

Permit Documents

# **Project Manual**

for

## **A New Office Building for Providence One Partners Buildings 02 and 03**

for

**Heathrow Centre Office Building Development  
7151 Business Park Lane  
Heathrow, Florida 32746**

March 07, 2025

SECTION 00 0100  
TITLE PAGE

OWNER

Providence One Partners

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SECTION 00 0103  
STATEMENT OF COMPLIANCE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. To the best of my knowledge the Plans and Specifications comply with the applicable minimum building codes and the applicable fire-safety standards as determined by the local authority in accordance with this Section and 633 Florida Statutes.

PART 2 - PRODUCTS – Not Used

PART 3 - EXECUTION – Not Used

END OF SECTION 00 0103

SECTION 00 0104  
NON-ASBESTOS CERTIFICATION

PART 1 - GENERAL

1.1 CERTIFICATION STATEMENT

- A. To the best of my knowledge these Contract Documents do not contain any asbestos containing materials intended for use in construction.

PART 2 - PRODUCTS – Not Used

PART 3 - EXECUTION – Not Used

END OF SECTION 00 0104

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Not Used

END OF SECTION 00 0110

## SECTION 01 2513 PRODUCT SUBSTITUTIONS PROCEDURES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes administrative and procedural requirements for handling requests for substitutions.
- B. Substitutions are subject to the full requirements of the Contract Documents.

#### 1.2 DEFINITIONS

- A. Definitions used in this Article are not intended to change or modify the meaning of other terms used in the Contract Documents.
- B. Substitutions: Requests for changes in products, materials, equipment, and methods of construction required by the Contract Documents proposed are considered requests for substitutions. The following are not considered substitutions:
  - 1. Revisions to Contract Documents requested by the Owner or Architect.
  - 2. Specified options of products and construction methods included in Contract Documents.
  - 3. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

#### 1.3 SUBMITTALS

- A. Request for Substitution Form: Submit substitution requests to the Architect through a Construction Manager on the Request for Substitution form attached at the end of this section.
- B. Architect's Action: Additional information or documentation necessary for evaluation of the substitution may be requested. Notification of approved substitutions will be made by Addendum or by Request for Proposal, as appropriate for the timing of the request.
- C. Substitution requests shall include a red-lined specification section and sufficient data for direct side-by-side, point by point comparison of proposed item to specified item. Substitution may include samples, test data, shop drawings, list of similar successful project, summary of features or characteristics, identification of recycled components, or other information as may be required to evaluate the proposed product.
  - 1. Burden of proof of merit of requested substitution is the sole responsibility of the submitter and subject to provisions of the Contract Documents.
  - 2. Insufficient data, vagueness, or inadequate warranty may be cause for disapproval or rejection of request. Architect's re-decision for approval may be possible if additional data presents itself.

### PART 2 - PRODUCTS

#### 2.1 SUBSTITUTIONS

- A. Conditions: Substitution request will be received and considered when one or more of the following conditions are satisfied, as determined by the Architect; otherwise requests will be returned without action except to record noncompliance with these requirements.
1. Proposed changes are in keeping with the general intent of Contract Documents.
  2. The request is timely, fully documented and properly submitted.
  3. Extensive revisions to Contract Documents are not required.
  4. The request is directly related to an "or equal" clause or similar language in the Contract Documents.
  5. The specified product or method of construction cannot be provided within the Contract Time. The request will not be considered if the product or method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.
  6. The specified item is no longer available, or the indicated manufacturers (or successors) are no longer in business. The request will not be considered if the product or method can not be provided as a result of failure to pursue the Work promptly or coordinate activities properly.
  7. The specified product or method of construction cannot receive approval by a governing authority.
  8. A substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities the Owner may be required to bear. Additional responsibilities for the Owner may include additional compensation to the Architect for redesign and evaluation services, increased cost of other construction by the Owner, and similar considerations.
  9. The specified product or method of construction cannot be provided in a manner that is compatible with other materials, and where the contractor certifies that the substitution will overcome the incompatibility.
  10. The specified product or method of construction cannot be coordinated with other materials, and where the contractor demonstrates and certifies that the proposed substitution can be coordinated.
  11. The specified product or method of construction cannot provide a warranty required by the Contract Documents and where the contractor certifies that the proposed substitution provide the required warranty.
  12. Other special cases will be entertained by the Architect and the Owner on a case-by-case basis.
- B. The reviewer's general attitude will be:
1. The reviewer should not be responsible to complete the submittal i.e.: Select from options, choose between models or lines of products.
  2. The reviewer should not be required to seek information from manufacturer's literature or other sources not included with the submittal.
  3. The product must be equal or better in those features and performance which the job requires and those which the specified product will provide.
  4. Review is complete when, in the reviewer's opinion, significant deficiency(ies) are established. In such case, review of data covering other points of the specification is not required.



- C. The reviewer will note approval of the request only by issuing an Addendum or Request for Proposal.
- D. Owner Review: Substitutions may be submitted to the Owner for review, and the Owner may act as it deems in its best interest waiving or maintaining requirements of the Contract Documents.
- E. Architect's acceptance of Shop Drawings, Product Data or Samples that relate to construction activities not complying with the Contract Documents does not constitute an acceptable or valid request for substitution, nor does it constitute approval.

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 2513

## REQUEST FOR SUBSTITUTION

Substitution Request Number \_\_\_\_\_

PROJECT: \_\_\_\_\_ DATE: \_\_\_\_\_

SPECIFICATION SECTION: \_\_\_\_\_ ARTICLE/PARAGRAPH \_\_\_\_\_

DRAWING NUMBER/DETAIL NUMBER: \_\_\_\_\_

SPECIFIED MANUFACTURER: \_\_\_\_\_

SPECIFIED MODEL NO: \_\_\_\_\_

PROPOSED MANUFACTURER: \_\_\_\_\_

PROPOSED MODEL NO: \_\_\_\_\_

REASON(S) FOR NOT PROVIDING SPECIFIED ITEM: \_\_\_\_\_

Attach product description, drawings, photographs, performance and test data, samples, and other information necessary for side-by-side, point by point evaluation. Fill in all blanks.

A. Does the requested substitution affect dimensions, locations, or configurations?

No \_\_\_\_\_ Yes \_\_\_\_\_

Explain (Attach drawings if necessary): \_\_\_\_\_

B. List all deviations from the specified item: \_\_\_\_\_

C. Will the Contractor pay for any changes to the building design, including engineering and detailing costs caused by the approval?

No \_\_\_\_\_ Yes \_\_\_\_\_

Explain (If no, and describe modifications required to install or accommodate the requested change): \_\_\_\_\_

D. Will approval affect the work of other trades, including the Construction Schedule?

No \_\_\_\_\_ Yes \_\_\_\_\_

Explain (If yes): \_\_\_\_\_

- 
- E. Manufacturer's guarantees of the proposed and specified items are:  
Same\_\_\_\_\_Different\_\_\_\_\_  
Explain (if different):\_\_\_\_\_
- 
- 
- F. Does the proposed item meet all applicable codes, ordinances and regulations for this specific application?  
No\_\_\_\_\_Yes\_\_\_\_\_  
Explain (If no):\_\_\_\_\_
- 
- 
- G. Has applicable Florida Product Approvals documents been included?  
No\_\_\_\_\_Yes\_\_\_\_\_  
Explain (If no):\_\_\_\_\_
- 
- 
- H. Has proposed item been used locally in similar applications?  
No\_\_\_\_\_Yes\_\_\_\_\_  
Explain (Give nearest Location):\_\_\_\_\_
- 
- 
- I. Will maintenance and service parts be locally available for the requested item?  
No\_\_\_\_\_Yes\_\_\_\_\_  
Explain (If no. Give nearest location):\_\_\_\_\_
- 
- 
- J. Will the requested item require waiving of any qualifications or other requirements?  
No\_\_\_\_\_Yes\_\_\_\_\_  
Explain (If yes):\_\_\_\_\_
- 
- 
- K. Are there any license fees or royalties associated with the requested substitution?  
No\_\_\_\_\_Yes\_\_\_\_\_  
Explain (If yes):\_\_\_\_\_
- 
- 
- L. If approved, will the Owner receive a credit for the proposed alternate material?  
No\_\_\_\_\_Yes\_\_\_\_\_  
Explain (If no):\_\_\_\_\_
- 
-

- M. Does the proposed alternate material meet the same applicable standards (ASTM, ANSI, UL, FS.) as the specified item?  
No \_\_\_\_\_ Yes \_\_\_\_\_  
Explain (If no. Attach drawings if necessary): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- N. Identify the recycled materials or components, or features that lead to the claims to being "Green": \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- O. Has the required line-by-line, point by point comparison been included?  
No \_\_\_\_\_ Yes \_\_\_\_\_  
Explain (If no): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

The undersigned will pay for the Designer's review time, and for changes to the building design, including review, re-design, engineering, drawings and other costs caused by the requested substitution.

