

ARCHITECTURAL SPECIFICATIONS

- 1. GENERAL RESPONSIBILITY:**
 - A. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS THAT AFFECT ALL ALTERATIONS, ADJUSTMENTS TO DELIVER A COMPLETE PROJECT CONFORMING TO THE CONTRACT DRAWINGS AND SPECIFICATIONS.
 - B. THE OWNER RESERVES THE RIGHT TO INSTALL FIXTURE WORK OR TO USE PORTIONS OF THE CONSTRUCTION OF ANY MATERIALS EQUIPMENT, AND BY THE CONTRACTOR, SUCH OCCUPANCY SHALL IN NO WAY IMPLY ACCEPTANCE OF ANY PORTION OF THE WORK.
 - C. FOR SIZE AND OPENINGS FOR ALL MECHANICAL DUCTWORK, REFER TO MECHANICAL DRAWINGS.
 - D. CONTRACTOR SHALL PERFORM ANY AND ALL CUTTING, PATCHING, REPAIRING, RESTORING, AND THE LIKE TO COMPLETE THE WORK. THE GENERAL CONTRACTOR SHALL ALSO RESTORE ANY DAMAGED OR AFFECTED SURFACES (RESULTING FROM THIS WORK) TO THEIR ORIGINAL CONDITION AND TO THE SATISFACTION OF THE ARCHITECT & OWNERS REPRESENTATIVE.
 - E. GENERAL CONTRACTOR SHALL COORDINATE THE WORK PERFORMED BY THE G.C.'S SUB-CONTRACTORS FOR RESOLUTION BEFORE PROCEEDING.
 - F. SHOULD CONFLICTS OCCUR WITHIN THE CONTRACT DRAWINGS OR SPECIFICATIONS, THE HIGHER QUALITY OR LARGER QUANTITY SHALL BE ADOPTED FOR ESTIMATION PURPOSES AND SHALL BE FURNISHED AND INSTALLED.
 - G. IF ANY ERRORS OR OMISSIONS APPEAR IN THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL NOTIFY THE OWNER, ARCHITECT, AND ENGINEERS IN WRITING OF SUCH ERROR OR OMISSION IMMEDIATELY UPON DISCOVERING THE ERROR OR OMISSION.
 - H. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE TIMELY ARRIVAL OF ALL SPECIFIED MATERIALS, EQUIPMENT, AND ANY OTHER MATERIALS UTILIZED ON THIS PROJECT. THE GENERAL CONTRACTOR SHALL NOTIFY THE OWNER IN WRITING WITHIN TEN (10) DAYS OF DATE OF CONTRACT OF THOSE SPECIFIED ITEMS THAT MAY NOT BE READILY AVAILABLE. IF NOTIFICATION IS NOT RECEIVED BY OWNER WITHIN THAT TIME FRAME, THE CONTRACTOR ACCEPTS RESPONSIBILITY FOR THE PROPER ORDERING AND FOLLOW-UP OF SPECIFIED ITEMS AND SHALL PURSUE WHATEVER MEANS NECESSARY, AT NO ADDITIONAL COST TO THE OWNER, TO ASSURE AVAILABILITY OF ALL SPECIFIED ITEMS SO AS NOT TO CREATE A HARDSHIP ON THE OWNER AND NOT DELAY THE PROGRESS OF THE WORK. NO EXTENSION OF TIME TO THE CONTRACT WILL BE ALLOWED.
- 2. PERMITS:**
 - A. ALL CONTRACTORS SHALL HAVE VALID CERTIFICATES OF WORKMAN'S COMPENSATION ON FILE WITH THE APPROPRIATE AGENCIES.

END OF SECTION

PRODUCT SECTION	SUBMITTAL DATA	SAMPLES	SHOP DRAWINGS
INSTRUCTIONS TO BIDDERS	00100		
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SUPPLEMENTARY GENERAL CONDITIONS	01000		
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CONSTRUCTION PROGRESS SCHEDULE	01300.13	X	
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PROJECT IDENTIFICATION AND SIGNS	01530		X
GRADING	02210		X
TERMITE CONTROL	02281	X	
CONCRETE WORK	03010	X	
UNIT MASONRY	04200	X	
STRUCTURAL STEEL	05120		X
MISCELLANEOUS STEEL	05500		X
SAFETY LADDERS	05515		X
HANDRAILS / RAILINGS	05720	X	X
ROUGH CARPENTRY	06100		X
SHOP FABRICATED WOOD TRUSSES	06105		X
STRUCTURAL GLASS	06185		
LAMINATE TUBER	06196		
PLYWOOD WEB JOIST	06200	X	
FINISH CARPENTRY (CASEWORK)	06200	X	
WATERPROOFING	07100	X	
INSULATION	07200	X	
BATT AND BLANKET	07211	X	
INSULATION	07220	X	
ROOF AND EAVE INSULATION	07260	X	
WATER AND AIR RETARDER	07260	X	
MODIFIED BITUMEN ROOFING	07525		
MECH UNITS	07530		
THERMOPLASTIC MEMBRANE ROOF	07540		
SHEET METAL AND ROOF ACCESSORIES	07600	X	
TYPE 'B' ROOF SCULLIE	07720		
JOINT SEALERS	07900	X	
SPLINTS AND CAILING	08120	X	
ALUMINUM AND FRAMES	08100	X	
ALUMINUM ENTRANCE AND FRAMING SYSTEMS	08410	X	X
FINISH HARDWARE	08700	X	
GLAZING	08800	X	
GLASS	08811	X	
CEMENT PLASTER (STUCCO)	09100	X	
GYPSPUM BOARD	09250		
TILE	09300	X	
BACKER BOARD PANELS	09310	X	
ACCOUSTICAL CEILINGS	09510	X	X
SPECIAL WALL SURFACES	09770	X	
FIBERGLASS REINFORCED POLYESTER PANELS	09880	X	X
PAINTING	09900	X	X
BUILDING SPECIALTIES	10000	X	
TOILET COMPARTMENTS	10155	X	X
TOILET AND BATH ACCESSORIES	10801	X	
MECH UNIT SUBMITTALS	15125	X	
PLUMBING	15400	X	
ELECTRICAL SWITCHGEAR / PANELS	16000	X	X
LIGHT FIXTURES, DEVICES & COVER PL.		X	X
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-Section 01018 Owner Furnished Items
-Section 01048 Alternates (Refer to sheet T1.1 in drawing set)
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END OF SECTION

01000.13 DRAWINGS AND SPECIFICATIONS:

- A. Execute all work according to the true meaning and intent of the drawings and specifications which are intended to include everything required and necessary for the proper and entire finishing of the work, notwithstanding, that each and every item necessarily involved in the work is not specifically mentioned. Deliver the completed work to the Owner in a perfect and undamaged condition without exception.
- B. The drawings and specifications are intended to be cooperative. Furnish and perform the work or materials not mentioned in the specifications or vice-versa in as faithful a manner as though treated by both.
- C. Before submitting an estimate; carefully check the drawings and specifications. Should a conflict, uncertainty or discrepancy be found, report it to the Architect immediately, who will notify all bidders as to the resolution.

01000.14 PRECEDENCE OF DRAWINGS:

- The order of precedence of drawings is as follows:
 1. Larger scale drawings over smaller scale drawings.
 2. Figured dimensions over unfigured dimensions.
 3. Supplementary General Conditions over A.I.A. General Conditions.
 4. Architectural drawings over mechanical and electrical drawings.
 5. Any addenda or drawings of an earlier date.
 6. Notice of conflict.

01000.15 SUBSTITUTION:

Any substitution must be approved in ADVANCE OF CONSTRUCTION in writing by the Architect after receipt and study of complete information regarding same, including any credits or additional costs.

01000.16 MATERIALS AND WORKMANSHIP:

Unless otherwise particularly specified, furnish and install ALL materials and labor mentioned in these specifications and/or shown on the drawings. Execute all work in a neat and skillful manner to the entire satisfaction of the Owner.

01000.17 SUB-CONTRACTS:

Provide a list of sub-contractors proposed prior to award of the Contract with their best and final offer. The Sub-contractor is bound by the specifications. No Contractor or Subcontractor may subcontract or assign his Contract or any part thereof without the written approval of the Owner.

01000.18 LAWS AND ORDINANCES:

Comply with all laws and ordinances having jurisdiction over the work and/or materials or methods employed. No additional compensation will be allowed for Contractors for failure to familiarize themselves with all conditions under which they will perform their work unless these conditions are specifically stated in the specifications, and provisions for adjusting costs are made at that time.

01000.19 PERMITS, BONDS, LICENSES:

Take out and pay for all permits, bonds, licenses and similar items. Should separate Contracts be awarded, each Contractor is responsible for permits, fees, bonds, licenses, and similar items as may be required by work covered under his/her portion of the Contract. Turn over to the Owner upon completion. At the Owner's election, the Owner may obtain any of the Permits. The General Contractor is required to obtain the building permit and to be reimbursed with no markup.

01000.20 PROTECTION:

A. Barricade and/or shelter the work as to protect it from damage. Arrange all barricades so as to insure a reasonable visual and physical warning for workmen and the public. Provide flashing type blinkers around open trenches.

B. The Contractor(s) is held responsible for any damage to his/her work as may be due to negligence of his/her, or as a result of freezing, wind, rain, snow, or other causes, or to the negligence of his/her, or similar reasons, if due to his/her acts, omissions or negligence. If such damage occurs, restore the work to its previous condition at no cost to the Owner.

C. Protect all adjoining property from damage during the course of the work. If required by local laws or ordinances, issue notices to Owner of said property. No use of adjacent privately owned property by a Contractor without written permission by its Owner is allowed.

D. Contractor is responsible for any damage or loss to Owner's building package or equipment in said Contractor's possession. At Owner's election, the cost of repair or replacement of any missing item will be borne by said Contractor.

01000.21 INSURANCE:

A. In general, maintain such insurance to protect Contractor, Owner and the Owner's agents and representatives from any and all claims under Workmen's Compensation Acts and on all claims for damages because of bodily injury, including death, and all claims for property damage arising from Contractor's operations and/or the operations of Sub-Contractors employed by him, in the amount stated herein. For Sub-contractor(s) not covered by the Contractor's insurance, provide similar insurance of their own. Obtain coverage from a company holding a General Rating of "A" or better as set forth in the most current issue of Best's Key Rating Insurance Guide.

B. "Hold Harmless" Clause: Provide certificate stating that this endorsement is included in the policy(ies). C. The Contractor assumes the liability for all losses, damages (including loss of use), expenses, demands and claims in connection with or arising out of any injury or alleged injury to persons (including death) or damages or alleged damage to property, sustained or alleged to have been sustained, in connection with or to have arisen out of the performance of the work by the Contractor, his Sub-Contractors, and their agents, servants and employees, including losses, expenses, or damages sustained by the Owner and the Architect. The Contractor hereby undertakes and agrees to indemnify and hold harmless the Owner and the Architect, their agents, servants, and employees, from any and all such losses, expenses, damages (including loss of use), demands and claims, and defend any suit or action brought against any of them, based on any alleged injury (including death) or damage (including loss of use) and pay all damages, judgments, costs and expenses, including attorney's fees, in connection with said demands and claims resulting therefrom.

D. The above clause applies in all states unless restricted by state statute. Should this be the case, provide the maximum form of "Hold Harmless" allowed by the law.

E. Provide Comprehensive General Liability Insurance including a Broad Form endorsement and a Broad Form Property damage endorsement with limits not less than \$1 million CSL (Combined Single Limit), if appropriate, also maintain scaffolding and demolition insurance.

F. Provide Workers Compensation Insurance in accordance with applicable state requirements.

G. Provide Employers' Liability Insurance in an amount not less than \$200,000 each occurrence, \$5,000,000 aggregate.

H. Provide comprehensive Automobile Liability including owned, non-owned and hire coverage in an amount not less than \$500,000 CSL (Combined Single Limit).

I. Satisfy any insurance requirements necessitated by any pertinent governmental authority.

J. At Owner's election, maintain Builders' Risk insurance covering the premises. Have such insurance written on an all risk basis and covering all the work until Owner's final acceptance of same.

K. Provide insurance policies immediately after award of contract and prior to any work being performed. Upon obtaining policies, notify the Owner and file certificates and/or duplicate policies from insurance companies with the Owner showing policy numbers, dates policies are in effect, and all limitations and exclusion. Provide certificates stating that the insurance company will notify the Owner by registered mail thirty (30) days prior to the expiration or cancellation of any policy.

01000.22 PERFORMANCE, MATERIAL AND LABOR BONDS:

When requested, provide performance bonds, labor and material payment bonds, quoting price only, to the Owner, prior to start of work.

01000.23 CONTRACTOR'S QUALIFIED JOB SITE SUPERINTENDENT:

Have the Contractor designate and qualify a superintendent/job superintendent, with full authority to act on behalf of Contractor under the Construction Contract, in attendance at the job site and supervising said work, at all times during the progress of the work.

01000.24 TEMPORARY FACILITIES:

A. Take charge of the premises from the start to the completion of the project and furnish the following:

1. Laying out of all work and establishing building lines and levels, confirm this information with the Owner.
2. Temporary electric power, two telephone lines, and one Contractor provided fax machine, during the period of construction. This does not include portable generators for use of other trades.
3. Heating of building for working and drying purposes during the period of construction.
4. Temporary ladders as required for access to all work.
5. Water for portable toilet use.
6. Acceptance, protection, unloading and storage of Owner's equipment delivered to the site are the responsibility of the Contractor.
7. Temporary table and chairs for the use of the Contractor.
8. The minimum of one construction trailer in the range of 25'-40' in length.

B. Temporary construction barricade. - If required by the landowner a temporary construction barricade at the storefront shall be installed by landowner at landowner's expense. No barricades shall be removed or dismantled without the express written consent of the landowner. Any barricade removed without prior consent will be reconstructed by landowner at the contractor's expense.

C. CONSTRUCTION SIGNAGE. THE CONTRACTOR IS NOT ALLOWED TO POST ANY COMPANY NAME OR SIGN ON THE TEMPORARY CONSTRUCTION BARRICADE OR ANYWHERE OUTSIDE THE PREMISES. THE CONTRACTOR SHALL POST ALL SIGNAGE AS REQUIRED BY THE LANDLORD.

01000.25 INSPECTION AND TESTS:

A. Call for all inspections as required by local authorities, allowing a minimum of two (2) day notice for inspections to be made.

B. Notify the Owner for inspection one week prior to the installation of the items specified in the "Invitation To Bid".

C. The Owner has the right to order tests and/or laboratory examination of any material or work used or performed on the project should he suspect such material or work to be of lesser quality than specified herein. The costs of all such tests will be paid by the Owner unless they indicate work or materials of lesser quality, in which case the Contractor pays the costs along with any expenses incurred in proceeding with the work.

01000.26 PRECEDING WORK:

Before starting work, examine work previously installed and immediately report to the Owner any visible defects or conditions which adversely affect the quality and/or completion of this work. It is assumed all conditions are acceptable if no such report is received.

01000.27 CUTTING AND FITTING:

A. Execute all cutting and fitting of work as may be required by other trades so as to insure as near perfect fit of materials as possible.

01000.28 DAMAGED WORK:

A. Pay for replacement of any work damaged in connection with the Contract, and perform such patching or replacement by skilled personnel specializing in the particular trade so as to restore damaged work to completely acceptable condition. Should responsibility for damage be unable to be determined, the cost of repairing same among Contractors working on the job at the time the damage occurred as determined by the Owner. The decision of the Owner is final.

01000.29 ADVERTISING:

A. No advertising is allowed without prior approval of owner.

01000.30 COMPLETED WORK:

A. Deliver completed work as called for by the Contract to the Owner free from liens, claims or encumbrances of any description whatsoever against the Owner. Acceptance of such work is defined as the Contractor's receipt of final payment.

B. If Owner receives "notice of claim" to be filed or if a claim is filed as a result of Contractor's non-payment, Owner possesses the right under the Construction Contract to either settle the claim or terminate the Contractor's contract and to require the Contractor to bond over such small claims, including any associated expenses as defined in the Construction Contract and to promptly defend to conclusion Owner and Owner's interest against said claim of claims.

C. Completion of Work on the project requires the submission by the Contractor of certain documentation in order for the Final Retention Draw to be paid to the Contractor. The submission of these documents is defined in the Construction Contract and is inclusive of the following items:

- 1. Record Drawings and Specifications including microfilm copies.
- 2. Lien Waivers from Contractor and Subcontractors and Material men.
- 3. List of all Subcontractors and Material Men Contractor's Guarantee and Completion Affidavit.
- 4. Final Signed Punch List.
- 5. Any Work Orders and Associated Contract Change Orders.
- 6. Certificate of occupancy and any related public agency.
- 7. Certification of project completion.
- 8. Copies of project Inspection Reports.
- 9. Permitted Set of Drawings and Specification.
- 10. All warranties.
- 11. All certificates noted in the drawings including civil drawings, the bid documents and Construction Contract.
- 12. And any required test and/or engineering reports.

01000.31 MAINTENANCE AND CLEANING:

A. Throughout the period of construction, be responsible for satisfactorily maintaining the premises in a neat and clean condition. See drawings and not mentioned in the specifications or vice-versa in as faithful a manner as though treated by both.

B. Store all equipment and materials in a neat manner and protect them from any damage from the elements. Maintain building in a generally clean condition during the period of construction, and upon final completion provide a professional service to thoroughly clean all glass, floors, furniture and equipment.

01000.32 GUARANTEE:

A. Fully and unconditionally guarantee all labor, materials, and equipment required by the Owner-contractor agreement(s) for a period of one (1) year from the date of final acceptance or the date the building is opened for business by the Owner, unless otherwise specified in specific chapters herein.

01000.33 CHANGES:

A. The Owner, without invalidating the Contract, may order changes in the work within the general scope of the Contract, consisting of additions, deletions, or other revision. The Contract sum and the contract time will be adjusted accordingly.

B. The cost or credit to the Owner resulting from a change in the work will be determined by mutual agreement. Perform all work under the applicable conditions of the Contract documents.

C. Obtain written authorization for changes in the work (Construction Work Order) from the Owner prior to completion of any such change.

01000.34 RECEIPT OF EQUIPMENT:

A. During the course of construction, the Contractor is the receiving party responsible for deliveries of equipment and miscellaneous items made to the job site by common carrier. If, during the receipts of those items by the Contractor's representatives, any missing or damaged items are observed, the receipt is void.

- 1. Make a notation of the discrepancy on the delivery ticket.
- 2. Call the supplier and advise of the problem within 24 hours.
- 3. Call the delivery carrier and/or vendor to file a claim.

01000.35 EQUIPMENT UNDER THIS CONTRACT & FURNISHED BY OTHERS:

A. The general contractor shall acquaint himself with the dimensions of any equipment under this contract so that sufficient clearances and adequate floor area is available for receipt and storage of that equipment.

01000.36 PROGRESS:

A. The general contractor shall cause the work to be diligently pursued to entire completion. Should he have, or as a result of freezing, wind, rain, snow, or other causes, or to the negligence of his/her, or similar reasons, if due to his/her acts, omissions or negligence, if such damage occurs, restore the work to its previous condition at no cost to the Owner.

B. The plans for projects which are tenant improvements within an existing lease space or remodeling projects of an existing building have been prepared based upon the best available data. The demerits of these existing spaces and the elements contained therein are not guaranteed. The general contractor shall confirm the existing dimensions of the lease space or building with those shown on the drawings prior to commencement of work. If discrepancies occur notify the architect immediately.

01000.37 DRAWING DIMENSIONING & VERIFICATION:

A. Inspect site and verify field dimensions before commencing construction. Notify the architect immediately if any significant discrepancies occur. Provide letter of acceptance of existing conditions at bidding and at construction start.

B. The plans for projects which are tenant improvements within an existing lease space or remodeling projects of an existing building have been prepared based upon the best available data. The demerits of these existing spaces and the elements contained therein are not guaranteed. The general contractor shall confirm the existing dimensions of the lease space or building with those shown on the drawings prior to commencement of work. If discrepancies occur notify the architect immediately.

C. Do not scale drawings.

END OF SECTION

SECTION 01018 OWNER FURNISHED ITEMS:

01018.1 GENERAL:

A. Owner retains the right to install items and/or equipment purchased under SEPARATE CONTRACTS:

A. Owner retains the right to place and install, in coordination with Contractor's construction schedule, as many items and/or such equipment as he may require during the progress of the Work, before completion of the various parts of the Work. This shall not in any way evidence completion of the Work or any portion thereof, nor shall it signify Owner's acceptance of the Work or any portion thereof.

01018.2 CATEGORIES OF ITEMS:

A. By Owner: Items shown or noted "By Owner" on the drawings and/or in the specifications shall be furnished by Owner to Contractor/subcontractor for installation by Contractor/subcontractor as part of the construction contract. Contractor/subcontractor shall receive, to the extent of unloading at the site as required, store and be responsible to the extent of carrying necessary insurance to cover items in case of theft, fire, loss, malicious damage and other miscellaneous damage.

B. Non-Contract (NIC): Items shown or noted "NIC" on the drawings and/or in the specifications shall be furnished and installed by Owner under separate contract, except as described hereinafter. The Contractor shall receive, unload as required, store, and be responsible to the extent of carrying necessary insurance to cover items in case of theft, fire, loss, malicious damage and other miscellaneous damage. NIC items are as noted on drawings.

01018.3 EXECUTION:

01018.3.1 RECEIPT OF ITEMS:

A. During the course of construction, some deliveries of equipment and miscellaneous items will be made to the job site by common carrier. Contractor shall receive and inspect items for conformance to bill of lading or packing slip and for damage. If during receipt any missing or damaged items are observed, the receipt is void.

- 1. Make notation of any and all discrepancies on the bill of lading or packing slip.
- 2. Call delivery carrier and advise him of the problem.
- 3. Notify the Owner's Construction Manager within 24 hours.

01018.3.2 RECEIVING GUIDELINES:

A. The following guidelines are in place at all Owner job sites and are to be employed by all agents acting on Owner's behalf.

- 1. Check the paperwork to be certain you are the recipient. Do not sign for any freight designated for another consignee. Refuse delivery and cause the carrier to clarify the delivery address with the shipper.
- 2. Make a notation of any visible damage being as specific as possible. The more detail provided on the shipment's condition, the better. This will allow for processing a damage claim more efficiently if damage is found. On prepaid shipments, if damage to the contents is obvious, the shipment may be refused. This will lead the carrier back to the shipper for resolution. On third party shipments billed to Owner, Do not refuse delivery, as Owner owns the goods in transit. Owner or its agents will be required to file a claim.
- 3. Inspect the product(s) as soon after receipt as possible. Concealed damage claims must be submitted within 14 days of receipt to have any chance of recovery. Practically speaking, once you assume possession, at best the damage liability is split between Owner and carrier. Please understand that the ability to prove the damage occurred in the care and custody of the carrier diminishes with each day the damage goes unreported.
- 4. Sign the carrier's paperwork with a full signature, complete the date and indicate the number of pieces received. It is helpful to print a last name for clarity. These items are important in the event a portion of the shipment is missing. This will allow determination of who signed for what.

END OF SECTION

SECTION 01030 ALTERNATES (Not applicable at this time)

01030.1 GENERAL:

01300.13 CONSTRUCTION PROGRESS SCHEDULES:

- A. Construction Schedules: Along with the Invitation to Bid, the Owner will submit to Contractor a copy of the Approved Construction Schedule.
B. Type: Network analysis system using the critical path method, generally as outlined in Associated General Contractors of America (AGC) publication "Construction Planning and Scheduling" is preferred, but a horizontal chart will separate bar for each major trade or operation, identifying first work day of each week is acceptable.
C. Sequence of Construction: Show complete sequence of construction by activity, identifying work of separate stages and other logically grouped activities.
D. Percentage of Completion: Show projected percentage of completion for each item of work as of time of each Application for Payment.
E. Submittal Dates: Show submittal dates required for shop drawings, product data, and samples, and product delivery dates, including those furnished by Owner.
F. Copies Required:
1. Initial Issue: Submit three copies within 10 days after date of notice to proceed. After review by Owner, revise and resubmit as required.
2. Revised: Submit three copies with each Application for Payment, reflecting changes since previous submittal.

01300.14 SHOP DRAWINGS:

- A. General: Present in a clear and thorough manner. Title each drawing with Project name and number; identify each element of drawings by reference to sheet number and detail, schedule, or room number of Contract Documents. Identify field dimensions; show relation to adjacent or critical features or work or products.
B. Copies Required: Submit four (4) copies of each sheet.
C. Reproduction and Distribution: After Owner review and acceptance; reproduce and distribute in accord with "procedures" above. Owner will make and retain copies required for his own use.

01300.15 PRODUCT DATA:

- A. General: Submit only pages which are pertinent; mark each copy of standard printed data to identify products, referenced to Project Manual Section and Article number. Show reference standards, performance characteristics, and capacities; wiring and piping diagrams and controls; component parts, finishes, dimensions; and required clearances.
B. Materials: Label each sample with manufacturer's standard schematic drawings and diagrams to supplement standard information and to provide information specifically applicable to the work. Delete information not applicable.
C. Copies Required: Submit number Contractor requires, plus three copies for Owner's use.

01300.16 SAMPLES:

- A. General: Submit full range of manufacturer's standard finishes except when more restrictive requirements are specified, indicating colors, textures, and patterns. Submit samples to illustrate functional characteristics of products, including parts and attachments.
B. Label each sample with identification required for transmittal letter.
C. Number Required: Two sets of samples, charts, color plates and manufacturer's data.

1. BRICK:

- 2. FRP:
A. Submit four samples, per Submittals Section, of each material proposed to the Architect for acceptance, if submitting other than specified item for approval of a substitution.

3. PAINTING:

- A. Provide color match sample(s) to the Architect for acceptance.

4. TILE:

- A. Submit two samples, per Submittals Section, of each material proposed to the Architect for acceptance.

5. CEILING:

- A. Submit two samples of the acoustical ceiling panel and metal ceiling panel.

6. RESILIENT FLOORING:

- A. Product Data: Submit manufacturer's detailed technical product data and installation instructions for each type of resilient flooring. Include instructions for handling, storage, installation, finishing, protecting and maintaining.
B. Samples: Submit sets of range samples for each type of resilient flooring. Include sample finishes for selection by the Architect of site to provide total appearance. Include minimum sample of each type of required accessory item such as feature strips, reducer strips, baseboard, trim molding, and nosings.

7. DRYWALL:

- A. Provide 12-inch by 12-inch (300mm by 300mm) samples of applied finish coating materials for coating, color and texture selection.
B. Product Data: Submit manufacturer's product specifications and data on system materials, product characteristics, performance criteria and limitations. Include handling, installation and repair instructions.

8. Concrete Submittals:

- A. Product Data: For each type of manufactured material and product indicated.
B. Design Mixes: For each concrete mix. Include all mix designs with American Concrete Institute 305R.
C. Steel Reinforcement Shop Drawings: Details of fabrication, bending, and placement, prepared according to ACI 315, "Details and Detailing of Concrete Reinforcement." Include material, grade, bar schedules, stirrup spacing, bent bar diagrams, arrangement, and supports of concrete reinforcement. Include special reinforcement required for openings through concrete structures.
D. Formwork Shop Drawings: Prepared by or under the supervision of a qualified professional engineer detailing fabrication, assembly, and support of formwork. Design and engineering of formwork are Contractor's responsibility.

9. Mechanical Work: Refer to Mech & Plmg specs in drawings.

- A. Submittal Data:
1. The submittal data shall be handled as hereinbefore specified in the "General Conditions" section of these specifications as specified for "Shop Drawings".
2. Before submittal of all data, the Contractor shall check each piece of apparatus, equipment and accessory to insure compliance with requirements of the plans and specifications and shall clearly mark each submittal with his signature to indicate that they are in full compliance. Any submittals received without the Contractor's signature may be returned without being checked. It shall be the Contractor's responsibility to point out all deviations between the plans and specifications and the materials submitted.
3. Each set of data from any one manufacturer shall be bound in an individual folder properly indexed and marked to indicate job, Contractor, supplier and purpose for which data enclosed is being offered. Data submitted shall show proposed equipment only and shall not be catalogs showing a manufacturer's complete line. Each sheet shall indicate the name of manufacturer of the equipment being submitted. Sufficient data shall be included to prove compliance with the specifications as far as use, capacity, efficiencies, physical size, quality of materials and all other pertinent specified particulars.
4. Submittal data (manufacturers' catalog data) shall include the following:
a. Fire protection system components and devices (when applicable to project),
b. Insulation,
c. Domestic water heaters,
d. Plumbing fixtures and trim,
e. Packaged roof-top cooling/heating units,
f. Exhaust Fans
g. Testing, adjusting and balancing.

11. Shop Drawings:

- A. Each Contractor shall submit shop drawings whenever equipment proposed varies in physical size and arrangement of equipment space; where light spaces require extreme coordination between ductwork, piping, and other equipment; where called for elsewhere in these specifications; and where specifically requested by the Owner. Shop drawings shall be made at no additional charge.
B. All required shop drawings, except as hereinafter specified shall be prepared at a scale of not less than 1/4 inch equals one foot by the Contractor. He shall submit prints as hereinbefore described under "submittal data".
C. Shop drawings shall be prepared on the following items:
1. For installation of roof top units and duct systems where units furnished differ in physical size and arrangement from those scheduled and shown.
2. In other locations, as directed by the Owner.
3. Complete fire sprinkler system drawings, including indication of proper coordination with ceiling pattern. Drawings shall be approved by required government and insurance authorities before submittal.
4. Each Contractor shall submit shop drawings as herein listed. These drawings shall be complete working drawings prepared in a neat, reproducible form and shall indicate the work of all trades the areas involved. Unless otherwise directed, they shall be prepared by the Heating, Ventilating and Air Conditioning Contractor who shall be responsible for the coordination with other trades.

12. Electrical Work: Refer to specifications in Elect. drawings.

- A. Submittal Data:
1. The submittal data shall be handled as hereinbefore specified in the "General Conditions" section of these specifications as specified for "Shop Drawings".
2. Before submittal of all data, the Contractor shall check each requirement of the plans and specifications and shall clearly mark each submittal with his signature to indicate that they are in full compliance. Any submittals received without the Contractor's signature may be returned without being checked. It shall be the Contractor's responsibility to point out all deviations between the plans and specifications and the materials submitted.
3. Each set of data from any one manufacturer shall be bound in an individual folder properly indexed and marked to indicate job, Contractor, supplier and purpose for which data enclosed is being offered. Data submitted shall show proposed equipment only and shall not be catalogs showing manufacturer's complete line. Each sheet shall indicate the name of manufacturer of the equipment being submitted. Sufficient data shall be included to provide compliance with the specifications as far as use, capacity, efficiencies, physical size, quality of materials and all other pertinent specified particulars. Data shall include manufacturer's name for each item of equipment submitted.
5. Submittal data (manufacturers' catalog data) shall include, but shall not be limited to, the following:
a. Wiring devices,
b. 600V and below: switchboards, panel boards, safety switches, fuses, wire ways,
c. Light fixtures.

