer's printed instructions.

C. Do not apply paint in snow, rain, fog or mist; or when relative humidity exceeds 85%; or damp or wet surfaces; unless otherwise permitted by paint manufacturer's printed instructions.

D. Painting may be continued during inclement weather if areas and surfaces to be painted are enclosed and heated within temperature limits specified by paint manufacturer during application and drying periods.

E. Material List and Maintenance Instructions: Furnish triplicate (3) copies of a complete list of materials being used, including type, brand and color used for painting and finishing each room and portion of building, interior and exterior. Include instructions for proper maintenance.

2.0 PRODUCTS

2.1 COLORS AND FINISHES

A. Prior to beginning work, Architect will select colors for surfaces to be painted.
1. Use representative colors when preparing samples for review.
2. Final acceptance of colors will be from samples applied on the job.

B. Color Pigments: Pure, non-fading, applicable types to suit substrates and service indicated.
1. Lead content in pigment, if any, is limited to contain not more than 0.5% lead, as lead metal based on the total non-volatile (dry-film) of paint by weight.

C. Paint Coordination: provide finish coats which are compatible with prime paints used. Review other sections of these specifications in which prime paints are to be provided to ensure compatibility of total coatings system for various substrates. Upon request from other trades, furnish information on characteristics of finish materials proposed for use, to ensure compatible prime coats are used. Provide barrier coats over incompatible primers or remove and re-prime as required. Notify Architect in writing of any anticipated problems using specified coating systems with substrates primed by others.

2.2 MATERIAL QUALITY

A. Provide best quality grade of various types of coating as regularly manufactured by acceptable paint materials manufacturers. Materials not displaying manufacturer's identification as a standard, best-grade product will not be acceptable.

2.3 MANUFACTURERS

A. Use the same brand of each respective material throughout the job.

B. Primers and undercoats shall be those made by manufacturers of respective finish coats.

C. The following manufacturer's first line products are approved for use on this project:
   1. Sherwin Williams

D. Galvanized surface pre-treatment shall be manufactured by American Chemical Paint Company of Nielson Chemical Company.

2.4 STANDARD MATERIALS

A. Comply with requirements of latest editions of these standard specifications for the following materials, whether used directly or as ingredients of factory prepared products:
   1. Raw Linseed Oil - ASTM A-234
   2. Boiled Linseed Oil - ASTM D-260
   3. Liquid Drier - Federal Spec. TT-D-651
   4. White Shellac - Federal Spec. TT-V-91a
   5. Turpentine - ASTM D-13
   2. Mineral Spirits - ASTM D-235
   3. Interior Wood Filler - Federal Spec. TT-F-336
   4. Pigments-in-Oil - Federal Spec. FF-P-381

2.5 PAINTING MATERIALS

A. All basic materials entering the compounding and manufacture of paints and other finishing materials specified, shall be of the best quality products of recognized manufacturers, subject to approval of the Architect. Reference to ASTM or Federal Specifications to establish a testing basis for requirements of quality.

B. Coloring materials shall be pure tint colors, and of the highest grade of tinting strength and fineness obtainable. Coloring materials shall be composed of ingredients that will mix with the various coatings specified without impairing the ultimate result for which coatings are selected.

C. All materials shall be delivered in original unopened containers, each container bearing the brand and maker's name, completely identifying the contents, including formula, and given directions for its proper use.

D. All materials shall be used without thinning, unless otherwise specified or approved by the Architect. If any material is thus thinned, use only the thinner recommended by paint manufacturer.

2.6 TYPES OF FINISHES

A. Provide the following systems for various substrates, as indicated. Unless otherwise noted, all materials specified are the products of Sherwin Williams. The specifying of the products of one manufacturer is intended to indicate the type of product desired and equivalent products of approved manufacturers such as Benjamin Moore will be accepted, subject to conformance with specifications.

1. Gypsum Board Systems
   a. Interior Drywall Walls
      1) Primer - Sherwin Williams Prep Right Primer B28W200
      2) 2nd Coat – Sherwin Williams Promar 400 Latex Eggshell B20W400 Series
      3) 3rd Coat – Sherwin Williams Promar 400 Latex Eggshell B20W400 Series

   See Finish Schedule

   b. Drywall Ceilings
      1) Primer – Sherwin Williams Prep Right Primer B28W200
      2) 2nd Coat– Sherwin Williams Latex Flat Ceiling White
      3) 3rd Coat – Sherwin Williams Latex Flat Ceiling White

   See finish schedule for colors and locations.

B. Paint **all** metal primed and unprimed surfaces as follows:
   1. Metal Doors and Frames and Other Factory Primed Metal Work
      a. 1st Coat - oil primer undercoat
      b. 2nd Coat - semi-gloss latex.
      c. 3rd Coat – semi-gloss latex.

      Color to be selected by Architect. See written finish schedule.

3.0 EXECUTION

3.1 INSPECTION

A. Applicator must examine areas and conditions under which painting work is to be applied and notify Contractor in writing of conditions detrimental to proper and timely completion of work. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to Applicator.

B. Starting of paint work will the construed as Applicator's acceptance of surfaces and conditions within any particular area.

C. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions otherwise detrimental to formation of a durable paint film.

3.2 SURFACE PREPARATION

A. General: Perform preparation and cleaning procedures in accordance with paint manufacturer's instructions and as herein specified for each particular substrate condition.
   1. Remove hardware, hardware accessories, machine surfaces, plates, lighting fixtures, and similar items in place and not to be finish-painted, or provide surface applied protection prior to surface preparation and painting operations. Remove, if necessary, for complete painting of items and adjacent surfaces. Following completion of paint of each space or area, reinstall removed items.
   2. Clean surfaces to be painted before applying paint or surface treatments. Remove oil and grease prior to mechanical cleaning. Program cleaning and painting so the

contaminants from cleaning process will not fall onto wet, newly-painted surfaces.

B. Cementitious materials: Prepare cement plaster to be painted be removing efflorescence, chalk, dust, dirt, grease, oils and by roughening as required to remove glaze.

C. Wood: Clean wood surfaces to be painted of dirt, oil or other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sandpaper smooth those finish surfaces exposed to view, and dust off. Scrape and clean small, dry, seasoned knots and apply a thin coat of white shellac or other recommended knot sealer, before application of priming coat. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood-filler. Sandpaper smooth when dried.
   1. Prime, stain or seal wood required to be job-painted immediately upon delivery to job. Prime edges, ends, faces, undersides and backsides of wood including cabinets, counters, cases and paneling.
   2. When transparent finish is required, use spar varnish for back-priming.

D. Ferrous Metals: Clean ferrous surfaces, which are not galvanized or shop-coated, of oil, grease, dirt, loose mill scale and other foreign substances by solvent or mechanical cleaning.
   1. Touch up shop-applied prime coats wherever damaged or bare, where required by other sections of these specifications. Clean and touch up with same type shop primer.

E. Galvanized Surfaces: Clean free of oil and surface contaminants with nonpetroleum based solvent.

3.3 MATERIALS PREPARATION

A. Mix and prepare painting materials in accordance with manufacturer's directions.

B. Store materials not in actual use in tightly covered containers. Maintain containers used in storage, mixing, and application of paint in a clean condition, free of foreign materials and residue.

C. Stir materials before application to produce a mixture of uniform density, and stir as required during application. Do not stir surface film into material. Remove film and, if necessary, strain material before using.

3.4 APPLICATION

A. General: Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied.
   1. Apply additional coats when undercoats, strains or other conditions show through final coat of paint, until paint film is of uniform finish, color and appearance. Give special attention to assure that surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
   2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Paint surfaces behind permanently-fixed equipment or furniture with prime coat only before final installation of equipment.
   3. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, non-specular black paint.
   4. Finish exterior and interior doors on tops, bottoms and side edges same as exterior or

interior faces, unless otherwise indicated.

5. Omit first coat (primer) on metal surfaces which have been shop-primed and touch-up painted, unless otherwise indicated.

B. Scheduling Painting: Apply first-coat material to surfaces that have been cleaned, pretreated or otherwise prepared for paint as soon as practicable after preparation and before subsequent surface deterioration.

1. Allow sufficient time between successive coatings to permit proper drying. Do no recoat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure and application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.

C. Minimum Coating Thickness: Apply materials at not less than manufacturer's recommended spreading rate, to establish a total dry film thickness as indicated or, if not indicated, as recommended by coating manufacturer.

D. Wherever a door is cut or planed, the surfaces affected must be immediately primed with a primer sealer.

3.5 CLEAN-UP AND PROTECTION

A. Clean-Up: During progress of work, remove from site discarded paint materials, rubbish, cans and rags at end of each work day. Upon completion of painting work, clean window glass and other paint-spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.

B. Protection: Protect work of other trades, whether to be painted or not, against damage by painting and finishing work. Correct any damage by cleaning, repairing or replacing and repainting, as acceptable to Architect.

1. Provide "Wet Paint" signs as required to protect newly-painted finishes. Remove temporary protective wrappings provided by others for protection of their work, after completion of painting operations.
2. At the completion of the work of other trades, touch up and restore all damaged or defaced painted surfaces.

C. Provide five gallons of each color and type of paint to the owner upon completion of all work.

3.6 GUARANTEE

A. This subcontractor shall guarantee all work under this Section of the Contract for one year after the date of acceptance against blistering, checking, alligatoring and other defects attributing to faulty surface preparation, materials or workmanship. Re-finish all defective areas as directed.

END OF SECTION

SECTION 10210 -MISCELLANEOUS_SPECIALTIES

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 section.

1.2 SUMMARY:

A. Extent of miscellaneous specialties is indicated on drawings and in provisions of this section.

B. Provide necessary fastenings, accessories required to make installation complete.

C. Ceiling mounted curtain track & carriers.

1.3 QUALITY ASSURANCE:

A. All miscellaneous specialties covered by this specification shall establish minimum standards for materials, hardware, finish, construction, design, function, and workmanship.

B. Manufacturer's Qualifications: Regularly engaged in manufacture of materials and products encountered.

C. Installer Qualifications:
1. Experienced personnel actively engaged in type of work encountered.
2. Approved by and acceptable to product manufacturer.

1.4 SUBMITTALS:

A. Shop Drawings:
1. Submit in accordance with contract conditions.
2. Indicate:
   a. Types of materials, weights, thickness and/or gauges.
   b. Sizes of individual components and assemblies.
   c. Fabrication construction details indicating joints, fasteners, accessories, and similar items.
   d. Detail drawings: Mounting details with the appropriate fasteners for specified project substrates.
   e. Fabric samples: swatch card of fabrics illustrating fabric color and weave.
   f. Samples: Verification samples of cubicle track, 4” in length. Complete with (1) carrier as specified and stop.
   g. Manufacturer’s standard installation instructions.