\_\_\_\_\_ Signature

\_\_\_\_\_ Print

The following Purchase Order or billing number is to be used for billing the Contractor for costs incurred in evaluating, and if applicable, accommodating the requested substitution.

\_\_\_\_\_

The Architect will not be required to prove any product is not equal or suitable to the Project.

CERTIFICATION OF EQUAL PERFORMANCE AND  
ASSUMPTION OF EQUAL LIABILITY FOR EQUAL  
PERFORMANCE

Contractor certifies the substitution complies with the Contract Documents and has performed an investigation of the requested product in comparison with the specified product, reviewed the warranties as applicable and found them to be equal to or better than the specified warranties, and has compared the substitution with the Work for any coordination required with other products, assemblies, or equipment.

Signature shall be by person having authority to legally bind their firm to the above terms. Failure to provide legally binding signature will result in retraction of approval.

SUBMITTED BY: \_\_\_\_\_

Firm: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

FOR ARCHITECT'S USE:

Notations below shall have the same meaning as the Architect's Submittal Action Stamp, defined in Division 01 Section, Submittal Procedures:

Not Acceptable \_\_\_\_\_

No Exceptions Taken \_\_\_\_\_

By: \_\_\_\_\_

Date: \_\_\_\_\_

## SECTION 01 4200 REFERENCE STANDARDS AND DEFINITIONS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes basic definitions of words and terms used within the Project Manual.

#### 1.2 DEFINITIONS

- A. Approved: The term "approved," when used in conjunction with the Architect's action on the Contractor's submittals, applications, and requests, is limited to the Architect's duties and responsibilities as stated in the AIA Document A201.
- B. Contractor: The term "contractor," "Contractor," "construction manager," or "Construction Manager" describes to entity who has a signed agreement with the Owner as the primary entity contracted to perform the Work. The terms are used interchangeably within this document.
- C. Directed: Terms such as "directed," "requested," "authorized," "selected," "approved," "required," and "permitted" mean directed by the Architect/Engineer, requested by the Architect/Engineer, and similar phrases.
- D. Florida Building Code (FBC): Where the term or acronym is used it will mean the current edition of the Florida Building Code with all applicable revisions adopted by the authorities having jurisdictions at the location of the Project.
- E. Furnish: The term "furnish" means to supply and deliver to the Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- F. Indicated: The term "indicated" refers to graphic representations, notes, or schedules on the Drawings; or to other paragraphs or schedules in the Specifications and similar requirements in the Contract Documents. Terms such as "shown," "noted", "scheduled," and "specified" are used to help the user locate the reference. Location is not limited.
- G. Install: The term "install" describes operations at the Project site including the actual unloading, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. Installer: An installer is the Contractor or another entity engaged by the Contractor, either as an employee, subcontractor, or contractor of lower tier, who performs a particular activity including installation, erection, application, or similar operations. Installers are required to be experienced in the operations they are engaged to perform.
  - 1. The term "experienced," when used with the term "installer," means having successfully completed a minimum of 5 previous projects similar in size and scope to this Project; being familiar with the special requirements indicated; and having complied with requirements of authorities having jurisdiction.
  - 2. Trades: Using terms such a "carpentry" does not imply that certain construction activities must be performed by accredited or unionized

individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespeople of the corresponding generic name.

3. Assigning Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by specialties who are recognized experts in those operations. The specialists must be engaged for those activities, and their assignments are requirements over which the Contractor has no option. However, the ultimate responsibility for fulfilling contract requirements remains with the Contractor.

- a. This requirement shall not be interpreted to conflict with enforcing building codes and similar regulations governing the Work. It is also not intended to interfere with local trade-union jurisdictional settlements and similar conventions.

- I. Permanent Enclosure: As determined by Architect, permanent or temporary roofing is complete, insulated, and weathertight; exterior walls are insulated and weathertight; and all openings are closed with permanent construction or substantial temporary closures.
- J. Project Site, or Site, is the space available to the Contractor for performing installation activities, either exclusively or in conjunction with others performing work as part of the Project.
- K. Provide: The term "provide" means to furnish and install, connect, and test, complete and ready for the intended use.
- L. Regulations: The term "regulations" includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the industry that control performance of the Work.
- M. Testing Agencies: A testing agency is an independent entity engaged to perform specific inspections or tests, either at the Project site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.

### 1.3 SPECIFICATION FORMAT AND CONTENT EXPLANATION

- A. Specification Format: These Specifications are organized into Divisions and Sections based on the Construction Specifications Institute's "MasterFormat" system.
  1. Division 1: Sections in Division 1 govern the execution of the Work of all Sections in the Specifications.
- B. Specification Content: These Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
  1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be interpolated as the sense requires. Singular words will be interpreted as

plural and plural words interpreted as singular where applicable as the context of the Contract Documents indicates.

2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by the Contractor. At certain locations in the Text, subjective language is used for clarity to describe responsibilities that must be fulfilled indirectly by the Contractor or by others when so noted.
  - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

#### 1.4 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with the standards in effect as of the date of the Contract Documents, except comply with different dates as referenced in the FBC.
- C. Conflicting Requirements: Where compliance with 2 or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different but apparently equal to the Architect for a decision before proceeding.
  1. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of the requirements. Refer uncertainties to the Architect for a decision before proceeding.
- D. Copies of Standards: Each entity engaged in installation on the Project must be familiar with industry standards applicable to its installation activity. Copies of applicable standards are not bound with the Contract Documents.
  1. Where copies of standards are needed to perform a required installation activity, obtain copies directly from the publication source and make them available on request.
- E. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. Where abbreviations and acronyms are used in the Specifications or other Contract Documents, they mean the recognized name of the trade association, standards-generating organization, authorities having jurisdiction, or other entity applicable to the context of the text provision. Refer to Gale Research Inc.'s "Encyclopedia of Associations," which is available in most libraries.

#### 1.5 SUBMITTALS



- A. Permits, Licenses, and Certificates: For the Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 4200

## SECTION 01 6100 PRODUCT REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes administrative and procedural requirements for selecting products, delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.

#### 1.2 DEFINITIONS

- A. Products: Items purchased for incorporation in the Work. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
- B. Materials: Products that are shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.
- C. Equipment: Products with operational parts, whether motorized or manually operated, that requires service connections such as wiring or piping.
- D. Substitutions: Proposed changes in products, materials, equipment, or methods of construction required by the Contract Documents.
  - 1. Substitutions requested during the bidding period, and accepted prior the award of the contract, are considered part of the Contract Documents and are not subject to requirements specified in this Section.
  - 2. Refer to Division 01 Section, Product Substitutions
- E. Basis of Design: Makes reference to a design intent. Additional manufacturers may be listed, but listing does not guarantee all of their products or their standard products will be equal or better to the Basis of Design.
  - 1. Equivalency is assumed when actual model numbers, system numbers or product numbers have been listed.
- F. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
- G. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.

#### 1.3 SUBMITTALS

- A. Provide additional copies of the SDS for products that may be chemically harmful. Retain a copy of SDS at Site.
  - 1. SDS submitted as part of a submittal will be considered an informational submittal and may or may not be returned.

#### 1.4 QUALITY ASSURANCE

- A. To the fullest extent possible, provide products of the same kind, from a single source.