01300.17 CONSTRUCTION CLEAN UP CHECK-LIST:

- A. Upon completion of work of this Section, remove related debris from the premises.

END OF SECTION

SECTION 01500 PROJECT IDENTIFICATION AND SIGNS

01500.1 GENERAL:

- 01500.11 PROJECT SIGN FRAME: (OPTIONAL)
A. Within seven days of date of notice to proceed, furnish and erect one (1) project identification sign, in a location directed by the Owner. Sign shall consist of 4x4 inch posts supporting a 4'-0" high by 8'-0" wide sheet of 3/4 inch thick exterior A/C plywood. Locate post 1'-0" from ends of plywood; 6'-0" centers. Bottom of plywood shall be at 4'-0" above grade.
B. Framework shall receive a design to be furnished by Owner/Architect and fabricated & installed by General Contractor. Installation of sign will be by wrap and staple method; long staples, closely spaced on back side.

01500.12 CONTRACTOR SIGNS AND ADVERTISING:

- A. Contractor and principal subcontractors may have company signs on field office, at Contractor's sign, if so desired. No other free-standing signs or advertising of any kind other than "warning" signs and notices, required by law, will be permitted on the site or about the premises.
B. If a permit is required, the Contractor is responsible for obtaining the permit.

END OF SECTION

DIVISION 2 SITEWORK

SECTION 02072 - MINOR DEMOLITION FOR REMODELING

PART 1 - GENERAL

- 1.01 SECTION INCLUDES
A. Removal of existing construction indicated on Drawings and/or required by work specified in other Sections of these Specifications;
B. Capping and Identifying Utilities;
C. Protection of persons and property.
1.02 SUBMITTALS
A. Submit demolition and removal procedures and schedule per Submittals Section.
1.03 COORDINATION
A. Contractor is solely responsible for coordination of work of this Section with work of his subcontractors and Owner's employees or subcontractors for work of other Sections of these Specifications.

PART 2 - PRODUCTS

- Existing bricks to be re-used as required to finish new openings.

PART 3 - EXECUTION

- 3.01 GENERAL
A. Maintain protected and access at all times. Use of explosives is prohibited.
3.02 PREPARATION
A. General: Erect and maintain weatherproof closures for exterior openings. Erect and maintain temporary partitions to prevent spread of dust, fumes, noise, and smoke. Protect existing items which are not indicated to be altered.
B. Existing Utilities: Disconnect, remove and cap designated utility services within demolition areas. Mark locations of disconnected utilities. Verify all gas shut off valve locations prior to beginning removal. Identify and indicate capping locations on Project Record Documents.
3.03 PROTECTION
A. Persons: Erect and maintain fences, planking, bracing, shoring, lights, barricades, warning signs and guards required for protection of workmen and the public.
B. Property: Use care and appropriate means to protect construction and property which is not part of Work of Contract. Repair, refinish and/or replace damaged construction and property at no additional cost to Owner.

3.04 EXECUTION

- A. General: Demolish in orderly and careful manner with least possible disturbance to public and to adjacent property. Repair all demolition performed in excess of that required, for proper completion of work.
B. Ownership of Items Removed: Equipment and materials resulting from demolition work is property of Contractor, unless noted otherwise on the Drawings.
3.05 CLEANING AND DISPOSAL
A. Except where noted otherwise, immediately remove and dispose of demolished materials and related debris away from site. All disposal of materials off site shall be performed in accordance with all federal, state, and local regulations. Do not burn or bury materials on site.
B. Upon completion of work of this section, remove related debris from the premises.

END OF SECTION

SECTION 02210 GRADING

02210.1 GENERAL:

- 02210.11 SCOPE OF WORK:
A. Rough grading and contouring of site.
B. Finish grading and topsoil.
02210.2 MATERIALS:
A. Subsoil: Excavate or equal borrow material, graded free of lumps larger than 6 inches, rocks larger than 3 inches, and debris.
B. Topsoil: Either excavated material from site or imported, friable loam; free of subsoil roots, grass, weeds, stone, and foreign matter; specific range (PH of 5.5 to 7.5) containing minimum of 4 percent and maximum of 25 percent organic matter.

02210.3 EXECUTION

- 02210.31 INSPECTION:
A. Verify site conditions and note irregularities affecting work of each phase of this Section. Beginning work of each phase of this Section means acceptance of existing conditions.

02210.33 PREPARATION:

- A. Rough Grading:
1. General: Identify required lines, levels, contours, and datum.
2. Utilities: Identify known below grade utilities. Stake and flag locations. Identify and flag above grade utilities. Maintain and protect existing utilities remaining which pass through work area. Notify utility company to remove and/or relocate utilities. Upon discovery of unknown utility or concealed conditions, discontinue affected work; notify Owner.
B. Finish Grading:
1. General: Eliminate uneven areas and low spots. Remove debris, roots, branches, stones in excess of 1/2 inch in size.
2. Scarifying: Scarify subgrade to depth of 6 inches where topsoil is required. Scarify in areas where equipment used for hauling and spreading/topsoil has compacted subsoil.

02210.34 PROTECTION:

- A. Protect trees, shrubs, lawns, and other features to remain as portion of final landscaping. Protect bench marks, existing construction and above or below grade utilities which are to remain. Repair damage at no additional cost to Owner.

02210.35 GRADING:

- A. Rough: Cut or fill and machine grade site as shown on the Drawings, to drain as indicated, allowing for thickness of paving sub-base and paving. Where fill is required, use suitable excavated clean material, product of cut operation and/or furnish equal borrow if excavated material is not adequate for use. Place fill in horizontal lifts not in excess of 8 inches thick after compaction by rolling and/or tamping. Rough grade to a tolerance of plus or minus one inch.
B. Finish:
1. General: Establish grades by means of grade stakes placed at corners of units at abrupt changes of grade and elsewhere as required.
2. Topsoil:
a. General: Provide a 6 inch layer of topsoil, unless shown otherwise on the Drawings, in areas noted "planting" and in other areas where existing topsoil has been disturbed or otherwise made unusable.
b. Placing: Use topsoil in relatively dry state. Place during dry weather. Fine grade eliminating roots or low areas. Maintain levels, profiles, and contours of subgrade. Remove stone, roots, grass, weeds, debris, and foreign materials while spreading. Manually spread around trees, plants, buildings, etc. to prevent damage. Lightly compact placed topsoil.
C. Tolerance: Top of topsoil, plus or minus 1/2 inch.

02210.36 CLEANUP:

- A. Upon completion of work of this Section, remove related debris from the premises.

END OF SECTION

SECTION 02281 TERMITE CONTROL

02281.1 GENERAL:

- 02281.11 SCOPE OF WORK:
A. Perform all work required for Soil Poisoning, i.e., Termite Control indicated herein.

02281.12 QUALITY ASSURANCE:

- A. All work shall be performed by a licensed and certified application of termite control chemicals.
B. Special requirements of regulatory agencies to submit certifications:
1. All materials and applications shall conform to all applicable Federal, State and Local codes, ordinances and Environmental Protection Agency controls and National Pest Control Association (N.P.C.A.).
2. System is to comply with all VOC (Volatile Organic Compounds) requirements and regulations of the EPA, Occupational Safety Health Administration (OSHA), State, County, City and Local Air Control District.
3. Materials to be labeled as Restrictive Use Products (RUP).

END OF SECTION

02281.13 HANDLING, DELIVERY AND STORAGE:

- A. Chemicals shall be delivered to job site just prior to intended use.
B. Toxic chemicals shall be stored in such a manner as to be inaccessible to persons other than licensed authorized applicators.

02281.14 JOB CONDITIONS:

- A. All areas to be treated shall be field inspected to determine soil composition, Dosage and type of termite control shall be selected to suit these conditions.
B. It shall be the responsibility of the Contractor to coordinate and schedule the termite control application with the earthwork, concrete footing, and concrete work to provide a smooth and orderly progression of the work.
C. All indicated areas must be treated. If concrete slabs are in place, voids, etc. are covered or capped prior to the application of termite control, the Contractor shall do all drilling, rodding, voiding required to insure proper application at no additional cost to Owner or delay in schedule.

02281.15 REQUIREMENTS, CODES:

- A. The following are minimum requirements and shall govern, except that all Federal, Local and/or State Codes and Ordinances shall govern when their requirements exceed those specified herein.
1. Environmental Protection Agency (EPA)
2. National Pest Control Agency (NPCA)
3. U.S. Department of Agriculture, Forest Service:
a. Forest Pest Leaflet #68.

02281.16 WARRANTY/GUARANTEES:

- A. Upon completion of Soil Poisoning, and as a condition of final acceptance of the Work, submit a written warranty as required herein.
B. The Warranty shall certify that chemicals having the required concentration and rate of application required to prevent attack of the building and contents by subterranean termites for a period of five (5) years commencing from the date of application have been applied, and that if subterranean termite activity is discovered during the five (5) year period, the Soil Poisoning Applicator will retreat the soil and fill in a manner consistent with industry standards and acceptance to the Architect and Owner.
C. The Warranty shall further state that upon receipt of notice of subterranean termite activity from the Owner, the Soil Poisoning Applicator will provide all materials and services necessary to treat the infested area including all costs of access, rodding, drilling, voiding, and moving of building contents, etc. required for treatment for the life of the Warranty.
D. Renewal:
1. The Owner shall have the option to renew the Warranty for an additional five (5) years at the end of the initial five (5) year period.

02281.22 MANUFACTURER:

- A. A specific product or material manufactured by the following listed manufacturer is "acceptable", products by other manufacturers may be considered "or approved" if they meet or exceed the product, manufacturer and material can give evidence of exact compliance with the contract Documents, including this section and all regulatory agencies.
1. "Durban TC" as manufactured by Dow AgroSciences, LLC (Dow Chemical Company).
2. Of approved equal.

02281.22 MATERIALS:

- A. Termite control chemical shall be organic phosphate type. Chemicals containing Chlordane will not be allowed.
B. Termite control shall be potable, clean and free from impurities.
C. Chemicals used shall be registered in accordance with Federal Insecticide, Fungicide and Rodenticide Act, as amended 9-30-78, for soil treatment and be registered with, and approved by, the Production and Marketing Administration of the FDA.

02281.23 MIXING:

- Chemical concentrate shall be mixed with water to obtain a one-half percent (.5%) emulsion. Mix shall be in strict compliance with manufacturers printed instructions.

02281.31 EXECUTION:

- 02281.31 PREPARATION:
A. Construction of footings, foundation walls, and masonry walls including backfill, and placement of the under floor porous fill shall be completed prior to application of termite control chemical.
B. Area to receive termite treatment shall be free of organic material, wood, construction debris, etc. which would act to bridge the protected area. The Termite Control Applicator shall notify the Contractor, in writing, with a copy to the Architect and Owner, of any area required to be cleared and shall not proceed with termite control application until area is in satisfactory condition to receive treatment.

02281.33 APPLICATION:

- A. Termite control shall be applied in two (2) separate treatments:
1. The first treatment shall be applied to the entire interior and exterior perimeter of all foundations walls, around all piers, under floor piping, conduit, raceways, etc., both sides of all interior foundation walls, and around all piers and over the entire under slab area.
2. Exterior perimeter shall include all the area within four (4) feet of the exterior building wall line as well as the entire area under all slabs, walks, ramps, curbs, pads, etc., attached to the building.
3. Where monolithic construction of concrete floor slab and grade beam or foundation occur, termite control shall be applied to the entire underside of the concrete floor slab and along both sides of the foundation prior to placing the floor slab.
4. Special attention shall be directed to the treatment of any voids, joints, sleeves, etc., within the building perimeter to insure treatment of all critical termite entry points.
5. Second treatment shall be applied after final grading has been completed, but prior to installation of paved areas abutting building. Treatment shall be applied to the exterior grade perimeter to a depth of four (4) feet of the building line.
a. Treatment shall be applied in any area where additional soil material has been deposited after application of first treatment (i.e., fill, aggregate base for pavement, topsoil, etc.) or there are other changes indicate termite treatment may have been disturbed.
b. Termite control chemicals shall be applied in strict accordance with manufacturer's printed instructions. Water additives must be carefully controlled to assure proper finished mix of the chemical compound. Uniform application of the chemical is essential. Chemicals must be formulated so that quantities can be applied evenly. Care shall be exercised to ensure the proper rate of application.
c. Treatment shall be applied at least twelve (12) hours prior to concrete slab placement. Apply only after substrate preparation for slab is complete. Treatment shall not be made when soil or fill is excessively wet. Do not disturb treated areas.

02281.34 PROTECTION:

- A. Detailed instructions appear on all labels and shall be strictly complied with.
1. Provide facilities and supplies to remove accidental exposure or spillage of chemicals from persons.
2. Chemicals are to be used only when wind is calm.
3. Keep chemicals out of the body of water. Do not apply chemicals where runoff is likely to occur. Avoid contamination of water during cleanup operation.

02281.36 CLEANUP:

- A. Remove all chemical containers and application equipment from the job site upon completion of termite treatment. Empty drums shall be returned to a drum reconditioner or other approved means of disposal and are not to be reused or disposed of on site.
B. Upon completion of work of this Section, remove related debris from the premises.

END OF SECTION

DIVISION 3 CONCRETE

SECTION 03010 CONCRETE WORK

03010.1 GENERAL:

- 03010.11 RELATED DOCUMENTS:
A. Drawings, Specifications, Division 1 and Contract.
03010.12 DESCRIPTION OF WORK:
A. The extent of concrete work shown on drawings.

03010.13 QUALITY ASSURANCE:

- A. Comply with provisions American Concrete Institute 318 "Building code Requirements for Reinforced Concrete" and 301 "Structural Concrete for Buildings" except where more stringent requirements are stated or specified.
B. Form all footings and foundations. Unformed placement of concrete is not allowed.
C. Conform to ACI 305R when concreting during hot weather.
D. Conform to ACI 306R when concreting during cold weather.

03010.2 PRODUCTS:

- 03010.21 FORM MATERIALS:
A. Forms for Concrete Surfaces: Plywood, lumber, metal, or other industry acceptable material.
B. Provide commercial formulation form-coating compounds that will not bond with, stain nor adversely affect concrete surfaces.

03010.22 REINFORCING MATERIALS:

- A. Reinforcing Bars: ASTM A-615 Grade 60, deformed.
B. Welded Wire Fabric: Plain cold-drawn welded steel wire, ASTM A-185.
C. Provide metal bolsters, chairs and other devices for spacing, supporting and fastening reinforcing bars and welded wire fabric in place.

03010.23 CONCRETE MATERIALS:

- A. Portland Cement: ASTM C150, Type I or II.
B. Normal Weight Aggregates: ASTM C33, with maximum 1-1/2" for footing and other mass concrete and 3/4" maximum for other concrete.
C. Water: Clean and not detrimental to concrete.
D. Calcium Chloride: Not permitted.
E. Admixtures: Do not use without approval from Structural Engineer.

03010.24 ACCESSORIES:

- A. Provide 10 mil polyethylene vapor barrier cover over prepared base material for all floor slabs.
B. Provide base course for all floor slabs of evenly graded natural gravel 3/8" maximum to 1/8" minimum (see gravel) or natural sand.
C. Non-shrink Cement Grout Below Column Base Plates: Non-metallic, flowable, high strength (4000 p.s.i., min. at 7 days) conforming to CRD-C621.
D. Membrane Curing Compound: ASTM C309.
E. Absorptive Mats: ASTM C171.
F. Bonding Agent: Polymer resin emulsion.

03010.25 PROPORTIONING AND DESIGN OF MIXES:

- A. Use proprietary standard design mix that meets the following qualities and furnish satisfactory evidence of such. Accompany each mixer truck with a delivery ticket noting type of concrete and materials. Note placement location of each load on these tickets and file all tickets on the job site.
B. Concrete: Proportion to design strengths indicated on drawings.

03010.26 CONCRETE MIXES:

- A. Ready-Mix Concrete: Comply with requirements of ASTM C 94, and as herein specified.
1. Addition of water to the batch with insufficient slump is not permitted.
2. When air temperature is between 85 degrees F (30 degrees C) and 90 degrees F (32 degrees C) reduce mixing and delivery time from 1-1/2 hours to 75 minutes, and when air temperature is above 90 degrees F (32 degrees C), reduce mixing and delivery time to 60 minutes.

03010.27 CONCRETE MIXES:

- A. Ready-Mix Concrete: Comply with requirements of ASTM C 94, and as herein specified.
1. Addition of water to the batch with insufficient slump is not permitted.
2. When air temperature is between 85 degrees F (30 degrees C) and 90 degrees F (32 degrees C) reduce mixing and delivery time from 1-1/2 hours to 75 minutes, and when air temperature is above 90 degrees F (32 degrees C), reduce mixing and delivery time to 60 minutes.

03010.3 EXECUTION:

- 03010.31 FORMS:
A. Arrange and assemble form work which is readily removable without damage to cast-in-place concrete surfaces and adjacent materials.
B. Construct forms to be stored in such a manner as to be inaccessible to persons other than licensed authorized applicators.
C. Provide metal bolsters, chairs and other devices for spacing, supporting and fastening reinforcing bars and welded wire fabric in place.

03010.32 PLACING REINFORCEMENT:

- A. Accurately position, support and secure reinforcement against displacement by form work, construction, or concrete placement operations.
1. All bars shall be continuous in longest length possible with minimum 36 bar diameter laps.
2. Bent corner reinforcing shall be provided to lap and match horizontal reinforcement.
3. Minimum coverage for any reinforcing steel shall be 2". Verify actual minimum w/cover codes.
4. Welding for fabrication and installation and is not permitted.
B. Install welded wire fabric in its long lengths as practicable. Lap adjoining pieces at least two full mesh and lace splices with wire.

03010.33 INSTALLATION OF EMBEDDED ITEMS:

- A. Set and build into work anchorage devices and other embedded items required for other work that is attached to, or supported by, cast-in-place concrete.

03010.34 PREPARATION OF FORM SURFACES:

- A. Coat contact surfaces of forms with a form-coating compound before reinforcement is placed.

03010.35 FORM CLEANING:

- A. Clean forms to remove foreign matter within forms. Do not use de-icing salts. Do not use water to clean out forms, unless form work and concrete construction proceed within heated enclosure. Use compressed air or other means to remove foreign matter.
B. Comply with American Concrete Institute 304, and herein specified.
C. Install vapor barrier under interior slabs on grade. Lap joints minimum 6-inches and seal airtight.
D. Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness.
E. Consolidate placement of concrete by mechanical vibrating equipment supplemented by hand spading, rodding or tamping (except for slabs).

03010.36 FINISHING OPERATIONS:

- A. Deposit and consolidate concrete slabs in a continuous operation.
B. Provide moisture curing by one of the following methods for a period of 7 days.
1. Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width.
2. Curing compounds in accordance with ASTM C-309 may be used as directed by the Owner.
K. When cold weather conditions exist that would seriously impair quality and strength of concrete, place concrete in compliance with American Concrete Institute 306R.
J. Do not use calcium chloride, salt and other materials containing antifreeze agents or chemical accelerators.
I. When hot weather conditions exist that would seriously impair quality and strength of concrete, place concrete in compliance with American Concrete Institute 305R.
K. When cold weather conditions exist that would seriously impair quality and strength of concrete, place concrete in compliance with American Concrete Institute 306R.

03010.37 FINISH OF FORMED SURFACES:

- A. Concrete surfaces exposed-to-view in the finish work shall not have texture imparted by form facing material used. Repair and patch tie holes and defective areas and chip off fins and other projections exceeding 1/4" in height.

03010.38 MONOLITHIC SLAB FINISHES:

- A. Apply floor finish to monolithic slab surfaces. After screeding, consolidating, and leveling concrete slabs, do not work surface until ready for floating. Begin floating when surface water has disappeared or when concrete has stiffened sufficiently to permit operation of power driven floats.
B. Provide 1/2" pitch in 4'-0" diameter of all floor drains.

03010.39 CONCRETE SLAB CURING AND PROTECTION:

- A. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
B. Provide moisture curing by one of the following methods for a period of 7 days.
1. Cover concrete surface with specified absorptive cover, thoroughly saturating cover with water and keeping continuously wet.
2. Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width.
3. Curing compounds in accordance with ASTM C-309 may be used as directed by the Owner.

03010.310 REMOVAL OF FORMS:

- A. Form work may not be removed in less than 5 days or until concrete

SUBMITTALS:

General: Submit the following in accordance with Conditions of Contract and Division 1 Specifications Sections.

Product data for products used in miscellaneous metal fabrications, including paint products and grout.

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.

Qualification data for firms and persons specified in Quality Assurance' project to demonstrate their capabilities and experience. Include list of completed projects with project name, addresses, names of Architects and Owners, and other information specified.

QUALITY ASSURANCE

Fabricator Certifications: 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.

Quality 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."

Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

PROJECT CONDITIONS

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.

SEQUENCING AND SCHEDULING

Sequence and coordinate installation of wall handrails as follows:

Mount handrails only on completed walls. Do not support handrails temporarily by any means not satisfying structural performance requirements.

Mount handrails only on gypsum board assemblies reinforced to received anchors, and where the location of concealed anchor plates has been clearly marked for benefit of installer.

PART 2 - PRODUCTS

FERROUS METALS

Metal Surfaces, General: For metal fabrications exposed to view upon completion of the work, provide materials selected for their surface finish, 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.

Steel Plates, Shapes, and Bars: ASTM A 36.

Steel Tubing: Product type (manufacturing method) and as follows:

Cold-Formed Steel Tubing: ASTM A 500, grade as indicated below:

Grade B, unless otherwise indicated or required for design loading.

Steel Pipe: ASTM A 53; finish, type, and weight class as follows:

Black finish or galvanized finish (for exterior), unless otherwise indicated.

Type S, Grade B, standard weight (Schedule 40), unless otherwise indicated, or another weight required by structural loads.

Brackets, Flanges and Anchors: Cast or formed metal of the same type material and finish as supported rails, unless otherwise indicated.

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.

Welding Rods and Bare Electrodes: Select in accordance with AWS specifications for the metal alloy to be welded.

Provide prefabricated corners, bends and other profiles shown. Maintain round shape, same as handrail, without flattening or distortion. Provide fittings complete with inserts, splices and concealed connections to form permanent, tight-fitting connections with hairline joints.

GROUT AND ANCHORING CEMENT

Nonshrink Nonmetallic Grout: Premixed, factory-packages, nonstaining, noncorrosive, nongaseous group complying with CR CRD-C 621. Provide grout specifically recommended by manufacturer for interior and exterior applications of type specified in this section.

Available Products: subject to compliance with requirements, products that may be incorporated in the work include but are not limited to the following:

Nonshrink Nonmetallic Grouts:

"Euco N-S Grout"; Euclid Chemical Co. "Masterflow 719"; Master Builders "Five Star Grout"; U.S. Grout Corp.

FASTENERS

General: Provide zinc-coated fasteners for exterior use or where built into exterior walls. Select fasteners for the type, grade, and class required.

PAINT

Shop Primer for Ferrous Metal: Manufacturer's or fabricator's standard, fast-curing, lead-free, universal modified epoxy primer selected for 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.

CONCRETE FILL AND REINFORCING MATERIALS

Nonslip Aggregate Finish: Factory-graded, packaged material containing fused aluminum oxide grits or crushed emery as abrasive aggregate; rust-proof and nonglazing; unaffected by freezing, moisture, or cleaning materials.

FABRICATION - GENERAL

Form metal fabrications from materials for 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.

Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges.

Shear and punch metals cleanly and accurately. Remove burrs.

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.

Remove sharp or rough areas on exposed traffic surfaces.

Weld corners and seams continuously to comply with AWS recommendations and the following:

Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.

Obtain fusion without undercut or overlap.

Remove welding flux immediately.

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.

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 bolt. Locate joints where least conspicuous.

Provide for anchorage of type indicated; coordinate with supporting structure. Fabricate and space anchoring device to provide adequate support for intended use.

Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble items only as necessary for shipping and handling limitations. Use and maintain tags that maintain structural value of joined pieces. Clearly mark units for reasonably and coordinated installation.

Cut, reinforce, drill and tap miscellaneous metal work as indicated to receive finish hardware, screws, and similar items.

Fabricate joints that will be exposed to weather in a manner to exclude water, or provide weep holes where water may accumulate.

ROUGH HARDWARE

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.

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.

LOOSE BEARING AND LEVELING PLATES

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 for grouting as required. Galvanize after fabrication.

LOOSE STEEL LINTELS

Fabricate loose structural steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated.

Weld adjoining members together to form a single unit where indicated.

Size loose lintels for equal bearing of one inch per foot of clear span but no less than 8 inches bearing at each side of openings, unless otherwise indicated.

SHELF AND RELIEVING ANGLES

Fabricate shelf and relieving angles from steel angles of sizes indicated and for attachment to concrete framing. Provide slots and holes to receive 1/2 inch bolts to receive not more than 6 inches from ends and not more than 24 inches o.c., unless otherwise indicated. Provide hot-dip galvanized angles where indicated on drawings.

For Cavity walls, provide vertical channel brackets to support shelf/relieving angles from back-up masonry and concrete. Align expansion joints in angles with indicated expansion joints in cavity wall exterior wythe.

Furnish wedge-type concrete inserts, complete with fasteners, for attachment of shelf angles to cast-in-place concrete.

STEEL PIPE RAILINGS AND HANDRAILS - Guard Rail at Front Entrance

General: Fabricate pipe railings and handrails 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.

Interconnect railing and handrail members by butt-welding or welding with internal connectors, at fabricator's option, unless otherwise indicated.

At tee and cross intersections, notch ends of intersecting members to fit contour of pipe to which end is joined and weld all around.

Form changes in direction of railing member as follows:

By radius bends of radius indicated.

By mitering at elbow bends

By bending.

By any method indicated above, applicable to change of direction involved.

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 deformity exposed surfaces of pipe.

Provide wall returns at ends of wall-mounted handrails, unless otherwise indicated.

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 pipe and adjoining wall surface is 1/2 inch or less.

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.

For railing posts set in concrete fabricate sleeves from steel pipe not less than 6 inches long and with an inside diameter not less than 1/2 inch greater than the outside diameter of post, with steel plate closure welded to bottom of sleeve.

Provide friction fit, removable covers designed to keep sleeves clean and hold top edge of sleeve 1/2 inch below finished surface of concrete.

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 provide adequate bearing to prevent bracket rotation and oversteering of substrate.

For interior steel railings formed from steel pipe with black finish, provide nongalvanized ferrous metal fittings, brackets, fasteners, and sleeves, except galvanize anchors embedded in exterior masonry and concrete construction.

PART 3 - EXECUTION

PREPARATION

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.

Center nosings on read widths with noses flush with riser faces and tread surfaces.

Set sleeves in concrete with tops flush with finish surface elevations; protect sleeves from water and concrete entry.

INSTALLATION GENERAL

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.

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.

Provide temporary bracing or anchors in formwork for items that are to be built into concrete masonry or similar construction.

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.

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:

Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.

Obtain fusion without undercut or overlap.

Remove welding flux immediately.

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.

INSTALLATION OF STEEL PIPE RAILINGS AND HANDRAILS

Adjust railings prior to anchoring to ensure matching alignment at abutting joints. Space posts at spacing indicated, or if not indicated, as required by design loadings. Plumb posts in each direction. Secure posts and railing ends to building construction as follows:

Anchor posts to steel with steel wall flanges, angle type or floor type as required by conditions, welded to posts and bolted to steel supporting members.

Anchor rail ends into concrete and masonry with steel ground flanges welded to rail ends and anchored into wall construction with lead expansion shields and bolts.

Anchor rail ends to steel with steel oval or round flanges welded to rail ends and bolted to structural steel members, unless otherwise indicated.

Install removable railing sections where indicated in slip-fit metal sockets cast into concrete. Accurately locate sockets to match post spacing. See Plans for locations

Secure handrails to wall with wall brackets and end fittings. Provide bracket with not less than 1-1/2 inch clearance from inside face of handrail and finished wall surface. Locate brackets as indicated, or if not indicated, at spacing required to support structural loads. Secure wall brackets and wall return fittings to building construction as follows:

Use type of bracket with flange tapped for concealed anchorage to threaded hanger bolt.

For concrete and solid masonry anchorage, use drilled-in expansion shield and either concealed hanger bolt or exposed lag bolt, as applicable.

For hollow masonry anchorage, use toggle bolts having square heads.

For wood stud partitions, use lag bolts set into wood backing between studs. Coordinate with stud installations for accurate location of backing members.

For steel framed gypsum board assemblies, fasten brackets directly to steel framing or concealed anchors using self-tapping screws of size and type required to support structural loads.

Expansion Joints: Provide expansion joints at locations indicated, or if not indicated, at intervals not to exceed 40 feet. Provide slip joint with internal sleeve extending 2 inches beyond joint on either side; fasten internal sleeve securely to one side; locate joint within 6 inches of posts.

ADJUST AND CLEAN

Restore finishes damaged during installation and construction period so that no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit or provide new units.

Touch-up painting: 1. Clean field welds, connections, and abraded areas of shop paint. 2. Paint exposed areas with shop paint. 3. Apply minimum dry film thicknesses of 2.0 mils.

For galvanized surfaces: Clean and apply repair paint per ASTM A-780.

END OF SECTION 05500

SECTION 0515 LADDERS

0515.1 - GENERAL

0515.1.1 SUMMARY

SECTION INCLUDES: ALUMINUM ACCESS LADDER TO PROVIDE ACCESS TO ROOF. RELATED SECTIONS: SECTION 05500 - METAL FABRICATIONS; FASTENERS AND INSTALLATION REQUIREMENTS USED TO ATTACH TO STRUCTURE. SECTION 06100 - ROUGH CARPENTRY; BLOCKING FOR LADDER ATTACHMENT.

0515.1.2 REFERENCES

A. AA ALUMINUM ASSOCIATION. B. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) PUBLICATIONS: 1. ASTM B209 - STANDARD SPECIFICATION FOR ALUMINUM AND ALUMINUM-ALLOY SHEET AND PLATE. 2. ASTM B221 - STANDARD SPECIFICATION FOR ALUMINUM AND ALUMINUM-ALLOY EXTRUDED BARS, RODS, WIRES, PROFILES AND TUBES. 3. OSHA 1910.27 - FIXED LADDERS.

0515.1.3 PERFORMANCE REQUIREMENTS

A. ACCESS LADDER SHALL BE DESIGNED TO SUPPORT 300 POUNDS LIVE LOAD.

0515.1.4 SUBMITTALS

A. PROVIDE IN ACCORDANCE WITH SECTION 01330 - SUBMITTAL PROCEDURES: 1. PRODUCT DATA FOR LADDER. 2. SHOP DRAWINGS: SHOW PROFILES, ACCESSORIES, LOCATION, AND DIMENSIONS. 3. SAMPLES: MANUFACTURER TO PROVIDE UPON REQUEST; SIZED TO REPRESENT MATERIAL ADEQUATELY. 4. CONTRACT CLOSEOUT: LADDER SAFETY POST MANUFACTURER SHALL PROVIDE THE MANUFACTURER'S WARRANTY PRIOR TO THE CONTRACT CLOSEOUT.