B. Manufacturer's Literature: Recommended installation and maintenance procedures.

C. Certificates:
1. Manufacturer's certificate that materials meet specification requirements.
2. Manufacturer’s care instructions for each curtain.

1.5 PRODUCT DELIVERY, HANDLING AND STORAGE:

A. Deliver materials in unopened factory packing to the job-site.

B. Inspect materials at delivery to assure that specified products have been received.

C. Protect materials against damage and defacement in handling and storage. Conform to manufacturer's instructions for handling and storing materials.

D. Store materials so as to prevent damage from construction operations and equipment.

E. Remove damaged and/or defaced materials from project site, replace with acceptable materials.

1.6 COORDINATION:

A. Coordinate installation with work of other trades.

B. Advise appropriate trade pertaining to blocking required to properly anchor and support materials included herein.
   1. It is required that required blocking be installed prior to installation of gypsum wallboard walls.

1.7 WARRANTY

A. Manufacturer’s standard warranty against manufacturer’s defects.

PART 2 - PRODUCTS

2.1 CUBICLE TRACKS & CURTAINS:

A. Subject to compliance with the requirements listed, provide cubicle track and carriers from the following manufacturer:
   1. C/S cubicle curtains, a division of Construction Specialities, Inc.
      3 Werner Way
      Lebanon, NJ 08833
      P: (908) 849-4000 / F: (908) 849-4398
      CCInfo@c-sgroup.com
      www.c-sgroup.com

   2. Substitutions: Alternative manufacturers will not be accepted.
   3. Cubicle tracks: C/S Cubicle curtains #6062N surface-mounted tracks of heavy extruded aluminum alloy 6063-T4, 1-3/8” x ¾”, slotted to receive roller carriers, complete with accessories and components required for complete and secure installations including splices, end caps and corner bends. Corner bends up to 36” radius are to be fabricated in one continuous “L” shape. Radiuses above 36” to be continuous or spliced based on room condition. Finish – clear anodized aluminum
   4. Carriers: C/S Cubicle curtains 1062N, virgin nylon axle with nylon wheels complete with nickel-plated brass bead chain and hook assembly. Provide one carrier for each 6” of cubicle curtain width.
   5. Curtains: Provide curtains for all cubicle tracks with all accessories for a complete installation.

      a. Cubical 1: Exact style and color specified in A-600’s
      b. Style: Open mesh cloth top.

c. Curtains are flame retardant and conform to requirements of NFPA 701.
d. ASTM E-84 smoke developed, 450 or less.
e. Cubicle curtain and mesh cloth color(s). Submit Manufacturer's complete color swatches to Architect for approval.

B. FABRICATION:
1. Cubicle Curtain
a. Curtain width: Manufacturer's curtain of one piece, sized 10% wider than track length but no less than 1 foot extra fullness.
b. Curtain height: Bottom of cubicle curtain to hang 12" – 14" above floor.
c. Curtain Header: Manufacture with open mesh cloth, to the same width as the curtain fabric. Include 4 ounce nickel-plated grommets, 6" on center for carriers.
d. Seams: Bottom hem shall be double-fold and 1 ¼" wide. Curtains shall be seamless if possible or lock stitch seams in 2 row. Turn seam edges and lock stitch. Sewing thread to be triple-ply twisted nylon.

2.2 COAT AND HAT RACKS:

A. Equivalent to Vogel Peterson Customline.
1. Single Shelf Coat and Hat Racks Customline Model No. AA-200E.
a. Shelf tubes: 3/4" O.D. x 18 ga. anodized aluminum tubes closed and protected at ends with non-corrosive plastic plug.
b. Brackets: Steel with pressure caps to prevent tube movement and finished in hard baked enamel paint.
c. Channel mountings: 14 gauge steel, plastic capped at both ends, and providing vertical adjustment.
d. Hanger bar: 1" O.D. x 18 ga. chrome steel tube plugged at ends.
e. Finish: Baked enamel in color as selected from manufacturer's standard colors.
f. Hangers: By Owner.

2.3 Stainless Steel Shelving/Mop Holder:

A. Provide janitorial utility shelf with hooks, mop holders, and drying rod at Janitor's Closets as shown on drawings. Provide No. 998 as manufactured by Bradley Corporation or equal product of Bobrick Washroom Equipment, Inc., or American Dispenser Co.

PART 3 - EXECUTION

3.1 INSPECTION:

A. Assure That:
1. Work of other trades has been completed.
2. Application of final finishes on work of other trades has been completed.
3. Do not start work until all conditions are acceptable.

3.2 INSTALLATION:

A. Install materials in accordance with approved shop drawings and manufacturer's instructions.
1. Install in locations as indicated on drawings or as directed by Architect.
2. Locate cubicle curtain track as indicated on approved detail drawing and in compliance with manufacturer's installation instructions.

3. Install cubicle track system according to manufacturer's recommended instructions to ensure smooth operation of carriers.

3.3 CLEANING:

A. Remove debris caused by reason of work required herein and legally dispose of away from site.

3.4 WARRANTY:

A. Provide manufacturer's warranty to Owner upon completion.

END OF SECTION

SECTION 10213 TOILET PARTITIONS

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 work of this section.

1.2 SUMMARY:

A. Extent of toilet compartments is indicated on drawings and in provisions of this section.

1.3 QUALITY ASSURANCE:

A. All toilet compartments covered by this specification shall establish minimum standards for materials, hardware, finish, construction, design, function, and workmanship.

B. Installer Qualifications:
1. Experienced personnel regularly engaged in type of work encountered.
2. Approved by and acceptable to product manufacturer.

1.4 SUBMITTALS:

A. Shop Drawings:
1. Detail layout of work, fabrication, erection, anchoring, jointing, reinforcing, panel thickness, core construction and finish for review.

B. Data Sheets:
1. Show details of partition construction and fabrication.
2. Provide plan layout.
3. Include all manufacturers' recommendations for review of Architect.

C. Colors: Submit two copies of manufacturer's standard color chart for color selection.

D. Certificate of compliance attesting that all materials conform to specifications.

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING:

A. Delivery:
1. Deliver material in manufacturer's original unopened and undamaged packages.
2. Clearly identify manufacturer, brand name, contents, color, stock number, and order number of each package.
3. Packages showing indications of damage that may affect condition of contents are not acceptable.

B. Storage:
1. Store in original packaging under protective cover and protect from damage.
2. Stack containers in accordance with manufacturer's recommendations.

C. Handling: Handle materials in such manner as to prevent damage to products or finishes.

PART 2 - PRODUCTS

2.1 MANUFACTURER: Toilet partitions specified herein are a product of General Partition Mfg. Corp.

2.2 METAL TOILET PARTITIONS: Series 40 Floor Mounted Type with Rigid Overhead Bracing.

A. Doors:
1. Thickness: 1 inch.
2. Material: 2 sheets Stainless Steel bonded together with stainless steel molding on all four sides.
3. Core: Ribcore

B. Panels:
1. Thickness: 1 inch.
2. Material: 2 sheets Stainless Steel bonded together with stainless steel molding on all four sides.
Mitered stainless steel reinforcements fused to all corners for structural strength.
3. Core: Ribcore

C. Pilasters:
1. Thickness: 1 1/4 inches.
2. Material: 2 sheets Stainless Steel, bonded together with stainless steel molding on all four sides.
Same construction as panels.
3. Core: Ribcore.

D. Hardware and Accessories:
1. No. 2000D Concealed Hinges.
2. No. No. 1250D Hinge Brackets.
3. No. 1000D Concealed Latch with emergency slot for screwdriver or coin for outside access.
4. No. 2060D Door Stop and Keeper
5. Equip each door with No, 6200 D Coat Hook
6. Equip each handicapped door with stainless steel door pull.
7. Wall brackets for panel and pilasters to be high strength heavy chrome plated. .
8. Pilaster floor anchor: Heavy gauge single piece floor stirrup with leveling bolt and covered with a 3 inch high stainless steel shoe. Shoe finish shall be No. 4.
9. Headrails to be 1 7/8” x 1 5/32” x 1/16” with integral crown loafer rail, extruded aluminum heat treated and anodized with necessary fittings.
10. All exposed screws and bolts tamper-resistant type.

E. Finish:
1. Stainless Steel

2.4 Provide screws, anchors and fasteners compatible with conditions encountered, as required for complete installation.

A. All exposed fasteners and screw heads shall be finished type, chrome plated, with no visible recessed or projecting screw threads.

PART 3 - EXECUTION

3.1 INSPECTION:

A. Check areas to receive toilet partitions and urinal screens for existing conditions and correct spacing of new support structures and plumbing fixtures that may affect quality and execution of work.

B. Start of work constitutes acceptance of job conditions.

3.2 INSTALLATION:

A. Pilasters:
1. Securely anchor pilaster at floor with bolts recommended by toilet partition manufacturer to suit conditions encountered.
2. Level top and plumb edges and faces of pilasters.
3. Conceal bottom mechanism with stainless steel trim.
4. Adjust pilaster shoes to fit flush with finish at floor.

B. Install panels, doors, hardware and fittings in accordance with manufacturer's instructions.

3.3 ADJUST AND CLEAN:

A. Adjust Brackets to Provide Uniform Clearances Not Exceeding:
1. Panels and walls: 1 inch.
2. Pilasters and panels: 1/2 inch.

B. Adjust hardware for proper operation.

C. Set hinges to hold doors ajar when not latched.

D. After completion of installation, clean and polish exposed compartment and urinal screen surfaces.

END OF SECTION

SECTION 10221 FIXED GLASS PANEL PARTITIONS

1.0 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DESCRIPTION OF WORK

A. Section includes fixed, framed glass panel partitions with swinging glass doors.

1.3 QUALITY ASSURANCE

A. American Architectural Manufacturers Association (AAMA): www.aama.org.
   1. AAMA 611 Voluntary Specification for Anodized Architectural Aluminum

B. American Society of Civil Engineers/Structural Engineering Institute (ASCE/SEI): www.asce.org:
   1. ASCE/SEI 7 Minimum Design Loads for Buildings and Other Structure.

C. ASTM International (ASTM): www.astm.org:
   1. ASTM A666 Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
   2. ASTM B221/ASTM B221M Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
   3. ASTM C1048 Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass
   4. ASTM C1172 Standard Specification for Laminated Architectural Flat Glass.
   5. ASTM E84 Test Method for Surface Burning Characteristics of Building Materials.
   6. ASTM E90 Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
   7. ASTM E413 Classification for Rating Sound Insulation.
   8. ASTM E557 Guide for the Installation of Operable Partitions.

D. Builders Hardware Manufacturers Association (BHMA): www.buildershardware.com:
   1. ANSI/BHMA A156 Series.

E. Code of Federal Regulations
   1. 16 CFR 1201 Safety Standard for Architectural Glazing Materials

F. International Code Council (ICC): www.iccsafe.org:
   1. ICC A117.1 Accessible and Usable Buildings and Facilities (ANSI).