1. Where additional amounts of a product, by nature of its application, are likely to be needed by the Owner at a later date for maintenance and repair or replacement work, provide a domestically produced product which is likely to be available to the Owner at such a later date.
- B. Compatibility of Options: Compatibility is a basic general requirement of product and material selections. Total compatibility among options is not assured by limitations within the Contract Documents, but must be provided. Where more than one choice is available as options, select an option which is compatible with other products and materials already selected.
- C. Do not proceed with the installation of any materials containing known hazardous materials without written permission of the Architect.
- D. Do not use material or equipment for any purpose other than that which it is designed or is specified.
  1. Do not use materials or equipment removed from existing premises, except as specifically permitted by the Contract Documents.
  2. Provide interchangeable components of the same manufacturer for similar components.
- E. Nameplates: Except for required labels and operating data, do not attach or imprint manufacturer's nameplates or trademarks on exposed surfaces of products that will be exposed to review in occupied spaces or on the exterior.
- F. Options for selecting products are limited by Contract Documents and governing regulations, and are not controlled by industry traditions or procedures based on experience.
- G. Substitutions:
  1. The submittal and the Architect's acceptance of Shop Drawings, Product Data, or Samples that relate to the Project not complying with the Contract Documents does not constitute an acceptable or valid request for substitution, nor does it constitute approval.
  2. If the use of a substitute product requires additional work or modifications, all such additional work, including utility modifications shall be at no additional cost to the Contract.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products according to the manufacturer's recommendations, using means and methods that will prevent damage, deterioration, and loss, including theft.
- B. Arrange deliveries of products in accord with construction schedules, coordinate to avoid conflict with Work and site conditions.
  1. The Owner will not be responsible for deliveries related to the Project. The Owner will not sign for any deliveries.
  2. Inspect shipments on delivery for compliance with the Contract Documents.
  3. Do not accept delivery of damaged products.

- C. Allocate space for storage purposes. Additional off-site space is the responsibility of the Contractor.
  - 1. Maintain temperature and humidity within the ranges required by manufacturer unless more stringent requirements are stipulated in the Contract Documents.
  - 2. Arrange storage in a manner to provide easy access to maintain products and for pay request inspections.
  - 3. Store loose granular materials on solid flat surface in a well-drained area. Prevent mixing with foreign materials.
  - 4. Store materials in a manner that will not endanger Project structure.
  - 5. Store products that are subject to damage by the elements, under cover in a weather tight enclosure above ground, with ventilation adequate to prevent condensation.
  - 6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
  - 7. Do not allow storage of any materials within the drip line of trees that are scheduled to remain.
- D. Provide batteries for all items requiring batteries prior to the Date of Substantial Completion to demonstrate compliance with the Contract Documents.

## 1.6 WARRANTY

- A. Warranties specified in other sections shall be in addition to and run concurrent with other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of obligations under the requirements of the Contract Documents.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit draft for approval before final execution.
  - 1. Refer to individual sections for content requirements and requirements for submitting special warranties.
- C. Specific warranties or bonds called for in the Contract Documents, in addition to that falling under the general warranty, shall be furnished in accordance with the Contract Documents.
- D. Products provided for Work shall be warranted for a minimum period of one year and for longer periods, where specified, from the Date of Substantial Completion.
- E. Should defects develop in the Work within the specified period due to faults in products or workmanship, correct defective Work to comply with the Contract Documents.
- F. Warranty shall not apply to Work which has been abused, neglected, or improperly maintained by the owner or his successor in interest.

## PART 2 - PRODUCTS

### 2.1 PRODUCT SELECTION

- A. Provide products complying with the Contract Documents, that are undamaged and, unless otherwise indicated, new at the time of installation.
  - 1. Provide products with accessories, trim, finish, safety guards, and other devices and details needed for installation and the intended use and effect.
  - 2. Standard Products: Where available, provide standard products of types that have been produced and used successfully in similar applications.
  - 3. Do not substitute materials, equipment, or methods unless such substitution has been specifically approved for this Work by the Architect.
  - 4. Where Contract Documents are at variance with specific manufacturer's details and installation procedures, perform the more stringent requirement; should there be a conflict, consult with Architect for resolution prior to start of work.
- B. For products specified by naming one or more products or manufacturers and "or equal," select any one of the products or manufacturers named that comply with the Contract Documents.
  - 1. To propose a substitution, submit a request for any product or manufacturer not specifically named and obtained approval from Architect or Owner as outlined.
- C. Product Selection Procedures: The Contract Documents and governing regulations govern product selection. Procedures governing product selection include the following:
  - 1. Proprietary Specification Requirements: Where specifications name only a single product or manufacturer, provide the product indicated. No substitutions will be permitted after bid opening.
  - 2. Semi Proprietary Specification Requirements: Where specifications name two or more products or manufacturers, provide one of the products indicated. No substitutions will be permitted.
  - 3. Nonproprietary Specifications: When specifications list products or manufacturers that are available and may be incorporated in the Work, but do not restrict the contractor to use these products only, the contractor may propose any available product that complies with the Contract Documents. Comply with Division 01 Section, Product Substitutions to obtain for use of unnamed products.
  - 4. Descriptive Specification Requirements: Where specifications describe a product or assembly, listing characteristics required, with or without use of a brand or trade name, provide a product or assembly that provides the characteristics and otherwise complies with the Contract Documents.
  - 5. Performance Specification Requirements: Where specifications require compliance with performance requirements, provide products that comply with these requirements and are recommended by the manufacturer for the application indicated.
  - 6. Compliance with Standards, Codes, and Regulations: Where specifications only require compliance with an imposed code, standard, or regulation, select a product that complies with the standards, codes, or regulations specified.

7. Visual Matching: Where specifications require matching an established sample, the Architect's decision will be final whether a proposed product matches satisfactorily.
  8. Visual Selection: Where a specified product requirements include the phrase "...as selected from manufacturer's standard colors, patterns, textures ..." or similar phrase, select a product and manufacturer that complies with other specified requirements. The Architect will select the color, pattern, and texture from the product line selected.
- D. Availability of Specified Items:
1. Verify that specified items will be available in time for installation during orderly and timely progress of the Work.
  2. Notify Architect if specified item or items will not be available.
  3. Costs of delays because of non-availability of specified items, when such delays could have been avoided, will be back charged to the Contract.
- E. Where the questions of appearance, artistic effect, or harmony of design are concerned, the Architect reserves the right to refuse approval of substituted products proposed to be substituted for that specified, if in his opinion the item to be substituted is not harmonious to the finished effect and appearance desired, as portrayed in the Contract Documents. The Architect's refusal to approve, established by this paragraph, is final and not subject to arbitration.
- F. Products of other manufacturers will be considered for acceptance provided they equal or exceed the material requirements and functional qualities of the specified product. Additional approved manufacturers will be issued by Addenda.

## 2.2 ENVIRONMENTAL PRODUCT, MATERIAL, AND EQUIPMENT SELECTION

- A. To help with environmental sustainability the following recommendations may be followed to aid in product, material, and equipment selection:
1. Avoid scarce, irreplaceable, or endangered resources:
    - a. Select materials from abundant, well-managed resources.
    - b. Select materials that are replaceable, renewable, or can be replenished.
    - c. Select materials that minimize damage to natural habitats.
  2. Use durable materials:
    - a. Select materials with the longest usable life.
    - b. Select materials that can be reused.
    - c. Select materials with the least burdensome maintenance requirements.
  3. Create spaces that are healthy for occupants:
    - a. Select low-toxic products and materials.
    - b. Select materials without toxic maintenance requirements.
    - c. Specify mechanical equipment that will provide fresh air and will not trap water or pollutants.
  4. Use energy efficiently:

- a. Select materials with low embodied energy.
  - b. Select products, materials, and equipment that save energy during building operations.
- 5. Use water efficiently:
  - a. Use construction practices that achieve the most efficient use of water.
  - b. Select water-conserving appliances and equipment.
  - c. Landscape for water conservation.
  - d. Capture and utilize rainwater.
- 6. Select materials that generate the least amount of pollution. Consider pollution and toxins generated during harvesting, mining, manufacturing, transport, installation, use, and disposal.
- 7. Protect/restore natural habitats.

## PART 3 - EXECUTION

### 3.1 INSTALLATION OF PRODUCTS

- A. Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other work.
  - 1. Where Contract Documents are at variance with specific manufacturer's details and installation procedures, perform the more stringent requirement; should there be a conflict, consult with Architect for resolution prior to start of work.
- B. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at the Date of Substantial Completion.
- C. Tools requiring powder charges are permitted only during normal specified working hours. This activity will cease if there are guest complaints and be allowed to continue only after Owner notification.