0515.1.5 PRODUCT HANDLING:

A. ALL MATERIALS SHALL BE DELIVERED IN MANUFACTURER'S ORIGINAL PACKAGING. B. STORE MATERIALS IN A DRY, PROTECTED, WELL-VENTED AREA. THE CONTRACTOR SHALL THOROUGHLY INSPECT PRODUCT UPON RECEIPT AND REPORT DAMAGED MATERIAL IMMEDIATELY TO THE MANUFACTURER'S CARRIER AND NOTE SUCH DAMAGE ON THE CARRIER'S FREIGHT BILL OF LADING. C. REMOVE PROTECTIVE WRAPPING IMMEDIATELY AFTER INSTALLATION.

A. PROPOSALS FOR SUBSTITUTION PRODUCTS SHALL BE ACCEPTED ONLY FROM BIDDING CONTRACTORS AND NOT LESS THAN (10) WORKING DAYS BEFORE BID DUE DATE. CONTRACTOR MUST PROVE AND GUARANTEE THAT PROPOSED SUBSTITUTION SHALL MEET THE PERFORMANCE AND QUALITY STANDARDS OF THIS SPECIFICATION.

0515.1.7 JOB CONDITIONS:

A. VERIFY THAT OTHER TRADES WITH RELATED WORK ARE COMPLETE BEFORE INSTALLING MATERIAL WORKMANSHIP FOR A PERIOD OF FIVE YEARS FROM THE DATE OF PURCHASE. SHOULD A PART FAIL TO FUNCTION IN NORMAL USE WITHIN THIS PERIOD, MANUFACTURER SHALL FURNISH A NEW PART AT NO CHARGE.

0515.1.8 WARRANTY/GUARANTEES:

A. MANUFACTURER'S STANDARD WARRANTY: MATERIALS SHALL BE FREE OF DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF FIVE YEARS FROM THE DATE OF PURCHASE. SHOULD A PART FAIL TO FUNCTION IN NORMAL USE WITHIN THIS PERIOD, MANUFACTURER SHALL FURNISH A NEW PART AT NO CHARGE.

0515.2 - PRODUCTS

0515.2.1 ACCEPTABLE MANUFACTURERS:

A. PRODUCTS OF THE FOLLOWING MANUFACTURERS OR APPROVED EQUAL ARE ACCEPTABLE AND ARE LISTED IN THIS SECTION TO ESTABLISH REQUIREMENTS FOR PRODUCT TYPE, CHARACTERISTICS, PERFORMANCE, AND QUALITY: 1. O'KEEFE'S INC., 325 NEW HALL ST., SAN FRANCISCO, CA 94124. ASD, TOLL FREE TEL: (888) 653-3333, TEL: (415) 824-4900, FAX: (415) 824-4900, EMAIL: INFO@OKEEFES.COM. B. REQUESTS TO USE EQUIVALENT PRODUCTS OF OTHER MANUFACTURERS MUST BE SUBMITTED IN ACCORDANCE WITH SECTION 01630 - PRODUCT SUBSTITUTION PROCEDURES.

0515.2.2 APPLICATIONS/SCOPE

A. FIXED ACCESS LADDER: 1. HEAVY DUTY TUBULAR RAIL; MODEL 501 AS MANUFACTURED BY O'KEEFE'S, INC.

0515.2.3 FINISHES

A. CLEAR ANODIC FINISH: AA-M10C22A41 MECHANICAL FINISH AS FABRICATED. ARCHITECTURAL CLASS 1, CLEAR COATING 0.016mm OR THICKER.

0515.2.4 FABRICATION:

A. RUNGS: NOT LESS THAN 1-1/4 INCHES (32mm) IN SECTION AND 1-3/8 INCHES (467mm) LONG, FORMED FROM TUBULAR ALUMINUM EXTRUSIONS, SQUARED AND DEEPLY SERRATED ON ALL SIDES. B. HEAVY DUTY TUBULAR SIDE RAILS: ASSEMBLED FROM TWO INTERLOCKING ALUMINUM EXTRUSIONS NOT LESS THAN 1/8 INCH (3mm) WALL THICKNESS BY 3 INCHES (76mm) WIDE. CONSTRUCTION SHALL BE SELF-LOCKING STAINLESS STEEL FASTENERS, FULL PENETRATION WELDS AND CLEAN, SMOOTH AND BURR-FREE SURFACES. C. LADDER SAFETY POST. 1. RETRACTABLE HAND-HOLD AND TIE-OFF. 2. THE LADDER SAFETY POST SHALL BE PRE-ASSEMBLED FROM THE MANUFACTURER. 3. PERFORMANCE CHARACTERISTICS: a. POSTS SHALL ENGAGE AUTOMATICALLY WHEN FULLY EXTENDED. b. SAFETY POST SHALL HAVE CONTROLLED UPWARD AND DOWNWARD MOVEMENT. c. POST SHALL DISENGAGE TO ALLOW IT TO BE RETURNED TO ITS LOWERED POSITION. d. HARDWARE: ALL MOUNTING HARDWARE SHALL BE STAINLESS STEEL AND PROVIDED BY THE MANUFACTURER. e. FACTORY FINISH TO MATCH LADDER.

0515.3 - EXECUTION

0515.3.1 INSPECTION

A. COORDINATE ANCHORAGES. B. DO NOT BEGIN INSTALLATION UNTIL SUPPORTING STRUCTURE IS COMPLETE AND LADDER INSTALLATION WILL NOT INTERFERE WITH SUPPORTING STRUCTURE WORK.

0515.3.2 INSTALLATION

A. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND IN PROPER RELATIONSHIP WITH ADJACENT CONSTRUCTION.

0515.3.3 PROTECTION

A. PROTECT INSTALLED PRODUCTS UNTIL COMPLETION OF PROJECT. B. TOUCH UP, REPAIR OR REPLACE DAMAGED PRODUCTS BEFORE SUBSTANTIAL COMPLETION.

SECTION 05720 - ORNAMENTAL HANDRAILS AND RAILINGS

PART 1 - GENERAL

1.01 section includes

A. Ornamental metal handrails and railings assembled from manufactured components.

1.02 PERFORMANCE REQUIREMENTS

Coordinate structural performance requirements below with applicable local code requirements.

A. Structural Performance of Handrails and Railings: 1. Capable of withstanding the following structural loads without exceeding the allowable design working stress of materials involved: a. Top Rail of Guards: Concentrated load of 200 lbf applied at any point and in any direction, and a uniform load of 50 lbf/ft, applied horizontally and concurrently with uniform load of 100 lbf/ft, applied vertically downward. Concentrated and uniform loads need not be assumed to act concurrently. b. Handrails Not Serving as Top Rails: Concentrated load of 200 lbf applied at any point and in any direction, and a uniform load of 50 lbf/ft, applied in any direction. Concentrated and uniform loads need not be assumed to act concurrently. c. Infill Area of Guards: Horizontal concentrated load of 200 lbf applied at 1 sq. ft. at any point in system, including panels, intermediate rails, balusters, or other elements composing infill area. Load on infill area need not be assumed to act concurrently with loads on top rails.

1.03 SUBMITTALS

A. Product Data: For handrails and railings, grout, anchoring cement, and paint products indicated. B. Shop Drawings: Include plans, elevations, sections, details of installation, attachments to other work, and structural computations. C. Samples: For each exposed finish required.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. As indicated on the drawings.

2.02 METALS

A. Steel and Iron:

1. Steel Tubing: ASTM A 500, grade as required by structural loads. 2. Steel Rails and Bars: ASTM A 29A 29M, Grade 1010. 3. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M. 4. Iron Castings: Malleable iron, ASTM A 47, or gray iron, ASTM A 48.

2.03 MISCELLANEOUS MATERIALS

A. Fasteners: Same basic metal as fastened metal; concealed, unless otherwise indicated or unavoidable, and standard with systems indicated. B. Anchoring and Securing: Fasteners with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined per ASTM E 488. C. Shop Primer for Ferrous Metal: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with performance requirements in FS TT-P-664; with good resistance to corrosion; and compatible with finish paint systems indicated. D. Shop Primer for Galvanized Steel: Zinc-oxide primer formulated for priming zinc-coated steel and for compatibility with finish paint systems indicated. E. Grout and Anchoring Cement: Premixed, nonshrink, nonmetallic grout complying with ASTM C 1107 or erosion-resistant, nonshrink anchoring cement; recommended by manufacturer for use indicated.

2.04 FABRICATION

A. General: Fabricate to design, dimensions, and details indicated, but not less than that required to support structural loads. 1. Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials. B. Form changes in direction of railing members by bending, mitering, or inserting prefabricated flush-bow fittings. 1. Form curves by bending in jigs to produce uniform curvature without buckling, twisting, cracking, or otherwise deformed exposed surfaces. C. Welded Connections: Connect handrail and railing members by welding. Cope and weld or use welded-in fittings. Weld connections continuously. D. Nonwelded Connections: Connect handrail and railing members with concealed mechanical fasteners and fittings. E. Fabricate splice joints for field connection using epoxy structural adhesive. F. Brackets, Flanges, Fittings, and Anchors: Fabricate wall brackets, flanges, miscellaneous fittings, and anchors to connect handrails and railings to other construction. 1. Cast or form of same metal and finish as supported rails. G. Close exposed ends of handrail and railing members with prefabricated end fittings. 1. Provide wall returns at ends of wall-mounted handrails.

2.05 FINISHES

A. Shop-Primed Galvanized Finish for exterior railings: Hot-dip galvanize after fabrication to comply with ASTM A 123; clean, treat with metallic-phosphate process and apply primer. B. Shop-Primed Steel Finish for interior railings: Prepare per SSPC-SP 7, "Brush-off Blast Cleaning," and apply primer.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Installation, General: Perform cutting, drilling, and fitting required to install handrails and railings. Set units accurately in location, alignment, and elevation. 1. Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials. 2. Set posts plumb within a tolerance of 1/16 inch in 3 feet. 3. Align rails so variations from level for horizontal members and from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet. B. Anchor posts by inserting into precast steel pipe sleeves or formed or core-drilled holes where indicated on drawings and grouting around pipe. C. Anchor posts to metal surfaces with fittings designed for railing system and for this purpose. D. Anchor rail ends to concrete and masonry with flanges connected to rail ends and anchored with post-installed anchors and bolts. E. Attach handrails to wall with wall brackets or end fittings. 1. For wood framing, use hanger or lag bolts set into wood backing between studs. 2. For steel-framed gypsum board assemblies, use hanger or lag bolts set into wood backing between studs or fasten to steel framing or concealed reinforcements using self-tapping screws of size and type required to support structural loads. F. Touch up painted surfaces and finishes after erection. Clean abraded areas and touch up paint with the same material as used for shop painting.

END OF SECTION 05720

DIVISION 6 WOOD AND PLASTICS

SECTION 06100 ROUGH CARPENTRY

C. Concrete: Where work of this Section will be applied to concrete, provide surfaces that are smooth with finish equal to one that is light steel troweled followed by a fire hair broom.

D. Decks:

- Slope deck surfaces to drains that have flanges at membrane level which are flush with deck surfaces.
- Rigidly install pipe, vents and other surface protrusions, properly flash them, and cover to prevent entry of membrane materials.

E. Metal flashings: Where metal flashings are substrate to waterproofing membrane, set the flashings in continuous bedding bead of urethane sealant; install sealant S-bead between metal laps and mechanically fasten to substrate along leading edges at every 4" on center, staggered linearly, to lay flat without fishmouths.

F. Joints: Configuration shall be consistent with this Section and with all other requirements of the Contract Documents.

1.06 WARRANTY

A. Deliver to the Owner signed copies of the following written warranties against defective materials and workmanship for a period of two years following date of completion. Warrant that installed waterproofing membrane system shall be free of defects including adhesive failure, cohesive failure, and waterproofing failure.

- Manufacturer's standard warranty covering materials;
- Applicator's standard warranty covering workmanship.

PART 2 - PRODUCTS

2.01 GENERAL

A. Provide a complete fluid applied elastomeric waterproofing membrane system having the following minimum attributes:

- High solids pure polyurethane designed for waterproofing concealed building components subject to hydrostatic head;
- Designed for use under ceramic tile on mortar bed and epoxy thinstert ceramic tile;
- Complying with ASTM C636-89a;
- Acceptable products:
 - Vulkem 360NF
 - Vulkem 360SL or 350R
 - or prior approved equal

2.02 ACCESSORIES

A. Primer: As recommended by waterproofing membrane system manufacturer;

B. Joint backing: Closed-cell, polyethylene rod as recommended by membrane manufacturer;

C. Elastomeric sheet flashing: 1/16 inch thick by 12 inch wide uncured neoprene sheeting;

E. Sealant:

- Dymecr 240 FC
- Dymecr 240
- Vulkem 227
- or prior approved equal

2.03 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor and approved by the membrane system manufacturer as compatible.

PART 3 EXECUTION

3.01 SURFACE CONDITIONS

A. Coordinate as required with other trades to assure proper and adequate provision in the work of those trades for interface with the work of this Section.

B. Applicator shall examine the areas and conditions under which work of this Section will be performed.

- Verify conformance with manufacturer's requirements;
- Report unsatisfactory conditions in writing to the General Contractor;
- Do not proceed until unsatisfactory conditions are corrected.

3.02 PREPARATION

A. Surface preparation and detailing procedures to be in accord with waterproofing membrane system manufacturer's instructions and recommendations except where more stringent requirements are indicated.

B. Remove to sound concrete all spalled, delaminated, deteriorated or otherwise deficient concrete from structural concrete surfaces to receive polymer-modified cementitious repair mortar; vacuum clean or blow clean with oil-free compressed air to assure all loose particles have been removed.

C. Clean all surfaces to receive membrane system in accord with manufacturer's instructions; vacuum clean or blow clean with oil-free compressed air all surfaces to receive sealants, detailing materials or membrane immediately prior to installation.

D. Rout, clean, prepare and detail surface cracks in accord with manufacturer's instructions; install backer rod where required.

E. Clean metal surfaces to bright metal by wire brushing or mechanical etching; scuff-sand lead flashing and plastic surfaces.

F. Prime surfaces in accord with manufacturer's instructions.

G. Install 1/4" diameter backer rod into corner of all horizontal-to-vertical junctions subject to movement and cover with 1" detail cant of approved sealant; install 1" detail cants at projections, curbs and other overhead details.

H. Install detail coats, joint and crack treatments, and liquid flashings in accord with manufacturer's instructions.

I. Allow detail applications to cure in accord with manufacturer's instructions prior to general application of membrane.

3.03 APPLICATION

A. General: Install waterproofing system in accord with manufacturer's recommendations and instructions as applies to the Work except where more stringent requirements are indicated.

- Waterproofing membrane shall have a minimum 60 mil dry-film thickness on concrete and block masonry substrates, modified to 40 mil dry-film thickness in areas to receive direct application of epoxy thinstert ceramic tile.
- Waterproofing membrane shall have a minimum 60 mil dry-film thickness on plywood substrates.
- Grid deck surfaces to assure proper coverage rates and verify membrane wet-film mil thickness with gauges as work progresses.
- Retain empty product containers during course of work to aid in determining whether completed membrane complies with required average dry-film thickness.

B. Verify proper dry condition of substrate using method recommended by membrane system manufacturer; perform adhesion checks prior to general application of membrane system using field adhesion test method recommended by manufacturer.

C. Mask off adjoining surfaces not to receive membrane system.

D. Wipe clean all detail coats with xylene solvent; do not saturate detail coat.

E. Apply membrane uniformly and allow to cure in accord with manufacturer's instructions.

F. Feather edge when entire area cannot be completed in one day; clean area 6" wide along edge of membrane with xylene solvent on clean white rags prior to startup on next working day; use interlaminary primer per manufacturer's instructions as needed; overlap existing work by 6" with new work.

G. Flood test: Plug drains on deck surfaces and use sand bags or other means to restrict runoff. Flood deck with water to depth of 2" (50 mm) and allow to stand at least 48 hours; repair leaks if occurs and retest.

3.04 FIELD QUALITY CONTROL

A. Applicator shall inspect completed Work one day prior to final covering and effect repairs.

3.05 PROTECTION AND CLEAN-UP

A. Promptly remove primer or membrane system material from adjacent surfaces with MEK, Toluene or Xylene; leave work area in broom clean condition.

B. Prohibit traffic over completed work and protect membrane from damage until protected beneath overlying work.

END OF SECTION

SECTION 07200 - INSULATION

07200.11 RELATED DOCUMENTS:

A. Drawings, Specifications Division 1 and Contract.

07200.12 DESCRIPTION OF WORK:

A. Extent of insulation work is shown on drawings, be generic names or by abbreviations. Applications of insulation specified include the following:

- Wall rigid insulation.
- Blanket/batt building insulation.
- Roof rigid insulation.
- Spray foam insulation

07200.13 ENVIRONMENTAL REQUIREMENTS:

A. Do not install rigid insulation adhesives when temperature or weather conditions are detrimental to successful installation.

07200.14 PRODUCT HANDLING:

A. Do not allow insulation materials to become wet, soiled, or covered with ice or snow. Comply with manufacturer's recommendations for handling, storage and protection during installation.

7200.15 THERMAL INSULATION VALUES:

A. R=11 for interior walls; R-value to be determined for exterior walls; R=20 for roof insulation as shown on drawings.

07200.21 PRODUCTS:

07200.21.1 MATERIALS:

A. Rigid Insulation: Extruded polystyrene plastic board insulation with integral high density skin; minimum 30 p.s.i. compressive strength; k-value of 0.20, 0.1% maximum water absorption; manufacturer's standard lengths and widths.

- "Styrofoam SM" by Dow Chemical U.S.A.
- U.C. Industries "Foamular 400"

B. Mineral/Glass Fiber Blanket/Batt Insulation: Inorganic fibers formed into flexible resilient blankets; density as indicated, but 1.0 pound minimum; k-value of 0.27; manufacturer's standard lengths and widths as required to coordinate with spaces to be insulated; Type II, reflective aluminum foil facing with integral nailing flanges, at exterior wall and roof insulation flame spread rating of 25.

C. Spray foam Insulation, Closed-Cell type.

07200.31 INSPECTION:

Installer must examine substrate and condition under which insulation work is to be performed and must notify contractor of unsatisfactory conditions.

07200.32 INSTALLATION:

A. General:

- Comply with manufacturer's instructions for particular conditions of installation in each case.
- Extend insulation full thickness as shown over entire area to be insulated. Cut and fit tightly around obstructions, and fill voids with insulation.

B. Rigid insulation:

- Set units in accordance with manufacturer's instructions.

C. General Building Insulation:

- Apply insulation units to substrate complying with manufacturer's recommendations to provide permanent placement and support.
- Set vapor barrier to warm side of construction. Do not obstruct ventilation spaces, except for fire-stopping.
- Provide continuous layer of insulation with netting as indicated to maintain position between trusses at top chord eave level.
- Spray foam insulation: Apply to underside of roof deck and/or vertical surfaces as shown on Drawings.

END OF SECTION

SECTION 07210 - INSULATION

PART 1 - GENERAL

RELATED DOCUMENTS:

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

DESCRIPTION OF WORK:

Extent of insulation work is shown on drawings as indicated by provisions of this section.

Applications of insulation specified in this section include the following:

Extruded building insulation at all exterior walls.

Spray-in-place insulation at all roof decks.

Sound Attenuation in interior stud walls and above ceilings where indicated on drawings.

Sound attenuation blankets installed as part of wood-framed gypsum drywall assemblies are specified in this section.

QUALITY ASSURANCE:

Thermal Resistivity: Where thermal resistivity properties of insulation materials are designated by R-values they represent the rate of heat flow through a homogeneous 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 temperature indicated.

Fire Performance Characteristics: Provide insulation materials which are identical to those whose fire performance characteristics, as listed for each material or assembly which insulation is a part, have been determined by testing by UL or other testing and inspecting agency acceptable to authorities having jurisdiction.

SUBMITTALS:

Product Data: Submit manufacturer's product literature and installation instructions for each type of insulation and vapor retarder material required.

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.

DELIVERY, STORAGE, AND HANDLING:

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.

PART 2 - PRODUCTS

ACCEPTABLE MANUFACTURERS:

Available Manufacturers: subject to compliance with requirements and approval by Architect prior to materials and execution. Building products which may be incorporated in the work include, but are not limited to, the following:

- Manufacturers of Extruded Polystyrene Board Insulation:**
- Dow Chemical U.S.A.; "Styrofoam SM/SB"
 - Minnesota Diversified Products, Inc., "Certifoam"
 - UC Industries; "Foamular 250"
- Manufacturers of Glass Fiber Insulation:**
- CertainTeed Corp.
 - Manville Corp.
 - Owens-Corning Fiberglass Corp.
- Manufacturers of Nail Base Insulation:**
- Atlas Roofing Products
- Manufacturers of Spray-In-Foam Insulation**
- Icynene, Inc.
 - Demilec (USA) LLS

Apply Spray-Foam Insulation to underside of roof deck and/or all vertical Truss/heel walls as indicated on drawings.

INSULATION MATERIALS:

General: Provide insulation materials which comply with requirements indicated for materials, compliance with referenced standards, and other characteristics.

Preformed Units: Size to fit applications indicated, selected from manufacturer's standard thickness, widths and lengths.

Required R-Values: Minimum R-20 at underside of roof, R-11 interior walls, 1 1/4" rigid on exterior walls as indicated on drawings.

CAVITY WALL INSULATION (IF INDICATED):

Extruded Polystyrene Board Insulation: Rigid, cellular thermal insulation with closed-cells and integral high density skin, formed by the expansion of polystyrene base resin in an extrusion process to comply with ASTM C 578 for Type indicated; with 5-year aged r-values of 5.4 and 5 and 40 and 75°F (4.4 and 23.9° C), respectively, and as follows:

Type IV, 1.6 lb./cu. ft. min. density, unless otherwise indicated.

INTERIOR CEILING (TOILET AREAS ONLY) AND PARTITION SOUND ATTENUATION BLANKET INSULATION:

Provide 3 1/2" thick acoustical insulation blankets in all interior partitions and above finished ceilings as shown on drawings.

Unfaced Mineral Fiber Blanket/Batt Insulation: Thermal insulation produced by combining mineral fibers of type described below with thermosetting resins to comply with ASTM C 665 for Type I (blankets without membrane facing), and as follows:

- Mineral Fiber Type: Fibers manufactured from glass.**
- Combustion Characteristics:** Passes ASTM E 136 test.
- Surface Burning Characteristics:** Maximum flame spread and smoke developed values of 25 and 50 respectively.

INSULATION AT UNDERSIDE OF ROOF DECK FOR METAL ROOFS

Spray apply foam insulation to a nominal R-20 on bottom side of roof deck as indicated on drawings to completely seal for unvented static attic.

Technical Data:

- Density (ASTM D-1622) 0.5 to 0.62
- Air Permeance (ASTM E-283) 0.004 U/s-m² @75 Pa for 5.25
- Thermal Performance (ASTM C-518) R=6 hr.F°/FTU per inch
- Fire Rating (ASTM E-119) 1-Hour fire rated
- Flame Spread (ASTM E-84) <20, Class 1
- Smoke Development (ASTM E-84) 200
- Oxygen Index (ASTM-D-2869) 25 (Will not sustain a flame)
- Unvented Attic per NEC 310.0
- Water Properties, Hydrophobic (resists water intrusion)
- Food Source per Mold: No.
- Formaldehyde: No
- PHD: No
- Flexible: Yes

FLAT ROOF INSULATION:

Specified in Section 07540.

INSULATION FOAM SEALANT FOR FILLING GAPS AND CRACKS:

Polyurethane-based foam with minimal-expansion formula, moisture resistant skin, and elasticity allowing for movement/shifting within the structure; equal to "Great Stuff Pro Gaps and Cracks Insulating Foam Sealant" by Dow Chemical Company.

PART 3 - EXECUTION

INSPECTION AND PREPARATION:

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.

Clean substrates of substances harmful to insulations or vapor retarders, including removal of projections which might puncture vapor retarders.

INSTALLATION GENERAL:

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.

Extend insulation full thickness as show over entire area to be insulated. Cut and fit tightly around obstructions, and fill voids with insulation. Remove projections which interfere with placement.

Apply a single layer of insulation of required thickness, unless otherwise shown or required to make up total thickness.

INSTALLATION OF CAVITY-WALL INSULATION:

On units of plastic insulation, install small pads of adhesive spaced approximately 1'-0" o.c. both ways on inside face, as recommended by manufacturer. Fit courses of insulation between wall ties and other confining construction in cavity, with edges butted tightly both ways. Press units firmly against inside wythe of masonry or other construction as shown.

INSTALLATION OF GENERAL BUILDING INSULATION:

Apply insulation units to substrate by the 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.

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 with complete installation with mastic or sealant.

PROTECTION:

General: Protect installed insulation and vapor retarders from harmful weather exposures and from possible physical abuses, where possible by non-delayed installation of concealing work or where that is not possible, by temporary covering or enclosure.

END OF SECTION 07210

SECTION 07270 - FIRESTOPPING

PART 1 - GENERAL

1.00 RELATED DOCUMENTS

A. The bidding requirements, contracting requirements, and applicable parts of the contract's DIVISION 1 - GENERAL REQUIREMENTS shall be included in and made part of this Section.

1.01 SUMMARY

A. Provide firestop systems consisting of a material, or combination of materials installed to retain the integrity of fire-rated construction by maintaining an effective barrier against the spread of fire, smoke, and toxic gases through penetrations, building openings, construction joints, or at perimeter fire containment in or adjacent to fire-rated construction in accordance with the requirements of the International Building Code, Sections 712 and 713.

B. Firestop systems shall be used in locations including, but not limited to, the following:

- Penetrations through fire-resistance-rated wall assemblies including both empty openings and openings that contain penetrations.
- Penetrations through fire-resistance-rated floor and roof assemblies requiring protected openings including both empty openings and openings that contain penetrations.
- Membrane penetrations in fire-resistance-rated wall assemblies where items penetrate one side of the assembly.
- Joints in fire-resistance-rated assemblies to allow independent movement.
- Perimeter Fire Barrier System between a rated floor/roof and an exterior wall assembly.
- Joints, through penetrations and membrane penetrations in smoke barriers and smoke partitions.

1.02 RELATED WORK

A. Examine contract Documents for requirements that affect Work of this Section. Other Specification Sections that relate directly to Work of this Section include, but are not limited to:

- Division 3 - CONCRETE
- Division 4 - MASONRY
- Division 5 - METALS
- Division 7 - THERMAL AND MOISTURE PROTECTION
- Division 8 - DOORS AND WINDOWS
- Division 9 - FINISHES
- Division 15 - MECHANICAL
- Division 16 - ELECTRICAL

1.03 REFERENCES

A. Comply with applicable requirements of the following standards. Where these standards conflict with other specific requirements, the most restrictive requirement shall govern:

- American Society for Testing and Materials (ASTM):
 - E 84 Test Method for Surface Burning Characteristics of Building Materials
 - E 119 Test Method for Fire Tests of Building Construction and Materials
 - E 136 Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°F
 - E 814 Fire Tests of Through-Penetration Fire Stops
 - E 1399 Cyclic Movement and Measuring Minimum and Maximum Joint Widths
 - E 2174 Standard Practice for On-Site Inspection of Installed Fire Stop Joints
 - E 2393 Standard Practice for On-Site Inspection of Fire Stop Joint Systems
 - E 2307 Standard Test Method for Determining the Fire Endurance of Perimeter Fire Barrier Systems Using the Intermediate-Scale, Multi Story Test Apparatus (ISMA)
- Factory Mutual (FM) Global Approval Guide:
 - FM Approval Standard of Firestop Contractors - Class 4991
- Firestop contractors International Association (FCIA):
 - M.O.P. Manual of Practice
- International Firestop Council (IFC):
 - Ref. 1 - Recommended IFC Guidelines for Evaluating Firestop Engineering Judgments (April 2001).
 - Ref. 2 - Sandia Construction Observers Field Pocket Guide
 - International Building Code
- National Fire Protection Association (NFPA) as referenced in the International Building Code (IBC)
- Underwriter's Laboratories, Inc. (UL):
 - UL Fire Resistance Directory
 - UL Qualified Firestop Contractor Program
 - UL 263 Fire Tests of Building Construction and Materials
 - UL 723 surface Burning characteristics of Building Materials
 - UL 1479 Fire-Tests of Through-Penetration Fire Stops
 - UL 2079 tests for Fire Resistance of Building Joint Systems

1.04 SYSTEM PERFORMANCE REQUIREMENTS

A. Penetrations: Provide and install firestopping systems that are produced to resist the spread of fire and the passage of smoke and other gases according to the requirements indicated, including but not limited to the following.

- Firestop all penetrations passing through fire resistance rated wall and floor assemblies and other locations as indicated on the drawings.
- Provide and install complete penetration firestopping systems that have been tested and approved by third party testing agency.
- R-ated Through-Penetration Firestop Systems: Provide through-penetration firestop systems with F ratings indicated, as determined by ASTM E 814, but not less than one hour or the fire-resistance rating of the construction being penetrated.
- T-Rated Through-Penetration Firestop System: Provide Firestop systems with T ratings, in addition to F ratings, as determined by ASTM E 814, where indicated by the International Building Code.
- L-Rated Through Penetration Firestop Systems: Provide Firestop systems with L-ratings, in addition to F and T, and L ratings, as determined by UL 1479, where indicated by the International Building Code.
- W-Rated Through Penetration Firestop Systems: Provide Firestop systems with W Water resistance ratings, in addition to F, T, and L ratings, as determined by UL 1479, where indicated.
- Perimeter Fire Containment Systems: Provide interior perimeter joint systems with fire-resistance ratings indicated as determined per ASTM E 2307, but not less than the fire-resistance rating of the floor construction.
- Fire-Resistive Joints: Provide joint systems with fire-resistance ratings indicated, as determined per UL 2079, but not less than the fire-resistance rating of the construction in which the joint occurs.
- All non-fire-resistance-rated floor penetrations shall be firestopped.

E. Provide appropriate Firestop systems for firestopping exposed to view, traffic, moisture, and physical damage.

F. Where there is no specific third party tested and classified Firestop system available for a particular Firestop configuration, the firestopping contractor shall obtain from the Firestop manufacturer an Engineering Judgment (EJ) or Equivalent Rated Assembly (Efra) for submittal.

1.05 SUBMITTALS

A. Submit Manufacturers Product Data Sheets for each type of product selected. Certify that Firestop Material is free of asbestos and lead paint, and complies with local regulations.

1. Certification by firestopping manufacturer that products supplied comply with local regulations controlling use of volatile organic compounds (VOCs) and are nontoxic to building occupants.