1.4 SUBMITTALS

A. Product Data: For each glass panel partition and door component specified, including
   1. Glass panels.
   2. Frame and sill tracks.

3. Door hardware and accessories (Refer to Section 08710).

B. Shop Drawings: For fixed glass panel partitions.
   1. Include plans, elevations, sections, and details. Provide numbered panel installation sequence.
   2. Show locations and requirements for tracks, bracing, blocking, and attachments to other work.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Experienced Installer equipped and trained for installation of glass panel partitions required for this Project with record of successful completion of not less than five projects of similar scope.

B. Single Source Responsibility: Provide glass panel partitions and associated hardware by a single manufacturer through a single source.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials in accordance with the manufacturer requirements.

B. Protect from damage during delivery, handling, storage and installation.

C. Protect installed materials from damage due to abrasion or other effects before, during and after installation. Keep units in manufacturer's protective packages until time of installation.

1.7 WARRANTY

A. Special Manufacturer's Warranty: Standard form in which manufacturer agrees to repair or replace components of glass panel partitions that demonstrate deterioration or faulty operation due to defects in materials or workmanship under normal use for Five years from date of Substantial Completion.

2.0 PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design Product: Provide **PURE Enclose** framed glass panel partitions with swinging doors, manufactured by DORMA USA, Inc.; (800) 523-8483; email: specification@dorma-usa.com; website: www.dorma.com, [or comparable products of other manufacturer approved by Architect.

2.2 PERFORMANCE REQUIREMENTS

A. Acoustical Performance: Provide glass panel partition tested by qualified testing agency as follows:
   1. Sound-Transmission Requirements: Tested for laboratory sound-transmission loss performance according to ASTM E90, determined by ASTM E413, and rated for not less than STC indicated.

2.3 GLASS PANEL PARTITIONS

A. Fixed Glass Panel Partitions: Framed glass panel partition with perimeter channel frames, butt-glazed dry joint and framed joints between panels, equipped with swinging doors where indicated.
   1. Basis of Design: **DORMA, PURE Enclose.**
   2. Sound Transmission Class (STC), ASTM E 90 and Outdoor-Indoor Transmission Class (OITC), ASTM E1332:
      a. Framed partition with 12.0 mm thick laminated glass: STC 32; OITC 30.
      b. Swinging door with 12.0 mm thick laminated glass: STC 15; OITC 15.

2.4 GLASS PANELS AND DOORS

A. Glass Panels, General: Provide glass panels that comply with 16 CFR 1201, Category II requirements for safety glazing. Permanently mark glazing with certification label of the SGCC.
   1. Glass Panel Thickness: Thickness required for size of panel based upon manufacturer's written recommendations, but not less than 12 mm.
   2. Fully Tempered Clear Float Glass: ASTM C1048, Kind FT, Condition A, Type I, Class 1, Quality-Q3.

2.5 MATERIALS

A. Aluminum: ASTM B221 (ASTM B221M), with strength and durability characteristics of not less than Alloy 6063-T5.

B. Stainless Steel: ASTM A666, Type 304.

2.6 FINISHES

A. Aluminum Finish: Clear anodic finish: AAMA 611, AA-M12C22A31, Class II, 0.010 mm or thicker.

B. Stainless Steel Finishes: No. 4 directional satin finish.

3.0. EXECUTION

3.1 EXAMINATION

A. Examine partition substrates to determine if work is within glass panel partition manufacturer's required tolerances and ready to receive work. Proceed with installation of partitions once conditions affecting installation and performance of partitions meet manufacturer's requirements.

B. Verify that partition construction adjacent to acoustically-rated glass panel partitions complies with requirements of ASTM E557.

3.1 INSTALLATION

A. General: Comply with glass panel partition manufacturer's written installation instructions and approved shop drawings.

B. Install glass panel partitions after other finishing operations have been completed.

C. Set units level, plumb and true to line with uniform joints.

D. Fasten glass panel partition framing to building structure and supports as indicated on approved shop drawings, utilizing approved fasteners and spacing.

E. Set framing in continuous bed of sealant or in positive contact with preformed gasket where indicated.

F. Install glass markings in accordance with governing codes.

3.2 ADJUSTING

A. Replace damaged panels and accessories.

3.3 CLEANING

A. Clean glass panels in accordance with glass manufacturer's written instructions. Do not use cleaning agents or methods not approved by glass manufacturer.

B. Clean exposed metal surfaces to factory new appearance.

END OF SECTION

SECTION 10260 -WALL AND CORNER GUARDS

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 section.

1.2 SUMMARY:

A. This section includes the following types of wall protection systems:
   1. Surface Mounted Corner Guards

B. Provide necessary accessories required to make installation complete.

1.3 QUALITY ASSURANCE:

A. All wall and corner guards covered by this specification shall establish minimum standards for materials, hardware, finish, construction, design, function, and workmanship.

B. Comply with NFPA 101 for interior finish materials.

C. Manufacturer's Qualifications: Regularly engaged in manufacture of materials and products encountered.

D. Manufacturer’s qualifications: Not less than 5 years experience in the production of the specified products.

E. Installers qualifications: Installer must have no less than 3 years experience in the installations of systems similar in complexity to those required in this project.

1.4 SUBMITTALS:

A. Samples - Submit:
   1. Two 12 inch long samples of material specified in this project.

B. Shop Drawings: Indicate -
   1. Thickness.
   2. Shape.
   3. Attachment details.
   4. Materials.
   5. Field verified dimensions for length of wall and corner guard.

C. Manufacturer's Installation Instructions.

D. Certification: Submit manufacturer certification indicating compliance with ADA requirements.

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING:

A. Deliver to project site in manufacturer original, un-opened containers and packaging with labels clearly indicating manufacturer and material.

B. Storage: Store materials indoors in a clear, dry area protected from damage and in accordance with manufacturer's instructions. Materials to be stored flat.

C. Protect materials against damage before and after installation.

PART 2 - PRODUCTS

2.1 MANUFACTURER: Corner guards and bumper guards specified herein are a product of Construction Specialties, Inc.

2.2 SURFACE MOUNTED CORNER GUARD:
1. Acceptable Manufacturer:
   a. Acrovyn
2. SM Series – SM 20N & SSM-25N – Refer to A-600's for colors and locations.
3. Engineered PETG corner guards to be Acrovyn 4000 with an impact resistance as tested per ASTM F476. Surface mounted cornerguard with 3" legs, ¼" radiused cover and recycled PETG retainer. Square nose profile.
4. Fasteners: All fasteners to be non-corrosive and compatible with aluminum retainers. All fasteners to be supplied by manufacturer.
5. Shadowgrain texture.

PART 3 - EXECUTION

3.1 INSPECTION:

A. Assure that wall surfaces scheduled to receive corner guards are smooth, flat to acceptable tolerances.

B. Prior to installation, clean substrate to remove dirt, debris and loose particles. Prepare surface as directed per manufacturer's instruction.

C. Do not install materials until conditions are acceptable.

D. Notify Architect in writing if wall surfaces are not acceptable.

3.2 INSTALLATION:

A. Install materials to wall securely in locations indicated on drawings and in accordance with manufacturer's written instructions. Refer to drawings AI-400's for heights and locations of materials.

B. Provide horizontal steel stud back-up in drywall stud cavity to accept fasteners.

C. Temperature at time of installation must be between 65 degrees – 75 degrees and be maintained for at least 48 hours after installation.

3.3 CLEANING:

A. Upon completion of installation, clean all surfaces to be free of dirt, soil, and any other foreign matter.

B. Remove debris not caused by other trades and legally dispose of away from site.

C. Protect installed materials to prevent damage by other trades. Use materials that may be easily removed without leaving residue permanent damage.

END OF SECTION

SECTION 10522 - FIRE EXTINGUISHERS, CABINETS AND ACCESSORIES

1.0 GENERAL

1.0 RELATED DOCUMENTS

A. The drawings, Instructions to Bidders, Form of Proposal, General Conditions, Supplementary General Conditions and Division 1 are included herein and govern work under this section.

1.1 DESCRIPTION OF WORK

A. Extent of fire extinguishers, cabinets and accessories is indicated on drawings.

B. Types of products required include:
1. Fire extinguishers
2. Mounting brackets

1.2 QUALITY ASSURANCE

A. Single Source Responsibility: Obtain products in this section from one manufacturer.

B. UL-Listed Products: Provide new portable fire extinguishers which are listed and bear UL "Listing Mark" for type, rating, and classification of extinguisher indicated.

C. FM Listed Products: Provide new portable fire extinguishers which are approved by Factory Mutual Research Corporation for type, rating, and classification of extinguisher indicated and carry appropriate FM marking.

1.3 SUBMITTALS

A. Product Data: Submit product data for each type of product included in this section. For fire extinguisher cabinets include roughing-in dimensions and details showing mounting methods, relationships of box and trim to surrounding construction, door hardware, cabinet type and materials, trim style and door construction and panel style and materials.

1.4 CLOSEOUT SUBMITTALS

A. Upon completion of the Work of this Section, Contractor shall submit to the Architect/Engineer all required closeout documents.

B. Contractor shall submit a marked-up set of drawings indicating any changes made during construction to the Architect/Engineer.

C. Upon completion submit to the Architect/Engineer a Contractor's Affidavit of Payment of Debts and Claims and Release of Liens.

D. Refer to General Conditions for additional requirements.

2.0 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Manufacturer: Subject to compliance with requirement, provide products of one of the following:
   1. J.L. Industries
   2. Larsen's Manufacturing Company

2.2 FIRE EXTINGUISHERS

A. General: Provide fire extinguishers for each extinguisher cabinet and other locations indicated, in colors and finishes selected by Architect from manufacturer's standard which comply with requirements of governing authorities.
   1. Fill and service extinguishers to comply with requirements of governing authorities and manufacturer's requirement.
   2. Abbreviations indicated below to identify extinguisher types related to UL classification and rating system and not, necessarily to type and amount of extinguishing material contained in extinguisher.

B. Multi-Purpose Dry Chemical Type: UL-rated 4-A:60-B:C, 10 lb. nominal capacity, in enameled steel container for Class A, Class B and Class C fires.

2.3 MOUNTING BRACKETS

A. Provide manufacturer's standard brackets designed to prevent accidental dislodgement of extinguisher of sizes required for type and capacity of extinguisher indicated in manufacturer's standard plated finish.
   1. Provide brackets for extinguishers not located in cabinets.
   2. B-2 wall bracket by Larsen's to be used as a standard.

2.4 FIRE EXTINGUISHER CABINETS

A. General: Provide fire extinguisher cabinets where indicated, of suitable size for housing fire extinguishers of types and capacities indicated.