### 3.2 PROTECTION

- A. Protect building elements and products when subject to damage. Repair damages as soon as practicable.

END OF SECTION 01 6100

SECTION 03 0580  
UNDERSLAB VAPOR RETARDER

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes underslab vapor retarder and accessories

1.2 REFERENCES

- A. American Society for Testing and Materials (ASTM)
  - 1. ASTM E96 Standard Test Methods for Water Vapor Transmission of Materials.
  - 2. ASTM E154 Standard Test Methods for Water Vapor Retarders Used in Contact with Earth under Concrete Slabs.
  - 3. ASTM E1643 Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill under Concrete Slabs.
  - 4. ASTM E1745 Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs.
- B. American Concrete Institute (ACI)
  - 1. ACI 302.1R Vapor Barrier Component (plastic membrane)

1.3 SUBMITTALS

- A. Product Data: Manufacturer's published product data and detailing.
- B. Testing: Independent laboratory test results showing compliance with ASTM & ACI Standards.
- C. Manufacturer's certification that the product submitted conforms to the specifications.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- B. Store materials in a clean dry area in accordance with manufacturer's instructions.
- C. Stack membrane on smooth ground or wood platform to eliminate warping.
- D. Protect materials during handling and application to prevent damage or contamination.

1.5 ENVIRONMENTAL REQUIREMENTS

- A. Product not intended for uses subject to abuse or permanent exposure to the elements.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Provide one of the following:
  - 1. Perminator™ 15mil by W.R. Meadows



2. Stego Wrap Vapor Barrier, 15mil by Stego Industries LLC
3. Vapor Block 15 by Raven Industries
4. Griffolyn Vaporguard by Reef Industries
5. Viper Vaporcheck II 15mil by Insulation Solutions, Inc.
6. Moistop Ultra 15 by Fortifiber Building Products Systems

## 2.2 MATERIALS

- A. Vapor retarder membrane must meet or exceed all requirements of ASTM E1745, Class A.
  1. Permeance: Maximum 0.01 perms per ASTM E96 or ASTM E1249

## 2.3 ACCESSORIES

- A. Seam Tape: High Density Polyethylene Tape with pressure sensitive adhesive. Minimum width 4 inches.
- B. Pipe Boots: Construct pipe boots from vapor barrier material and pressure sensitive tape per manufacturer's instructions.

# PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Examine surfaces to receive membrane. Do not begin work until unacceptable conditions have been corrected.

## 3.2 SURFACE PREPARATION

- A. Prepare surfaces in accordance with manufacturer's instructions and the following:
  1. Level and tamp or roll aggregate, sand or tamped earth base. Ensure that subsoil is approved by geotechnical engineer.
  2. Fill depressions, holes, and cracks with a material compatible with the dampproofing.

## 3.3 APPLICATION

- A. Installation shall be in accordance with manufacturer's instructions and ASTM E1643.
- B. Unroll vapor barrier with the longest dimension parallel with the direction of the pour.
- C. Lap vapor barrier over footings and seal to foundation walls.
- D. Overlap joints 6 inches and seal with pressure sensitive tape.
- E. Seal all penetrations (including pipes) with manufacturer's pipe boot.
- F. No penetration of the vapor barrier is allowed except for reinforcing steel and permanent utilities.
- G. Repair damaged areas by cutting patches of vapor barrier, overlapping damaged area 6 inches and taping all four sides.

END OF SECTION 03 0580

## SECTION 03 3501 CONCRETE FLOOR SEALER

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes concrete floor sealers

#### 1.2 SUBMITTAL

- A. Product Data: Manufacturer's specifications, including physical properties, performance properties, and specified tests. For any of the tests not listed in the manufacturer's standard nationally published data, the manufacturer must supply the missing data from an independent test laboratory tested according to the referenced standard.
- B. Sample warranty

#### 1.3 QUALITY ASSURANCE

- A. Obtain concrete floor sealer materials from a single manufacturer.
- B. Applicator's Qualifications: Installer shall be approved in writing by the manufacturer of the specified floor sealer.
- C. All products shall be V.O.C. compliant and shall meet the requirements outlined in Division 07 Section, Joint Protection.

#### 1.4 MATERIAL DELIVERY, HANDLING AND STORAGE

- A. Deliver materials in undamaged, unopened containers, marked with the following:
  - 1. Product Name
  - 2. Manufacturer's Name
  - 3. Component designation (A or B, etc.)
  - 4. Ratio of component mixture
- B. Store materials in accordance with manufacturer's instructions, with seals and labels intact and legible.

#### 1.5 JOB CONDITIONS

- A. Examine substrate condition, including moisture content, and the extent of repairs required, if any. Concrete shall be tested to verify the moisture content does not exceed manufacturer's recommendations.
  - 1. For non-slip type finish the surface should have at a minimum or light broom finish
- B. Job area shall be free of other trades during floor installation, and for a period of 24 hours upon completion.
- C. Where natural ventilation is inadequate, provide ventilation by use of fans or other devices.

#### 1.6 WARRANTY

- A. Furnish manufacturer's standard warranty of the concrete floor sealer for a period

of twenty (20) years after the Date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 ACCEPTABLE MANUFACTURERS

- A. Sodium Silicate Based Sealers:
  - 1. Ashford Formula as manufactured by Curecrete Chemical Company
  - 2. L&M Seal Hard by Laticrete International Inc.
  - 3. Euco Diamond Hard by The Euclid Chemical Company
- B. Siloxane Based Sealers:
  - 1. Saltguard WB by PROSOCO
  - 2. L&M Aquapel Plus by Laticrete International Inc.
  - 3. Weather-Guard by The Euclid Chemical Company

### 2.2 MATERIALS

- A. Colorless, transparent, penetrating liquid.
- B. Contains no silicone.
- C. Highly resistant to oils, greases, and acids.
  - 1. Siloxane Based Sealers to be resistant to airborne salts and be 40% solids.
- D. Non-toxic, non-combustible, and non-flammable. Shall not harm lungs or hands.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Upon removal of curing cover, mechanically clean the concrete to remove contaminants, form oils, bond breakers, and staining from the wet cure operation. All cleaning compounds shall be removed in their entirety and the concrete surface shall be neutralized.
- B. Avoid contact with glass, aluminum, plant life, asphaltic concrete and finished surfaces.
- C. Install sodium silicate based sealers at interior locations where scheduled
  - 1. First Application:
    - a. As soon as possible after curing cover removal, spray product with a low pressure sprayer at a rate of 200-250 square feet per gallon.
    - b. Keep the entire surface wet for 30 to 40 minutes by re-spraying dry spots or moving material from wet areas to dry areas with nylon push brooms.
    - c. When the wet product becomes slippery underfoot, lightly sprinkle the surface with water to aid penetration and prevent surface drying.
    - d. As the product begins to dry into the surface and again becomes slippery underfoot, flush the surface with water and squeegee the surface dry, removing all excess product, water, alkali and other impurities from the surface.

- e. Coordinate with manufacturer for application requirements at the access flooring areas.
- 2. Finish Application:
  - a. Apply sealer with a low pressure sprayer or drop sealer with a floor scrubbing machine at 50 – 600 square feet per gallon.
  - b. Lamb's wool or fine bristle broom the sealer evenly across the concrete surface or use a squeegee on the floor scrubbing machine to evenly spread a thin film.
- D. Install siloxane based sealers at the end of construction after final power washing is complete.

END OF SECTION 03 3501

## SECTION 03 5414 CEMENT BASED UNDERLAYMENT

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes cement-based, polymer-modified, self-leveling underlayment for interior finish flooring.
  - 1. To be used at locations requiring leveling when existing conditions are not within manufacturer's recommended tolerances.
- B. Material shall be compatible with the designated fire rated assembly.