B. Submit system design listings, including illustrations from qualified testing and inspection agency that is applicable to each Firestop configuration.

1. Where there is no specific third party tested and classified Firestop System available for a particular Firestop configuration, the firestopping contractor shall obtain from the Firestop manufacturer an Engineering Judgment (EJ) or Equivalent Rated Assembly (Efra) for submittal.

C. Submit Material Safety Data Sheets for each product supplied.

D. Submit FM or UL certification for each product supplied.

E. Submit complete maintenance material and detailed instructions for repair/modifications for each product supplied.

F. Submit contractor qualifications as noted in "Quality Assurance" Section 1.06.

G. Submit Field quality Control Test Reports

1.06 QUALITY ASSURANCE

A. Fire-Test-Response Characteristics: Provide firestopping System Design Listing by a testing and inspection agency in accordance with the appropriate ASTM Standard(s) per Section 1.04. A qualified testing and inspection agency may be UL or FM Research.

B. Contractor Qualifications: Acceptable installer firms shall be:

- FM Approved in accordance with FM Standard 4991 - Approval of Firestop Contractors.
- UL qualified Firestop Contractor
- Firestop Contractor International Association Contractor Member in good standing.
- Licensed by the State of ?????? or local authority, where applicable.
- Shown to have successfully completed not less than five (5) comparable scale projects.

C. Alternative Contractor qualifications: Construction contractors involving single trade activities can self-perform firestopping provided that all installers are trained and accredited by the manufacturer of the firestopping products used.

D. Single Source Responsibility: Obtain Firestop systems for each kind of penetration and construction condition indicated from a single primary Firestop systems manufacturer.

1. Materials of a different manufacture shall not be intermixed in the same Firestop system or opening.

2. Tested and listed Firestop systems are to be used before an Engineering Judgment (EJ) or Equivalent Rated Assembly (Efra) is installed.

3. All Firestop systems and materials used on the project shall be installed by a single Firestop contractor to maintain consistency and accountability.

E. Field Constructed Mockup: Prior to installing firestopping, erect mockups for each different Firestop system indicated to verify selections made and to demonstrate qualities of materials and execution. Build mockup to comply with the following requirements, using materials indicated for final installations.

1. Locate mockups on site in locations indicated or, if not indicated, as directed by Sandia Construction Observer. Include mockup for each type of system.

2. Notify Sandia Construction Observer in advance of the dates and times when mockups will be installed.

3. Obtain Sandia Construction Observer's acceptance of mockups before start of Work.

4. Retain and maintain mockups during construction in an undisturbed condition as a standard for judging completed unit of Work. Accepted mockups in an undisturbed condition at time of Substantial Completion may become part of completed unit of Work.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver firestopping products to Project site in original, unopened containers or packages with intact and legible manufacturers' labels identifying product and manufacturer.

B. Store and handle firestopping materials in accordance with manufacturers written instructions and the applicable Material Safety Data Sheet (MSDS).

1.08 PROJECT CONDITIONS

A. Environmental conditions: Install firestopping in accordance with manufacturer's written instructions.

B. Ventilation: Ventilate per manufacturer's instructions and Material Safety Data Sheets (MSDS).

1.09 SEQUENCING AND SCHEDULING

A. Project coordination is essential to inform and educate all the parties involved with the firestopping process of their role and how they effect firestopping on the project. A pre-construction meeting shall be scheduled and required for all parties involved prior to the start of construction.

B. Do not cover up firestopping installations until Sandia construction Observer has examined each installation.

1.10 ENVIRONMENTAL REGULATIONS

A. All materials shall be free of asbestos and lead paint, and shall comply with local VOC Regulations.

B. If required, hazardous disposal of Firestop materials shall be strictly observed as noted on the individual MSDS.

PART 2 - PRODUCTS

1.01 FIRESTOPPING, GENERAL

A. All Firestop systems and materials shall be UL Listed or FM Approved, and shall conform to the construction type, penetrant type, annular space requirements, and fire rating involved in each separate instance.

B. It is the contractor's responsibility to ensure that products from only one manufacturer are installed throughout the facility in order to maintain consistency.

C. UL Joint and Perimeter Fire Containment Systems Numbering System:

Alpha Characters: Description of Joint System: FFloor-to-Floor/WWall-to-Wall/WFWall/Floor-to-Wall/WHead-of-Wall/BBottom-of-Wall/GWall-Wall Joints Intersect As Corner Guards/CPerimeter fire containment system (for use at the interface of a fire rated floor and a non-fire-rated exterior curtain wall). The third alpha character is movement capability (S or DIS - joint or perimeter fire containment systems that do not have movement capabilities. D - joint or perimeter fire containment systems that do have movement capabilities) Number Range: Nominal Joint Width or Max. Clearance Distance Between Curtain Wall & Perimeter of Floor: 000-0999 Less than or equal to 2 inches: 1000-1999 Greater than 2 inches and less than or equal to 6 inches: 2000-2999 Greater than 6 inches and less than or equal to 12 inches: 3000-3999 Greater than 12 inches and less than or equal to 24 inches: 4000-4999 Greater than 24 inches

2.02 MATERIALS

A. Provide Firestop systems composed of components that are compatible with each other, compatible with the substrates forming the annular spaces and joints, and compatible with the penetrating items under conditions of service and application.

B. Provide Firestop systems whose fire-resistance ratings have been determined by testing in the configuration and which have fire-resistance ratings at least as high as that of the fire-resistance-rated assembly in which they are to be installed.

1. Provide products which:

- Allow normal expansion and contraction movement of the penetrating item without failure of the penetration seal.
- Emmit no hazardous, combustible, or irritating by-products during installation or curing period.
- Do not require special tools for installation.

C. Smoke partition penetration/joint protection sealants shall be any gunnable or pourable sealants suitable for the application. Use only fully curing types where accessible in the finished work. Provide products which:

1. Allow normal expansion and contraction movement of the penetrating item without failure of the penetration seal.

1. Emit no hazardous, combustible, or irritating by-products during installation.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that all penetrating elements and supporting devices have been installed and all temporary lines have been removed.

B. Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance of firestopping. Notify the responsible party or parties of any unsatisfactory conditions.

3.02 PREPARATION

A

3.08 FIELD QUALITY CONTROL

- A. Inspection - Sandia Construction Observer will examine preinstalling firestoppping in accordance with ASTM E - 2174, "Standard Practice for On-Site Inspection of Installed Fire Stops and ASTM E-2393, "Standard Practice for On-Site Inspection of Installed Fire Stop Joint Systems. Sandia Construction Observer will examine firestoppping and fire stopping in general, that firestoppping has been installed in compliance with requirement of tested and listed Firestop system, and installation process conforms to FM 4991 - Standard for Approval of Firestop Contractors or UL qualified Firestop Contractor Program.
B. The Sandia Construction Observer shall advise the contractor of any deficiencies noted within one (1) working day.
C. Do not proceed to enclose firestoppping with other construction until Sandia Construction Observer has verified that the Firestop installation complies with the requirements.
D. Where deficiencies are found, repair or replace the firestoppping so that it complies with requirements of tested and listed system design.

3.09 CLEANING

- A. Clean off excess fill materials and sealants adjacent to openings and joints as work progresses. Use methods and cleaning materials approved by manufacturers of fireproofing products and or assemblies in which openings and joints occur.
B. Protect firestoppping during and after curing period from contact with contaminating substances. If damage is caused by others, owner and general contractor to instruct Firestop contractor to make appropriate repairs and charge to appropriate trades.

3.10 PROTECTION

- A. Protect installed work during curing period.
B. Protect installed work from damage from construction operations using substantial barriers if necessary.
C. Repair damaged installed work in accordance with manufacturer's instructions.

END OF SECTION 0720

SECTION 07133 LAMINATED FIBERGLASS ASPHALT SHINGLES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Shingles - Granule surfaced asphalt shingle roofing
B. Sheet membrane/Eave membrane - for eaves, valleys, and ridges
C. Shingle underlayment
D. Roofing cements
E. Attic ventilation
F. Nails
G. Metal flashing associated with shingle roofing

1.02 SECTION INCLUDES

- A. Section 061000 - Rough Carpentry: Framing, wood decking, and roof sheathing
B. Section 061500 - Wood Decking
C. Section 071354 - Sheet Waterproofing
D. Section 072600 - Vapor Retarders
E. Section 076000 - Flashing and Sheet Metal: Sheet metal flashing not associated with shingle roofing; gutters and downspout
F. Section 077200 - Roof Accessories for Ridge Vents
G. Section 086200 - Unit Skylights

1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM) - Annual Book of ASTM Standards
1. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinciron Alloy-Coated (Galvalume) by the Hot-Dip Process.
2. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
3. ASTM B370 - Standard Specification for Copper Sheet and Strip for Building Construction.
4. ASTM D226 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
5. ASTM D1970 - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials used as Steep Roofing Underlayment for Ice Dam Protection.
6. ASTM D3161 - Standard Test Method for Wind-Resistance of Asphalt Shingles (Fan Induced Method).
7. ASTM D3462 - Standard Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules.
8. ASTM D4586 - Standard Specification for Asphalt Roof Cement, Asbestos-Free.
9. ASTM D4869 - Standard Specification for Asphalt -Saturated Organic Felt Underlayment Used in Steep Slope Roofing SECTION 07 13 33 HERITAGE® SERIES LAMINATED FIBERGLASS ASPHALT SHINGLES
10. ASTM D7158 - Standard Test Method for Wind-Resistance of Sealed Asphalt Shingles (Uplift Force/Uplift Resistance Method)
11. ASTM E108 - Standard Test Method for Fire Test of Roof Coverings

1.04 DEFINITIONS

- A. Roofing Technology: Refer to ASTM D1079 and the glossary of the National Roofing Contractors Association (NRCA) Roofing and Waterproofing Manual for definitions of roofing terms related to this section.
1.05 NA
1.06 MANUFACTURER & CONTRACTOR SPECIFICATIONS
A. Manufacturer Qualifications: Provide all primary roofing products, including shingles, underlayment, sheet membrane eaves membrane, and ridge ventilation, offered by a single manufacturer.
B. Installer Qualifications: Installer must be licensed or otherwise authorized by all federal, state and local authorities for installation of all roofing products to be installed under this section.
1.07 REGULATORY REQUIREMENTS
A. Provide a roofing system listed by Underwriters Laboratories (UL) for Class A fire classification.
B. Install all roofing products in accordance with all applicable federal, state and local building codes.
C. All work shall be performed in a manner consistent with current OSHA guidelines.
1.08 PREINSTALLATION MEETING
A. General: Require Contractor to conduct a pre-installation meeting at the site prior to commencing work of this section: Require attendance of entities directly concerned with roof installation.
B. Agenda: Installation procedures; safety procedures; coordination with installation and other work; availability of roofing materials; regulatory requirements; preparation and approval of substrate and penetrations through roof; and other items related to successful execution of work.
C. Maintain one copy of manufacturer's application instructions on the project site
1.09 DELIVERY, STORAGE, AND HANDLING
A. Deliver shingles and other materials to site in manufacturer's unopened labeled packaging. Promptly verify quantities and conditions. Immediately remove damaged products from site.
B. Store all products in manufacturer's unopened, labeled packaging until they are ready for installation.
C. Store bundles on a flat surface. Maximum stacked height shall not exceed TAMKO's recommendations. Store all rolls on end.
D. Store and dispose of solvent-based materials in accordance with all applicable federal, state and local regulations.

1.10 WEATHER CONDITIONS

- A. Proceed with work only when existing and forecasted weather conditions will permit work to be performed in accordance with TAMKO's application instructions.
B. Take special care when applying shingles in temperatures below 40 degrees F (4.4 degrees C) to avoid damage to the edges and corners of the shingles.
C. Apply TAMKO® Moisture Guard®, TW Metal & Tile Underlayment and TW Underlayment only in fair weather and when air, substrate, and membrane temperatures are above 40 degrees F (4.4 degrees C).
1.11 LIMITED WARRANTY - Manufacturer's 40 year
A. SHINGLES BEGIN TO AGE AS SOON AS THEY ARE EXPOSED TO NATURE. BUILDINGS EXPERIENCE AGING FACTORS DIFFERENTLY, SO IT IS DIFFICULT TO PREDICT HOW LONG SHINGLES WILL LAST. TAMKO PROVIDES A LIMITED WARRANTY FOR MANY PRODUCTS, THAT INCLUDES A BINDING ARBITRATION CLAUSE AND OTHER TERMS AND CONDITIONS WHICH ARE INCORPORATED HEREIN BY REFERENCE. YOU MAY OBTAIN A COPY OF THE LIMITED WARRANTY AT TAMKO.COM OR BY CALLING 1-800-641-4691.

PART 2 PRODUCTS

- 2.01 MANUFACTURERS - EQUAL TO TAMKO, GA, OR CERTAINTED
2.02 SHINGLES - EQUAL TO
A. Heritage® Pro StormFighter IR® Shingles: A laminated shingle features a fiberglass mat construction, which is fully reinforced with a proprietary application that consists of a polyester mat across the entire width of the shingle, eliminating the need for backing aggregate, and uniform thickness throughout the entire overlay sheet. Each shingle is coated on both sides with a layer of weathering-grade asphalt and surfaced with ceramic granules. Heritage® IR is classified by UL for compliance with UL 2218 Class 4 Impact Resistance. UL Listed for Class A Fire Resistance (UL 790/E108), UL Classified for Wind Resistance: ASTM D3161, Class F and ASTM D7158, Class H. UL Classified in accordance with ASTM D3462 and ICC-ES Acceptance Criteria AC438, UL Classified in accordance with UL 2218, Class 4, UL Evaluation Reports ER2919-01 and ER2919-02.
1. Color: As selected from manufacturers' range of colors.
2. Color: _____

2.03 STARTER STRIP

- A. Heritage® Vintage® Starter: 12-1/2" x 36" starter shingles designed for use with Heritage® Vintage® Shingles and available in complementing colors. Each bundle covers approx. 60 linear feet (18.29 m).

2.04 SHEET MEMBRANES - NA

2.05 SHINGLE UNDERLAYMENTS

- A. Moisture Guard® Ice & Rain Underlayment: fiberglass mat, rubberized asphalt ice and rain underlayment surfaced with fine mineral granules. UL Classified as a Prepared Roofing Accessory. UL Classified in accordance with ASTM D1970, Miami-Deade County Product Control Approved, Florida Building Code Approved FL 12328.
a. 0.87 Square Roll - Roof Coverage when applied according to instructions approx. 87.34 sq. ft. [±1.52 sq. ft.] (8.13 sq. m. [±0.14 sq. m.]), Roll Dimensions are 36" [1.07"] x 32'3" [±.05'] (91.44 cm. [±.17 cm.] x 9.83 m. [±.15m.]) Roll Contains approx. 96.75 sq. ft. [±1.68 sq. ft.] (8.99 sq. m. [±0.16 sq. m.]), 55 mils thick.
b. 1.74 Square Roll - Roof Coverage when applied according to instructions approx. 174.69 sq. ft. [±1.52 sq. ft.] (16.23 sq. m. [±0.14 sq. m.]), Roll Dimensions are 36" [±0.07"] X 64' - 6" [±.05'] (91.44 cm. [±.17 cm.] x 19.46 m. [±.15 m.]) Roll Contains approx. 193.5 sq. ft. [±1.68 sq. ft.] (17.98 sq. m. [±0.16 sq. m.]), 55 mils thick.
B. TW Metal & Tile Underlayment: Self-adhering, fiberglass mat, rubberized asphalt sheet membrane surfaced with polymer film. UL Classified as a Prepared Roofing Accessory, UL Classified in accordance with ASTM D1970.
a. 1.79 Square Roll - Roof Coverage when applied according to instructions approx. 179.73 sq. ft. [±2.95 sq. ft.] (16.70 sq. m. [±0.27 sq. m.]), Roll Dimensions are 39-3/8" [±7/16"] x 60' 11-1/2" [±3"] (1 m [±11.1 cm.] x 18.59 m [±.28 m.]). Roll Contains approx. 200.05 sq. ft. [±3.03 sq. ft.] (18.59 sq. m. [±0.28 sq. m.]), 60 mils thick.

2.06 ROOFING CEMENTS

- A. Asphalt Plastic Roofing Cement meeting the requirements of STM D 4586, Type 1.

2.08 ATTIC VENTILATION - NA

2.09 NAILS

- A. Standard round wire, zinc-coated steel or aluminum, min 12 gauge, smooth, barbed or deformed shank, with heads 3/8 inch (9mm) to 7/16 inch (11mm) in diameter. Length must be sufficient to penetrate into solid wood at least 3/4 inch (19mm) or through roof deck by at least 1/8 inch (3.18mm).
B. Standard round wire, zinc-coated steel or aluminum, min 12 gauge, smooth, barbed or deformed shank, with 1 inch round plastic caps. Length must be sufficient to penetrate into solid wood at least 3/4 inch (19mm) or through roof deck by at least 1/8 inch (3.18mm).

2.10 METAL FLASHING

- A. 24 gauge hot-dip galvanized steel sheet, complying with ASTM A653/A653M, G90/275.

B. 16-oz/sq. ft. (0.56mm) copper sheet, complying with ASTM B370. C. 0.032-inch (0.8mm) aluminum sheet, complying with ASTM B209.

END SECTION

SECTION 07540 - THERMOPLASTIC MEMBRANE ROOFING

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. Mechanically attached Polyoisocyanurate Board Insulation
2. Adhered 1/4" Dens-Deck Prime Substrate Board
3. Mechanically Fastened Thermoplastic Roof Membrane 60 mil.
B. Related Sections include the following:
1. Construction Detail Drawings
2. 00411 Bid Sheet

1.3 DEFINITIONS

- A. Roofing Technology: Refer to ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.
B. Design Uplift Pressure: The uplift pressure, calculated according to procedures in SPRTs "Wind Load Design Guide for Fully Adhered and Mechanically Fastened Roofing Systems," before multiplication by a safety factor.
C. Factored Design Uplift Pressure: The uplift pressure, calculated according to procedures in SPRTs "Wind Load Design Guide for Fully Adhered and Mechanically Fastened Roofing Systems," after multiplication by a safety factor.
1.4 PERFORMANCE REQUIREMENTS
A. General: Provide installed roofing membrane and base flashings that are induced watertight; do not permit the passage of water; and resist specified uplift pressures, thereby precluding movement, and exposure to weather without failure.
B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing membrane manufacturer based on testing and field experience.
C. Flashings: Provide base flashings, perimeter flashings, detail flashings and component materials that comply with applicable standards and recommendations in FMG - Class A Prevention Data Sheet for Perimeter Flashings; FMG - Class A Prevention Data Sheet for Edge Flashings; and Approved Flashing Components; NRCA Roofing and Waterproofing Manual (Fourth Edition) for Construction Details and SMACNA Architectural Sheet Metal Manual (Fifth Edition) for Construction Details, as applicable.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified firm that is approved, certified or site by roofing system manufacturer to install manufacturer's product and that is able to receive manufacturer's warranty.
B. Manufacturer Qualifications: A qualified manufacturer that has UL or FMG listing for membrane roofing system identical to that used for this Project.
C. Testing Agency Qualifications: An independent testing agency with the experience and capability to conduct the testing indicated, as documented according to ASTM E 548.
D. Source Limitations: Obtain component or membrane roofing system approved by roofing membrane manufacturer.
E. Fire-Test-Response Characteristics: Provide membrane roofing materials with the fire-test-response characteristics indicated on drawing and as determined by testing identical products per test method below by UL, FMG, or another testing and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.
1. Exterior Fire-Test Exposure: Class A, ASTM E 108, for application and roof slopes indicated.
F. Preinstallation Conference: Conduct conference at Project site. Review methods and procedures related to roofing system including, but not limited to, the following:
1. Meet with Owner, testing and inspecting agency representative, roofing installer, roofing system manufacturer's representative, deck installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
3. Review and finalize construction schedule and verify availability of materials. Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
5. Review structural loading limitations of roof deck during and after roofing.
6. Review base flashings, special roofing details, roof drains/e, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
7. Review governing regulations and requirements for insurance and certificates if applicable.
8. Review temporary protection requirements for roofing system during and after installation.
9. Review roof observation and repair procedures after roofing installation.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product name and type, date of manufacture, and directions for storing and mixing with other components.
B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature and relative humidity ranges required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
1. Discard and legally dispose of liquid material that cannot be installed within its stated shelf life.
C. Protect roof insulation from physical damage by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with applicable manufacturer's written instructions for handling, storing, and protecting during installation.
D. Handle and store roofing materials and plate equipment in a manner to avoid permanent deflection of deck.

1.7 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form, in which manufacturer agrees to repair or replace component of roofing system that fail in materials or workmanship within specified warranty period.
1. Specify warranty includes roofing membrane components, base flashings, roofing membrane accessories, roof insulation, insulation adhesive, fasteners, metal work, wood nailers and cants and other components of roofing system.
2. Warranty Period: (10) Ten years from date of Final Completion.
B. Specific Project Warranty: Submit roofing installer's warranty, on installers standard warranty form, including, but not limited to, the following:
1. Specify warranty includes roofing system, including all components of membrane roofing system such as roofing membrane, base flashing, roof insulation, fasteners, cover boards and walkway products, for the following warranty period:
a. Warranty Period: (5) Five years from date of Final Completion.

PART 2 - PRODUCTS

2.1 THERMOPLASTIC TRI-POLYMER ALLOY ROOFING MEMBRANE

- A. Reinforced Thermoplastic Tri-Polymer Alloy Sheet: Uniform, flexible elastomer sheet formed from a thermoplastic tri-polymer alloy fleece-backed membrane, of the following thickness, exposed face color, and physical properties:
1. Thickness: 60 mils, nominal, minimum membrane thickness.
2. Exposed Face Color: White, Energy Star Rated.

3. Physical Properties:

- a. Tensile Strength: ASTM D 751, grab method, 350 lb
b. Elongation at Break: ASTM D 752: 40% MD, 30% XMD
c. Tear Strength: ASTM D 751: 100 lb
d. Low Temperature Flexibility: ASTM D 2136: Pass -40 deg. F
e. Dimensional Stability at 176 deg. F: ASTM D 1204: 0.3% at 6 hrs.

2.2 AUXILIARY MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing.
B. Liquid-type auxiliary materials shall meet VOC limits of authorities having jurisdiction.
C. Sheet Flashing: Manufacturer's standard sheet flashing of same material, type, reinforcement, thickness, and color as sheet membrane.
D. Cold Fluid-Applied Adhesive: Manufacturer's standard cold fluid-applied adhesive formulated to adhere roof membrane to substrate.
E. Metal Termination Bars: Manufacturer's standard predrilled stainless steel or aluminum bars, approximately 1 by 1/8 inch thick, with anchors.
F. Fasteners: Factory-coated steel fasteners and metal or plastic plastic meeting corrosion-resistance provisions in FMG 4470, designed for fastening membrane to substrate, and acceptable to membrane roofing system manufacturer.
G. Surfaces: Factory-coated steel fasteners and metal or plastic plastic meeting corrosion-resistance provisions in FMG 4470, designed for fastening membrane to substrate, and acceptable to membrane roofing system manufacturer.
H. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, termination pedestals, cover strips, and other accessories.

2.3 ROOF INSULATION

- A. General: Provide preformed roof insulation details that comply with requirements and referenced standards, selected from manufacturer's standard sizes and of thicknesses indicated.
B. Polyoisocyanurate Board Insulation: Minimum LTR 25 (Thickness as required) ASTM C 1289, Type B, 1/2" thick, with a minimum 1/4" Dens-Deck Prime Substrate Board.
C. Tapered Insulation on Crickets: As needed provide factory-tapered insulation boards fabricated to slope of 1/4 inch per 12 inches, unless otherwise indicated.
D. Substrate Board: 1/4" Dens-Deck Prime, Gypsum board.

2.4 INSULATION ACCESSORIES

- A. General: Furnish roof insulation accessories recommended by insulation manufacturer for intended use and compatible with membrane roofing.
B. Adhesive: Fas-N-Flex Solvent-Free Insulation Adhesive.
C. Substrate Board: 1/4" Dens-Deck Prime.

2.5 WALKWAYS

- A. Flexible Walkways: TPA Factory-Formed, nonporous, heavy-duty, slip-resisting, surface-textured walkway pads or rolls, approximately 3/16 inch (5 mm) thick, and acceptable to membrane roofing system manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrate, areas, and conditions, with Installer present for compliance with the following requirements and other conditions affecting performance of roofing system:
1. Verify that roof openings and penetrations are in place and set and braced and that roof drains are securely clamped in place.
2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match in thickness of insulation.
3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove soil-drain plugs when no work is taking place or when rain is forecast.
C. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.

3.3 INSULATION INSTALLATION

- A. Coordinate installing membrane roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.
B. Comply with membrane roofing system manufacturer's written instructions for installing roof insulation.
C. Mechanically attach new 2.5" polyoisocyanurate board insulation to steel decking per FM I-90.
D. Trim surface of insulation where necessary and cut roof drains so completed surface is flush and does not restrict flow of water.

3.4 SUBSTRATE BOARD INSTALLATION

- A. Install 1/4" Dens-Deck Prime substrate board with long joints in continuous straight lines, perpendicular to roof slopes with end joints staggered between rows. Tightly butt substrate boards together.
B. Adhere substrate board to polyoisocyanurate insulation with Fas-N-Free solvent-free insulation adhesive at a rate of 1.5 gallons per square.
C. Adhere roofing membrane securely at terminations, penetrations, and perimeter of roofing.
D. Apply roofing membrane with 3/8" laps shingled with slope of roof deck where possible.
E. Seams: Clean seams with water, overlap roofing membrane, and hold air wet side and end laps of roofing membrane according to manufacturer's written instructions to ensure a watertight seam installation.
1. Test lap edges with probe to verify seam weld continuity. Apply hot sealant to seal cut edges of roofing membrane.
2. Verify field strength of seams a minimum of twice daily and repair seam sample areas.
3. Repair tears, and replace seams in roofing membrane that do not meet requirements.
H. Spread sealant on mastic bed over deck drain flange at deck drain and securely seal roofing membrane in place with damping ring.
I. Install roofing membrane and auxiliary materials to tie in to existing roofing.

3.5 ADHERED ROOFING MEMBRANE INSTALLATION

- A. Install roofing membrane over area to receive roofing according to membrane roofing system manufacturer's written instructions. Unroll roofing membrane and allow to relax before installing.
B. Start installation of roofing membrane in presence of membrane roofing system manufacturer's technical personnel.
C. Accurately align roofing membrane and maintain uniform rate and end laps of minimum dimensions required by manufacturer. Stagger end laps.
D. Cold Fluid-Applied Adhesive: Apply approximately 100-120 square feet per gallon of cold fluid-applied adhesive to primed substrate at temperature required by manufacturer and install fabric-backed roofing membrane. Do not apply adhesive to slope area of roofing membrane.
E. Adhere roofing membrane securely at terminations, penetrations, and perimeter of roofing.
F. Apply roofing membrane with 3/8" laps shingled with slope of roof deck where possible.
G. Seams: Clean seams with water, overlap roofing membrane, and hold air wet side and end laps of roofing membrane according to manufacturer's written instructions to ensure a watertight seam installation.
1. Test lap edges with probe to verify seam weld continuity. Apply hot sealant to seal cut edges of roofing membrane.
2. Verify field strength of seams a minimum of twice daily and repair seam sample areas.
3. Repair tears, and replace seams in roofing membrane that do not meet requirements.
H. Spread sealant on mastic bed over deck drain flange at deck drain and securely seal roofing membrane in place with damping ring.
I. Install roofing membrane and auxiliary materials to tie in to existing roofing.

3.6 FLASHING INSTALLATION

- A. Install perimeter flashing and fastener flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.
B. Apply solvent-based adhesive to substrate board and underside of sheet flashing at required rate and allow to apply bonding adhesive to seam area of flashing.
C. Flash penetrations and field-formed inside and outside corners with sheet flashing.
D. Clean seam area and overlap and firmly roll sheet flashings into the adhesive. Weld side and end laps of flashing with heat gun.
E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.
B. Substitutions shall fully comply with specified requirements.

3.7 WALKWAY INSTALLATION

- A. Flexible Walkways: Install walkway products from roof access hatch and around the perimeter of all HVAC units. Adhere walkway products to substrate with compatible adhesive according to roofing system manufacturer's written instructions.

3.8 FIELD QUALITY CONTROL

- A. Manufacturer's Technical Representative: Contractor will engage a qualified manufacturer's technical representative for a minimum of 3 days to perform roof tests and inspection) and to prepare test reports.
B. Final RFI Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion and submit report to Tremco.
1. Notify Tremco and Owner 48 hours in advance of date and time of inspection.
C. Repair or remove and replace components of membrane roofing system where test results or inspections indicate that they do not comply with specified requirements.
D. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.9 PROTECTING AND CLEANING

- A. Protect membrane roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to architect and Owner.
B. Correct deficiencies and remove membrane roofing system that does not comply with requirements. Repair substrates and repair or reinstall membrane roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.
D. Power-wash and clean entire roofing and flashing system after installation prior to final inspection.

END OF SECTION 07540

SECTION 07600 SHEET METAL AND ROOF ACCESSORIES

07600.1 GENERAL:

- A. Drawings, Specifications Division 1 and Contract.

07600.11 RELATED DOCUMENTS:

- A. Drawings, Specifications Division 1 and Contract.

07600.12 DESCRIPTION OF WORK:

- A. The extent of roof accessories and sheet metal work is indicated on the drawings and by provisions of this section with the following work specified herein but not limited to this list:
1. Flashing and counter flashing.
2. Wall cap.
3. Exhaust fan curbs, and nailer strips located.
4. Fascia cap.
5. Scupper.
6. Roof hatch.
7. Vent flashing.
8. Gas line.
9. Condensate line.
10. Refrigeration line.
11. Roof drains.
12. HVAC curbs.

07600.13 JOB CONDITIONS:

- Coordinate work with interfacing and adjoining work for proper sequencing of each installation.

07600.12 PRODUCTS:

07600.21 SHEET METAL MATERIALS:

- A. Zinc-Coated Steel: Commercial quality with 0.20% copper, hot-dip galvanized; 0.0359" thick (20 gauge) except as otherwise indicated. Provide equivalent gauge copper or stainless steel 304 Grade or higher in high humidity areas similar to Florida and Hawaii.
B. Mastic Sealant: Polyisobutylene. Non hardening, non-skinning, non-migrating sealant.
C. Roof Hatch: Bico Type "S" or approved equivalent; size as indicated on drawings.
D. Provide sheet metal clips, straps, anchoring devices and similar accessories units as required for installation of work, matching or compatible with material being installed.