B. Construction: Manufacturer's standard enameled steel box, with trim, frame, door and hardware to suit cabinet type, trim style and door style indicated. Weld all joints and grind smooth. Miter and weld perimeter door frames.

C. Cabinet Type: Suitable for mounting conditions indicated, of the following types:
   1. Semi-Recessed: Cabinet box (tub) fully recessed in walls of sufficient depth to suit style of trim indicated.
   2. Model 2409-R2-V-Duo in non-fire rated partitions

D. Trim Style: Fabricate trim in one piece with corners mitered, welded and ground smooth.

E. Exposed Trim: One-piece combination trim and perimeter door frame overlapping surrounding wall surface with exposed trim face and wall return at outer edge (backbend).
   1. Square-Edge Trim: Square edges with backbend depths as follows: 1/4" to 5/16".
   2. Trim Metal: Enameled steel.

F. Door Material and Construction: Manufacturer's standard door construction of material indicated, coordinated with cabinet types and trim styles selected.
   1. Enameled Steel: Manufacturer's standard finish, hollow steel door construction with tubular stiles and rails.

G. Door Style: Manufacturer's standard design as indicated below and on drawing.
   1. Vertical Duo Panel: DSA Glass with catch.

H. Door Hardware: Provide manufacturer's standard door operating hardware of proper type for cabinet type, trim style and door material and style indicated. Provide either level handle with cam action latch, or door pull, exposed or concealed and friction latch. Provide concealed or continuous type hinge permitting door to open 180 degrees.

I. Factory Finishing of Fire Extinguisher Cabinets
   1. General: Comply with NAAMM "Metal Finishes Manual" for finish designations and application recommendations except as otherwise indicated. Apply finishes in factory after products are assembled. Protect cabinets with plastic or paper covering, prior to shipment.
   2. Painted Finishes: Provide painted finish to comply with requirements indicated below for extent, preparation and type:
      a. Extent of Painted Finish: Apply painted finish to both concealed and exposed surfaces to cabinet components except where other than a painted finish is indicated.
      b. Color: Provide color as selected by Architect from Manufacturer's standard colors.
      c. Preparation: Clean surfaces of dirt, grease and loose rust or mill scale.
      d. Baked Enamel Finish: Immediately after cleaning and pretreatment, apply Cabinet Manufacturer's standard baked enamel finish system to the following surfaces:
         1) Interior of cabinet.
         2) Exterior of cabinet.

3.0 EXECUTION

3.1 INSTALLATION

A. Install items included in this section in locations and at mounting heights indicated, or if not indicated, at heights to comply with applicable regulations of governing authorities.
   1. Securely fasten mounting brackets and fire extinguisher cabinets to structure, square and plumb, to comply with manufacturer's instructions.
   2. Install fire extinguishers 3'-6" from finish floor to top of extinguisher.

3.2 IDENTIFICATION

A. Identify bracket-mounted extinguishers with red letter decals spelling "FIRE EXTINGUISHER" applied to wall surface. Letter size, style and location as selected by Architect.

END OF SECTION

SECTION 10540 - SPECIALTY SIGNS

1.0 GENERAL

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

1.1 DESCRIPTION OF WORK

A. Extent of specialty signs is shown on drawings or as provided by Owner.
   1. Furnish all material and labor necessary to fabricate and install signage.

B. Specialty signs include the following:
   1. Room identification system.
   2. All necessary signage to receive Certificate of Occupancy.
   3. At each toilet provide a “Male” or “Female” sign in pictorial diagram of the sex.

C. Exterior Building Sign

D. Free Standing Sign

1.2 SUBMITTALS

A. Product Data: Submit manufacturer’s technical data and installation instructions for each type of sign required.

B. Submit signage schedule in manufacturer’s format for verification of text/copy.

C. Samples: Submit samples of each color and finish of exposed materials and accessories required for specialty signs. Architect’s review of samples will be for color and texture only. When requested, furnish full-size samples of specialty sign materials.

D. Shop Drawings: Submit shop drawings for fabrication and erection of specialty signs. Include plans, elevations and large scale details of sign wording and lettering layout. Show anchorages and accessory items. Furnish location template drawings for items supported or anchored to permanent construction.

1.3 QUALIFICATIONS

A. Manufacturer specializing in fabricating the products specified with a minimum of 5 years experience. Obtain signs from one source and a single manufacturer.

2.0 PRODUCTS

2.1 IDENTIFICATION SYSTEMS

A. Manufacturer: Provide interior signs as manufactured by one of the following:
   1. Architectural Graphics
   2. ASI SIGNAGE
   2. Take Form

3. Mid-Michigan Stamps and Signs, Inc.
4. OTHER, IF APPROVED BY ARCHITECT PRIOR TO DESIGN, ORDER, INSTALL, MANUFACTURE.

2.2 SIGN STANDARDS

***ALL SIGNAGE IS TO BE SUBMITTED TO ARCHITECT IN SIGNAGE SUBMITTAL. REVIEW AND APPROVAL OF ARCHITECT AND CLIENT ARE NEEDED PRIOR TO MANUFACTURE AND INSTALL.*

A Type Style: As selected by Owner. Copy shall be true, clean, accurate reproduction of typeface(s). Upper and lower case as indicated by Owner. Letter spacing to be normal and interline spacing shall be set by manufacturer.

B. Arrows, symbols and logo art: To be provided as in style, sizes colors, and spacing as requested by Owner and/or shown on drawings.

C. Braille: Grade II perfectly round, clear Braille beads. Tactile requirements in adherence to ADA Specifications.

D. Color and Finishes:
1. Submit complete color samples to Architect for approval
2. Finishes to meet current federal ADA and state requirements.

E. Room Identification: Surface mount signs of type indicated, adjacent to doors on latch side.

F. Plastic Sign Plates: Plastic signs consist of 1/16" matte acrylic that is engraved through the exposed ply of the plastic laminate sheet to expose the contrasting core ply laminated to a base of 1/8" opaque acrylic.

G. Mounting of Signs: per manufacturer's installation instructions. Installation locations shall be in accordance with ADA specifications.

H. Room numbering to be coordinated between signage provider and owner.

I. All signs, including work station and room ID's shall have a matching appearance and constructed utilizing the same manufacturing process to assure a consistent look throughout.

2.3 Building Sign

A. Equal to ASI Sign Systems, individual 12" high capital letters with corresponding lower case, typeset as indicated on drawings.

B. Letters to be mounted to building with 6" standoffs.

C. Logo is 5'6" in diameter, image to be furnished by Owner.

D. Letters and Logo to be backlit with LED. Provide separate circuit and time switch. Coordinate voltage and power connection locations with electrician.

2.5 Free Standing Sign

A. Refer to Bidding Documents for Allowance.

3.0 EXECUTION

3.1 INSTALLATION

A. Installer shall examine signs with Contractor for defects, damage and compliance with specifications. Installation shall not proceed until unsatisfactory conditions are corrected.

B. Install sign units and components at locations shown securely mounted with concealed theft-resistant fasteners, unless otherwise indicated. Attach signs to substrates in accordance with manufacturer's instructions.

C. Install level, plumb, and at proper height. Cooperate with other trades for installation of sign units to finish surfaces. Repair or replace damaged units as directed by Architect.

D. Installation locations shall be in accordance with ADA specifications.

E. Location of Signs
1. All Doors and Rooms - Names to be provided by Owner
All information is to be put in to a finalized submittal package for final approval.

F. The design of the free-standing sign including the foundation shall be by the sign contractor.

G. The design of the stand-off system for the building mounted sign shall be by the sign contractor.

H. Permits for exterior signs shall be secured by the sign contractor.

3.3 DELIVERY AND STORAGE

A. Package and prevent damage or deterioration during shipment, handling, storage and installation. Products should remain in original packaging until removal is necessary.

3.4 WARRANTY

A. Provide manufacturer's warranty against defect in materials or workmanship for a minimum of one (1) year.

END OF SECTION

SECTION 10540 - SPECIALTY SIGNS

1.0 GENERAL

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

1.1 DESCRIPTION OF WORK

A. Extent of specialty signs is shown on drawings or as provided by Owner.
   1. Furnish all material and labor necessary to fabricate and install signage.

B. Specialty signs include the following:
   1. Room identification system.
   2. All necessary signage to receive Certificate of Occupancy.

1.2 SUBMITTALS

A. Product Data: Submit manufacturer's technical data and installation instructions for each type of sign required.

B. Submit signage schedule in manufacturer's format for verification of text/copy.

C. Samples: Submit samples of each color and finish of exposed materials and accessories required for specialty signs. Architect's review of samples will be for color and texture only. When requested, furnish full-size samples of specialty sign materials.

D. Shop Drawings: Submit shop drawings for fabrication and erection of specialty signs. Include plans, elevations and large scale details of sign wording and lettering layout. Show anchorages and accessory items. Furnish location template drawings for items supported or anchored to permanent construction.

1.3 QUALIFICATIONS

A. Manufacturer specializing in fabricating the products specified with a minimum of 5 years experience. Obtain signs from one source and a single manufacturer.

2.0 PRODUCTS

2.1 IDENTIFICATION SYSTEMS

A. Manufacturer: Provide interior signs as manufactured by one of the following:
   1. Architectural Graphics
   2. Lynn Sign Co.
   3. Mid-Michigan Stamps and Signs, Inc.
   4. Adapt Take Form Graphics

2.2 SIGN STANDARDS

A Type Style: As selected by Owner. Copy shall be true, clean, accurate reproduction of

typeface(s). Upper and lower case as indicated by Owner. Letter spacing to be normal and interline spacing shall be set by manufacturer.

B. Arrows, symbols and logo art: To be provided as in style, sizes colors and spacing as requested by Owner and/or shown on drawings.

C. Braille: Grade II perfectly round, clear Braille beads. Tactile requirements in adherence to ADA Specifications.

D. Color and Finishes:
1. Submit complete color samples to Architect for approval
2. Finishes to meet current federal ADA and state requirements.

E. Room Identification: Surface mount signs of type indicated, adjacent to doors on latch side.

F. Plastic Sign Plates: Plastic signs consist of 1/16" matte acrylic that is engraved through the exposed ply of the plastic laminate sheet to expose the contrasting core ply laminated to a base of 1/8" opaque acrylic.

G. Mounting of Signs: per manufacturer's installation instructions. Installation locations shall be in accordance with ADA specifications.

H. Room numbering to be coordinated between signage provider and owner.

I. All signs, including work station and room ID's shall have a matching appearance and constructed utilizing the same manufacturing process to assure a consistent look throughout.