#### 1.2 SUBMITTALS

- A. Product Data: Laboratory test reports, mix designs and materials certificates as specified in Division 03 Section, Cast-In-Place Concrete.
  - 1. Manufacturer's product data for cement, floor primer and overspray.
  - 2. Show primer is compatible with intended substrate.
- B. Shop Drawings: Plans indicating substrates, locations, and average depths of underlayment based on survey of substrate conditions.
- C. Mock-Up

#### 1.3 QUALITY ASSURANCE

- A. Verify compatibility of cement-based underlayment including surface sealers, if any, with indicated finish flooring products, including adhesives.
- B. Mockups: Apply underlayment mockups to demonstrate surface finish, bonding, texture, tolerances, and standard of workmanship.
  - 1. Apply mockups approximately 100 square feet in area directed by Architect.
  - 2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

#### 1.4 FIELD QUALITY CONTROL

- A. Slump Test: Test mix for slump during pumping using a 2 inch by 4 inch cylinder resulting in a patty size of 8 inches plus or minus 1 inch diameter.
  - 1. Provide slump test at least once per day.
- B. Field Samples: At least one set of 3 molded cube samples shall be taken from each day's pour during the application. Cubes shall be tested in accordance with ASTM C472. Make test results available to architect and contractor.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original, unopened packages, protected from exposure to the elements.
- B. Remove damaged or deteriorated materials from the Site.

#### 1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with manufacturer's written instructions for substrate temperature, ambient temperature and humidity, ventilation, and other conditions affecting underlayment performance.

- 1. Place underlayments only when ambient temperature and temperature of substrates are between 50 and 80 deg F.

## 1.7 COORDINATION

- A. Coordinate application of underlayment with requirements of floor covering products, including adhesives to ensure compatibility of products.

## PART 2 - PRODUCTS

### 2.1 CEMENT-BASED UNDERLAYMENT

- A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

- 1. K-15 Self-Leveling Underlayment Concrete by Ardex, Inc.
  - 2. Self-Leveling Underlayment by W.R. Bonsal Company
  - 3. LevelStrong SLU by Koster America
  - 4. Levelex Underlayment by L&M Construction Chemicals, Inc.
  - 5. SikaLevel 325 by Sika Corporation

- B. Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in uniform thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.

- 1. Cement Binder: ASTM C 150, portland cement, or hydraulic or blended hydraulic cement as defined by ASTM C 219.
  - 2. Compressive Strength: Not less than 4100 psi at 28 days when tested according to ASTM C 109.

- C. Accessory Materials:

- 1. Primers and Aggregates: Recommended by manufacturer for substrate, thickness, and conditions indicated.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates for conditions affecting performance. Proceed with application only after unsatisfactory conditions have been corrected.

### 3.2 APPLICATION

- A. Prepare and clean substrates. Provide clean, dry, neutral-pH substrate for underlayment application.

- 1. Treat nonmoving substrate cracks to prevent cracks from telegraphing (reflecting) through underlayment.
  - 2. Concrete Substrates: Mechanically remove laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants that might impair underlayment bond.
  - 3. Wood Substrates: Mechanically fasten loose boards and panels to eliminate substrate movement and squeaks. Sand to remove coatings

- that might impair underlayment bond and remove sanding dust.
4. Metal Substrates: Mechanically remove, according to manufacturer's written instructions, rust, foreign matter, and other contaminants that might impair underlayment bond. Apply corrosion-resistant coating compatible with underlayment if recommended in writing by underlayment manufacturer.
  5. Nonporous Substrates: For ceramic tile, quarry tile, and terrazzo substrates, remove waxes, sealants, and other contaminants that might impair underlayment bond, and prepare surfaces according to manufacturer's written instructions.
- B. After substrate preparation, test substrate for adhesion with underlayment according to manufacturer's written instructions.
  - C. Coordinate application of components, including primer, to provide optimum underlayment-to-substrate and intercoat adhesion.
  - D. At substrate expansion, isolation, and other moving joints, allow joint of same width to continue through underlayment.
  - E. Apply underlayment to produce uniform, level surface.
    1. Apply first level, with recommended gravel aggregate, to 1/2 to 1 inch below intended final elevation,
    2. Apply a final layer without aggregate to produce smooth surface.
    3. Feather edges to match adjacent floor elevations.
  - F. Remove and replace underlayment areas that evidence lack of bond with substrate, including areas that emit a "hollow" sound when tapped.
  - G. Do not install finish flooring over underlayment until after time period recommended by underlayment manufacturer.

### 3.3 PROTECTION

- A. Protect underlayment from concentrated and rolling loads for remainder of construction period.

END OF SECTION 03 5414

SECTION 04 2100  
CLAY UNIT MASONRY

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes clay unit masonry

1.2 SUBMITTALS

- A. Product data for each different masonry unit, accessory, and other manufactured product specified.
  - 1. Include data showing chosen brick meets initial rate of absorption.
    - a. If initial rate of absorption does not meet specified requirements, provide written description that will be followed for wetting brick during installation.
- B. Samples:
  - 1. Two individual brick of each type required
  - 2. Mortar samples
- C. Mock-up panel

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: A skilled journeyman mason shall be present during brick work to supervise brick work.
- B. Sample Mock-up Panel:
  - 1. Size: 4 foot by 6 foot, showing the proposed color range, texture, bond, mortar and workmanship.
  - 2. All brick shipped for the sample shall be included in the panel
  - 3. Install type of mortar proposed for Project
  - 4. Include special features including caulking and contiguous work
  - 5. Erect with finish face of panels facing south
  - 6. Do not start work until sample panel has been accepted
  - 7. Mock-up sample will establish minimum standard of quality and workmanship for brick work.
    - a. Mock-up sample shall remain on project site until completion and approval of brickwork.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Store brick off ground to prevent contamination by mud, dust or materials likely to cause staining or other defects.
- B. Discard cracked, chipped and spalled brick units greater than allowed per brick specification.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- D. Deliver mortar materials and accessories to Site in original unopened packages bearing manufacturer's labels.



- E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

## 1.5 PROJECT CONDITIONS

- A. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least 3 days after building masonry walls or columns.
- B. Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.
  - 1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
  - 2. Protect sills, ledges, and projections from mortar droppings.
  - 3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
  - 4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.

## PART 2 - PRODUCTS

### 2.1 THIN BRICK UNITS AND ACCESSORIES

- A. Thin Brick Units: ASTM C 1088, Grade Exterior, Type TBX, not less than 1/2 inch thick, Face Size: 2 1/4 inch by random length.
- B. Special Shapes: Include corners, edge corners, and end edge corners.
- C. Face Color and Texture: White Pearl by Georgia Architectural Linear Series Brick. Back Surface Texture: Scored, combed, wire roughened, or ribbed.
- D. Setting Mortar: Portland cement, ASTM C 150, Type I, and clean, natural sand, ASTM C 144. Mix at ratio of 1 part cement to 4 parts sand, by volume, with minimum water required for placement.
- E. Latex-Portland Cement Pointing Grout: ANSI A118.6. Commercial portland cement, factory prepared, with liquid acrylic-resin latex additive; uniformly colored. Color to be chosen by Architect.

### 2.2 MASONRY CLEANERS

- A. Job-Mixed Detergent Solution: Solution of trisodium phosphate (1/2-cup dry measure) and laundry detergent (1/2-cup dry measure) dissolved in one gallon of water.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Examine conditions for compliance with requirements for installation tolerances and other conditions affecting work performance. Proceed after unsatisfactory conditions have been corrected.
- B. Wet brick with absorption rates in excess of 30g./30 sq. in. determined by ASTM C67, so that rate of absorption when laid does not exceed this amount.

### 3.2 INSTALLATION

- A. Select and arrange units to produce a uniform blend of colors and textures. Mix

units from several pallets or cubes as they are placed.

- B. Set units after brown coat has been applied
- C. Tooling
  - 1. Tool joints when "thumb-print" hard to match existing
  - 2. Trowel-point or concave-tool exterior joints below grade. Refer to accepted mock-up.

### 3.3 PROTECTION

- A. Protection of Work
  - 1. During erection, cover top of wall with strong waterproof membrane at end of each day or shutdown.
  - 2. Cover partially completed walls when work is not in progress.
  - 3. Extend cover minimum of 24 in. down both sides.
  - 4. Hold cover securely in place.
- B. Prevent grout or mortar from staining the face of masonry to be left exposed or painted
  - 1. Remove grout or mortar in contact with face of such masonry.
  - 2. Protect all sills, ledges and projections from droppings of mortar, protect door jambs and corners from damage during construction.
- C. Protect work when temperature and humidity conditions produce excessive water evaporation from mortar and grout. Do not apply mortar to substrates with temperatures of 100 degree F and above.
- D. Protection: Provide final protection and maintain conditions, in a manner acceptable to installer, that ensure unit masonry is without damage and deterioration at time of Substantial Completion.