07600.22 FABRICATED UNITS:

- A. Shop-fabricate work to greatest extent possible. Comply with details shown, and with applicable requirements of Sheet Metal and Air Conditioning Contractors National Association "Architectural Sheet Metal Manual". Fabricate for waterproof and weather-resistant performance; with expansion provisions for running work. Form work to fit substrates. Form exposed sheet metal work without excessive oil-canning, buckling and tool marks, true to line and levels as indicated, with formed edges folded back to form horns.
B. Fabricate non-moving seams in sheet metal with flat-lock seams. Tin edges to be seamed, fold edges to be soldered.
C. Non-Expansion Type Joints: Provide for proper installation of elastomeric sealant.
D. Provide for separation of metal from non compatible metal or corrosive substrates by coating concealed surfaces with compatible sealant.
E. Wall Cap: Snap in place system with concealed clips at a maximum of 24" O.C.
1. Provide a minimum 1/2" long joint plate at all splices.
2. Corners and Ends: Shop fabricated having a minimum leg.
F. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mils.

07600.3 EXECUTION:

- 07600.31 INSTALLATION REQUIREMENTS:
A. Comply with manufacturer's installation instruction and recommendations, and with Sheet Metal and Air Condition Contractors National Association "Architectural Sheet Metal Manual". Anchor units of work securely in place, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level. Install work with laps, joints and seams which will be permanently watertight and weatherproof.
B. Set cap flashings in a thick bed of mastic sealant at all splice plates.
C. Install roof hatch in accordance with manufacturer's instructions.

07600.32 CLEANING AND PROTECTION:

- A. Clean exposed metal surfaces, removing substances which might cause corrosion of metal or deterioration of finishes.

END OF SECTION

SECTION 07610 - METAL ROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Preformed, prefinished metal roofing and flashings.
B. Sealant.
C. Fastening devices.
1.02 RELATED SECTIONS
A. Section 05500: Miscellaneous metal fabrication.
B. Section 06100: Rough Carpentry.
C. Section 07631: Flashing and Sheet Metal Gutters.
D. Section 07600: Sealants.

1.03 REFERENCES

- A. American Iron & Steel Institute (AISI) Specification for the Design of Coldformed Steel Structural Members.
B. ASTM A-653 & ASTM A924 Steel Sheet, Zinc-Coated (Galvanized)
C. ASTM E-283-84
D. ASTM E-331-86
E. ASTM E-1592
F. Spec Data Sheet - Galvalume Sheet Metal by Bethlehem Corp.
G. SMACNA - Architectural Sheet Metal Manual.
H. Building Materials Directory - Underwriter's Laboratories, Test Procedure 580.

1.04 ASSEMBLY DESCRIPTION

- A. The roofing assembly includes preformed sheet metal panels, related accessories, eaves, rakes, miscellaneous flashing and attaching devices.

1.05 SUBMITTALS

- A. Submit detailed drawings showing layout of panels, anchoring details, joint details, trim, flashing, and accessories. Show details of weatherproofing, terminations, and penetrations of metal units.
B. Submit a sample of each type of roof panel, complete with factory finish.
C. Provide test results indicating compliance with minimum requirements of the following performance tests:
1. Air Infiltration ASTM E 283-84
2. Water Infiltration ASTM E 331-86
3. Wind Uplift ASTM E 1592
D. Submit calculations with registered engineer seal, verifying roof panel and attachment method resists windpressures imposed on it pursuant to applicable building codes.

1.06 QUALITY ASSURANCE

- A. Manufacturer: Company specializing in Architectural Sheet Metal Products with ten (10) years minimum experience.
B. No product substitutions shall be permitted without meeting specifications.
C. Substitutions shall be submitted 10 Days prior to Bid Date and acceptance put forth in an addendum.
D. No substitutions shall be made after the Bid Date.

1.07 DELIVERY, STORAGE AND HANDLING

- A. Upon receipt of panels and other materials, installer shall examine the shipment for damage and report to manufacturer immediately.
B. Panels should be stored in a clean, dry place. One end should be exposed to allow moisture to run off.
C. Panels with stripable film must not be stored in the open, elevated to the sun.
D. Stack all materials to prevent damage and to allow for adequate ventilation.

G. Exterior Sealants: Installer shall perform field adhesion in peel testing using hand pull method. Perform a minimum of one test on every type of substrate and joint condition.

1. Test Method: Test joint sealers by hand pull method described below.
 - a. Install joint sealants in 4 feet joint lengths using same materials and methods for joint preparation and joint sealant installation required for complete work. Allow sealants to cure fully before testing.
 - b. Make knife cuts as follows: A horizontal cut on one side of joint to the other followed by two vertical cuts approximately 2 inches long at side of joint and meeting horizontal cut at top of 2-inch cuts. Place a mark 1-inch from top of 2-inch piece.
 - c. Use fingers to grasp 2-inch piece of sealant just above 1-inch mark; pull firmly down at a 90 degree angle or more while holding a ruler along side of sealant. Pull sealant out of joint to the distance recommended by sealant manufacturer for testing adhesive capability, but not less than that equaling specified maximum movement capability in extension; hold this position for ten seconds.
 - d. Report whether or not sealant in joint connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate.
2. Evaluation of Field Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of non-compliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrate during testing.
3. Repair test cut areas immediately after completion of testing work.
4. Notify in advance and conduct adhesion testing in presence of Consultant.
5. Owner reserves the right to perform testing of the installed work in accordance with AAMA 501.2-94, "Field Check of Metal Curtain Walls for Water Leakage." Contractor shall repair all installed work found to be deficient and pay for repairs and additional testing as necessary until satisfactory test results are achieved.

07920.14 REFERENCES:

- A. Publications: Sealing and Waterproofing Institute (SWI), "Sealant and Caulking Guide Specification".
- B. Standards:
 1. American Society for Testing Materials (ASTM)
 2. Federal Specifications (FS)
 3. American National Standards Institute (ANSI)

07920.15 SUBMITTALS:

- A. Product Data: Submit manufacturer's product data, joint preparation and installation instructions, and color charts for each product required.
- B. Submit manufacturer's certification that products meet specified requirements and are appropriate for project applications.
- C. Sampling for Initial Selection Purposes: Submit manufacturer's standard bead samples consisting of strips of actual products showing full range of colors available for each product exposed to view.

07920.16 COORDINATION:

- A. Coordinate work of this Section with all Sections referencing this Section and/or requiring sealing work.

07920.17 WARRANTY:

- A. MANUFACTURER'S WARRANTY:
 1. SEALANT: PROVIDE MANUFACTURER'S STANDARD FIVE (5) YEAR MATERIAL WARRANTY FOR TYPE OF SEALANT SPECIFIED UTILIZED IN EXTERIOR JOINTS AND JOINTS IN WALLS AND WINDOWS.
- B. CONTRACTOR'S WARRANTY: PROVIDE WRITTEN WARRANTY AGAINST LEAKAGE AND DEFECTS IN WORKMANSHIP FOR A PERIOD OF TWO (2) YEARS FROM DATE OF FINAL COMPLETION.

07920.2 PRODUCTS:

07920.21 MANUFACTURER:

- A. THE DRAWINGS WERE PREPARED AND THIS SPECIFICATION WRITTEN ON THE BASIS OF USING THE PRODUCTS OF PECORA CORPORATION, HARLEYSVILLE, PENNSYLVANIA. SUCH IS INTENDED TO ESTABLISH MINIMUM QUALITY STANDARDS, NOT TO LIMIT COMPETITIVE BIDDING. PRODUCTS WITH EQUAL OR SUPERIOR CHARACTERISTICS BY OTHER MANUFACTURERS ARE ACCEPTABLE UNDER CONDITIONS OF THE SPECIFICATIONS.

07920.22 MATERIALS:

- A. EXTERIOR SEALANT: POLYURETHANE SEALANT:
 1. SINGLE COMPONENT, NON-SAG, NON-STAINING, NON-BLEEDING.
 2. COLOR: AS SELECTED BY OWNER.
 3. ACCEPTABLE PRODUCTS:
 - a. DYNATROL 1, PECORA CORPORATION
 - b. SONOLASTIC NP1, SONNEBORN BUILDING PRODUCTS
 - c. SIKAFLEX-1A, SIKA CORPORATION
- B. Interior Sealant: Compound used throughout job; either:
 1. "BC-158" one-part butyl rubber sealant; FS TT-S-001657, Type 1.
 2. "AC-20" one-part acrylic latex caulk; ASTM C834-76.
- C. Interior Mildew-Resistant Silicone Sealant (Restrooms, Kitchens, and Food Service Areas)
 1. One part mildew-resistant silicone sealant formulated with fungicide, intended for sealing joints with substrates subject to in-service exposure to conditions of high humidity and temperature extremes.
 1. "SCS 1702 Sanitary" manufactured by General Electric Co.
 2. "863" manufactured by Pecora Corp.
 2. Fire-resistant Joint Sealant: (if required by building codes or authorities): One part fire-stopping sealant system formulated for use in through-penetration sealing of openings, cables, conduit, pipes, and penetrations through walls and floors.
 1. "3M Fire Barrier Caulk CP-25" by Electrical Products Division, 3M Company.
 2. "Dow Coming Fire-Stop" by Dow Corning Corporation
 3. Kitchen Exhaust Hoods to Stainless Steel Wall Panels:
 1. "3M Fire Barrier" 2000
- F. Primer: Non-staining type, recommended by sealant manufacturer, to suit application.
- G. Joint Cleaner: Non-corrosive and non-staining; recommended by sealant manufacturer; compatible with joint forming materials.
- H. Joint Backing:
 1. Closed cell non-gassing polyethylene foam rod, over-sized 30 to 50 percent for joint size, compatible with sealant, sized and shaped to provide proper compression upon insertion in accordance with manufacturer's recommendations.
 2. Acceptable Products:
 - a. "Sonolastic Soft Backer-Rod" by Sonneborn
 - b. "SoftRod" by Namco
 - I. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.
 - J. Masking Tape: FS UU-T-106.

07920.23 COLORS:

- A. General Contractor to provide Owner with samples for approval.

07920.3 EXECUTION:

07920.31 GENERAL:

- A. Do not use interior sealant for exterior conditions. Gun apply compound with nozzle of proper size to fit width of joint indicated; force sealant into joint with sufficient pressure to expel air and fill groove solidly.

07920.32 DELIVERY, STORAGE AND HANDLING:

- A. Deliver materials in original containers with seals unbroken and labels intact.
- B. Store materials in a single lockable area of project site.
- C. Protect materials from extreme temperatures and exposure. Store in accordance with manufacturer's recommendations.

07920.33 INSPECTION:

- A. Verify that surfaces and joint openings are ready to receive work and field measurements are as shown on Drawings and recommended by sealant manufacturer. Beginning of installation means installer accepts existing conditions as appropriate for work.

07920.34 CONDITIONS:

- A. Exterior: Apply sealants when temperature is between 40° and 100° F.
- B. Interior: Do not install solvent curing sealants in enclosed building spaces. Maintain temperature and humidity recommended by sealant manufacturer during and after installation.

07920.35 PREPARATION:

- A. Perform in accordance with ASTM C804 for solvent release and C790 for latex base sealants. Remove loose materials and foreign matter that might impair adhesion of sealant. Clean and prime joints in accordance with manufacturer's instructions. Verify that joint backing and release tapes are compatible with sealant. Protect elements surrounding work of this Section from damage or disfiguration.

07920.36 FIELD SAMPLE:

- A. Construct field sample joints, 4 feet long, illustrating sealant type, color, and tooled surface. Locate where directed. Accepted sample may remain as part of the Work.

07920.37 INSTALLATION:

- A. General: Conform to SWI requirements for installation and with manufacturer's instructions. Measure joint dimensions and size materials to achieve required width:depth ratios.
- B. Joint Backing: Install to achieve depth dimension no greater than 1/2 joint width.
- C. Bond Breaker: Install where joint backing is not used. Three-sided adhesion will not be permitted.
- D. Masking Tape: Place on finish surface on one or both sides of joint to protect adjacent finish surfaces from compound smears. Remove within 10 minutes after joint has been filled and tooled.
- E. Priming:
 1. Prime joint substrates where indicated or where recommended by sealant manufacturer based upon preconstruction sealant substrate tests and prior experience.
 2. Apply primer to comply with joint sealer manufacturer's recommendations.
 3. Confine primers to area of joint sealant bond. Do not allow spillage or migration onto adjoining surfaces.
- F. Sealants:
 1. Use fresh compounds from previously unopened containers bearing manufacturer's seal. Install sealant from bottom of joint upward and outward, using sufficient force to fill joint; free of air pockets, foreign matter, ridges and sags. Draw nozzle of application device across joint during installation to leave flush surface.
 2. Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates.
 3. Provide uniform cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
 4. Tool joints to required configuration in accordance with manufacturer's recommendations.
 5. Tooling Non-sag Sealants:
 - a. Immediately after sealant application and prior to line skinning or curing begins, tool sealants to form smooth, uniform beads of configuration required.
 - b. Eliminate air pockets and ensure contact and adhesion of sealant with sides of joint.
 - c. Remove excess sealant from surfaces adjacent to joint.
 - d. Do not use tooling agents that discolor surfaces or that are not approved by manufacturer.

07920.38 FINISHING:

- A. Tool joints slightly concave unless otherwise shown on the Drawings. When tooling white or light color sealant, use dry or water wet tool.

07920.39 CLEANING AND REPAIRING:

- A. Remove masking tapes and clean adjacent soiled surfaces. Repair or replace defaced or disfigured finishes caused by work of this Section.
- B. Repair excess sealant from adjacent surfaces immediately after contact with xylene or toluene.

07920.391 PROTECTION:

- A. Protect joint sealants during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are not adversely deteriorated or damaged at time of Final Completion.

07920.392 CLEAN-UP:

- A. Upon completion of work of this Section, remove related debris from premises.

END OF SECTION

DIVISION 8 DOORS AND WINDOWS

SECTION 08100 STEEL DOORS AND FRAMES

08100.11 RELATED DOCUMENTS:

- A. Drawings, Specifications Division 1 and Contract.
- See drawings for extent of doors and frames furnished by owner and installed by contractor

08100.12 DESCRIPTION OF WORK:

Extent of standard steel doors and frames is shown and scheduled on drawings.

08100.13 QUALITY ASSURANCE:

- A. Doors and frames complying with Steel Door Institute "Recommended Specifications: Standard Steel Doors and Frames".

08100.14 DELIVERY, STORAGE, AND HANDLING:

- A. Deliver hollow metal work cartoned or crated to provide protection during transit and job storage.
- B. Store doors and frames at building site under cover in vertical position. Place units on wood skids and provide spaces between each unit.

08100.20 PRODUCT:

08100.21 MATERIALS:

- A. Provide standard steel doors and frames by one of the following:
 1. Anwel Building Products Division
 2. Ceco Corporation
 3. SteelCraft Manufacturing Company
- B. Hot-Rolled Steel Sheets and Strip: Commercial quality carbon steel, pickled and oiled.
- C. Cold-Rolled Steel Sheets: Commercial quality carbon steel.
- D. Galvanized Steel Sheets: Zinc-coated carbon steel sheets of commercial quality.
- E. Fabricate supports and anchors of not less than 16 gauge galvanized steel sheet.
- F. Inserts, Bolts, and Fasteners: Manufacturer's standard units except hot-dip galvanize items built into exterior walls. Provide hot-dip galvanized units at all conditions in high humidity areas similar to Florida and Hawaii.
- G. Shop Applied Primer: Rust inhibitive enamel or paint suitable as a base for specified finish paints.

08100.22 FABRICATION:

- A. General:
 1. Fabricate steel door and frame units rigid, neat in appearance and free from defects, warp or buckle.
 2. Fabricate exposed faces of doors and panels from only cold-rolled steel.
 3. Fabricate frames, concealed stiffeners, reinforcement, and edge channels, from either cold-rolled or hot-rolled steel (at fabricator's option).
 4. Fabricate exterior doors, panels, and frames from galvanized steel sheet. Close top and bottom edges of doors with flush channel as integral part of door construction.
 5. Fabricate all doors, panels, frames, components, fasteners, and related items from hot-dip galvanized steel in high humidity areas similar to Florida and Hawaii.
 6. Unless otherwise indicated, provide countersunk flat Phillips heads for exposed screws and bolts.
- B. Finish Hardware Preparation:
 1. Prepare doors and frames to receive mortised and concealed finish hardware in accordance with finish hardware manufacturer's recommendations.
 2. Reinforce doors and frames to receive surface-applied hardware. Drilling and tapping for surface-applied finish hardware may be performed at project site.
 3. Locate finish hardware in accordance with "Recommended Locations for Builder's Hardware", published by Door and Hardware Institute and local codes.
- C. Shop Painting:
 1. Clean, treat and paint exposed surfaces of steel door and frame units, including galvanized surfaces.

08100.23 STANDARD STEEL DOORS:

- A. Provide metal doors equal to Ceco Regent for full flush type design with 16 gauge skins and stiffened with one-piece resin impregnated full honeycomb core. Provide flush top and bottom channels. In snow locations, fill door with thermal insulation equivalent to R19.

08100.24 STANDARD STEEL FRAMES:

- A. Provide 16 gauge metal frames for doors and other openings, of sizes shown on drawings with concealed fastenings, unless otherwise indicated.
 1. Fabricate frames with mitered corners, welded construction for exterior applications and interior applications. Ship welded frames to site with removable steel spreader at bottom. Do not remove spreader until completion of wall construction.
 2. Provide two (2) silencers on strike jamb of single-swing frames.

08100.3 EXECUTION:

08100.31 INSPECTION:

- A. Examine substrate and conditions where steel doors and frames are installed and notify architect of any conditions detrimental to proper and timely completion of work.

08100.32 INSTALLATION:

- A. Install standard steel doors, frames, and accessories in accordance with manufacturer's data, and as herein specified.
- B. Placing Frames:
 1. Comply with provision of "Recommended Erection Instructions for Steel Frames", unless otherwise indicated.
 2. Place frames prior to construction of enclosing walls and ceilings. Set frames accurately in position, plumb, aligned, and braced securely until permanent anchors are set.
 - a. Locate three (3) concealed wall anchors of proper design for wall condition per jamb, one each at hinge and strike levels. Provide angle floor clip for each jamb with floor fastener to suit floor construction.
- C. Door Installation:
 1. Fit hollow metal doors accurately in frames, within clearances specified in "Recommended Specifications Standard Steel Doors and Frames".
 2. Adjust and Clean:
 1. After erection, sand smooth all rusted or damaged areas of prime coat and apply touchup of compatible air-drying primer.
 2. Check, and readjust operating finish hardware items, leaving steel doors and frames in proper operating condition.

END OF SECTION

SECTION 08210 - WOOD DOORS

PART 1 - GENERAL

RELATED DOCUMENTS

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

DESCRIPTION OF WORK:

Extent and location of each type of wood door is shown on drawings and in schedules.

Types of doors required include the following:

Solid core flush wood doors with stain-grade/paint-grade faces.

Factory-fitting to frames (prefitting) and factory-preparation for hardware (premachining) for wood doors in included in this section.

Louvers for flush wood doors, including furnishing and installation, are specified under this section.

Metal door frames for flush wood doors are specified in another Division-8 section.

QUALITY ASSURANCE:

Quality Standards: Provide wood flush doors complying with the following standards:

NWDDA Quality Standard: U.S. A National Standard for Wood Flush Doors" of "National Wood Window and Door Association (NWDDA).

AWI Quality Standards: Section 1300 "Architectural Flush Doors" of "Architectural Woodwork Quality Standards" published by Architectural Woodwork Institute (AWI). Designations for grade and door construction under types of doors refers to this standard.

Fire-Rated Wood Doors: Provide wood doors which are identical in materials and construction to units tested in door and frame assemblies per ASTM E 152 and which are labeled and listed for ratings indicated by UL, Warnock Hersey or other testing and inspection agency acceptable to authorities having jurisdiction.

Oversize-Fire-Rated Wood Doors: For door assemblies exceeding sizes of tested assemblies, provide manufacturer's certificate stating that doors conform to all standard construction requirements of tested and labeled fire door assemblies except as to size.

Manufacturer: Obtain doors from a single manufacturer to ensure uniformity in quality of appearance and construction, unless otherwise indicated.

SUBMITTALS:

Product Data: Submit door manufacturer's product data for each type of wood door, including details of core and edge construction, trim for openings and louvers, and finishing specifications.

Shop Drawings: 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.

PRODUCT DELIVERY, STORAGE, AND HANDLING:

Protect wood doors during transit, storage and handling to prevent damage, soiling and deterioration. Comply with requirements of referenced ANSI standard and recommendations of NWMA pamphlet "How to Store, Handle, Finish, Install, and Maintain Wood Doors", as well as with manufacturer's instructions.

Package doors at factory prior to shipping using manufacturer's standard method.

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.

SPECIFIED PRODUCT WARRANTY:

Door Manufacturer's Warranty: Submit written agreement on door manufacturer's standard form signed by Manufacturer, Installer and Contractor, agreeing to repair or replace defective doors which have warped (bow, cup or twist) or which show telegraphing of core construction in face veneers, or do not conform to tolerance limitations of NWMA and AWI.

The warranty shall also include reinstatement which may be required due to repair or replacement of defective doors where defect was not apparent prior to hanging.

Warranty shall be in effect during following period of time after date of substantial completion.

Solid Core Flush Interior Doors:

Contractor shall be responsible for replacement or refinishing of doors where Contractor's work contributed to rejection or to voiding of manufacturer's warranty.

PART 2 - PRODUCTS

ACCEPTABLE MANUFACTURERS:

Available Manufacturers: Subject to compliance with requirements, manufacturer's offering products which may be incorporated in the work include, but are not limited to, the following:

Manufacturers of Solid Core Doors with stain-grade/paint-grade Faces: (or equal to)

The Maiman Company
Anpro Products, Inc.

INTERIOR SOLID-CORE FLUSH WOOD DOORS:

Solid Core Doors for Transparent Finish: Comply with the following requirements:

Standard and Fire Rated Doors: 1 3/4" thick (Fire Rated where indicated), 40 lb./c/ wood composite core, Stain/Paint Grade Face, with matching edgebands on sides, top, and bottom.

Finish: To be selected by Tenant from Lessor's Color Palette.

LITE KIT:

Wood bead lite kit provided and installed by door manufacturer. Match door finish. Metal frame lite kits are not acceptable in unrated and 20 minute rated doors.

LOUVER FRAMES:

Metal Louvers: Size, type and profile shown and fabricated from the following:

Steel: 18-gauge, "galvanized inverted "Y" and baked on enamel finish.

Color: Match Architects Sample

GENERAL FABRICATION REQUIREMENTS:

Openings: Cut and trim openings through doors and panels as shown. Comply with applicable requirements of referenced standards for kind(s) of doors required.

Light Openings: Factory cut openings

Metal Louvers: Factory cut openings.

PREFITTING AND PREPARATION FOR HARDWARE:

Profile and premachine wood doors at factory.

Comply with tolerance requirements of AWI for prefitting. Machine doors for hardware requiring cutting of doors. Comply with final hardware schedules, and door frame shop drawings and with hardware templates and other essential information required to ensure proper fit of doors and hardware.

Take accurate field measurements of hardware mortises in metal frames to verify dimensions and alignment before proceeding with machining in factory.

PART 3 - EXECUTION

INSPECTION:

Require installer to examine door frames, after their installation, and doors, prior to their hanging, for the following purposes:

To verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with plumb jamps and level heads.

To verify that doors are free of defects that could cause their rejection.

Obtain Installer's written report listing conditions detrimental to compliance with requirements of this section.

Do not allow Installer to proceed with installation until unsatisfactory conditions have been met.

INSTALLATION:

Condition doors to average prevailing humidity in installation area prior to hanging.

Hardware: For installation see Division-8 "Finish hardware" section of these specifications.

Manufacturer's Instructions: Install wood doors to comply with manufacturer's instructions and referenced AWI standard and as indicated.

Install fire-rated doors in corresponding fire-rated frames in accordance with requirements of NFPA No. 80.

Profit Doors: Fit to frames and machine for hardware to whatever extent not previously worked at factory as required for fit and uniform clearance at each edge.

Job-Site-Finished Doors: See painting section in Division-9 of these specifications for finishing requirements.

ADJUST AND CLEAN:

Operation: Rehang or replace doors which do not swing or operate freely, as directed by Architect.

Finish Doors: Refinish or replace doors damaged during installation, as directed by Architect.

Institute protective measures as recommended and accepted by door manufacturer to assure that wood doors will be without damage or deterioration at any time of substantial completion.

END OF SETION 08210

SECTION 08410 - ALUMINUM ENTRANCES AND STOREFRONTS

PART 1 - GENERAL

RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specifications sections, apply to work of this section.

SUMMARY:

Extent of aluminum entrances is indicated on drawings and schedules.

Aluminum entrance and storefront types required for the project include:

Exterior entrance doors
Frames for exterior entrances

Glazing: Refer to "Glass and Glazing" section of Division-8 for glazing requirements for aluminum entrances and storefronts, including doors specified to be factory-pre-glazed. See drawings for glazing types and thicknesses.

Keyed Cylinders for doors are specified in the Division-8 section "Finish Hardware". Refer to plans & supporting SFO information booklet.

SYSTEM DESCRIPTION:

Performance Requirements: Provide aluminum entrance and storefront assemblies that comply with specified performance characteristics. Each system shall be tested by a recognized testing laboratory or agency in accordance with specified test methods. Provide certified test results.

Thermal Movement: Provide systems capable of withstanding thermal movements resulting from an ambient temperature range of 120°F (67° C), that could cause a metal surface temperature range of 180°F (100° C) within the framing system.

Wind Loading: Provide assemblies capable of withstanding a uniform test pressure of 25 psf inward and 25 psf outward when tested in accordance with ASTM E 330.

Aluminum Entrance Transmission Characteristics: Provide entrance doors with jamb and head frames that comply with requirements indicated for transmission characteristics.

Air Infiltration: Provide doors with an air infiltration rate of not more than 0.50 CFM for single doors and 1.0 for pairs of doors when tested in accordance with ASTM E 283 at an inward test pressure differential of 1,567 psf.

Condensation Resistance: Provide entrance door units tested for thermal performance in accordance with AAMA 1502 showing a condensation resistance factor (CRF) of not less than 48.

Thermal Transmittance: Provide entrance doors that have an overall U-value of not more than 0.93 BTU/(hr. x sq. ft. x deg. F) at 15 mph exterior wind velocity when tested in accordance with AAMA 1503.

SUBMITTALS:

Product Data: Submit manufacturer's product specifications, technical product data, standard details, and installation recommendations for each type of entrance and storefront product required. Include the following information:

Fabrication methods.
Finishing.
Hardware.
Accessories.

Shop Drawings: Submit shop drawings for fabrication and installation of entrances and storefronts, including the following:

Elevations.
Detail sections of typical composite members.
Hardware, mounting heights.
Anchorage and reinforcements.
Expansion provisions.
Glazing details.

Samples: Submit pairs of samples of each type and color of aluminum finish on 12" long sections of extrusions or formed shapes and on 6" square sheets. Where color or texture variations are anticipated, include 2 or more units in each set of samples indicating extreme limits of variations.

Certification: Provide certified test results showing that entrance and storefront systems have been tested by a recognized testing laboratory or agency and comply with specified performance characteristics.

Single Source Responsibility: Provide entrance and storefront produced by a single manufacturer capable of showing prior production of units similar to those required.

Manufacturer's Qualifications: Provide entrances and storefront produced by a single manufacturer with not less than 5 years successful experience in the fabrication of assemblies of the type and quality required.

Installer's Qualifications: Entrances and storefronts shall be installed by a firm that has not less than 5-years successful experience in the installation of systems similar to those required.

Design Criteria: Drawings are based on one manufacturer's entrance and storefront system. Another manufacturer's system of a similar and equivalent nature will be acceptable when, in the Architect's sole judgment, differences do not materially detract from the design concept or intended performance.

PROJECT CONDITIONS:

Field Measurements: Check openings by field measurement before fabrication to ensure proper fitting of work. Coordinate field 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.

WARRANTY:

Warranty period for aluminum entrances and storefronts is 3 years after the date of substantial completion.

PART 2 - PRODUCTS

SUBMITTALS:

Product Data: Submit manufacturer's product data, standard details, and installation recommendations for each type of automatic entrance door required. Include the following:

- Fabrication methods.
- Finishing.
- Hardware and operators.
- Roughing-in and wiring diagrams.
- Parts lists.
- Accessories and other components.

Shop Drawings: Submit shop drawings for fabrication and installation of automatic entrance doors and associated components not included in manufacturer's product data. Include the following:

- Elevations.
- Hardware.
- Anchors and reinforcements.
- Expansion provisions.
- Glazing details.

Templates and Diagrams: Furnish templates, diagram and other data to fabricators and installers of related work, as necessary for coordination of the automatic entrance door installation.

Samples: Submit samples of each required aluminum finish, on 12" long sections of extrusions and 6" squares of sheeplate. Where color and texture variations are anticipated, include 2 or more units in each set of samples indicating limits of variations.

Maintenance Data: Submit manufacturer's maintenance and service data, including the name, address and telephone number of the nearest authorized service representative.

Certification: Provide certified test results showing that the automatic entrance door systems have been tested by a recognized testing laboratory or agency and comply with specified performance characteristics.

QUALITY ASSURANCE:

Manufacturer's Qualifications: Provide automatic entrance doors produced by a single manufacturer with not less than 5 years successful experience in the fabrication of doors of the type and quality required.

Installer's Qualifications: Engage an installer who is an authorized representative of the automatic entrance door manufacturer for both the installation and maintenance of the type of units required for the project.

Experience: The installer shall have not less than 3 years experience in the installation and service of the automatic entrance door assemblies manufactured for this project.

Maintenance Proximity: The installer shall maintain offices and repair or service facilities not more than 2 hours normal travel time from the project site.

Design Criteria: Drawings are based on one manufacturer's standard automatic door system. Another manufacturer's system of a similar and equivalent nature will be acceptable when, in the Architect's sole judgment, differences do not materially detract from design concept or intended performance.

BHMA Standard: Automatic entrance doors shall comply with applicable requirements of ANSI A156.10 (BHMA 1001), Power Operated Pedestrian Door Standard.

UL Standard: Powered door operators shall comply with UL 325, Electric Door, Drapery, Gate, Louver and Window Operators and Systems.

Emergency Exit Doors: Automatic entrance doors serving as a required means of egress shall comply with egress authorities having jurisdiction. Provide manufacturer's certification that doors comply with these requirements.

PROJECT CONDITIONS:

Field Measurements: Check openings by field measurement prior to fabrication to ensure proper fitting of work; show measurement on final shop drawings. Coordinate fabrication schedule without measurements, and coordinate fabrication tolerances to ensure proper fit.

WARRANTY:

Special Product Warranty: Submit a written warranty, executed by the Contractor, Installer and Manufacturer, agreeing to repair or replace automatic entrance door units which fail in materials or workmanship within the specified warranty period. Failures include, but are not necessarily limited to, structural failures including excessive deflection, excessive air infiltration, faulty operation of operators and hardware, and deterioration of metals, metal finishes and other material beyond normal weathering. This warranty shall be in addition to and not a limitation of other rights the Owner may have against the Contractor under Contract Documents.