J. Types of signs:
1. At toilet rooms provide a male and female pictogram together with words "Male", "Female" and associated braille.
2. At elevator, provide safety sign: "IN FIRE EMERGENCY, DO NOT USE ELEVATOR. USE EXIT STAIRS." Sign shall be 6" x 6" mounted 60" aff.
3. General Room Identification Signs: 1"H character, 3" x 10" sign mounted 60" aff. Room names and numbers provided by Owner.
4. Floor Level Identification: 1 ½"H character, 4" x 4" sign mounted 60" aff. Mount in each stairway at each level.
5. Exit Signs: 1"H character, 2" x 5" sign mounted 60" aff.
6. No Smoking. Signs shall be located at exterior doors.
7. Stair Sign: Stairs: In each stair provide a floor number at each floor entry door. At each floor door to stair, provide a "Stair" sign that includes a pictorial diagram of the stair. 1"H character with stair pictogram, 2" x 7" sign mounted 60" aff

3.0 EXECUTION

3.1 INSTALLATION

A. Installer shall examine signs with Contractor for defects, damage and compliance with specifications. Installation shall not proceed until unsatisfactory conditions are corrected.

B. Install sign units and components at locations shown securely mounted with concealed theft-resistant fasteners, unless otherwise indicated. Attach signs to substrates in accordance with manufacturer's instructions.

C. Install level, plumb, and at proper height. Cooperate with other trades for installation of sign units to finish surfaces. Repair or replace damaged units as directed by Architect.

D. Installation locations shall be in accordance with ADA specifications.

E. Location of Signs
   1. All Doors and Rooms - Names to be provided by Owner.

3.3 DELIVERY AND STORAGE

A. Package and prevent damage or deterioration during shipment, handling, storage and installation. Products should remain in original packaging until removal is necessary.

3.4 WARRANTY

A. Provide manufacturer's warranty against defect in materials or workmanship for a minimum of one (1) year.

END OF SECTION

SECTION 10570 – WARDROBE AND CLOSET SPECIALTIES

1.0 GENERAL

The drawings, Instructions to Bidders, Form of Proposal, General Conditions, Supplementary General Conditions and Division 1 are included herein and govern work under this section.

1.1 DESCRIPTION OF WORK

A. Extent of each type of furnishing accessory is shown on drawings and schedules.

B. Types of accessories required included the following:
   1. Mop and broom racks
   2. Coat rod and shelf in all coat closet locations.

1.2 QUALITY ASSURANCE

A. Coordination: Coordinate accessory locations with other work to avoid interference and to assure proper operation and servicing of accessory units.

B. Uniformity: Provide products of same manufacturer for each type of accessory unit and for units exposed in same areas, unless otherwise acceptable to Architect.

1.3 SUBMITTALS

A. Product Data: Submit manufacturer's technical data for accessories. Include installation instructions for accessories which are built in or connected to other work.

B. Setting Drawings: Provide setting drawings, templates, and instructions for installation of anchorage devices in other work.

2.0 PRODUCTS

A. Provide the following at Janitor's Closet:
   1. Stainless Steel Shelving/Mop Holder: Provide janitorial utility shelf with hooks, mop holders, and drying rod at Janitor's Closets as shown on drawings. Provide No. 998 as manufactured by Bradley Corporation or equal product of Bobrick Washroom Equipment, Inc., or American Dispenser Co.

3.0 EXECUTION

3.1 INSTALLATION

A. Surface-Mounted and Recessed Accessory Units: Install accessory units in accordance with manufacturer's instructions using fasteners which are appropriate to substrate and recommended by manufacturer of unit. Install units plumb and level, firmly anchored in locations indicated.

B. Freestanding Accessory Units: Install freestanding accessory units in scheduled locations after finishes have been completed and prior to final acceptance in each area.

3.2 ADJUST AND CLEAN

A. Adjust necessary items for proper operation and verify that all components are in place and functioning smoothly. Clean and polish exposed surfaces using materials and methods recommended by manufacturer of accessory item.

END OF SECTION

SECTION 10650 OPERABLE_PARTITIONS

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 section.

1.2 SUMMARY:

A. Extent of operable partitions is indicated on drawings and in provisions of this section.

B. This Section Includes the Following:
1. Electrically operated, acoustically rated operable folding panel wall.

1.3 RELATED SECTIONS:

A. Structural Steel as specified on Structural Drawings.

B. Gypsum Board as specified in Division 9.

C. Acoustical Ceiling System as specified in Division 9.

D. Electrical as specified on Electrical Drawings.

1.4 SUBMITTALS:

A. Product data on physical characteristics, durability, resistance to fading and flame spread characteristics for each type of folding partition and accessory specified.

B. Shop drawings showing location and extent of folding partitions. Include plans, elevations, large-scale details of anchorage's, and accessory items. Indicate unit conditions at openings, typical and special details and location and installation requirements for hardware and operators. Indicate direction of travel and static and dynamic loading on the building structure.

C. Template drawings prepared by manufacturer showing location of items supported or anchored by permanent construction.

D. Wiring diagrams that detail power and control wiring. Differentiate between manufacturer-installed and field-installed wiring. Include motor size and voltage.

E. Samples for initial selection purposes in form of manufacturer's standard color charts showing full range of colors, textures and patterns available for each type of material exposed to view.

F. Samples for verification purposes of each type of material exposed to view. Include samples of each panel facing material selected.

G. Product certificates signed by manufacturers of folding partitions certifying that their products comply with specified requirements.

H. Acoustical certification from an independent testing agency stating that product and materials furnished comply with specified requirements. Include certified laboratory testing data indicating that panels and materials meet specified test requirements. Include STC Ratings and square foot weight of panel.

1.5 SYSTEM PERFORMANCE REQUIREMENTS:

A. Fire Performance Characteristics: Provide folding partitions with surface burning characteristics specified, as determined by testing assembled materials composed of surface coverings, backings, and other construction identical to those required in this section, per ASTM E-84, by a testing organization acceptable to authorities having jurisdiction.

B. Acoustical Performance: Provide folding partitions tested by independent testing laboratory acceptable to authorities having jurisdiction for the following acoustic properties according to the test method indicated:
1. Sound transmission requirements: Folding partition assembly tested in a full-scale opening (14 feet by 9 feet) for laboratory sound transmission loss performance in accordance with ASTM E-90, determined by ASTM E-413 and rated for a STC plus or minus 1 as indicated:
a. Sound transmission class (STC): As specified.

1.6 QUALITY ASSURANCE:

A. Single-Source Responsibility: Obtain folding partitions and mounting hardware from one source from a single manufacturer.

B. Testing Laboratory Qualifications: To qualify for acceptance, an independent testing laboratory must demonstrate to Architect's satisfaction, based on evaluation of laboratory-submitted criteria conforming to ASTM E-699, that is has the experience and capability to conduct satisfactorily the testing indicated.

1.7 DELIVERY, STORAGE AND HANDLING:

A. Deliver materials to project site in original factory wrappings and containers, clearly labeled with identification of manufacturer, brand name, quality or grade, fire performance characteristics, and lot number.

B. Store materials as recommended by folding partition manufacturer in original undamaged packages and containers, inside well-ventilated area protected from weather, moisture, soiling, extreme temperatures and humidity.

C. Comply with instructions and recommendations of manufacturer for special delivery, storage, and handling requirements.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Operable partitions specified herein are products of Modernfold, Inc. Products of the following manufacturers, subject to compliance with requirements, will be acceptable:
   1. Advanced Equipment Corp.
   2. Foldoor/Holcomb & Hoke Mfg. Co. Inc.
   3. Hufcor, Inc.
   4. KWIK-WALL Company
   5. Modernfold, Inc.
   6. Panelfold, Inc.

2.2 OPERABLE PARTITION SYSTEM - ELECTRICALLY OPERATED
Modernfold Acousti-Seal Model No. 933EG Steel Operable Wall, Continuously Hinged Panels.

A. Operation:
   1. Operable wall shall be a series of continuously hinged flat steel panels, electrically operated, top supported with operable floor seals.
   2. Partition shall be operated by two (2) control stations wired in series and located on opposite sides of the partition. The drive unit motor shall be equipped with limit switches to prevent over-extension and shall have an adjustable clutch type overload device. A positive chain drive attached to the lead panel shall pull the partition across the opening.
      a. Post a sign at each control station to give notice regarding safe and proper operation and supervision of the electrical controls and partition/door pathway. The signs shall read as follows:

CAUTION
ELECTRICALLY-POWERED PARTITION

Only Appropriately Trained Staff may operate this partition.
Control stations must be attended by staff members while the partition is in motion.
Staff members must stand on opposite sides of the opening or closing partition.
Students must stay away from the partition when in motion.

   3. Electric operator shall consist of a 60 hertz, 120 volt motor, HP determined by panel manufacturer for project condition. Motor shall be located above the stack area off center to the side track run.
      a. The Operable Partition Contractor shall confirm these current characteristics prior to fabrication of partition.
   4. Operable partition system shall be fitted with an infra-red safety system to stop partition movement if people or objects are in the path of the partition when it is being operated or in the pocket or stack area when panels are being stacked.

B. Panel Construction:
   1. Panels shall be nominal 3.25” thick in manufacturer’s standard width 48” maximum. All panel horizontal and vertical framing elements shall be formed steel.
   2. Panel skin shall be minimum 21 ga. roll-formed steel wrapping around the panel edge. Panel skins shall be lockformed and welded directly to the frame for unitized construction.
   3. Panels hinges shall be full leaf butt hinges, attached directly to panel frame. Welded hinge anchor plates within panel shall further support hinge mounting to frame. Hinges must not anchor into panel edge or vertical astragal.

4. Panels shall not require trim on the vertical edges and shall create a minimal groove at panel-to-panel joints.
5. Panel weight: 7.0 lbs. per sq. ft.
6. Pass door: Pass door shall be of the same construction and thickness as the panels. Doors shall be equipped with friction latch and flush pulls for panic operation. Trim shall be dark bronze finish. No threshold shall be required and door shall be equipped with fixed extruded vinyl floor seals.

C. Panel Finish:
1. Reinforced vinyl with woven backing weighing not less than 15 ounces per lineal yard and shall conform to F.S. CCC-W-408A for Type II Material.
2. Material rating: Class "A".
3. Surface burning characteristics (tested in accordance with ASTM E-84): Flame spread 10, Smoke developed 10
4. Color: As selected from manufacturer's standard colors.

D. Sound Seals:
1. Vertical interlocking sound seals between panels (astragals) of a reversible tongue and groove configuration shall be required in each panel edge, permitting universal panel operation. Astragals shall be steel for maximum durability and fire resistance.
2. Horizontal top seals shall be continuous contact extruded vinyl bulb shape with pairs of non-contacting vinyl fingers to prevent distortion and no mechanically operated parts.
   a. Color: Dark bronze.
3. Horizontal bottom floor seals shall be automatic operable seals providing nominal 1.50” operating clearance with an operating range of +0.50” to –1.00” and shall automatically drop as panels are positioned. Exposed seal channel shall be dark bronze finish.