### 3.4 CLEANING

- A. Cut out and replace defective joints and holes in exposed masonry and re-point with mortar to eliminate evidence of replacement
- B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.
- C. Final Cleaning:
  - 1. Refer to the "the Good Practice; Cleaning New Brick Work" by The Brick Industry, Southeast.
  - 2. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
  - 3. Protect adjacent surfaces from contact with cleaner by covering them with liquid strippable masking agent, polyethylene film, or waterproof masking tape.
  - 4. Wet wall surface with water prior to application of cleaners; remove cleaners promptly by rinsing thoroughly with clear water.
  - 5. Clean brick by means of bucket and brush hand-cleaning method described in BIA Technical Note No. 20.

END OF SECTION 04 2100

## SECTION 05 5000 METAL FABRICATIONS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes:
  - 1. Rough hardware
  - 2. Ladders
  - 3. Loose bearing and leveling plates
  - 4. Miscellaneous framing and supports

#### 1.2 PERFORMANCE REQUIREMENTS

- A. Thermal Movements: Provide exterior metal fabrications that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
  - 1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

#### 1.3 SUBMITTALS

- A. Product Data: Include data for non-slip aggregate surface finishes, nosings, paint products, and grout.
- B. Shop Drawings:
  - 1. Show fabrication details for metal fabrications.
  - 2. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.
  - 3. Provide templates for anchors and bolts specified for installation under other Sections.
  - 4. Include structural analysis data signed and sealed by a structural engineer licensed in the State of Florida.
- C. Samples representative of materials and finished products as may be requested by Architect.
- D. Welder certificates signed by Contractor certifying that welders comply with requirements specified under the "Quality Assurance" Article.

#### 1.4 QUALITY ASSURANCE

- A. Welding: Qualify procedures and personnel according to the following:
  - 1. AWS D1.1, "Structural Welding Code--Steel."
  - 2. AWS D1.3, "Structural Welding Code--Sheet Steel."
  - 3. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone re-certification.

#### 1.5 PROJECT CONDITIONS

- A. Field Measurements: Check actual locations of in place construction to which fabrications must fit by field measurements before fabrication. Show measurements on final shop drawings.
  - 1. Established Dimensions: Where field measurements cannot be made without delaying the Work, guarantee dimensions and proceed with fabricating products without field measurements. Coordinate construction to ensure that actual dimensions correspond to guaranteed dimensions. Allow for trimming and fitting.

## 1.6 COORDINATION

- A. Coordinate installation of anchorages for metal fabrications. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

## PART 2 - PRODUCTS

### 2.1 METALS, GENERAL

- A. Metal Surfaces: Provide materials with smooth, flat surfaces, unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

### 2.2 FERROUS METALS

- A. Rolled Structural Steel Shapes: ASTM A572, Grade 50.
- B. Steel Plates and Bars: ASTM A36.
- C. Steel Pipe: ASTM A53, standard weight (schedule 40), unless otherwise indicated, or another weight required by structural loads.
  - 1. Galvanized finish
- D. Iron Castings: ASTM A48, Class 30
- E. Malleable-Iron Castings: ASTM A47, Grade 32510
- F. Welding Rods and Bare Electrodes: Select according to AWS specifications for the metal alloy to be welded.
- G. Galvanized Structural Steel Sheet: ASTM A446, of grade required for design loading. Coating designation as indicated, or if not indicated, G90.
- H. Brackets, Flanges, and Anchors: Cast or formed metal of the same type material and finish as supported rails, unless otherwise indicated.
- I. Galvanized sheet metal shall be commercial quality with 0.20 percent copper, ASTM A525; G90 hot-dip galvanized, mill phosphatized where indicated for painting; 24 gauge thickness except as otherwise indicated.

### 2.3 PAINT

- A. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79.
  - 1. Use primer with a VOC content of 420 g/L or less when calculated

- according to 40 CFR 59, Subpart D (EPA Method 24).
2. Primer selected must be compatible with finish coats of paint. Coordinate selection of metal primer with finish paint requirements specified in Division 9.

- B. Galvanizing Repair Paint: High-zinc-dust-content paint for re-galvanizing welds in steel, and complying with SSPC-Paint 20.
- C. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D1187.

## 2.4 FASTENERS

- A. General: Unless otherwise indicated, provide Type 316 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633, Class Fe/Zn 5, at exterior walls. Select fasteners for type, grade, and class required.
- B. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.
1. Material: Group 1 alloy 304 or 316 stainless-steel bolts and nuts complying with ASTM F593 and ASTM F594.

## 2.5 GROUT

- A. Non-shrink, Nonmetallic Grout: Factory-packaged, non-staining, non-corrosive, nongaseous grout complying with ASTM C1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.

## 2.6 FABRICATION

- A. Form metal fabrications from materials of size, thickness, and shapes indicated but not less than that needed to comply with performance requirements indicated. Work to dimensions indicated or accepted on shop drawings, using proven details of fabrication and support. Use type of materials indicated or specified for various components of each metal fabrication.
- B. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges.
- C. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch, unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- D. Shear and punch metals cleanly and accurately. Remove burrs.
- E. Ease exposed edges to a radius of approximately 1/32 inch, unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- F. Remove sharp or rough areas on exposed traffic surfaces.
- G. Weld corners and seams continuously to comply with the following:
1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.

2. Obtain fusion without undercut or overlap.
  3. Remove welding flux immediately.
  4. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing, and contour of welded surface matches those adjacent.
- H. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of type indicated or, if not indicated, Phillips flat-head (countersunk) screws or bolts. Locate joints where least conspicuous.
- I. Provide for anchorage of type indicated; coordinate with supporting structure. Fabricate and space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.
- J. Pre-assemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces.
- K. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- L. Fabricate joints that will be exposed to weather in a manner to exclude water, or provide weep holes where water may accumulate.

## 2.7 MISCELLANEOUS METAL FABRICATIONS

### A. Rough Hardware

1. 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.
2. Fabricate items to sizes, shapes, and dimensions required. Furnish malleable-iron washers for heads and nuts that bear on wood structural connections, and furnish steel washers elsewhere.

### B. Steel Ladders

1. Fabricate ladders for the locations shown, with dimensions, spacings, details, and anchorages as indicated. Comply with requirements of ANSI A14.3.
2. Siderails: Continuous, steel, flat bar, with eased edges, spaced 18 inches apart.
  - a. Up to 5 feet: 2 inch by 3/8 inch
  - b. 5 feet to 10 feet: 3 inch by 3/8 inch
  - c. 10 feet to 20 feet; 3 inch by 1/2 inch
  - d. Over 20 feet 4 inch by 1/2 inch
3. Support each ladder at top and bottom and at intermediate points spaced not more than 5 feet o.c. with welded or bolted steel brackets.
  - a. Size brackets to support design dead and live loads indicated and to hold centerline of ladder rungs clear of the wall surface by not less than 7 inches.
  - b. Extend side rails shall above top rung, and return rails to wall or

structure unless other secure handholds are provided. If the adjacent structure does not extend above the top rung, goose-neck the extended rails back to the structure to provide secure ladder access.