Warranty period for automatic doors, 3 years after the date of substantial completion.

PART 2 - PRODUCTS

MANUFACTURERS:

Manufacturer: Subject to compliance with requirements, provide automatic entrance doors of one of the following:

Electro-Mechanical Operated Swinging Units:

Basis of Design: Nabco Gyrotech, GT-500 by Nabco Entrances, Inc.

ACCEPTED Optional MFG:

Horton Automatics Division of Overhead Door Corp.

Stanley Magic-Door Division of the Stanley Works.

MATERIALS:

Aluminum Extrusions: Provide alloy and temper recommended by the producer or finisher for type of use and finish indicated, and with not less than the strength and durability properties specified in ASTM B 221 for 6063-T5. Provide mill extrusions of not less than 0.125" wall thickness.

Provide extruded glazing stops and other applied trim extrusions with minimum wall thickness of 0.062"

Aluminum Sheets: Provide alloy and temper recommended by the producer or finisher for type of use and finish indicated, and with not less than the strength and durability properties specified in ASTM B 209 for 5005-H15.

Fasteners: Provide aluminum, nonmagnetic stainless steel, or other noncorrosive metal fasteners compatible with aluminum components, hardware, anchors and other items being fastened.

Exposed Fasteners: Except where unavoidable for application of hardware, do not use exposed fasteners. For the application of hardware, use fasteners that match the finish of the member of hardware being fastened.

For exposed fasteners provide Phillips flat-head screws with finish matching item fastened.

Steel Reinforcement and Brackets: Provide manufacturer's standard steel reinforcement and brackets with 2.0 oz. hot-dip zinc coating complying with ASTM A 123. Apply after fabrication.

Weatherstripping: Provide replaceable weather-stripping of wool, polypropylene or nylon woven pile, with nylon fabric and aluminum strip backing. Weather-stripping includes stripping at jamb rails, head rails and sill rails, wherever there is no stop or lap to receive compression weather-stripping.

Sealants and Gaskets: Use sealants and gaskets in fabrication assembly and installation of work, that are recommended and guaranteed by manufacturer to remain permanently elastic, non-shrinking, and non-migrating.

Refer to Division-7 sections for sealants and gaskets required for installation of door units at the project site.

HARDWARE:

General: Refer to Division-8 hardware schedule and to the door, frame and hardware schedule for hardware items furnished by other than the automatic entrance door manufacturer but installed as work of this section. Templates for these items of hardware will be furnished to manufacturer for fabrication of doors and frames.

Provide the door manufacturer's standard heavy-duty hardware units as indicated, scheduled or required for operation of each door, including the following items, of sizes, number, and type recommended by the manufacturer for service indicated.

Deadlock: Provide hookbolt deadlocks for swinging entrance doors accepting standard mortise cylinder.

Operation: Provide operation by thumbturn on inside and by key on outside; cylinders are supplied under another section for keying into building system. Provide thumbturn with finish matching door.

DOOR OPERATORS:

Capacity: Provide operators of the size recommended by the manufacturer for door size, weight, and moment, for condition of exposure, and for long-term maintenance-free operation under normal traffic load for the type of occupancy indicated.

Exposed Housing: Provide extruded or formed aluminum housing for operators, minimum 0.062" thick with fasteners concealed when door is in the closed position. Provide access for maintenance.

Adjustment Features: Provide operators that are fully adjustable without removal of the doors. Provide adjustment for opening, closing and checking speeds, as well as length of time door remains open.

Electro-Mechanical Operator for Swinging Doors: Provide self-contained concealed overhead electro-mechanical door operator with power opening and closing, power closing and speed control to provide checking in both cycles. Provide connections for power and control wiring. Provide safety release clutch for obstructed closing. Provide for easy manual sliding when power is off.

Operator Action: Provide operator action as indicated by door symbol on the drawings.

Emergency Operation: Provide emergency breakaway swing feature.

DOOR OPERATOR CONTROL SETTINGS:

Micro-wave Scanner Motion Detecting Control System: Provide self-contained motion-detecting control system composed of micro-wave scanner sensing device to activate door operator and horizontal photo-cell beam across door opening to prevent door from closing until door is clear of traffic. Sensing device shall be adjustable to provide detection patterns and sensitivity equivalent to those required for mats. Provide housing for sensing device finished to match finish of doors and frames.

Install scanners on both interior and exterior of each automatic swinging entrance door as indicated.

Electrical Interlocks: Wherever feasible, provide electrical interlocks to prevent operation of the unit when operation of the door is prevented by lock and latch or door bolts, unless units are equipped with self-protected devices or circuits.

ACCESSORIES:

Sill Configuration at Swinging Entrance Doors: Provide ADA sill members indicated.

FABRICATION:

General: Sizes of door and frame units, and profile requirements, are indicated on the drawings. Variable dimensions are indicated with maximum and minimum dimensions required to achieve design requirements, and coordination with other work.

Prefabrication: Provide automatic entrance doors as prefabricated packaged units complete with doors, sidelights, frames transoms where indicated, door operators and related components, hardware and accessories. Complete fabrication, assembly, finishing, hardware application and other work before shipment to project site.

Preglaze door and frame units to greatest extent possible, in coordination with installation and hardware requirements.

Do not drill and tap for surface-mounted hardware items until installation at project site.

Perform fabrication operations, including cutting, fitting, forming, drilling and grinding of metal work in manner which prevents damage to exposed finish surfaces. For hardware, perform these operations prior to application of finishes.

Welding: Comply with AWS recommendations; grind exposed welds smooth and restore mechanical finish.

Reinforce with work as necessary for performance requirements, and for support to the structure. Separate metal surfaces at moving joints with nonmetallic separators to prevent "freeze-up" of the door.

Dissimilar Metals: Separate dissimilar metals with zinc chromate primer, bituminous paint, or other separator that will prevent corrosion.

Maintain continuity of line and accurate relation of planes and angles. Provide secure attachment and support at mechanical joints, with hairline fit of contacting members.

Uniformity of Finish: Abutting extended aluminum members shall not have an integral color or texture variation greater than half the range indicated in the sample pair submittal.

Fasteners: Conceal fasteners wherever possible.

Weatherstripping: Where exterior door stops or head rails do not close against fixed stops comply with requirements of testing laboratories, provide sliding weatherstripping, retained in an adjustable strip in a mortise centered in the edge of the door.

Aluminum Door, Sidelight and Transom Framing:

Fabricate tubular and channel frame assemblies in configuration indicated, with welded or mechanical joints in accordance with manufacturer's standards. Provide concealed fasteners wherever possible. Reinforce internally with steel shapes as indicated, or as necessary to support the required loads.

Provide finger guard or collapsible neoprene or PVC gasketing securely anchored into frame at hinge-jamb of pivoted doors.

Provide glazing systems for frames to receive lights and for replacement of glass, but for non-removal of glass from the exterior.

Provide type and profile of glazing system indicated, to receive glazing materials indicated.

Fabricate frame assemblies for exterior walls with flashing and weeps to drain penetrating moisture to the exterior. Provide anchorage and alignment brackets for concealed support of assembly from the building structure. Allow for thermal expansion of exterior units.

FINISHES:

High Performance Organic Coating: Provide NAAAM AA-C1242R1x coating (cleaned with inhibited chemicals, conversion coating with acid-chromate-tri-oxide-phosphate treatment, and painted with organic coating specified below). Prepare, pretreat and apply coating to exposed metal surfaces to comply with coating and resin manufacturer's instructions.

Finish: Clear Anodized Finish Class I, to match existing storefront.

PART 3 - EXECUTION

INSTALLATION:

Comply with manufacturer's specifications and recommendations.

Set units plumb, level and true to line, without warp or rack of frames or doors. Anchor securely in place. Separate aluminum and other corrodible metal surfaces from sources of corrosion or electrolytic action at points of contact with other materials.

Set sill members in a bed of sealant or with joint fillers or gaskets as indicated to provide weathertight construction. Comply with requirements of Division 7 for sealants, fillers and gaskets to be installed during installation for doors and frames.

Refer to Division-7 sections for compounds, joint fillers and gaskets (if any) to be installed after installation of frame assemblies.

Install complete door operator system in accordance with manufacturer's instructions, including piping, controls, control wiring, and remote power units.

Set tracks, header assemblies, operating brackets, rails and guides level and true to location, with adequate anchorage for permanent support.

ADJUSTING:

After repeated operation of completed installation equivalent to 3 days use by normal traffic (100 to 300 cycles), adjust door operators and controls for optimum operating condition and safety, and for a weathertight closure. Lubricate hardware, operating equipment and other moving parts.

CLEANING:

Clean glass and aluminum surfaces promptly after installation. Remove excess glazing and sealant compounds, dirt and other substances. Exercise care to avoid damage to coatings.

Comply with requirements contained in the "Glass and Glazing" section for cleaning and maintenance of glass.

PROTECTION:

Institute protective measures required throughout the remainder of the construction period to ensure that automatic entrance doors will be without damage or deterioration, other than normal weathering at the time of acceptance.

END OF SECTION 0840

SECTION 0870 FINISH HARDWARE

0870.1 GENERAL:

0870.1.1 RELATED DOCUMENTS:
A. "Finish Hardware" includes items known commercially as builders' hardware which are required for swing, sliding and folding doors. Types of items in this section include (but are not necessarily limited to):
1. Hinges;
2. Locks, lock cylinders, and keys;
3. Exit devices;
4. Push/pull units;
5. Closers (brass);
6. Door trim units;
7. Weather-stripping and threshold for exterior doors.

0870.1.3 QUALITY ASSURANCE:
A. Obtain each kind of hardware (latch, and lock set, hinges, closers, & related items) from only one manufacturer.
B. Perform work in accordance with the following requirements:
1. ANSI A117.1.

0870.1.4 JOB CONDITIONS:
A. Coordinate hardware with other work. Furnish hardware items of proper design for use on doors and frames of the thickness, profile, swing, security and similar requirements indicated, as necessary for proper installation and function.

0870.2 PRODUCTS:

0870.2.1 SCHEDULED HARDWARE:

A. Products are identified by using hardware designation numbers of one manufacturer for each door, sidelight, frame transoms where indicated, door operators and related components of establishing minimum requirements.
1. Supply locks and lock cylinders only by the listed manufacturer and supplier.
2. Provide all other hardware from listed alternate manufacturers.

0870.2.2 MATERIAL AND FABRICATION:

A. The drawings show the direction of swing or hand of each door. Furnish each item of hardware for proper installation and operation of the door movement as shown.
B. Produce hardware units of the base metal and forming method using the manufacturer's standard.
C. Conform manufactured hardware to published templates, generally prepared for machine screw installation.
D. Furnish screws for installation, with each hardware item. Provide Phillips flathead screws with finish of exposed (exposed under any condition), specify to match the hardware finish.
E. Provide concealed fasteners for hardware units which are exposed when the door is closed, except to the extent no standard units of the type specified are available with concealed fasteners.

0870.2.3 HINGES, BUTTS:

See hardware schedule in construction documents.

0870.2.4 LOCKS, LOCK CYLINDERS, AND KEYING:

See hardware schedule in construction documents.

0870.2.5 PANIC DEVICES AND ASTRAGALS:

See hardware schedule in construction documents.

0870.2.6 CLOSERS AND DOOR CONTROL DEVICES:

See hardware schedule in construction documents.

0870.2.7 DOOR TRIM UNITS:

See hardware schedule in construction documents.

0870.2.8 WEATHER-STRIPPING AND THRESHOLDS:

See hardware schedule in construction documents.

0870.2.9 HARDWARE FINISHES:

See hardware schedule in construction documents.

0870.3 EXECUTION:

0870.3.1 INSTALLATION:

A. Mount hardware units at heights indicated in "Recommended Locations for Builders' Hardware" for Standard Steel Doors and Frames, by the Door and Hardware Institute, except as specifically indicated or required to comply with governing regulations.
B. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Do not install surface mounted items until finishes have been completed on the substrate.
C. Set units level, plumb and true to line and locations. Reinforce the attachment substrate as necessary for proper installation and operation.
D. Drill and counter sink units which are not factory-prepared for anchorage fasteners.

END OF SECTION

SECTION 0880 - GLAZING

0880.1 GENERAL:

0880.1.1 SECTION INCLUDES:

A. Installation of glass in prepared openings.
B. Protection.
C. Cleaning.

0880.1.2 RELATED SECTIONS:

Section 0811 "Glass"

0880.1.3 REFERENCE PUBLICATION AND STANDARDS:

A. Flat Glass Jobbers Association, "Glazing Manual" latest edition (FGJA). Glazing subcontractor shall determine and be responsible for actual system(s) and materials to be used in the work of this section. In all instances, the FGJA "Glazing Manual" shall govern details and general conditions of systems to be considered for use intended on the drawings.

0880.1.4 SUBMITTALS:

A. Submit Shop Drawings per Section 01300 "Submittals", of glazing system(s) proposed. Owner's acceptance is required prior to start of glazing.

0880.1.5 SCHEDULING:

A. Schedule the work of this section to coincide with delivery of glass to be installed as part of the work of this section.

0880.2 PRODUCTS:

0880.2.1 MANUFACTURER:

A. The drawings were prepared and portions of this specification written on the basis of using the products of Pecora Corporation, Harleysville, Pennsylvania. It is not the intent to limit competitive bidding. Products with equal characteristics by other manufacturers are acceptable under the conditions of these specifications.

0880.2.2 BASIC MATERIALS:

A. The drawings were prepared and portions of this specification written on the basis of using the products of Pecora Corporation, Harleysville, Pennsylvania. It is not the intent to limit competitive bidding. Products with equal characteristics by other manufacturers are acceptable under the conditions of these specifications.

0880.2.3 EXECUTION:

A. Glazing shall not be commenced until outdoor temperature is above 40° F., on a rising thermometer, and when ventilation conditions are such within building as to prevent condensation of moisture on units during glazing.

0880.2.4 PREPARATION:

A. Clean all surfaces of all glazing units and materials to which glazing compound and/or tapes will be applied and prime (if required) as recommended by glazing compound and/or tape manufacturer.

0880.2.5 INSTALLATION (GLAZING):

A. Install all glazing units in complete accord with shop drawings and the FGJA "Glazing Manual" recommendations, including but not limited to:
1. Handling of glazing units
2. Application of compounds, tapes, etc.
3. Installation of setting blocks and spacer shims
4. Final sealing

0880.2.6 CLEANING:

A. Clean all glazing units and remove all labels, protection markings, etc. prior to acceptance of building by Owner. Replace all cracked, broken, scratched, and improperly set glazing units at time of cleaning without additional cost to the Owner.

0880.2.7 PROTECTION:

A. Clearly mark all installed transparent glazing units by means of tape "X" or other suitable means to protect persons and materials. System used shall comply with any of all governing codes, ordinances, regulations, etc.

0880.2.8 CLEAN-UP:

A. Upon completion of work of this section remove related debris from premises.

END OF SECTION

SECTION 0881.1 GLASS

0881.1 GENERAL:

0881.1.1 SECTION INCLUDES:

A. Float Glass
B. Tempered Glass
C. Insulating Glass
D. Mirror Glass

0881.1.2 RELATED SECTIONS:

A. Section 08800 "Glazing"

0881.1.3 INTENT (SAFETY OF PERSONS):

A. It shall be the responsibility of the glazing subcontractor to comply with all safety laws, ordinances and regulations, etc. which control type of glass related to safety of persons. The drawings and specifications attempt to comply with all such laws, etc., but in case of failure to comply, the most restrictive requirements shall govern the work of this section.

0881.1.4 COORDINATION OF WORK:

A. Coordinate with the work of glazing subcontractor(s).

0881.1.5 SUBMITTALS:

A. Submit samples per Section 01300 "Submittals". Submit 6 inch square samples of all glass and glass units.

0881.1.2 PRODUCTS:

0881.1.2.1 MANUFACTURER:
A. The drawings were prepared and this specification written on the basis of using the products of PPG Industries, Inc., Pittsburgh, Pennsylvania unless noted otherwise. It is not the intent to limit competitive bidding. Products with equal characteristics by other manufacturers are acceptable under the conditions of these specifications.

0881.1.2.2 MATERIALS:

A. General: Glass sizes shown are approximate. Sizes and proper edge clearances shall be determined by measuring the actual opening to receive glass. Labels shall not be removed until final approval is obtained. Types of glass as called out on window and door schedules on drawings.
B. Float Glass: 1/4-inch thick, clear float (plate) glass
C. Tempered Glass: 1/4-inch thick, clear tempered safety glass
D. Insulating Glass: "Solarban 60 (2)", 1" thick, tinted (Low-E2), double glazed (tempered where noted on drawings)
E. Mirror Glass: 1/4-inch thick quality polished plate glass, hermetically sealed with a uniform coating of electrolytic copper plating; FS #DDM-411.

0881.1.3 EXECUTION:

0881.1.3.1 PROTECTION OF MATERIALS:

A. Protect glass from damage of any kind, during packaging, transporting and storage. Do not move partially unpacked cases of glass, as this is apt to cause glass damage or breakage. Ship glass with protective plastic coating to prevent scratching.

0881.1.3.2 GLAZING:

A. Not part of the work of this section.

0881.1.3.3 CLEAN-UP:

A. Upon completion of work of this section remove related debris from premises.

END OF SECTION

DIVISION 9 FINISHES

SECTION 0911 - METAL STUD FRAMING SYSTEM

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Formed metal stud framing
B. Framing accessories

1.02 RELATED SECTIONS

A. Section 05500 "Metal Fabrications"
B. Section 07211 "Batt and Blanket Insulation"
C. Section 09215 "Veneer Plaster"
D. Section 09260 "Gypsum Board Systems"

1.03 REFERENCES

A. ASTM A653 - Standard specification for general requirements for steel sheet, zinc-coated (galvanized) by the hot-dip process.
B. ASTM C645 - Standard specification for non-load (axial) bearing steel studs, runners (track), and rigid furring channels for screw application of gypsum board.
C. ASTM C754 - Standard specification for installation of steel framing members to receive screw-attached gypsum board.
D. ASTM C1002 - Standard specification for steel drill screws for the application of gypsum board or metal plaster bases.

1.04 QUALITY ASSURANCE:

A. Perform work in accordance with ASTM C754.
B. Installer qualifications: Company specializing in performing the work of this section with minimum five years experience.
C. Materials shall be furnished by one manufacturer only.

PART 2 - PRODUCTS

2.01 MANUFACTURER:
A. The drawings were prepared and this specification written on

09510.23 MISCELLANEOUS MATERIALS:

09510.3 EXECUTION:
09510.31 INSPECTION:
Examine conditions under which acoustical ceiling work is to be performed and notify Architect of unsatisfactory conditions.

09510.32 PREPARATION:
A. 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 whenever possible.

09510.33 INSTALLATION:
A. Install materials in accordance with manufacturer's printed instructions, and comply with governing regulations, fire resistance rating requirements as indicated, and industry standards applicable to work.
B. Install suspension systems with hangers supported only from building structural members. Locate hangers near each end and space 4'-0" along each carrying channel or direct-hung runner, unless otherwise indicated, leveling to tolerance of 1/8" in 12'-0".
1. Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, eye-screws, or other devices which are secure.
C. Install edge moldings at acoustical ceiling area and at locations where necessary to conceal edges of perimeter units.
1. Attach moldings to substrate at intervals not over 16" o.c. and not more than 3" from ends.
2. Leveling with ceiling suspension system to tolerance of 1/8" in 12'-0". Miter corners accurately and connect securely.
D. Install acoustical panels in coordination with suspension system, with gages concealed by support of suspension members. Scribe and cut panels to fit accurately at borders and at penetrations.
1. Install hold-down clips in all areas.

09510.34 ADJUST AND CLEAN:
A. Clean exposed surfaces of acoustical ceilings including trim, edge moldings, and suspension members; comply with manufacturer's instructions for cleaning and touchup of minor finish damage.

END OF SECTION

SECTION 09651 - VINYL PLANK FLOORING
RELATED DOCUMENTS
Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

All floor tile (Vinyl Plank and Hard Tile) shall be furnished by Owner & installed by Gen. Contractor.

SECTION 09680 - CARPETING

PART 1 - GENERAL

RELATED DOCUMENTS
Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

DESCRIPTION OF THE WORK:
Extent of each type of carpeting is indicating on drawings, finish schedule and the specifications, and is defined to include carpet, cushion (where indicated) and accessories.

QUALITY ASSURANCE:
Installer Qualifications: Firm with not less than 5 years experience in installation of commercial carpeting of type, quantity and installation methods similar to work of this section.
Manufacturer Qualifications: Firm (carpet mill) with not less than 5 years of production experience with carpet similar to types specified in this section; and whose published product literature clearly indicates general compliance of products with requirements of this section.
Installer Warranties: Provide standard installer two (2) year warranty on all installed carpet agreeing to repair or replace carpeting which fails in materials or workmanship within the warranty period.
Manufacturer Warranties: Provide product warranties and guarantees from the manufacturer in writing and signed and notarized by an Officer of the carpet agreeing to repair or replace carpeting which fails in materials or workmanship for the specified warranty period. Sales representatives or sales manager's signature will not be accepted.
Product specifications and warranties shall meet or exceed those listed in the product specifications and warranty section of the enclosed specifications for each type of carpet. Manufacturer shall submit manufacturer's certificate stating that materials furnished comply with specified requirements. Carpets shall also be current running line products - Discontinued will be accepted with prior approval and a 25% surplus included for replacement in stock.
General Terminology/Information Standard: Refer to current edition of "Carpet Specifier's Handbook" by The Carpet and Rug Institute, for definitions of terminology not otherwise defined herein, and for general recommendations and information.

TESTING AND PHYSICAL PROPERTIES:
Flame/Smoke Resistance Standards: Where ratings are indicated for carpet installations, provide materials complying with ratings as indicated for the following test standards.

Test for flammability: ASTM D 859, ASTM E 84.
Floor Radiant Panel Test: Test for burning under varying radiant energy levels; ASTM E 648, with minimum average radiant flux ratings not less than the following:
FRPT Rating: 1.0 watts/sq. cm.

Smoke Density Test: Test in radiant heat chamber, with and without flame, for density of smoke generated; ASTM E 662, or NFPA No. 258, also known as NBS Smoke Density Chamber Test.

Fade Resistance: Where a fade resistance factor is indicated for carpet or carpet materials, provide materials which have been tested by AATCC test method 16E, for a Maximum grey scale factor of 4 when tested for a period of 40 hours exposed as otherwise indicated.
Static Resistance: Provide yarn or yarn blend as indicated in carpet construction, and include provisions to comply with static resistance ratings as indicated, either by selection of yarns known to be effective or by inclusion of small percentage of special anti-static yarn known to be effective in achieving indicated static resistance. Where a rating is not otherwise indicated, provide 3.0 KV resistance for 20% RH, at 70° F (21° C), AATCC 134.
Microbial Resistance: Where microbial resistance is indicated for carpet or carpet materials provided materials which have been tested by AATCC 100.

SUBMITTALS:
Product Data: Submit manufacturer's complete technical product data for each type of carpet, cushion and accessory item required.
Samples: Submit full size samples of each carpet required.

Certifications: Submit manufacturer's certification stating that carpet materials furnished comply with specified requirements.
Include listing of mill register numbers for carpet furnished.

Maintenance Data: Submit manufacturer's printed maintenance recommendations, including methods and frequency recommended for maintaining carpet in optimum conditions under anticipated traffic and use conditions.

PRODUCT DELIVER AND STORAGE:
Deliver carpeting materials in original mill protection wrapping with mill register numbers and tags attached. Store inside, in well ventilated area, protected from weather, moisture and soiling.

PART 2 - PRODUCTS

CARPET TYPE:
(See Sheet T1.1, "Allowances", for carpet unit cost allowance if applicable)
All carpet shall be a minimal 24"x24" direct glue down tile.

CARPET ACCESSORIES:
Carpet Edge: Refer to Sheet A1.3, flooring schedule for manufacturer and model #'s.
Installation Adhesive: Water-resistant, non-staining type as recommended by carpet or cushion manufacturer, and which complies with flammability requirements for installed carpet.
Miscellaneous Materials: As recommended by manufacturers of carpet, cushions and other carpeting products; and selected by Installer to meet project circumstance and requirements.

PART 3 - EXECUTION

PRE-INSTALLATION REQUIREMENTS:
Examine substrates for moisture content and other conditions under which carpeting is to be installed. Repair minor holes, cracks, depressions or rough areas using material recommended by carpet or adhesive manufacturer. Notify Contractor in writing of major conditions determined to prevent completion of the work. Do not proceed until unsatisfactory conditions have been corrected.

Clear away debris and scrape up cementitious deposits from surfaces to receive carpeting; vacuum clean immediately before installation. Check concrete surfaces to ensure no "dusting" through installed carpet; apply sealer where required to prevent dusting.
Sequence carpeting with other work so as to minimize possibility of damage and soiling of carpet during remainder of construction period.

INSTALLATION:

General:
Comply with manufacturer's instructions and recommendations for seam locations and direction of carpet; maintain uniformity of carpet direction and lay of pile. At doors, close seams under doors; do not place seams in traffic direction at doorways.
Extend carpet under open-bottomed obstruction and under removable flanges and furnishings and into alcoves and closets of each space.
Expansion Joints: Do not bridge building expansion joints with continuous carpeting, provide for movement.
Install carpet edge guard where edge of carpet is exposed; anchor guards to substrate.
Glue-Down Installation:
Fit sections of carpet into each space prior to application of adhesive. Trim edges and butter cuts with seaming cement.
Apply adhesive uniformly to substrate in accordance with manufacturer's instructions. But carpet edges tightly together to form seams without gaps. Roll entire area lightly to eliminate air pockets and ensure uniform bond. Remove adhesive promptly from face of carpet.

CLEANING AND PROTECTION:
Remove and dispose of debris and unusable scraps.
Vacuum carpet using commercial machine with face-beater element. Remove spots and replace carpet where spots cannot be removed. Remove any protruding face yarn using sharp scissors.
Advise Contractor of protection methods and materials needed to ensure that carpeting will be with deterioration or damage at time of substantial completion. Provide walk-off mats, etc., as required.
Maintenance materials:
Deliver specified overcoat (if any) and usable scraps of carpet to Owner's designated storage space, properly packaged (paper wrapped) and identified. Usable scraps are defined to include roll ends of less than 9'-0" length, and pieces of more than 3 sq. ft. area and more than 8" wide. Dispose of smaller pieces as "construction waste".

END OF SECTION 09680

SECTION 09800 FIBERGLASS REINFORCED PANELS (FRP)

09800.1 GENERAL:
Provide fiberglass reinforced polyester panels (FRP) as indicated, specified and required.

09800.2 RELATED DOCUMENTS:
Drawing, Specification Division 9 and Contract

09800.3 SUBMITTALS:
Submit to Architect for review 12" x 12" sample of FRP board and 12" length of trim cap. Submit in accordance with Section 01300 Submittals.

09800.4 PRODUCT HANDLING:
Deliver product to jobsite with all finish surfaces protected against scratches, stains and all damage. Lay panels and trim flat in original containers raised off floor away from moisture. Fiberglass Reinforced Polyester (F.R.P.) Panels: Panels shall be 4' x 9', or 10' x 3/32" fiberglass reinforced polyester panels. FRP panels shall be installed with 10' with harmonizing moldings, adhesive and sealant as supplied by the Commercial Division, Masonite Corporation, Dover, Ohio. Material must be applied strictly in accordance with the printed installation instructions provided.

09800.5 INSTALLATION:
Install per manufacturer's instructions, including sealant in moldings. Prepare all surfaces for proper installation against clean untextured smooth sanded taped gypsum board. Room temperature during installation must be 60 degrees or above. Place FRP board before vinyl base is installed. Panels shall be flush, level and plumb. All trim and joints shall be level, plumb and true. Use large 4 x 10 or 4 x 8 panels so as to create no seams in small rooms. (10'-0" dimension or less). In larger rooms, coordinate panels seams with Architect.

09800.6 CLEANUP:
Clean panels and trim for final acceptance with products as recommended by manufacturer. Protect from damage until construction is complete. Remove all scrap, debris and packaging from site.

END OF SECTION

SECTION 09900 PAINTING

09900.11 RELATED DOCUMENTS:
A. Drawings, Specifications Division 1, Contract.

09900.12 DESCRIPTION OF WORK:
A. The extent of work includes painting and finishing of interior and exterior exposed items and surfaces throughout project as indicated on drawings and specified herein.
1. Surface preparation, priming, and coats of paint specified are in addition to shop-priming and surface treatment specified under other sections of work.

09900.13 DELIVERY AND STORAGE:
A. Deliver materials to job site in original, new and unopened packages and containers bearing manufacturer's name and label.

09900.14 JOB CONDITIONS:
A. Apply water-base paints only when temperature of surfaces to be painted and surrounding air temperatures are between 50 degrees F (10 degrees C) and 90 degrees F (32 degrees C), unless otherwise permitted by paint manufacturer's painted instructions.
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 painted instructions.
C. Do not apply paint in snow, rain fog or mist.

09900.2 PRODUCTS:
09900.21 COLORS AND FINISHES:
A. Paint colors, surface treatments, and finishes, are indicated in "schedules" on the contract Documents.
B. Provide finish coats which are compatible with prime paints used. Notify Regional Construction Manager of any anticipated problems using specified coating systems with substrates primed by others.
C. Do not apply paint in snow, rain, fog or mist.

09900.22 MATERIAL QUALITY:
A. Products of a single manufacturer are listed but products of one of the following manufacturers will be accepted so long as they are similar in quality and identical in finish (color and texture):
1. See Finish Schedule

09900.23 EXTERIOR PAINT SYSTEMS:
A. See construction documents for paint finishes.
B. For metal roof the paint warranty must have a coating film longevity of 15 years and a fade longevity of 5 years min.

09900.24 INTERIOR PAINT SYSTEMS:
A. See construction documents for paint finishes.

09900.3 EXECUTION:
09900.31 INSPECTION:
A. Examine areas and conditions under which painting work is to be applied and notify Architect of conditions detrimental to proper and timely completion of work.

09900.32 SURFACE PREPARATION:
A. Perform preparation and cleaning procedures in accordance with paint manufacturer's instructions, for each particular substrate condition.
B. Remove and reinstall hardware, hardware accessories, plates, lighting, fixtures, and similar items in place and not to be finish-painted, or provide surface-applied protection.
C. Seal tops, bottoms, and cutouts of unpainted wood doors with a heavy coat of varnish or equivalent sealer.