E. Sound Transmission Class:
1. Conform to ASTM E-90.
2. Rating: STC 52.

F. Suspension System:
1. Heavy duty steel or extruded aluminum track connected to structural support with adjustable steel hanger rods provided by partition manufacturer. Each panel shall be supported by a heavy-duty, ball-bearing trolley assembly designed for panel size and weight.

PART 3 - EXECUTION

3.1 INSPECTION:

A. Check that floors, structure and other conditions affecting proper installation of folding partitions are satisfactory and within allowable tolerances.

B. Do not begin work until conditions conform to folding partition manufacturer's requirements.

3.2 INSTALLATION:

A. Install operable partitions in accordance with manufacturer's instructions.

B. Include installation of hardware and operating mechanism along with all accessories and appurtenances required for complete installation ready for use by Owner.

C. Upon completion of installation, panels when extended (closed) to full, flat position, shall provide a straight line configuration without warp, wrinkles, rips, tears, abrasions or visible splicing seams, and provide STC Rating specified.

3.3 INSTRUCTION:

A. When directed by Owner, through Architect, a representative of partition manufacturer shall demonstrate to Owner and/or Owner's authorized representative, proper manner of operation and care of operable partition.

3.4 ADJUST AND CLEAN:

A. Adjust operable partitions and hardware for smooth operation without binding.

B. Test safety system to ensure proper operation.

C. Clean soiled areas of operable partitions.

D. Remove debris not caused by other trades and legally dispose of away from project site.

END OF SECTION

SECTION 10280 - TOILET ACCESSORIES

1.0 GENERAL

A. The drawings, Instructions to Bidders, Form of Proposal, General Conditions, Supplementary General Conditions and Division 1 are included herein and govern work under this section.

1.1 DESCRIPTION OF WORK

A. Extent of each type of toilet accessory is shown on drawings.

B. Types of toilet accessories required include but are not necessarily limited to the following:
1. Toilet Tissue Dispensers
2. Grab Bars
3. Mirrors
4. Warm Air Hand Dryers
5. Coat Hook
6. Automatic Soap Dispensers
7. Automated Touchless Paper Dispenser
8. Feminine Sanitary Waste Receptacle
9. Recessed Waste Receptacle
10. Other as specified on (A-400s)

Note: all items listed on architectural drawings, to be provided and installed by contractor.

1.2 QUALITY ASSURANCE

A. Inserts and Anchorage: Furnish inserts and anchoring devices which must be set in concrete or built into masonry; coordinate delivery with other work to avoid delay.

B. Accessory Locations: Coordinate accessory locations with other work to avoid interference and to assure proper operation and servicing of accessory units.

C. Products: Provide products of same manufacturer for each type of accessory unit and for units exposed in same areas, unless otherwise acceptable to Architect.

D. Manufacturer: Provide toilet accessories as manufactured by one of the following:
1. American Specialties, Inc.
2. Bobrick Washroom Equipment, Inc. (Use as a standard)
3. Tork
4. Bradley Corp.
5. Dolphin Prestige

1.3 SUBMITTALS

A. Product Data: Submit manufacturer's technical data and installation instructions for each toilet accessory.

B. Shop Drawings: Furnish for Architect's approval in accordance with Division 1, copies each of brochures, schedules and other pertinent information relative to toilet room accessories and

building accessories.

C. Maintenance Manual: Furnish a schedule of all toilet room accessories, indicating the model, finish, manufacturer and location installed, together with descriptive brochures of all installed equipment specified herein. This information shall be included in the maintenance manual specified in Division 1.

D. Setting Drawings: Provide setting drawings, templates, instructions, and directions for installation of anchorage devices in other work.

E. Samples: Submit samples of each component illustrating color and finish.

2.0 PRODUCTS

A. See A-400s for all products & finishes. All products to be installed to ADA Standards of heights and depths.

2.1 TOILET TISSUE DISPENSERS

A. Provide one (1) surface mounted toilet tissue dispenser at each water closet. Units shall be as follows:
1. Manufactured by: Bobrick Washroom Equipment– See A-400's for exact product

2.2 GRAB BARS

A. Grab bars at toilets shall be of configuration as indicated, as manufactured by Bobrick Washroom Equipment Inc., Model No. B-6806 or approved equal.

B. Grab bars shall be constructed of type 304 stainless steel and shall have a minimum wall thickness of 18 gauge. Exposed surfaces shall have a satin finish. Diameter (O.D.) shall be 1-1/2". Provide 11 gauge stainless steel flanges and 13 gauge stainless steel mounting plate.

C. Grab bars shall be mounted at heights and in locations indicated on drawings.

D. Provide all required anchoring devices to properly mount grab bars in a secure manner so as to adequately support the load to be imposed.

E. Grab bars shall meet all applicable provision of ANSI 117.1 1980.

2.3 MIRRORS

A. Mirrors shall be no. 1 quality 1/4" polished plate glass, triple silvered electro-copper plated, baked enamel backing. Frameless mirrors and mounting clips shall be installed with 3M #959 industrial mirror adhesive. (Typical) (See elevations for locations and installation)

2.4 WARM AIR HAND DRYERS

A. Hand dryer shall be Dyson Airblade V, surface mounted. Provide one (2) at each toilet room unless otherwise specified. (See elevation for locations and height)

2.5 COAT HOOKS

A. Provide one (1) coat hook at each water closet. Units shall be as follows:
   1. Manufactured by: Bobrick Washroom Equipment – See A-400's for exact product

2.6 AUTOMATIC SOAP DISPENSERS

A. Provide surface mounted soap dispensers where indicated on drawings. Refer to A-400's for all locations. Units should be as follows:
   1. Manufactured by: Tork – See A-400's for exact product

B. Automatic soap dispensing system to dispense anti-bacterial foam soap.

2.7 AUTOMATED TOUCHLESS PAPER TOWEL DISPENSER

A. Provide surface mounted automatic touchless paper towel dispensers where indicated on drawings. See A-400's Units should be as follows:
   1. Manufactured by: Tork – See A-400's for exact product

2.8 FEMININE NAPKIN WASTE RECEPTACLES

A. Provide one at each Women's water closet where indicated on drawings. See A-400's. Units should be as follows:
   1. Manufactured by: Bobrick Washroom Equipment – See A-400's for exact product

B. Units shall be surface mounted, constructed of type 304, 22 gauge stainless steel alloy with satin finish and shall be attached to the cabinet at back with a concealed full width 9/64" diameter heavy duty stainless steel multi-staked piano hinges. Structural assembly of body to be of welded construction.

2.9 RECESSED REMOVABLE WASTE RECEPTACLE

A. Recessed waste receptacles shall be Bobrick Washroom Equipment, Inc. model #B-43644 or approved equal. Provide one at each toilet room. See A-400's for exact locations.

B. Waste receptacle shall be fabricated of 20 gauge type 304 stainless steel alloy. Frame and cabinet shall be 22 gauge type 304 stainless steel alloy. All exposed surfaces shall have satin finish. Waste receptacle with internal bag-hanger hooks shall have a fully hemmed top edge for safety and a rear handle for service ease and is retained by a tumbler lock keyed alike to other ASI washroom equipment. Structural assembly of body and door components shall be of welded construction. Capacity: 11.2 gal.

C. Unit shall meet ANSI 117.1 1980 requirements for use by person in a wheelchair.

3.0 EXECUTION

3.1 INSPECTION

Installer must examine substrates, previously installed inserts and anchorages necessary for mounting of toilet accessories, and other conditions under which installation is to occur, and must notify Contractor in writing of condition detrimental to proper and timely completion of work. Do not

proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

3.2 INSTALLATION

Install toilet accessory units in accordance with manufacturer's instructions, using fasteners which are appropriate to substrate and recommended by manufacturer of unit. Install units plumb and level, firmly anchored in locations indicated.

3.3 ADJUST AND CLEAN

A. Adjust toilet accessories for proper operation and verify that mechanisms function smoothly.

B. Clean and polish all exposed surfaces after removing protective coatings.

END OF SECTION

SECTION 11457 –TELEVISION MOUNTS

1.0 GENERAL:

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

1.1 SUMMARY:

A. Locations of television mounts are indicated on drawings and in provisions of this section.

1.2 QUALITY ASSURANCE:

A. All television mounts covered by this specification shall establish minimum standards for materials, hardware, finish, construction, design, function, and workmanship.

B. Manufacturer's Qualifications:
1. Regularly engaged in design and fabrication of types of products specified.

C. Installer Qualifications:
1. Skilled mechanics, experienced in type of work encountered.
2. Acceptable to and approved by product manufacturer.

1.3 SUBMITTALS:

A. Samples:
1. Submit manufacturer’s specification information for architect’s approval with style, color and installation procedures.

B. Shop Drawings:
1. Indicate location of television mounts.
2. Detail and dimension requirements for monitor mount.

C. Manufacturer's Descriptive Literature:
1. Product descriptions, physical characteristics, and other pertinent information.
2. Maintenance instructions and/or recommendations.

D. Certification:
1. Manufacturer's written certification that materials, components and product fabrication conform to specification requirements.

1.4 PRODUCT DELIVERY, STORAGE AND HANDLING:

A. Protect materials against damage in delivery.

B. Store materials so as to provide protection against damage by project construction operations.

C. Remove defaced and/or damaged materials from project site and replace with new materials.

1.5 WARRANTY:

A. Provide Owner with written warranty against defects and materials and workmanship for a period of:
   1. One (1) year.

B. Warranty shall extend from date of issuance of certificate of substantial completion.

C. Promptly repair or replace any defective material or faulty workmanship that becomes apparent within period of warranty.

D. Owner to have continued use of defective materials until repair or replacement is completed.

PART 2 - PRODUCTS

2.1 MANUFACTURER:

A. Monitor ceiling mounts specified herein are a product of Da-Lite Company. Products of the following manufacturers, subject to compliance with requirements, will be acceptable:
   1. Bretford Company.
   2. Peerless Industries
   3. Or equal quality.

2.2 MATERIALS:

A. General:
   1. All materials used in fabrication of equipment shall be of best quality, especially selected for and adaptable to primary purpose for which it is intended.

2.3 MONITOR MOUNT:

A. Types and Accessories:
   1. Wall television mount
      a. Size: To accommodate a 60” flat screen TV.
   2. Height and weight adjustable to fit snugly around television cabinet.
   3. 360 degree swivel with locking adjustment and 0-30 degree forward tilt.
   4. Mounting pipes and hardware as required per installation.
   5. Quick connect installation.
   6. Top and front rollout protection.
   7. UL approved for wall mount attachment.

PART 3 - EXECUTION

3.1 INSPECTION:

A. Examine all materials for defects.

B. Check dimensions to assure ceiling mount can be correctly installed.

C. Do not install mounts until defects have been corrected.

3.2 INSTALLATION:

A. Install monitor mounts in strict accordance with manufacturer's instructions.

B. Furnish all necessary fastenings and anchors required to complete work.

C. Upon Completion of Installation:
1. Inspect monitor mounts for defects and/or damage. Repair and/or replace as directed by Architect.
2. Adjust monitor for optimum performance and operation.
3. Clean all surface. Leave ready for use by Owner.