- c. Ladders 30 feet and higher will require a minimum 24 by 30 inch step-off platform with a 36 by 50 inch minimum opening to platform.
    - d. Include telescoping pole at top of ladder to extend above roof hatch, meeting Code safety requirements.
  - 4. Bar Rungs: 3/4 inch diameter steel bars, spaced 12 inches o.c.
  - 5. Fit rungs in centerline of side rails, plug weld and grind smooth on outer rail faces.
  - 6. Provide non-slip surfaces on top of each rung, either by coating the rung with aluminum-oxide granules set in epoxy-resin adhesive, or by using a type of manufactured rung that is filled with aluminum-oxide grout.
  - 7. Galvanize ladders, including brackets and fasteners, in all locations.
- C. Loose Bearing and Leveling Plates: Flat, free from warps or twists, and of the required thickness and bearing area. Drill plates to receive anchor bolts and for grouting as required. Galvanize after fabrication.
- D. Miscellaneous Framing and Supports
  - 1. Provide steel framing and supports for applications indicated that are not a part of structural steel framework as required to complete the Work.
  - 2. Fabricate units to sizes, shapes, and profiles indicated and required to receive other adjacent construction retained by framing and supports. Fabricate from structural steel shapes, plates, and steel bars of welded construction using mitered joints for field connection. Cut, drill, and tap units to receive hardware, hangers, and similar items.
    - a. Fabricate units from slotted channel framing where indicated.
    - b. Furnish inserts if units are installed after concrete is placed.
  - 3. Galvanize miscellaneous framing and supports in all locations.

## 2.8 STEEL AND IRON FINISHES

- A. Galvanizing: Hot-dip galvanize items as indicated to comply with applicable standard listed below:
  - 1. ASTM A123, for galvanizing steel and iron products
  - 2. ASTM A153, for galvanizing steel and iron hardware
- B. Shop Priming: Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finishes and those to be embedded in concrete, sprayed-on fireproofing, or masonry, unless otherwise indicated. Comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.
  - 1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

## PART 3 - EXECUTION

### 3.1 INSPECTION

#### METAL FABRICATIONS

05 5000-5



- A. Examine areas and conditions under which fabrications are to be installed. Do not proceed until unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction. Include threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws, and other connectors as required.
- B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing miscellaneous metal fabrications. Set metal fabrication accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- C. Provide temporary bracing or anchors in formwork for items that are to be built into concrete masonry or similar construction.
- D. Set sleeves in concrete with tops flush with finish surface elevations. Protect sleeves from water and concrete entry.
- E. Fit exposed connections 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 that have been hot-dip galvanized after fabrication and are intended for bolted or screwed field connections.
- F. Field Welding:
  - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  - 2. Obtain fusion without undercut or overlap.
  - 3. Remove welding flux immediately.
  - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing, and contour of welded surface matches those adjacent.
- G. Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on final Shop Drawings.

### 3.3 SETTING LOOSE PLATES

- A. Clean concrete and masonry bearing surfaces of bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of bearing plates.
- B. Set loose leveling and bearing plates on wedges or other adjustable devices. After the bearing members have been positioned and plumbed, tighten the anchor bolts. Do not remove wedges or shims, but if protruding, cut off flush with the edge of the bearing plate before packing with grout.
  - 1. Use non-shrink, metallic grout in concealed locations where not exposed to moisture; use non-shrink, nonmetallic grout in exposed locations, unless otherwise indicated.
  - 2. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

### 3.4 ADJUSTING AND CLEANING

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting to comply with SSPC-PA 1 requirements for touching up shop-painted surfaces.
  - 1. Apply by brush or spray to provide a 2.0-mil minimum dry film thickness.
- B. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas, and apply galvanizing repair paint to comply with ASTM A780.

END OF SECTION 05 5000

SECTION 06 0500  
COMMON WORK RESULTS FOR WOOD, PLASTICS, AND COMPOSITES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes work results requirements that are common to all other Division 06 Sections.

1.2 DEFINITIONS

- A. Exposed Surfaces
  - 1. Surfaces visible when doors and drawers are closed
  - 2. Bottoms of cases more than 4 feet above floor
  - 3. Visible members in open cases or behind glass doors
- B. Semi-Exposed Surfaces
  - 1. Members behind opaque doors, such as shelves, divisions, interior faces of ends, case back, drawer sides, backs and bottoms, and back face of doors
  - 2. Tops of cases 6'-6 or more above floor
- C. Concealed Surfaces: Surfaces not visible after installation.

1.3 SUBMITTALS

- A. Product Data:
  - 1. Maintenance recommendations.
  - 2. Documentation showing adhesives meet VOC limits of the South Coast Air Quality Management District Rule #1168.
  - 3. Wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used.
    - a. Include written instructions for handling, storing, and finishing treated material.
  - 4. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Site.
  - 5. Fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.
  - 6. Certification that chemical treatment complies with specification for each type of treatment.
  - 7. Acknowledgement of the detrimental effect of copper treated wood when in contact with untreated steel.

1.4 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: Where indicated, provide materials with fire-test-response characteristics determined by a nationally recognized testing and inspecting agency according to ASTM D5664.

- B. Kiln dry all wood to the following maximum moisture content:
  - 1. Exterior and non-conditioned spaces: 19 percent
  - 2. Interior, conditioned spaces: 15 percent
- C. Ensure all preservative is adequately fixed in wood. Reject lumber with surface residues of white salts. Provide wood that is kiln-dried after treatment or prefinished with a sealer.
- D. Obtain approvals from Building Official for alternative wood preservative treatment.
- E. Panel products manufactured in the US or imported after June 01, 2018 shall comply with TSCA Title IV for formaldehyde emissions.

#### 1.5 PROJECT CONDITIONS

- A. Coordinate environmental requirements for casework installation areas. Do not deliver or install casework until temperature and relative humidity have been stabilized and will be maintained.
  - 1. Maintain temperature and humidity in installation area as required to maintain moisture content of installed casework within a 1.0 percent tolerance through date of Substantial Completion.
- B. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit work to be performed according to manufacturer's written instructions and warranty requirements and at least one coat of specified finish to be applied without exposure to rain.
- C. Verify dimensions by field measurement before fabrication where work adjoins other Work. Notify Architect of conditions that may cause delay to Project. Allow for trimming and fitting of cabinet work and trim.
- D. Coordination: Fit work to other Work; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds, and similar supports and reinforcement to allow proper attachment of other work.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Protect materials against weather and contact with damp or wet surfaces. Provide for air circulation within and around stacks and under temporary coverings.
- B. Do not deliver interior wood products until environmental conditions meet requirements specified for installation areas.

### PART 2 - PRODUCTS

#### 2.1 PRESSURE TREATMENT OF WOOD

- A. Water Repellent Preservative: NWWDA-tested and -accepted formulation containing 3-iodo-2-propenyl butyl carbonate (IPBC) as its active ingredient.
- B. Preservative Treatment. Comply with performance requirements in AWWPA U1.
  - 1. ACQ - Ammoniacal copper quarternary compound: Pressure-injected
  - 2. Use 0.25 lb/cu ft retention

3. Kiln dry after treatment to 19 percent maximum moisture content for lumber and 18 percent for plywood
4. Optional Preservative Treatments:
  - a. CDDC: Copper hydroxide sodium dimethyldithiocarbamate
  - b. Acetylation process
- C. Acceptable Products:
  1. NatureWood by Osmose, Inc.
  2. Preserve Plus by Chemical Specialties, Inc.
  3. Accoya Wood by Accsys Technologies

## 2.2 FIRE-RETARDANT-TREATMENT

- A. Fire-Retardant Particleboard: Panels made from softwood particles and fire-retardant chemicals mixed together at time of panel manufacture with flame-spread index of 25 or less and smoke-developed index of 25 or less per ASTM E 84.
- B. Fire-Retardant Fiberboard: ANSI A208.2 medium-density fiberboard panels made from softwood fibers, synthetic resins, and fire-retardant chemicals mixed together at time of panel manufacture with flame-spread index of 25 or less and smoke-developed index of 200 or less per ASTM E 84.
- C. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.
  1. Exterior Type: Treat materials after being subjected to accelerated weathering according to ASTM D2898. Use Exterior type for exterior locations and where indicated.
  2. Interior Type: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D3201 at 92 percent relative humidity. Use where exterior type is not indicated.
- D. Identify fire-retardant-treated wood with appropriate classification marking of testing and inspecting agency acceptable to authorities having jurisdiction.
  1. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece.
- E. Manufacturer: Pyro-Guard and other products by Hoover Treated Wood Products, Inc.
- F. Install FT products where indicated and the following:
  1. Concealed blocking in rated partitions
  2. Plywood backing panels.
  3. Other locations detailed on Drawings

## 2.3 MISCELLANEOUS MATERIALS

- A. Adhesives: Aliphatic-resin, polyurethane, or resorcinol wood glue recommended by manufacturer for general carpentry use.