09900.33 MATERIAL PREPARATION:
A. Mix and prepare painting materials in accordance with manufacturer's directions.
B. Stir materials before applications to produce a mixture of uniform density, and stir as required during application.
09900.34 APPLICATION:
A. Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied; Spray application is recommended for general exterior stucco painting.
B. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Paint surfaces behind permanently-fixed equipment or furniture with prime coat.
C. Finish exterior doors on tops, bottoms and side edges same as exterior faces, unless otherwise indicated.
D. Sand lightly between each succeeding enamel coat.
E. Apply sufficient time between successive coatings to permit proper drying.
F. Apply first-coat material to surfaces as soon as practical.
G. Apply materials at not less than manufacturer's recommended spreading rate.
H. Apply one (1) coat of primer (if indicated) and two (2) coats of the finish paint or other paint indicated for all items interior and exterior to be painted.
I. Tint the first finish coat to a shade lighter than the final coat noted on the schedule.
1. Perform kitchen equipment touchup as necessary.

09900.35 CLEANUP AND PROTECTION:
A. During progress of work, remove from site discarded paint materials, rubbish, cans and rags at end of each work day.
B. Protect work of other tradesman, whether to be painted or not, against damage by painting and finishing work.
C. At the completion of work of other trades, touchup and restore all damaged or defaced painted surfaces.
D. Miscellaneous: For any items not specifically shown or specified that require a paint finish, apply 3 coats of paint as directed.

09900.36 CLEANING AND TOUCHUP WORK:
Make a detailed inspection of paint finishes after all painting is completed, remove splatterings of paint from adjoining surfaces, and make good any damage that may be caused by such cleaning operations. Carefully touchup all abraded, stained, or otherwise disfigured painting, as approved, and leave entire painting in first-class condition.

MISCELLANEOUS PAINTING:
A. Duct Interiors: Paint with flat black fire-retardant paint to extent visible through grilles and registers in finished rooms and spaces.
B. Fire Extinguisher and Fire Hose Cabinets: Apply 2 coats of paint finish, inside and out, matching finish and color of adjoining areas, unless otherwise noted or directed.
C. Color Coding: In mechanical and electrical equipment rooms and spaces, paint all ducts, piping, conduit, equipment, and machinery, except such items having a complete factory finish, as specified for interior metal, colors as directed. Not more than 8 colors will be required.
D. Weather-stripping or Sound Seals: Paint exposed metal surfaces to match the door frame, whenever possible. If not possible, paint to match door frame, unless otherwise specified.
E. Painted Signs: Provide on walls in interior areas as shown or directed. Paint signs as specified in interior enamel on noted surface. Employ a skilled and experienced sign painter.
F. Curtain Wall Fixed Glazing: Paint inaccessible gypsum wallboard surfaces behind curtain wall fixed glazing with two coats of approved dark color 1300 Stuc-O-Life before glazing is installed.
G. Mechanical and Electrical Work: Carefully review Divisions 15 and 16 of the Specifications regarding painting performed there under and other painting required to be performed under this Section. Perform all painting of mechanical and electrical equipment and materials that are not expressly specified to be painted under Division 15 or 16, including required identification and color code painting, stenciling, and banding.

END OF SECTION

DIVISION 10 SPECIALTIES

SECTION 10000 BUILDING SPECIALTIES

10000.1 GENERAL:
10000.11 RELATED DOCUMENTS:
A. Drawings, Specifications, Division 1 and Contract.

10000.12 DESCRIPTION OF WORK:
A. Building specialties include the following items:
1. Portable fire extinguishers.
2. Toilet accessories including grab bars and mop rack.

10000.13 QUALITY ASSURANCE:
A. Furnish portable fire extinguisher units conforming to ANSI/UL 711.

10000.14 COORDINATION:
A. Coordinate the work with the placement of interval wall reinforcement to receive anchor bolts.
B. Coordinate locations of the work with other work to avoid interference and to assure proper operation and servicing units.

10000.2 PRODUCTS:
10000.21 PORTABLE FIRE EXTINGUISHERS:
A. Dry Chemical Type: UL 299, stainless steel tank, with pressure gauge; size and classification as indicated on drawings. Provide cabinet or wall brackets as noted on Drawings.

10000.22 TOILET ACCESSORIES:
A. Type, Model Number and location of each accessory is indicated on drawings.
B. Proprietary names are used to designate design and construction of specific products. Similar items of the following manufacturer's are acceptable:
1. Bobrick
2. Bradley
3. Watrous
C. Master key all accessories.

10000.3 EXECUTION:
10000.31 EXAMINATION:
A. Examine substrates and other conditions under which installation is to occur, and notify Architect of conditions detrimental to proper and timely completion of work.

10000.32 INSTALLATION:
A. Install accessory and fire extinguisher 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. Install all items in accordance with manufacturer's instructions, ANSI A117.1, ADA, and local codes.

10000.33 ADJUST AND CLEAN:
A. Adjust units for proper operations and verify that mechanisms function smoothly.
B. Clean and polish all exposed surfaces of factory finished units after removing protective coatings.

END OF SECTION

SECTION 10165 - TOILET PARTITIONS

PART 1 - GENERAL

1.01 DESCRIPTION
A. Provide high pressure laminate, floor mounted and overhead braced toilet partitions as indicated on Drawings and specified herein.

B. Related Work:
1. Shop Drawings, Product Data, Samples, Section 01340
2. Rough Carpentry, Section 06100 (Blocking)
3. Tile Work, Section 09300
4. Toilet Accessories, Section 10800

QUALITY CONTROL
A. Field Measurements - Take field measurements prior to preparation of shop drawings and fabrication where possible to ensure proper fitting of work. When the taking of field measurements before fabrication will delay work, allow for adjustments within specified tolerances.
B. Coordination - Furnish inserts and anchorages which must be built into other work for installation of toilet partitions and other work, coordinate delivery with other work to avoid delay.

1.03 SUBMITTALS
A. Product Data - Submit manufacturer's detailed technical data for materials, fabrication, and installation, including catalog cuts of anchors, hardware, fastenings, and accessories.
B. Shop Drawings - Submit shop drawings for fabrication and erection of toilet partition assemblies not fully described by product drawings, templates, and instructions for installation of anchorage devices built into other work.
C. Samples - Submit full range of color samples for each type of unit required. Submit 6" square samples of each color and finish on same substrate to be used in work, for color verification after selections have been made.

PART 3 - PRODUCTS

2.01 MATERIALS -

A. Stiles, panels & doors - high pressure laminate by AMPCO or approved equal.

1. High pressure laminate material constructed of solidly fused plastic laminate with matte-finish melamine surfaces, colored face sheets, and black phenolic-resin core that are integrally bonded. Edges shall be black. Brown edges shall not be acceptable. Color and pattern as selected by architect from manufacturers standard colors.

2. For 180 Duraline Series: solid phenolic material shall meet National Fire Protection Association and International Building Code Interior Wall and Ceiling Finish Class A Uniform Building Code Class I, ASTM E-84 Fire Resistance Standards; flame spread 20, smoke density 95.

3. For 1080 Duraline Series: solid phenolic material shall meet National Fire Protection Association and International Building Code Interior Wall and Ceiling Finish Class B, Uniform Building Code Class II, ASTM E-84 Fire Resistance Standards; flame spread 69, smoke density 83.

4. Finish Thickness
a. Stiles and doors shall be 3/4" (19mm).
b. Panels shall be 1/2" (13mm).

B. HARDWARE

1. Each compartment shall be provided with door hinges, latch stop and keeper, coat hook and all necessary fittings and fastenings for a complete installation.
2. Doors shall be hung on concealed universal type gravity hinges, adjustable to hold door open at any angle up to 90 degrees. Lower hinge recessed in door shall operate on opposing nylon cams. Upper hinge shall operate with pin in a nylon bushing anchored above and below hinge bracket.
3. Concealed latch shall be provided with emergency opening slot.
4. All hardware shall be stainless steel.

2.01 MATERIALS

A. Stainless Steel Toilet Partitions: Shall be stainless steel equal to Type SS-FF (as manufactured by American Sanitation Corporation, Ocoee, FL) used in the Men's #2 toilet area. Urinal screen shall be 18-gauge stainless steel floor supported Type No.2, as manufactured by American Sanitation Corporation, Ocoee, FL with wall pilaster, continuous brackets and panels.

2.02 MATERIALS

A. Aluminum Extrusions: ASTM B211, Alloy 6063-T5, 6063-T6 or 6061-T6.
B. Aluminum Sheet: ASTM B3209, Alloy 1100, 3003 or 5005.

A. Construction: Stiles, panels and doors shall be of stainless steel construction laminated to a honeycomb core producing a stile unit of no less than 1-1/4" thick and panel and door units of not less than 1" thick. The edges of the stiles, panels and door units shall be interlocking with all corners welded and ground smooth. Stiles, panels and door units shall be prepared for application of fittings and hardware.

B. Fittings: All fittings shall be stainless #4 finish and adjustable to keep stiles and panels clear of walls. Stile cover bases shall be 3" high stainless steel.

C. Hardware: Provide one way theft proof screws and fasteners. All hardware except coat hook shall be through bolted.

D. Hinge sets, Stile latches, combination bumper and keeper and coat hook: Surface mounted stainless steel with #4 finish. Hinges to be continuous.

E. Mounting Brackets: Wall bracket to be continuous 36" high stainless steel against tile and a single stainless steel bracket for the support of overhead bracing. Mounting brackets exposed on the exterior of the compartment shall be stainless steel.

F. Leveling Device shall be 3/16" (4.8mm) hot rolled chrome-treated and zinc-plated; through-bolted to base of solid phenolic stile.

G. Stile Shoe shall be one-piece #4 (102mm) high, type #04, 22-gauge (0.8mm) stainless steel with satin finish. Top shall have 90 degree return to stile. Patented one-piece shoe capable of adapting to 3/4" or 1" stile thickness and capable of being fastened (by clip) to stiles starting at wall line.

H. Headrail (Overhead-Braced) shall be satin finish, extruded, anodized aluminum (.065"/1.65mm thick) with anti-grip profile.

I. Installation: General Contractor to coordinate the installation with finish work.

2.02 OTHER MATERIAL

A. Provide such other materials not specifically described, but required for a complete and proper installation as selected by the Contractor subject to review.

PART 3 - EXECUTION

3.01 PREPARATION FOR INSTALLATION

A. Examine areas and conditions under which this Work will be installed. Correct conditions detrimental to proper and timely completion of Work. Do not proceed until satisfactory conditions have been corrected.

B. Install partitions in strict accordance with approved shop drawings and as herein specified.

C. Partition panels shall be attached to building construction with mounting brackets.

D. Hardware shall be secured to toilet partitions with vandal-proof sleeve bolts, solid brass chrome plated or stainless steel.

3.02 INSTALLATION

A. Examine areas and conditions under which this Work will be installed. Correct conditions detrimental to proper and timely completion of Work. Do not proceed until satisfactory conditions have been corrected.

B. Install partitions in strict accordance with approved shop drawings and as herein specified.

C. Partition panels shall be attached to building construction with full height mounting brackets.

D. Hardware shall be secured to toilet partitions with vandal-proof sleeve bolts, solid brass chrome plated or stainless steel.

3.03 CLEANING

A. At completion of work of this Section, the entire installation and building surfaces shall be left clean and free from damage and defects.

END OF SECTION 10165

SECTION 10200 - LOUVERS & VENTS

PART 1 GENERAL

1.01 Summary
Furnish and install louvers, bird screens, blank-off panels, structural supports and attachment brackets as shown on the drawings, as specified, and as needed for a complete and proper installation.
B. The louvers to be furnished include the following:
1. Drainable fixed extruded louvers.
C. Related sections include:
1. Division 7 Section "Joint Sealants" for sealants installed in perimeter joints between louver frames and adjoining construction.

1.02 References
A. Air Movement and Control Association International, Inc.
1. AMCA Standard 500-99 Laboratory Methods of Testing Louvers for Rating
2. AMCA Publication 501 Application Manual for Louvers
B. The Aluminum Association Incorporated
1. Aluminum Standards and Data
2. Specifications and Guidelines for Aluminum Structures
C. American Society of Civil Engineers
1. Minimum Design Loads for Buildings and Other Structures
D. American Society for Testing and Materials
1. ASTM B209
2. ASTM B211
3. ASTM B221
4. ASTM E90-90
E. Architectural Aluminum Manufacturers Association
1. AAMA 500 Voluntary Specifications and Test Methods for Sealants
2. AAMA 605-2 Voluntary Specification for High Performance Organic Coatings on Aluminum Extrusions and Panels.
3. AAMA TIR Metal Curtain Wall Fasteners
4. AAMA 2605-98 Superior Performing Organic Coatings on Aluminum Extrusions and Panels
F. Canadian Standards Association
1. CANCS-157-M83 Strength Design in Aluminum
2. S136-94 Cold Formed Steel Structural Members

1.03 Submittals
A. Product Data - Air flow and water entrainment performance test results.
2. Material types and thickness.
B. Shop Drawings
1. Include elevations, sections and specific details for each louver.
2. Louver anchorage details and connections for all component parts.
3. Include signed and sealed structural calculations.
C. Submit color chips for approval.

1.04 Quality Assurance
A. Single subcontract responsibility: Subcontract the work to a single firm that has had not less than six years experience in the design and manufacturing of work similar to that shown and required.
B. Performance Requirements: Provide AMCA and BSRIA test data as required to confirm that the louvers have the specified air and water performance characteristics.
C. Acoustical Performance: Where applicable, submit test reports to confirm that the louvers meet the specified STC and Noise Reduction requirements.
D. Structural Requirements: Design all materials to withstand wind and snow loads as required by the applicable building code. Maximum allowable deflection for the louver structural members to be 1/180 or 0.75 inch, whichever is less. Maximum allowable deflection for the louver blades to be 1/200 or 0.50 inch across the weak axis, whichever is less.
E. Warranty: Provide written warranty to the owner that all products will be free of defective materials or workmanship for a period of one year from date of installation.

1.05 Delivery, Storage and Handling

A. Delivery: At the time of delivery all materials shall be visually inspected for damage. Any damaged boxes, crates, louver sections, etc. shall be noted on the receiving ticket and immediately reported to the shipping company and the material manufacturer.
B. Storage:
1. Material may be stored flat, on end or on its side.
2. Material may be stored either indoors or outdoors.
3. If stored outdoors the material must be raised sufficiently off the ground to prevent it being flooded.
B. If stored out doors the material must be covered with a weather proof flame resistant sheathing or tarpaulin.
C. Handling:
1. Material shall be handled in accordance with sound material handling practices and in such a way as to minimize racking.
2. Louver sections may be hoisted by attaching straps to the jamps and lifting the section while it is in a vertical position.
3. Louver sections should only be lifted and carried by the jamps. Heads, sills and blades are not to be used for lifting or hoisting louver sections.

PART 2 PRODUCTS

2.01 Manufacturers
A. The louvers and related materials herein specified and indicated on the drawings shall be as manufactured by the following, or approved equal:
1. Construction Specialties, Inc. 49 Meeker Avenue Cranford, New Jersey 07016 Telephone: 800-631-7379
2. Construction Specialties, LTD. 895 Lakefront Promenade Mississauga, Ontario L5E 2C2 Telephone: 888-895-8258.

2.02 Materials
A. Aluminum Extrusions: ASTM B211, Alloy 6063-T5, 6063-T6 or 6061-T6.
B. Aluminum Sheet: ASTM B3209, Alloy 1100, 3003 or 5005.

2.03 Fabrication, General

A. Provide G/S louver models, bird / insect screens, blank-off panels, structural supports and accessories as specified and/or shown on the drawings. Materials, sizes, depths, arrangements and material thickness to be as indicated or as required for optimal performance with respect to strength, durability, and uniform appearance.
B. Louvers to be mechanically assembled using stainless steel or aluminum fasteners.
C. Include supports, anchorage, and accessories required for complete assembly.

2.04 Louver Models

A. C/S 4" (101.6mm) Double Drainable Fixed Extruded Mullion Louver Model 4157
1. Material: Heads, sills, jamps and Mullions to be one piece structural aluminum members with integral caulking slot and retaining blades. Mullions shall be sliding interlock with internal drains. Blades to be one piece aluminum extrusions with gutters designed to catch and direct water to jamb and mullion drains. Compression gaskets shall be provided between bottom of mullion or jamb and top of sill to insure leak tight connections. Material thickness to be as follows: Heads, sills, jamps and mullions 0.081" (2.06mm). Fixed blades 0.081" (2.06mm).
2. AMCA Performance: A 4

SPECIAL REQUIREMENTS

VOC TABLES

1.1 LOW-EMITTING MATERIALS

A. Credit IEQ 4.1: For field applications that are inside the weatherproofing system, use adhesives and sealants that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D.

- 1. Wood Glues: 30 g/L.
2. Metal to Metal Adhesives: 30 g/L.
3. Adhesives for Porous Materials (Except Wood): 50 g/L.
4. Subfloor Adhesives: 50 g/L.
5. Plastic Foam Adhesives: 50 g/L.
6. Carpet Adhesives: 50 g/L.
7. Carpet Pad Adhesives: 50 g/L.
8. VCT and Asphalt Tile Adhesives: 50 g/L.
9. Cove Base Adhesives: 50 g/L.
10. Gypsum Board and Panel Adhesives: 50 g/L.
11. Rubber Floor Adhesives: 60 g/L.
12. Ceramic Tile Adhesives: 65 g/L.
13. Multipurpose Construction Adhesives: 70 g/L.
14. Fiberglass Adhesives: 80 g/L.
15. Contact Adhesive: 80 g/L.
16. Structural Glazing Adhesives: 100 g/L.
17. Wood Flooring Adhesive: 100 g/L.
18. Structural Wood Member Adhesive: 140 g/L.
19. Special Purpose Contact Adhesive (contact adhesive that is used to bond melamine covered board, metal, unsupported vinyl, Teflon, ultra-high molecular weight polyethylene, rubber or wood veneer 1/16 inch or less in thickness to any surface): 250 g/L.
20. Top and Trim Adhesive: 250 g/L.
21. Plastic Cement Welding Compounds: 250 g/L.
22. ABS Welding Compounds: 325 g/L.
23. CPVC Welding Compounds: 490 g/L.
24. PVC Welding Compounds: 510 g/L.
25. Adhesive Primer for Plastic: 550 g/L.
26. Plastic Cement Welding Compounds: 350 g/L.
27. ABS Welding Compounds: 400 g/L.
28. CPVC Welding Compounds: 490 g/L.
29. PVC Welding Compounds: 510 g/L.
30. Adhesive Primer for Plastic: 650 g/L.
31. Sheet Applied Rubber Lining Adhesive: 850 g/L.
32. Aerosol Adhesive, General Purpose Mist Spray: 65 percent by weight.
33. Aerosol Adhesive, General Purpose Web Spray: 55 percent by weight.
34. Special Purpose Aerosol Adhesive (All Types): 70 percent by weight.
35. Other Adhesives: 250 g/L.
36. Architectural Sealants: 250 g/L.
37. Nonmembrane Roof Sealants: 300 g/L.
38. Single-Ply Roof Membrane Sealants: 450 g/L.
39. Other Sealants: 420 g/L.
40. Sealant Primers for Nonporous Substrates: 250 g/L.
41. Sealant Primers for Porous Substrates: 775 g/L.
42. Modified Bituminous Sealant Primers: 500 g/L.
43. Other Sealant Primers: 750 g/L.

B. Credit IEQ 4.2/4.3: For field applications that are inside the weatherproofing system, use paints and coatings that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D.

- 1. Flat Paints, Coatings, and Primers: VOC not more than 50 g/L.
2. Nonflat Paints, Coatings, and Primers: VOC not more than 150 g/L.
3. Anticorrosive and Antirust Paints Applied to Ferrous Metals: VOC not more than 250 g/L.
4. Clear Wood Finishes, Varnishes: VOC not more than 350 g/L.
5. Clear Wood Finishes, Lacquers: VOC not more than 550 g/L.
6. Floor Coatings: VOC not more than 100 g/L.
7. Shellacs, Clear: VOC not more than 730 g/L.
8. Shellacs, Pigmented: VOC not more than 550 g/L.
9. Stains: VOC not more than 250 g/L.
10. Flat Interior Topcoat Paints: VOC not more than 50 g/L.
11. Nonflat Interior Topcoat Paints: VOC not more than 150 g/L.
12. Anticorrosive and Antirust Paints Applied to Ferrous Metals: VOC not more than 250 g/L.
13. Clear Wood Finishes, Varnishes and Sanding Sealers: VOC not more than 350 g/L.
14. Clear Wood Finishes, Lacquers: VOC not more than 550 g/L.
15. Floor Coatings: VOC not more than 100 g/L.
16. Shellacs, Clear: VOC not more than 730 g/L.
17. Shellacs, Pigmented: VOC not more than 550 g/L.
18. Stains: VOC not more than 250 g/L.
19. Primers, Sealers, and Undercoaters: VOC not more than 200 g/L.
20. Dry-Fog Coatings: VOC not more than 400 g/L.
21. Zinc-Rich Industrial Maintenance Primers: VOC not more than 340 g/L.
22. Pretreatment Wash Primers: VOC not more than 420 g/L.
23. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).

- 24. Restricted Components: Paints and coatings shall not contain acrolein, acrylonitrile, antimony, benzene, butyl benzyl phthalate, cadmium, di (2-ethylhexyl) phthalate, di-n-butyl phthalate, di-n-octyl phthalate, 1,2-dichlorobenzene, diethyl phthalate, diethyl phthalate, dimethyl phthalate, ethylbenzene, formaldehyde, hexavalent chromium, isophorone, lead, mercury, methyl ethyl ketone, methyl isobutyl ketone, methylene chloride, naphthalene, toluene (methylbenzene), 1,1,1-trichloroethane, or vinyl chloride.

CONSTRUCTION IAQ PLAN

Section 1 Overview

The following plan will be implemented to prevent indoor air quality problems resulting from the construction process. Poor control of indoor air quality (IAQ) during the construction process produces odors, dust, air pollutants, and moisture intrusion and absorption into building materials which can cause health and comfort concerns to construction workers as well as building occupants. To minimize the negative effects and reduce risk, the construction team must take measures to manage the IAQ during the construction process. By effectively managing the IAQ during construction, health and comfort issues that can result from the construction process can be reduced significantly.

This Construction IAQ Management Plan describes the types of pollutants that may be generated during construction, areas affected by these pollutants, the activities likely to produce pollutants and IAQ problems, and the classification of the pollutants. Most importantly, Section 7 contains the required measures to control the indoor air quality during construction. The general contractor will be responsible for observing the site during construction to help ensure compliance with the Construction IAQ Management Plan. The Contractor will implement a Quality Control Program designed to help the mechanical subcontractor & all other applicable subcontractors working on-site understand and carry out their requirements and responsibilities under the IAQ plan.

Section 2 Potential Sources of Odor and Dust

The following table lists potential sources of odor and dust, as well as the type of contaminant produced by each source.

Table with 2 columns: Source, Type. Lists items like Pressed wood products, Treated wood products, Adhesives, Sealants, Glazing compounds, Caulking, GROUTING.

Wood preservatives, finishes and paint VOCs
Control and/or expansion joint fillers VOCs
All hard finishes requiring adhesive installation VOCs
Wall coverings VOCs
Solvents VOCs
Sealants VOCs
Cleaning agents VOCs
Pesticides VOCs

Epoxy flooring/finishes Particulates, VOCs
Gypsum board and associated finish processes Particulates, VOCs
Concrete Particulates
Plaster Particulates
Roofing Particulates
Insulation Particulates
Carpeting Particulates
Other flooring Particulates
Ductwork Particulates
Ceiling panels Particulates
Exterior insulation and finish system (EIFS) Particulates
Automotive exhaust Combustion products
Generators Combustion products
Saws Combustion products
Compressors Combustion products
Welders Combustion products
Forklifts Combustion products
Troweling machines Combustion products
Conveyors Combustion products
Pressure washers Combustion products
Mixers Combustion products
Cutting torches Combustion products
Portable heaters Combustion products
Soldering guns Combustion products
Cigarette smoke Moisture, Water Bathrooms
Food products

Particulates, Combustion products Biological materials
Biological materials
Biological materials Section 3
Potential Sources of Mold & Mildew

Conditions that are conducive to microbial amplification resulting in mold and mildew growth require a food source and moisture. Building materials, dirt and debris are excellent food sources that mold and mildew thrive on if moisture is present. Mold growth, which is a symptom of moisture problems in a building, occurs when the following conditions are present:

- Temperature between 45 and 95 degrees Fahrenheit (°F)
Oxygen
Organic nutrients (many building materials provide food for mold growth)
Moisture (water or RH above 70 percent)

The only one of these conditions that is easily controlled is moisture.

The construction of a building provides many opportunities for mold and mildew growth in the building before the building is even completed. Contractors must exercise great care in protecting the building and its materials during the construction process to prevent indoor air quality problems from affecting the building occupants after completion. Moisture intrusion from rain water before the building is dried-in, moisture generated in the building after dry-in, and the sequence the HVAC system is started and operated are all critical to managing indoor air quality during construction. Because of the magnitude of potential mold and mildew problems, it is extremely important to implement the control measures described in Section 7.

Determining the sources of moisture/mold growth, and understanding the concepts of relative humidity, humidity ratio, and dew point are also crucial to understanding moisture-related problems in buildings. In addition, it is critical to know how architectural features alone or in combination with the HVAC system can affect the potential for excess moisture buildup and mold growth.

Mold growth is dependent on the level of moisture and can be affected by direct moisture intrusion (such as rainwater) or by relative humidity of the air, because relative humidity determines how much moisture a porous material (such as gypsum wallboard) will absorb.

Some key concepts are as follows:

The relative humidity is the ratio of the amount of moisture vapor in the air at a given temperature to the maximum amount of moisture vapor the air can hold at that temperature.

The amount of moisture vapor that air can hold is heavily dependent on the temperature of the air sample. At higher temperatures, air can hold more moisture. Therefore, to calculate relative humidity, both the absolute moisture level and the temperature of the air must be determined.

Humidity ratio is the ratio of the weight of the moisture vapor in the air to the weight of the air. It is usually expressed as grains of moisture vapor per pound of air (grains/lb). Humidity ratio is an important value in moisture and mildew evaluations because it characterizes total moisture in a space.

EXHIBIT 1

Relationship Among Dew Point, Humidity Ratio, and Relative Humidity at Various Temperatures
At a given dew point and humidity ratio, a slight increase in temperature results in a significant decrease in RH.

Table with 5 columns: Humidity Ratio (grains/lb), Dew Point (°F), Relative Humidity at 70 °F (%), Relative Humidity at 75 °F (%). Rows show values for 54, 65, 78, 93, 111 grains/lb.

Dew Point is the temperature at which moisture in air begins to condense. At a given temperature, relative humidity, and absolute moisture level, the dew point is the air temperature at which the same absolute moisture level would represent 100 percent relative humidity. When the ambient temperature drops below the dew point temperature, the air can no longer hold all its moisture vapor, and the moisture will therefore condense onto surrounding surfaces.

Both dew point and humidity ratio are constant with air temperature; they do not vary with temperature as relative humidity does. Exhibit 1 illustrates the relationship between relative humidity, dew point, and humidity ratio at several representative temperatures.

As can be seen in Exhibit 1, relative humidity varies significantly with temperature at a given dew point and humidity ratio. HVAC systems normally operate to maintain a temperature setpoint; only as a byproduct of their operation do they control relative humidity in the space. By cooling the supply air below its dew point, the HVAC system condenses moisture out of the air. The typical supply air temperature delivered by the HVAC system is between 55°F and 60°F. As shown in Exhibit 1, at 75°F, the air in a room will typically have a relative humidity of approximately 54 percent during summer months. However, if the room temperature is lowered to 70°F, the relative humidity in the room will rise to 71 percent, which exceeds the 70 percent minimum limit for mold growth.

Section 4 Affected Areas

Due to the nature of construction, all areas of the building will be affected by some contaminants. Additionally, the area surrounding the building will be affected by various contaminants, including dust from concrete masonry units (CMU), concrete work, sheetrock etc., odors from adhesives, sealants, roofing, paints, and vehicle exhaust. All areas of the building can also be affected by moisture intrusion. Because of the magnitude of the potential dust, odors, pollutants, and risk of mold and mildew, it is extremely important to implement the control measures described in Section 7.

Section 5

Activities Likely to Produce Odor or Dust

Many activities during the construction process are likely to produce odor and dust. Dust is produced during the following activities:

- Cutting materials
Drilling materials
Sawing materials
Sanding materials
Rasping EIFS

Odors are potentially emitted during any activity which involves the following products:

- Adhesives
Sealants
Paints
Solvents
Cleaning supplies

The following construction activities produce combustion products:

- Welding
Cutting using torches
Sawing using chainsaws
Soldering

Additionally, every day activities such as smoking facilities can produce particulates and odor.

Section 6

Classification of IAQ Problems

Class 1

Class 1 air pollutants are expected to have only a nuisance impact on exposed occupants. Only very sensitive individuals should have adverse reactions to these pollutants. Activities which produce small amounts of dust and light dust disturbance, such as sweeping, are classified as Class 1.

Class 2

Class 2 air pollutants could cause moderate but temporary health impacts on some occupants. The majority of the activities listed in "Section 5 - Activities Likely to Produce Odor or Dust" are classified as Class 2.

Class 3

Class 3 air pollutants are the more hazardous air pollutants which could cause severe, acute, or chronic illness.

The following activities and pollutants are classified as Class 3:

- Disturbance of products of combustion
Heating of roof tar
Application of enamel paint Mixing of epoxy resins
Non-vented operation of gasoline or diesel-powered equipment
Microorganisms i.e., Staphylococcus, various species of fungi, spores, bacteria commonly referred to as mold and mildew

Section 7

Control Measures

Several control measures may be necessary to maintain good indoor air quality during construction. The control measures required in this project, HVAC protection, moisture control, source control, pathway interruption, housekeeping and scheduling, are described in the following sections.

7.1 HVAC Protection

When possible, conduct all cutting and grinding of cementitious/masonry materials prior to delivery and installation of HVAC materials (supply and return ductwork, diffusers, grills, filters, terminal units, etc.) and equipment. Ductwork and Mechanical equipment should be clean and free of dust before being delivered to the jobsite. HVAC supply and the return openings should be sealed to protect them from dust infiltration during construction. Procedures should be consistent with the current edition of the "Duct Cleanliness for New Construction Guidelines" published by the Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA) relative to advanced levels of cleanliness which provide in part that ductwork should be sealed when transported to the construction site; ductwork should be stored in clean, dry conditions and kept sealed while stored; internal surfaces of ductwork should be wiped-down immediately prior to installation to remove dust; open ends on completed ductwork and overnight work-in-progress should be sealed; and uninstalled ductwork should be protected from construction dust using surface wrapping.

Once installed, protect all surfaces of ductwork, duct insulation, accessories and equipment that will contact supply and return air during operation from dirt, moisture, and contaminants by sealing off ductwork and equipment openings during activities that may cause contamination such as sheetrocking, painting, demolition, etc. The General Contractor and the HVAC contractor shall inspect often to ensure the integrity of the seal. The commissioning agent will randomly check the ductwork and associated equipment to help ensure compliance with this Construction IAQ Management Plan.