3.3 CLEANING:

A. Upon completion of installation, remove all debris caused by execution of work and legally dispose of away from site.

END OF SECTION

SECTION 12400 - LAMINATE CASEWORK

1.0 GENERAL

1.1 RELATED DOCUMENTS

A. The drawings, Instructions to Bidders, Form of Proposal, General Conditions, Supplementary General Conditions and Division 1 are included herein and govern work under this section.

1.2 SUMMARY

A. Extent of plastic laminate casework is indicated on drawings and in provisions of the section.

B. Work Included
   1. Furnish, deliver and install to owner and architects satisfaction, all custom prefabricated plastic laminate casework as shown on drawings.
   2. Furnish and install all fillers, scribes, finished ends, finished backs, work surfaces/backsplashes, and cutouts required to provide a complete and finished project. Plastic laminate work surfaces shall include backer sheet.
   3. Provide locks on doors specified.
   4. Provide PVC edge banding on all built cabinets.

C. Provide plastic laminate tops and wall mounted shelving.
   1. Cut openings in counter top for sinks where indicated in drawings from templates provided by plumbing contractor.

1.3 RELATED WORK NOT INCLUDED

A. All sinks and fittings, couplings and connectors, piping, traps, supplies and shutoffs.

B. Stainless steel sinks and fixtures.

C. Millwork.

D. Rubber Base.

1.4 RELATED WORK

A. Finish Carpentry as specified in Division 6.

B. Resilient Flooring as specified in Division 9.

C. Mechanical as specified on drawings.

D. Plumbing as specified in on drawings.

E. Electrical as specified on drawings.

1.5 QUALITY ASSURANCE

A. All plastic laminate casework covered by this specification shall establish minimum standards for materials, hardware, finish, construction, design, function and workmanship.

B. Manufacturer's Qualifications:
   1. Actively engaged in design and fabrication of types of equipment.
   2. Producers of equipment shall comply with all governing codes, rules and regulations.

C. Installer's Qualifications:
   1. Experienced personnel, actively engaged in type of work encountered.
   2. Familiar with installation and all governing codes, rules and regulations.
   3. Acceptable to and approved by product manufacturer.

1.6 SUBMITTALS

Shop drawings shall be submitted for approval within thirty (30) days after formal notification of award of contract.

A. Samples:
   1. Submit representative samples of material to be used, including hardware.
   2. Submit specified colors of plastic laminate samples for Architect's approval.

B. Shop Drawings:
   1. Location, size, type and arrangement of components in unit.
   2. Relation to supporting and adjacent work.
   3. Complete elevations of casework.
   4. Types of materials used for fabrication.
   5. Size, thickness, gauges of materials.
   6. Types of finish for various components.
   7. Mechanical and/or electrical services required.
   8. Anchors, fasteners, etc.

1.7 CLOSEOUT SUBMITTALS

A. Upon completion of the Work of this Section, Contractor shall submit to the Architect/Engineer, all required closeout documents.

B. Contractor shall submit a marked-up set of drawings indicating any changes made during construction to the Architect/Engineer.

C. Upon completion, submit to the Architect, a Contractor's Affidavit of Payment of Debts and Claims, and Release of Liens.

D. Refer to General Conditions for additional requirement.

1.8 COLOR SELECTION

A. Color shall be chosen from manufacturers standard patterns as described in color selector. A minimum of thirty-five (35) colors and patterns shall be available as standard selections.

B. Exposed cabinet body edges and door/drawer front horizontal edges shall be color matched with

cabinet sides. Color matched edgings shall be available in all standard color selections.

C. Casework of substitute brands with lesser amounts or more restrictive selection requirements will not be considered equal and shall be rejected.

1.9 PRODUCT DELIVERY/STORAGE AND INSTALLATION

A. Protect cabinets and countertops during transit, delivery, storage and handling to prevent damage, soiling and deterioration.

B. Deliver equipment to project site with each package, box, crate, carton or other container marked on outside indicating it contents.

C. Store cabinets and countertops at project site in installation and storage areas with similar ambient conditions as final installation, storage areas must be kept dry, heated with low relative humidity, and away from construction work as painting, wet work, grinding and similar operations.

D. Installation shall be done in a craftsman like manner. Casework shall be installed, securely attached to building structure with anchorage devices of appropriate type, size and quantity to meet prevailing codes, specifications and safety conditions.

E. Inspect and properly adjust all casework and related hardware. Repair damages, remove and dispose of all packing materials, debris, and dirt resulting from casework installation leaving area broom clean.

F. Worksurface, cutouts, and joint edges shall be sealed during installation, with a water resistant sealer or adhesive.

G. Remove damaged and/or defaced materials from project site. Replace with new material.

1.10 COORDINATION

A. Coordinate installation requirements with work of other trades.

1.11 WARRANTY

A. Casework manufacturer warrants for a period of three (3) years the product manufactured by it to be free from defects in material and workmanship when properly installed under normal use.

2.0 PRODUCTS

2.1 CORE MATERIAL

A. Cabinet components having particleboard core materials shall be minimum 45 lb. density industrial grade. The particleboard used shall have been tested under ANSI A 208.1 and or ASTMD-1037-87A standards. Marine grade plywood to be used as all counter materials for wet areas.

B. Medium density fiberboard (MDF) used in high stress areas as drawer members and hanging frame rails shall be minimum 48 lb. density and shall have been tested under ANSI A 208.2

standards.

2.2 SURFACE MATERIALS

A. Exposed exterior cabinet components, door/drawer fronts, and interior surface solid colors shall meet or exceed .040thick high pressure laminate NEMA LD 3 - 1985 GP - 20 and ALA 1985 specification standards. Surfaces shall be permanently thermofused plastic laminate, fused to core using a minimum average high pressure of 360 PSI and average 300F temperature. Interiors shall be white or color laminate as specified by architect.
**Refer to drawings A-500's for exact finishes.*

B. Door and drawer fronts shall be surfaced with vertical grade post-forming .040 thick plastic laminate meeting NEMA Test LD3 - 1985. Door shall have laminate post formed around radius shaped vertical edge. Shape shall have minimum radius of 8 MM and shall be continuous without edge corner joints or lines showing from front face. File drawers to have heavy duty sliders and built in metal file holder brackets.

C. Unexposed cabinet ends shall have balanced construction with thermofused melamine plastic laminate surfaces. Interior backs shall be laminated with plastic laminate specified by architect.

2.3 HARDWARE

A. Hinges shall be fully concealed from view when door is in closed position and permit 176 degree door swing. Hinge crank shall be heavy duty steel with a concealed integral self-closing spring mechanism and hinge boss shall be heavy duty diecast steel. Nylon expansion inserts shall be provided in door for positive screw attachment. Hinge attachment to sides shall employ special 5 mm thread fasteners for maximum strength. Hinges shall incorporate mounting features providing three dimensional adjustment and have life-time guarantee as warranted by the manufacturer. Doors less than 48" in height shall have two (2) hinges per door, doors, 40" to 63" in height shall have three (3) hinges per door and all doors over 63" in height shall have four (4) hinges per door. Concealed hinges to equal:
1. Knape & Vogt #2661FNP170 full overlay **or** #2661HNP170 half overlay.

B. Pulls: See A-500's for exact manufacturer, style, and finish

C. Hanger rods shall be heavy duty plated tubing. Rod shall be securely affixed to cabinet shelves or cabinet sides. Cabinet/closet shelf to be plastic laminated ply (typical). Exact laminates specified in drawings AI-500's/A-600's.

D. Drawers and slide out shelves shall be suspended on nylon roller, white epoxy coated steel slides to insure quiet, smooth operation. Slides shall have 100 lb. load rating with built in drawer stop and self close feature in the last 1" of travel, and includes a closed side to side alignment.

E. File drawers shall be side mounted, full extension steel slides. File drawers shall have an interior screw mounted metal bottom track and an adjustable metal file follower.

F. Locks shall be cylinder type, die-cast, with five (5) disc tumbler mechanism. Each lock shall be provided with a milled brass key. Master keying shall be available.

G. Locks shall be provided where shown on equipment drawings or cabinet descriptions. Provide

locks on all doors.

2.4 ADJUSTABLE SHELF SUPPORT SYSTEM

A. Shelf support clips for adjustable shelves 3/4" and 1" thick shall be injection molded nylon. Support clips shall incorporate integrally molded lock tabs to retain shelf from tipping or inadvertently being lifted out. Support clips shall have double twin pin engagement into precision bored hole pattern in cabinet vertical members.

B. Clips shall have a molded ridge which shall provide pressure against edge of shelving and maintain positive pin engagement. Clips shall be designed in such a manner to provide means for permanent attachment to shelf. Static test shear load must exceed 200 lb. per clip.

C. Dividers that are 1/4" thick shall be fully adjustable and retained with injection molded nylon clip. Clip shall trap divider to prevent lift out.

D. All adjustable shelves and dividers shall be adjustable on 32mm (1-1/4") centers.

2.5 WORK SURFACES

A. Plastic laminate countertops shall be surfaced with general purpose .040 thick plastic laminate meeting NEMA spec. LD3-1985. Countertop cores shall be 1-1/8" full thickness 45 lb. density industrial grade particleboard. Exposed edges shall be covered with same laminate as top surface. Tops shall include backing sheet on underside.

B. Backsplashes and end splashes shall be provided as indicated on drawings and shall be surfaced with same laminate as top.

C. Continuous tops shall be joined with minimum number of splice joints and aligned with tight joint fasteners as required to provide a uniform and gapless joint.

D. Provide solid surfaces as called out on drawings.

2.6 COMPONENT DETAILS

A. Drawers shall be full box design with a separate front. Drawer sides and ends shall be constructed of 5/8" medium density fiberboard with white melamine laminate and matching top edges.

B. Adjustable shelves less than 36" in length shall be 5/8" thick.

2.7 CONSTRUCTION

A. Base, Wall and Tall Casework:

**Refer to drawings A-500's & A-600's for exact finishes.*

1. Cabinets corners shall be joined with dowel pin construction. Cabinets shall be assembled under controlled case clamp conditions assuring final cabinet squareness and proper joint compressions.
2. Cabinet ends shall be 3/4" thick panels of balanced construction and precision bored for dowel pins installed in horizontal cabinet members. Base and tall units shall have one piece end panels continuous to floor for added load capabilities. Unexposed ends shall

have laminate backing sheet.