Exterior duct insulation will be protected by permanent or temporary dry in measures. Any wet insulation will be replaced. HVAC exterior duct insulation will be completed prior to startup of HVAC systems operating in cooling mode. Develop and implement a startup plan that minimizes infiltration of warm outside air into the building during warm and humid periods of the year. The construction team will minimize the duration that HVAC equipment is operated during construction. The HVAC system should only be operated to protect the building or to acclimate materials to the environment before installation, as required by manufacturers. Do not operate equipment unless required for ventilation or space conditioning.

When the HVAC equipment is started up, protect the building from interior generation of moisture and all surfaces of ductwork, accessories and equipment that will contact supply or return air during operation from dirt, moisture and other contaminants by implementing requirements of the following subsections.

7.1.1 Return Air Side

The return air side of the HVAC system shall be shut down and sealed with plastic during heavy construction/dust-generating activities. If the HVAC system must be operated, the HVAC contractor will install filter media with a minimum of MERV 8 efficiency or more over all return openings. Contractor shall ensure a good seal between the filters and return air openings and will inspect often to ensure the integrity of the seal.

During installation of VOC-containing materials, return air shall be minimized and outside air shall be maximized. The system return air should be isolated from the surrounding environment as much as possible to prevent induction of pollutants. HVAC operation should promote exfiltration of air from the building to assist with VOC removal.

Section 4 Affected Areas

Utilize outside air when practical to minimize the amount of return air used, particularly during periods of high contamination. When relying on 100% outside air, seal off return air opening or install filters, as previously described. Closed return dampers alone are insufficient to prevent air in the return ducts. Protect air-handling equipment as described below. All filters must receive frequent periodic maintenance. Filtration of MERV 8 efficiency shall be maintained during construction and new filtration installed before occupancy.

7.1.2 Central Filtration

In areas where major dust loading is expected to impact operating HVAC systems (including systems utilized for temporary heat), provide filters with at least MERV 8 dust spot efficiency. Where other control options for construction-related odors are not deemed effective, consideration may be given to filtration with media such as activated charcoal or potassium

permanganate. All filters must receive frequent periodic maintenance. Filtration of MERV 8 efficiency shall be maintained as long as the units are operating during construction.

7.1.3 Supply Side

When the system is off for the duration of construction, diffusers should be sealed in plastic for further protection. At the completion of construction (prior to occupancy) the contractor and the commissioning agent will randomly observe ducts and diffusers for deposited particulate. If there is only minor particulate discharge during startup, the discharged dust must be cleaned up prior to occupancy. HVAC contractor shall install new final filters prior to occupancy that have a minimum efficiency reporting value (MERV) of 13 as determined by ASHRAE 52.2-1999.

7.1.4 Duct & Equipment Cleaning

If the system becomes contaminated during the construction process, the ducts and associated equipment will be cleaned after dust-producing activities (identified in "Section 4 - Activities Likely to Produce Odor or Dust") have been completed in the areas served by the HVAC system. Ductwork and equipment contaminated with dirt, debris or moisture shall be cleaned prior to occupancy. The mechanical designer will approve the appropriate cleaning process. New filter media will be installed after HVAC system has been cleaned just prior to substantial completion and occupancy. All mechanical rooms shall be kept clear of construction debris, materials and waste at all times.

Statements shall be submitted to the commissioning agent from the specialty contractor performing the duct cleaning indicating which sections of duct have been cleaned and which method was used. Commissioning agent will randomly observe the sections which have been cleaned to verify the performance of the cleaning contractor.

7.2 Odor and Dust Source Control

As the building is enclosed, the use of portable combustion-type heaters (i.e., kerosene, propane) will be eliminated to prevent elevated levels of combustion product contaminants.

Utilize products (solvents, caulks, carpet, adhesives, paints and coatings, composite wood and agrifiber products) that emit low quantities of VOCs listed in the specifications. During construction activities that produce odors or VOCs, provide fresh ventilation air utilizing 100% outside air when possible, rather than return air. Do not exceed the HVAC system's ability to remove moisture from outside air.

Use bottled gas instead of diesel when using fuel-powered equipment. Use electric equipment when possible, such as forklifts, chainsaws or masonry saw. Equipment that is not being used should be cycled off.

Containers of wet products (paint, adhesives, etc) should be kept closed when not in use. Before discarding, cover or seal waste materials that can release odor or dust.

Promptly discard all waste materials in the appropriate waste receptacle. Waste materials that are recyclable should be deposited in the appropriate recycling receptacle.

Sanding of all sheetrock should be done with a dust collection system.

Smoking shall be prohibited and will only be allowed outside of the building.

7.3 Potential Sources of Mold & Mildew

Protect all stored onsite from moisture accumulation or damage by placing on elevated pallets and covering with plastic or other suitable materials, especially before the building is dried-in. Protect installed absorptive materials, and inspect often to ensure adequate protection. Construction activities should be scheduled to minimize installation of materials that will absorb water before the building is dried-in or temporary protection provided. Ponding water should be removed from the building immediately. Water damaged materials should be dried within 24 hours. Materials that are damp or wet for more than 24 hours should be removed from the site. Materials showing signs of mold and mildew should be immediately removed from the site and properly dispose of materials, including any with moisture stains. Moldy materials should be replaced with new, undamaged materials

Negative pressurization relative to the outside caused by HVAC operation results in uncontrolled infiltration of unconditioned air that will condense and cause moisture collection in duct insulation, increase moisture content in building materials which can result in condensation in wall cavity and poor indoor air quality problems in the building. Negative pressurization of the space also promotes rainwater infiltration during a storm event. Implement a startup plan designed to minimize the potential of moisture in the building by:

- Operating outside air (OSA) system to maximize quantity of outside air without creating indoor relative humidity conditions greater than 60%. Maintain exhaust air systems off until occupancy except for test and balance work or for short-term removal of contaminants/pollutants.
Insulate cold water, HVAC piping and ductwork before start of HVAC system in cooling mode.
Seal all building openings with temporary measures to prevent moisture, dust and odor infiltration.
Install temporary dehumidifiers and spot coolers to help remove moisture (if necessary).

7.4 Pathway Interruption

During construction, it may be necessary to isolate areas of work to prevent contamination of clean or occupied spaces. When possible, erect barriers such as dust curtains or plastic sheets between work areas to prevent unwanted airflow from dirty to clean areas.

Dust and odor-producing materials should be kept away from air intakes at all times. All mechanical rooms shall be kept clear of construction debris, materials and waste at all times.

Operate HVAC systems to maintain a positive pressure in the occupied spaces of a minimum 6 Pascals above the construction area pressure. Closely monitor the presence of the pressure differential under all operating conditions.

7.5 Housekeeping

Reduce construction contaminants in the building prior to occupancy through regular space cleaning activities. Once the building is enclosed, keep standing water cleaned up to prevent mold and mildew growth and keep solvent, paint and other VOC-emitting chemical spills cleaned up. Keep equipment and materials that are not being used clean by covering them or moving them to a clean area. Building materials should be stored in a weather tight, clean area prior to unpacking for installation. All dirty coils, air filters, and fans should be cleaned before testing and balancing (TAB) procedures are performed and before baseline air quality tests are conducted.

Remove accumulated water within 24 hours. Keep work areas dry. Porous materials such as insulation should be protected from moisture. Porous materials that get wet shall be dried out completely immediately after moisture is observed. Porous items such as duct insulation that remains damp for 24 hours or more shall be replaced. Any sheetrock, plaster, ceiling tiles, or other like materials that get wet must be replaced. Equipment such as terminal units which have duct insulation in the airstream should be stored on pallets (away from water) and should be sealed with plastic prior to installation. Before installation, check for possible damage to equipment from high humidity. Repair or replace any damaged equipment.

Suppress dust in the construction area with wetting agents or sweeping compounds. Regularly clean the dust from the site using a damp rag, wet mop or vacuum equipped with a high-efficiency particulate filter or wet scrubber. Remove spills or excess applications of solvent-containing products immediately. Green seal approved chemicals need to be used for all cleaning applications.

7.6 Scheduling

Scheduling of activities will prove to be key in helping control indoor air quality. The installation schedules of all sealants, caulks, paints, etc. will be sequenced such that proper venting of objectionable odors will be accomplished to keep levels below acceptable levels. Weekly clean-up should be scheduled to minimize the trash, dust & contaminants once the building is closed in. All major cleaning will need to be scheduled prior to the start up off mechanical equipment.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY, CHECK AND CORRECTIVE ALL DIMENSIONS AND REASURED MINIMUM FLOOR ELEVATIONS. NOTIFY ARCHITECT IMMEDIATELY BY TELEPHONE PRIOR TO COMMENCEMENT OF CONSTRUCTION. THE USE OR ABUSE OF THESE DIMENSIONS WITHOUT WRITTEN APPROVAL OF ARCHITECT/OWNER IS PROHIBITED.

G. MARK PEPE ARCHITECT P.C. 307 N. ADAMS ST. DOTHAN, GA. TELEPHONE NO. (334) 712-9721 FAX NO. (334) 699-2028 LICENSE # AR92644

STATE OF FLORIDA G. MARK PEPE #AR92644 REGISTERED ARCHITECT

OWNER MADISON LEDALLC 423 DELAWARE LOOP JEFFERSON GA 30549 TELEPHONE NO. (706) 346-6958 EMAIL PATRICK@CONCRETEART.COM

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FOR PERMITS - FOR PRICING - CLIENT REVIEW - DRAWN BY: JLM/MP 8-20-24 PLOT DATE 2-1-25 SHEET GS2.9 OF 11

FINISH SCHEDULE

NO.	AREA	FLOOR		WALLS				CEILING	CEILING HEIGHT	REMARKS
		BASE	NORTH	EAST	SOUTH	WEST				
100	SHARED RECEPTION	1	1	1	1	1	1	1	9'-0"	-
101	H/C TOILET	2	2	3	3	3	3	2	9'-0"	-
102	SHARED CONF.	1	1	1	1	1	1	1	9'-0"	-
103	CORR. 1	1	1	1	1	1	1	1	9'-0"	-
104	NRCS STORAGE	1	1	1	1	1	1	1	9'-0"	-
105	JAN.	1	1	1	1	1	1	1	9'-0"	-
106	CONSULTATION	1	1	1	1	1	1	1	9'-0"	-
107	NRCS OFFICE	1	1	1	1	1	1	1	9'-0"	-
108	NRCS OFFICE	1	1	1	1	1	1	1	9'-0"	-
109	NRCS ADMIN. AREA	1	1	1	1	1	1	1	9'-0"	-
110	NRCS SOIL LAB	1	1	1	1	1	1	1	9'-0"	-
111	NRCS MUD ROOM	1	1	1	1	1	1	1	9'-0"	-
112	MLRA MUD ROOM	1	1	1	1	1	1	1	9'-0"	-
113a	CORR. 3a	1	1	1	1	1	1	1	9'-0"	-
113b	CORR. 3b	1	1	1	1	1	1	1	9'-0"	-
114	MLRA OFFICE	1	1	1	2	2	2	1	9'-0"	-
115	MLRA OFFICE	1	1	1	1	1	1	1	9'-0"	-
116	MLRA LAB	1	1	1	1	1	1	1	9'-0"	-
117	MLRA STORAGE	1	1	1	1	1	1	1	9'-0"	-
118	SHARED BREAK RM.	1	1	1	2	2	2	1	9'-0"	-
119	WOMEN'S TOILET	2	2	3	3	3	3	2	9'-0"	- REFER TO NOTE 3.
120	MEN'S TOILET	2	2	3	3	3	3	2	9'-0"	- REFER TO NOTE 3.
121	CORR. 2	1	1	1	1	1	1	1	9'-0"	-
122	MAIL RM.	1	1	1	1	1	1	1	9'-0"	-
123	IT RM.	1	1	1	1	1	1	1	9'-0"	- REFER TO NOTE 1.
124	FSA ADMIN AREA	1	1	1	1	1	1	1	9'-0"	-
125	FSA STORAGE	1	1	1	1	1	1	1	9'-0"	-
200	MEZZANINE	3	2	4	4	4	4	N/A	*8'-0"	* OPEN HEIGHT AFF.

LEGEND OF FINISHES

FLOOR

- LVP: LIFEPROOF 22mm SHIDE TUPELO OAK 5021 BRUSHED FINE, 8.1" x 48"
- TILE: DALTILE, GLENWOOD FOG, 1" x 20", (CERAMIC FLOORS & WALL TILE)

NOTE: - ALL FLOORING WILL BE FURNISHED BY OWNER, INSTALLED BY GENERAL CONTRACTOR.

- 3/4" PLYWOOD (NO FINISH REQUIRED)

BASE

- 3/4" HIGH SYNTHETIC BASE, PAINTED VINYL COVE ROPPE FEUTER
- NO WALL BASE REQUIRED.

WALLS

- 5/8" TYPE "X" GYP. BD. w/ EGG SHELL LATEX PAINT. (COLOR SELECTED BY AGENCY)
- 5/8" TYPE "X" GYP. BD. w/ SEMI-GLOSS LATEX ENAMEL PAINT. (COLOR SELECTED BY AGENCY)
- 12" x 24" CERAMIC TILE ON 5/8" CEMENT BACKER BOARD TO 4'-6" AFF. w/ SEMI-GLOSS ENAMEL PAINT ON 5/8" GREEN GYPSUM BOARD ABOVE. INSTALL SCHULTER RONDEC TRIM ALONG TOP EDGE & VERT. OUTSIDE CORNERS
- 5/8" PLYWOOD, UNFINISHED, 4'-0" HIGH, ATTACH TO STUDS SPACED 24" O.C. OR ROOF TRUSS MEMBERS.

CEILING

- 2'x2' REGULAR EDGE SUSPENDED ACOUST. TILE. w/ N.R.C. RATING OF NOT LESS THAN 0.75
- 5/8" GYPSUM BOARD ATTACHED TO METAL FRAMING. PROVIDE SMOOTH FINISH, PAINT COLOR AND GLOSS T.B.D. BY AGENCY.

FINISH SCHEDULE NOTES:

- INSTALL 4' x 4' x 3/4" FIRE-RETARDANT FLYWD. BACKBOARD, PAINT w/ FIRE-RETARDANT PAINT TO MATCH ADJACENT WALLS. REFER TO SHEET A11 FOR LOCATION. (MT. BOTTOM 2FT ABOVE FIN. FLR.)
- NO WALL BASE REQUIRED FOR ROOMS WITH CERAMIC TILE FLOORS AND WALLS.
- COLORS/PATTERNS OF ALL INTERIOR FINISHES SHALL BE SELECTED BY AGENCY.

INTERIOR COLOR SCHEDULE

- PLASTIC LAMINATE COUNTERTOPS - TO BE DETERMINED.
- TOILET PARTITIONS - T.B.D.
- TOILET RM COUNTER-TOPS - T.B.D.
- PLASTIC LAMINATE COUNTERTOP FOR RECEPTION WINDOW 'C' - T.B.D.

FINISHES SPECIFICATIONS

USDA

Finish Selections	Manufacturer	Collection	Style/Color Name	Size	Remarks
LVP	Lifeproof 22mm SHIDE		"Tupelo Oak" 5021 Brushed Pine		Furnished by Owner, Installed by Contractor
Ceramic Tile	Daltile	Glenwood	"Fog" (floor and wall tile)	7" x 20"	Furnished by Owner, Installed by Contractor
Ceramic tile grout	any		to be selected by Owner		Furnished by Owner, Installed by Contractor
Rubber wall base	Roppe (or Equal)	Vinyl	to be selected by Owner	4"	
All countertops	Plastic Laminate		to be selected by Owner from standard samples		
Toilet Partitions	American Sanitary *	Standard HPL	to be selected by Owner	standard	* or equal to
All upper and lower cabinet bases			painte d birch veneer faces		color to be selected by Owner
Window treatments	any	TBD	alum. or plastic horiz. blinds w/ 1" slats	varies	Furnished by Owner, Installed by Contractor
Corner guards (not required for this Project)	The Corner Guard Store	Textured vinyl	"Gray" #11927 (locate on major wall corners only)	1.125" x 1.125" x 4"	Self-stick

Paint Selections	Manufacturer	Room	Color
Doors	any	painte d MDF	to be selected by Owner
Trim Paint (low VOC semi-gloss)	Sherwin Williams	Hollow metal doors and frames, exposed steel and architectural columns, etc...	to be selected by Owner
Wall Paint (low VOC egg-shell)			
General Walls	Sherwin Williams	All walls	to be selected by Owner

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY, CHECK AND COORDINATE ALL DIMENSIONS AND REVISIONS MINIMUM FLOOR ELEVATIONS WITHIN ADJUSTMENTS OF ANY DISCREPANCIES PRIOR TO COMMENCEMENT OF CONSTRUCTION. THE USE OR REUSE OF THESE DRAWINGS WITHOUT WRITTEN APPROVAL BY ARCHITECT/OWNER IS PROHIBITED.

G. MARK PEPE
ARCHITECT P.C.
307 W. ADAMS ST.
DOOTHAN, AL.
TELEPHONE NO.
(334) 712-9721
FAX NO.
(334) 699-2028
LICENSE #
AR92644



OWNER
MADISON LEDALLC
423 BELLEVILLE LOOP
JEFFERSON, GA
30549
TELEPHONE NO.
(706) 346-6958
EMAIL
PATRICK@CONTRACTORAL.COM

A NEW BUILDING FOR
USDA, QUINCY, FL
CORPORATE COURT, QUINCY, FL, 32351

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FOR PERMITS

FOR PRICING

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DATE ALL PERMITS OBTAINED
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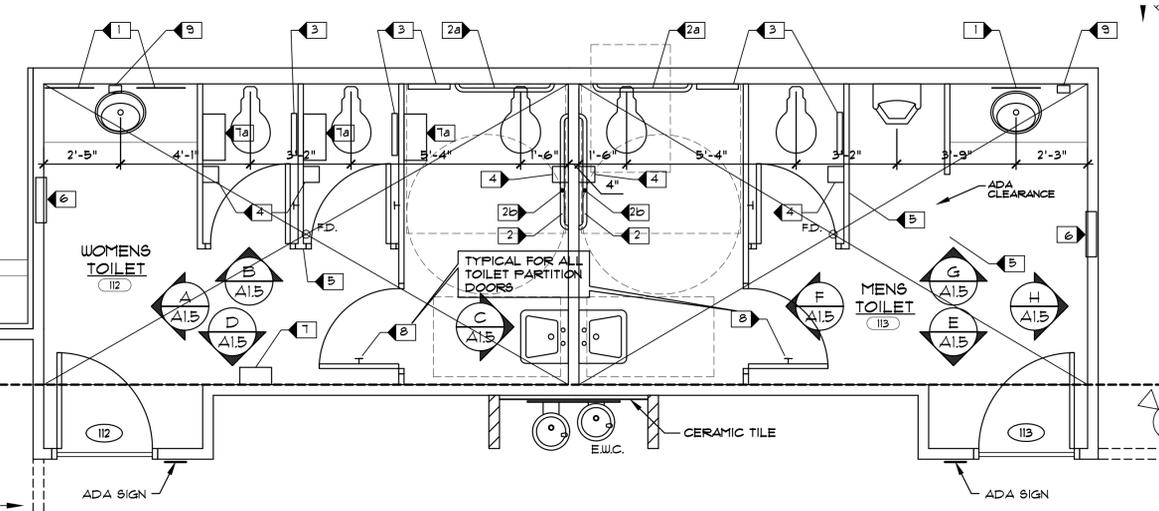
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8-20-25

PROJ. DATE
2-1-25

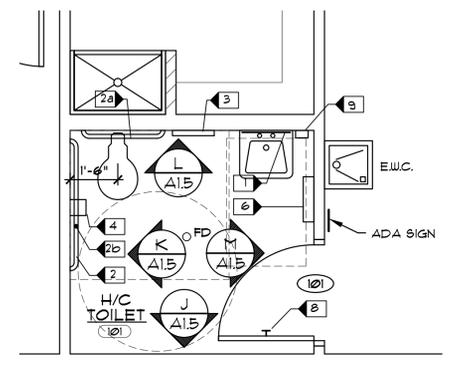
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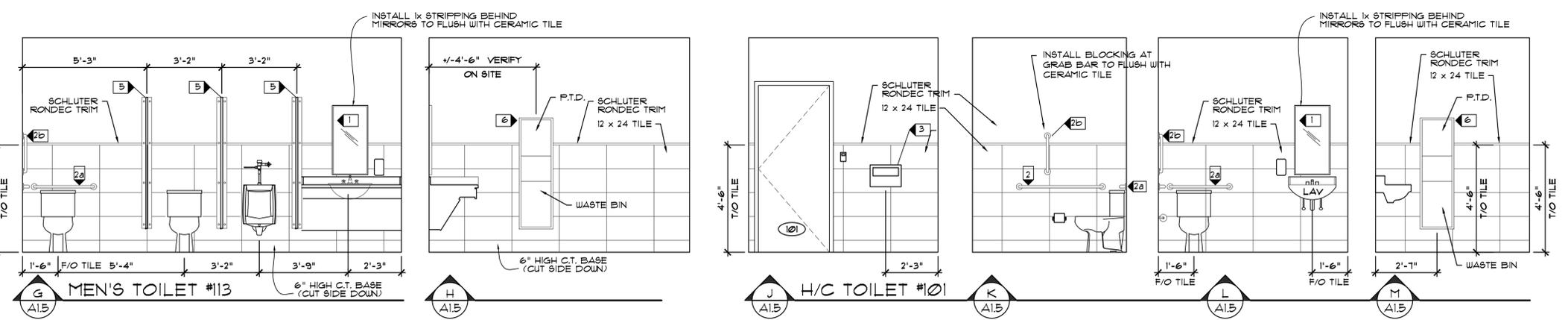
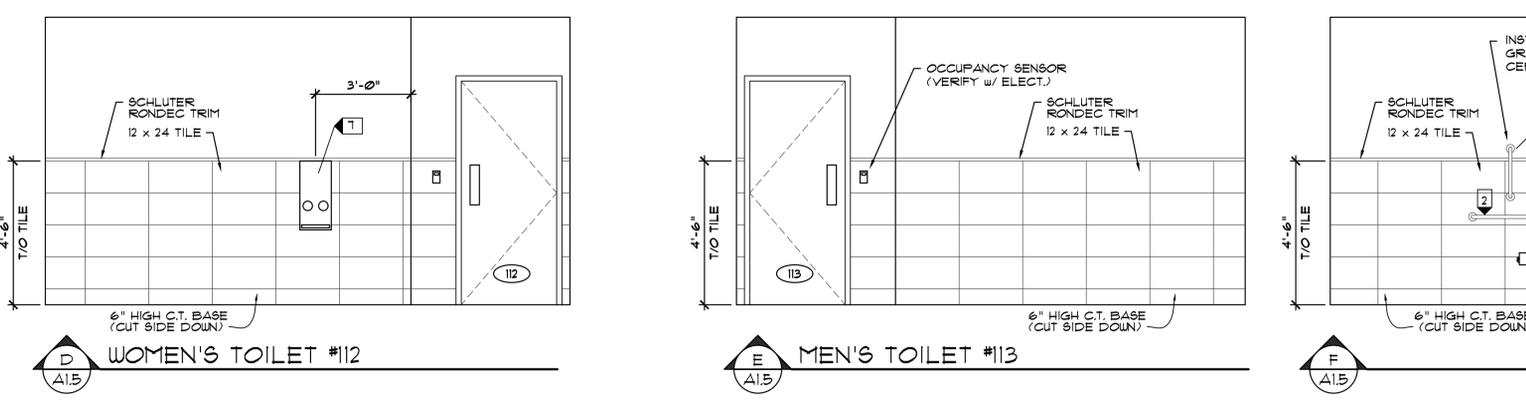
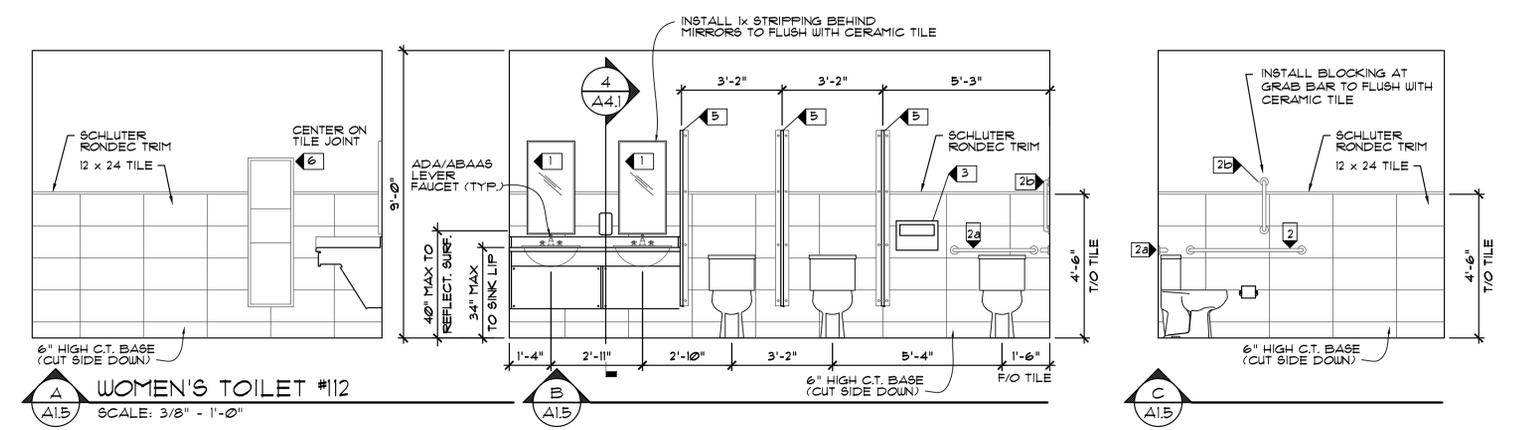
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PLAN - ENLARGED EMP. TOILETS
 SCALE: 3/8" = 1'-0"
 (STAFF TOILETS)



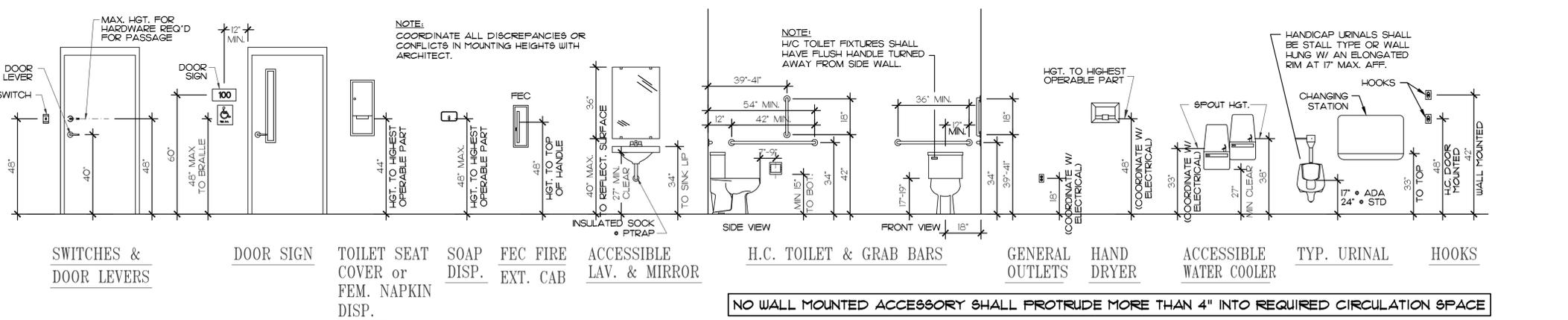
PLAN - ENLARGED H/C TOILET
 SCALE: 3/8" = 1'-0"
 (UNIGEX PUBLIC)



TOILET ACCESSORY SCHEDULE	
ALL MODEL NUMBERS ARE BOBRICK UNLESS NOTED OTHERWISE. EQUAL UNITS BY OTHER MANUFACTURER'S WILL BE CONSIDERED UPON SUBMITTAL OF CUT-SHEETS TO THE ARCHITECT.	
1 MIRROR w/ SHELF: B-166 1836 (18" WIDE X 36" HIGH), ONE OVER EACH LAVATORY, MT. BOT., REFLECTIVE SURFACE AT 40" AFF.	4 TOILET TISSUE DISPENSER, B-686 (DBL ROLL TYPE)
2 GRAB BAR: NO. B-6806 X 42" LONG, CONCEALED MOUNTING, INSTALL WALL BLOCKING CAPABLE OF SUPPORTING MIN. 300 LBS., APPLIED VERTICALLY.	5 TOILET PARTITION: HIGH PRESSURE LAMINATE, FLR MOUNTED 4 O.H. BRACED EQ. TO ASI GLOBAL TOILET PARTITIONS, SEE SHT. A02 FOR PARTITION COLOR.
2a GRAB BAR: NO. B-6806 X 36" LONG, CONCEALED MOUNTING, INSTALL WALL BLOCKING CAPABLE OF SUPPORTING MIN. 300 LBS., APPLIED VERTICALLY.	6 PAPER TOWEL DISPENSER w/ WASTE RECEPTACLE, B-3944
3 GRAB BAR: NO. B-6806 X 18" LONG, CONCEALED MOUNTING, INSTALL WALL BLOCKING CAPABLE OF SUPPORTING MIN. 300 LBS., APPLIED VERTICALLY, INSTALL VERTICAL (SEE TYP. MTG HT. FOR ACCESSORIES)	7 NAPKIN/TAMPON DISPENSER: B-2106-25
3a SEAT COVER DISPENSER: B-221. MOUNT TOP AT 44" AFF.	8 WASTE RECEPTACLE: B-35649
	9 COAT HOOK w/ BUMPER: B-212 (ON BACK OF ALL TOILET STALL DOORS AT 48" AFF.)
	10 SOAP DISPENSER: B-2111

- GENERAL NOTES:**
- FLUSH CONTROLS SHALL BE LOCATED ON THE OPEN SIDE OF HANDICAP WATER CLOSETS PER SECTION 0046 ADA ACCESSIBILITY GUIDELINES.
 - FRAMING CONTRACTOR SHALL FURNISH & INSTALL ALL WALL BLOCKING REQUIRED TO MOUNT TOILET ACCESSORIES, FIRE EXTINGUISHER CABINETS AND/OR WALL BRACKETS, AND OTHER MISC. ITEMS AS REQUIRED.
 - REFER TO COLOR CHART ON SHT. A02 FOR COLOR OF COUNTER-TOP PLASTIC LAMINATE, TOILET PARTITIONS, AND TOILET COUNTER-TOPS.

NO WALL MOUNTED ACCESSORY SHALL PROTRUDE MORE THAN 4" INTO REQUIRED CIRCULATION SPACE



TYPICAL MOUNTING HEIGHT FOR ACCESSORIES
 NOT TO SCALE