3. Cabinet bottoms and tops shall be 3/4" thick panels of balanced construction for base and tall units. Base cabinets shall include a full depth 3/4" thick top panel.
4. Panels shall be precision bored to receive fluted dowel pins, which shall be inserted with glue. Dowel pins shall extend from the panel ends for joining into mating hole pattern of cabinet ends.
5. Wall cabinets bottom and tops shall be full 1" thick panels of balanced construction. These panels must feature the same fluted dowel pin and glue joint construction as the base and tall cabinets.
6. Toe kick panels shall be set back from cabinet front and back edges, doweled into cabinet ends. This integral twin toe kick construction shall be part of all base and tall cabinet structures for additional load support.
7. Back panels shall be 1/4" thick, inset 5/8" from rear of cabinet. Backs shall be continuously trapped in grooves in cabinet top, bottom and ends. Backs shall be hot melt glued or mechanically fastened.
8. Mounting rails shall be fully concealed behind backs. Rails shall be 5/8" thick and integrated into cabinet ends with dowel pin joints.
9. Wall and tall cabinet shall incorporate two mounting rails. Wall cabinets shall have rails positioned at top and bottom. Tall cabinets shall have rails positioned at top and intermediate location. Base units shall have rail positioned in the upper back area.
10. All cabinet edges to receive PVC edge banding:
    A. Manufacturer: Doellken, refer to A-600's for exact colors.

B. Doors, Hinged:
   1. Hinged solid doors, 48 "or less in height:
      a. Components:
         1) Core Ply: Particleboard with squared edges.
         2) Plastic Laminate: Face plys; two (2), one (1) applied to each face of the core ply. Face plys shall be .030" thick, vertical grade, high pressure, plastic laminate.
         3) Edges: As specified in A-400s.
      b. Construction:
         1) Hinged solid doors, 48" or less in height, shall be 13/16" thick and overlap the opening ¼" on all sides. Doors shall have one (1) pull, attached with two (2) screws, 4" on center. Doors shall have two (2), Euro hinges, matte finish, heavy duty, institutional type, 5-knuckle hospital tipped hinges; each attached with five (5) twinfast particleboard screws in the door, and four (4) Euro screws into the end panel. Door shall be secured by magnetic catches with a 5-11 lb. rated pull. Catch and steel strike plate shall be attached with screws. Strike plate screw holes shall be slotted for adjustability and a pinhole shall be provided to help anchor plate's position.
      c. Locks: Provide Lock SI-1 where indicated on drawings.

3.0 EXECUTION

3.1 INSPECTION

A. Verify dimensions of spaces to receive casework.

B. Verify all field conditions at adjacent surfaces.

C. Assure that mechanical and electrical services have been installed in location where required.

D. Do not install equipment until satisfactory conditions have been corrected.

E. Verify all field conditions for mechanical and electrical equipment.

3.2 INSTALLATION

A. Install equipment in accordance with manufacturer's instruction and approved submissions.

B. Securely attach cabinets to walls in an approved manner.

C. Set equipment plumb and level.

3.3 ADJUSTMENT AND CLEANING

A. Upon completion of installation assure that:
   1. Doors and drawers operate freely without bind.
   2. Catches have been adjusted to operate properly.
   3. Locks function properly.
   4. All shelves and accessories have been properly installed.

B. Clean inside and outside surfaces of all equipment and accessories installed for this project to be free of dirt, oil, grease and any other foreign manner.

C. Remove debris, not caused by other trades, and legally dispose of away from site.

END OF SECTION

SECTION 12500 - WINDOW TREATMENT

1.0 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provision of Contract, including General and Supplementary Conditions and Division I Specification Sections, apply to this section.

1.2 SUMMARY

A. This Section includes basic window treatment as follows:
   1. Roller Shades
   2. PROVIDE SHADES THAT MATCH BUILDING STANDARD.

1.3 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

B. Product data and installation instructions for each type of window treatment unit required. Include methods of installation for each kind of opening and supporting structure.

C. Samples for initial selection of colors, in form of manufacturers' color charts consisting of sections of exposed components with integral or applied finishes showing full range of colors and materials.

D. Samples for verification purposes, in full-size units of each component, material, and finish to be exposed to view, for each type of window treatment required. Prepare samples from same materials to be used for fabricating units.
   1. In addition, submit one complete small operating unit for each type of window treatment required.

1.4 QUALITY ASSURANCE

A. General: Provide units produced by one manufacturer for each type required, with complete standard assemblies including hardware accessory items, mounting brackets, and fastenings.

B. Furnish materials in colors and patterns selected by Architect from manufacturers' standard colors/patterns.

C. Installer shall be qualified to install specified products experienced in the type of work encountered with a minimum of three (3) years experience.

D. Provide Manual Roller Shades of only one manufacturer for entire project.

1.5 EXTRA MATERIALS

A. Maintenance Stock: Furnish extra materials matching products installed, packaged with protective covering for storage and identified with labels clearly describing contents.

1. Typical Window Treatment Units: Furnish quantity of full-size typical window treatment units equal to 5 percent of amount installed

1.6 DELIVERY AND STORAGE

A. Product shall be delivered to site in manufacturer's original packaging

B. Product shall be handled and stored to prevent damage to materials, finishes and operating mechanisms.

1.7 JOB CONDITIONS

A. Prior to installation, building shall be enclosed.

B. Interior temperature shall be maintained between 60 degrees and 90 degrees during and after installation; relative humidity shall not exceed 80%. Wet work shall be completely dry.

1.8 WARRANTY

A. Lifetime Limited Warranty: Provide manufacturer's recommended warranty for each type of shade and blind specified.

2.0 PRODUCTS

2.1 MANUAL ROLLER SHADES

A. Roller Shades to be installed at all exterior windows.

B. Control System: Adjustment-free continuous qualified #10 stainless steel ball and chain (90 lb. test) and pulley clutch operating system allows precise control and ensures a uniform look. Clutch will develop no more than ½ pound drag for ease of lifting. Glass reinforced thermopolymer (PBT) plastic components designed for smooth.

C. End plug to consist of an outside sleeve rotating freely on a center shaft. Outside sleeve and center shaft made of heat stabilized fiber reinforced plastic.

D. Brackets with fascia system constructed of painted cold rolled steel. Painted brackets are finished with a high quality baked enamel coating. Brackets are reversible for right or left hand installation.

E. Shade mounting system: Extruded aluminum painted tube with thick wall and ribs. Tube shall be 3" O.D.

F. Bottom Rod: Extruded aluminum weight in a Sealed Pocket Hem Bar.

G. Fascia: 0.040" thick extruded aluminum to conceal shade mechanism form front, sides and top/back. Submit color samples for Architect's approval.

H. Sunscreen Material:
1. Openness level/style to be decided by architect

2. Color: Submit color sample(s) to Architect for approval.
3. Style: Single Sunshade with specified weave in accordance with glazing needs.

I. Manufacturers: Subject to compliance with requirements, provide products of one of the following:
1. Hunter Douglas (Basis of Design, Style E Screen 7510 with 10% openness, color: charcoal)
2. Mechoshades
3. Draper Shade and Screen

2.4 FABRICATION AND OPERATION

A. Prior to fabrication, verify actual opening dimensions by accurate site measurements. Adjust dimensions for proper fit at openings.

B. Coordinate with other trades for securing tracks to substrates and other finished surfaces.

C. Fabricate window treatment components from noncorrosive, non-staining, non-fading materials that are completely compatible and do not require lubrication during normal expected life.

3.0 EXECUTION

3.1 INSTALLATION

A. General: Install window treatment units to comply with manufacturer's instructions. Position units level, plumb, secure, and at proper height and location relative to adjoining window units and other related work. Securely anchor units with clips, brackets, and anchorages suited to type of substrate.

B. Field measure prior to fabrication to ensure fit.

C. Provide clearance between sash and blinds to permit unencumbered operation of sash hardware.

D. Isolate metal parts from concrete and mortar to prevent galvanic action. Use thick coating or other means recommended by manufacturer to effect separation.

E. Protect installed units to ensure their being in operating condition, without damage, blemishes, or indication of use at substantial completion of project. Correct nonconforming damaged units. Replace units that cannot be field corrected.

3.2 WARRANTY:

A. Provide owner with written warranty against defects and material and workmanship.

B. Warranty shall extend from date of issuance of certificate of substantial completion.

C. Promptly repair or replace any defective material or faulty workmanship that becomes apparent within period of warranty.

D. Owner to have continued use of defective materials until repair or replacement is completed.

END OF SECTION

SECTION 12670 - ENTRANCE MATS

PART 1 GENERAL

A. The drawings, Instructions to Bidders, Form of Proposal, General Conditions, Supplementary General Conditions, and Division 1 are included herein and govern work under this section.

1.1 SCOPE OF WORK

A. Provide all materials, labor and equipment necessary to provide Entrance Mat as indicated on drawings and specified herein.

1.2 RELATED SECTIONS:

A. Submit samples of product to be used for Architects approval.

B. Related Sections: The following sections contain requirements related to this section:
   1. Grouting frames into recess; refer to sections 03300 “Case-In-Place Concrete” and 03600 “Grout”

1.3 REFERENCES:

A. American Society for testing and Materials (ASTM)

B. The Aluminum Association

C. The Carpet and Rug Institute (CRI)

D. The National Floor Safety Institute (NFSI)

1.4 SUBMITTALS:

A. Product data for each type of floor mat and frame specified including manufacturer’s specifications and installation instructions.

1.5 Shop Drawings:

A. Indicate:
   1. Thickness
   2. Shape and layout of mat and frame
   3. Frame Edge details
   4. Materials
   5. Field verified dimensions for mats
   6. Detail of Spline locations, profiles, anchors and accessories

B. Maintenance data of manufacturer’s instructions for cleaning and maintaining floor mats.

1.6 Quality Assurance

A. Flammability in accordance with ASTM E648, Class 1. Critical radiant flux, minimum 0.45 watts/m2.

B. Slip Resistance in accordance with ASTM D-2047-96, Co-efficient of friction, minimum 0.60 for accessible routes.

C. Standard rolling load performance 300 lb/wheel.

D. Obtain mats and frames from one source of a single manufacturer.

1.7 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver to project site and protect against damage before and after installation.

1.8 PROJECT CONDITIONS

PART 2 PRODUCTS

2.1 MATERIALS
**See A-600's for exact manufacturer, style, and color.*

PART 3 EXECUTION

3.1 EXAMINATION AND MAT INSTALLATION

A. Verify conditions, examine areas and conditions under which work is to be performed and identify conditions detrimental to proper or timely completion.

B. Cut and install mat according to manufacturers' instructions and recommendations

C. Coordinate top of mat surface with bottom of doors that swing across to provide enough clearance between door and mat.

D. Do not install materials until conditions are acceptable.

3.2 CLEANING

A. Clean after installation, according to manufacturers' recommendations.

B. Provide owner with maintenance instructions.

3.3 PROTECTION

A. Protect mat and frame until construction traffic has ended and project is near substantial completion.

END OF SECTION