1. Use wood glue that has a VOC content of 30 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- B. Multipurpose Construction Adhesive: Formulation complying with ASTM D 3498 that is recommended for indicated use by adhesive manufacturer.
  1. Use adhesive that has a VOC content of 70 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

## 2.4 FABRICATION

- A. Wood Moisture Content: Comply with requirements of specified inspection agencies and manufacturer's recommendations for moisture content of finish carpentry in relation to relative humidity conditions existing during time of fabrication and in installation areas. Provide finish carpentry with moisture content that is compatible with Project requirements.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine structure and conditions under which work is to be installed. Do not proceed with installation until unsatisfactory conditions have been corrected.

### 3.2 APPLICATION

- A. Brush apply preservative treatment material to cut ends of treated lumber. Use same material as used for original treatment.
- B. Installation of Pressure Treated Wood: No direct contact with untreated steel shall be allowed. Provide coating or sheet barriers to separate treated wood from steel. Apply only stainless steel fasteners into or through copper preservative treated wood.

### 3.3 ADJUSTMENTS, CLEANING, AND PROTECTION

- A. Protect installed woodwork from damage by other trades until the Date of Substantial Completion.

END OF SECTION 06 0500

## SECTION 06 1000 ROUGH CARPENTRY

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes:
  - 1. Wood grounds, nailers, blocking, and sleepers
  - 2. Dimensioned lumber framing
  - 3. Structural framing for light roofs
  - 4. Plywood backer panels
  - 5. Thermoplastic composite lumber

#### 1.2 REFERENCES

- A. Lumber Standard: Comply with PS-20 and with applicable rules of the respective grading and inspecting agencies for species and products indicated.
- B. Plywood Product Standards: Comply with PS 1 (ANSI A199.1) or, for products not manufactured under PS 1 provisions, with applicable APA Performance Standard PRP-108 for type of panel indicated.

#### 1.3 DEFINITIONS

- A. Rough carpentry includes carpentry work not specified as part of other Sections and generally not exposed, unless otherwise specified.

#### 1.4 SUBMITTALS

- A. Product Data:
  - 1. Chemical treatment manufacturer's instructions for handling, storing, installation, and finishing of treated material
  - 2. Treating plant's certification of compliance stating type of preservative used and method of treatment employed, net amount of preservative retained, and compliance with applicable standards
  - 3. For water-borne treated products include statement that moisture content of treated materials was reduced to levels indicated prior to shipment to project site
- B. Shop Drawings for Thermoplastic composite lumber fabrications:
  - 1. Show member sizes, pitch, span, camber, configuration and spacing
  - 2. Show connection details
  - 3. Shop drawings shall be signed and sealed by a licensed engineer registered in the State of Florida
  - 4. Calculations for wind load design shall be stamped, sealed and signed by a Professional Engineer in the State of Florida verifying compliance with ASCE 7-16
- C. Certification that chemical treatment complies with specification for each type of treatment

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Stack lumber as well as plywood and other panels; provide for air circulation within and around stacks and under temporary coverings including polyethylene and similar materials.
  - 1. For pressure treated lumber and plywood, place spacers between each bundle to provide air circulation.

## PART 2 - PRODUCTS

### 2.1 LUMBER, GENERAL

- A. Lumber Standards: Furnish lumber manufactured to comply with PS 20 "American Softwood Lumber Standard" and with applicable grading rules of inspection agencies certified by American Lumber Standards Committee's (ALSC) Board of Review.
- B. Inspection Agencies: SPIB - Southern Pine Inspection Bureau.
- C. Grade Stamps: Provide lumber with each piece factory-marked with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency, grade, species, moisture content at time of surfacing, and mill.
- D. Nominal sizes are indicated, except as shown by detail dimensions. Provide actual sizes as required by PS 20, for moisture content specified for each use.
  - 1. Provide dressed lumber, S4S, unless otherwise indicated.
  - 2. Provide seasoned lumber with 19 percent maximum moisture content at time of dressing and shipment for sizes 2 inches or less in nominal thickness, unless otherwise indicated.
  - 3. "Standard" grade.
  - 4. Southern Pine graded under SPIB rules.
- E. Dimension Lumber: Provide dimension lumber of grades indicated according to the ALSC National Grading Rule (NGR) provisions of the inspection agency indicated.
  - 1. Non-Load-Bearing Interior Partitions: Provide Standard, Stud, or No. 3 grade and any of the following species:
    - a. Species: Mixed southern pine; SPIB.
  - 2. Framing Other than Non-Load-Bearing Partitions: Provide Construction or No. 2 grade and any of the following species:
    - a. Species: Southern pine; SPIB.
    - b. Finger Joint Material: Not acceptable.

### 2.2 THERMOPLASTIC COMPOSITE LUMBER

- A. Basis of Design: ACRE by Modern-Mill
- B. Materials:
  - 1. Rice hulls and PVC in proprietary blends to create lumber shapes as detailed and scheduled on Drawings.



2. Fasteners and other accessories as recommended by manufacturer to meet wind loading requirements for exterior applications.

## 2.3 WOOD GROUNDS, NAILERS, BLOCKING, AND SLEEPERS

- A. Provide lumber for support or attachment of other construction including rooftop equipment curbs and support bases, cant strips, bucks, nailers, blocking, furring, grounds, stripping, and similar members.
- B. Fabricate miscellaneous lumber from dimension lumber of sizes indicated and into shapes shown.
- C. Grade: "Standard" grade light-framing-size lumber of any species or board-size lumber as required. No. 2 Boards per SPIB rules.
- D. Wood grounds, nailers, and sleepers shall be pressure treated as specified.

## 2.4 PLYWOOD PANELS

- A. Construction Panel Standards: Comply with PS 1 "U.S. Product Standard for Construction and Industrial Plywood" for plywood construction panels and, for products not manufactured under PS 1 provisions, with APA PRP-108.
- B. Trademark: Furnish construction panels that are each factory-marked with APA trademark evidencing compliance with grade requirements.
- C. Roof Sheathing: APA-rated Structural I sheathing
  1. Exposure Durability Classification: Exterior
  2. Span Rating: As required to suit framing spacing indicated
- D. Electrical or Telephone Equipment Backing Panels: DOC PS-1, Exposure 1 CD Plugged, fire retardant treated, Thickness: Minimum 15/32 inch. Paint per Division 09.

## 2.5 FASTENERS

- A. Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
  1. All fasteners used in conjunction with pressure treated (ACO or CDDC) wood shall be G185 hot dipped galvanized or stainless steel.
- B. Nails, Wire, Brads, and Staples: ASTM F1667.
- C. Power Driven Fasteners: National Evaluation Report NER-272.
- D. Wood Screws: ANSI B18.6.1.
- E. Lag Bolts: ANSI B18.2.1.
- F. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A563 hex nuts and where indicated, flat washers.

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Discard units of material with defects that impair quality of rough carpentry construction and that are too small to use in fabricating rough carpentry with minimum joints or optimum joint arrangement.
- B. Set rough carpentry to required levels and lines, with members plumb and true to line and cut and fitted.
- C. Fit rough carpentry to other construction; scribe and cope as required for accurate fit. Coordinate location of furring, nailers, blocking, grounds, and similar supports to allow attachment of other construction.
- D. Attach rough carpentry work to substrate by anchoring and fastening indicated.
- E. Use screws, unless otherwise indicated. Select fasteners of size that will not penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting of wood; pre-drill as required.
- F. Use IPBC treated products at interior locations and ACO or CDDC treated products at exterior locations.
- G. Apply field treatment complying with AWPA M4 to cut surfaces of preservative-treated lumber and plywood.
- H. All pressure treated wood installed in contact with steel decking, studs, or other framing members shall be separated by a minimum 40mil peel and stick membrane.

### 3.2 WOOD GROUNDS, NAILERS, BLOCKING, AND SLEEPERS

- A. Install wood grounds, nailers, blocking, and sleepers where shown and where required for screeding or attachment of other work. Form to shapes as shown and cut as required for true line and level of work to be attached.
- B. Attach to substrates as required to support applied loading. Countersink bolts and nuts flush with surfaces, unless otherwise indicated. Build into masonry during installation of masonry work. Where possible, anchor to formwork before concrete placement.
- C. Install permanent grounds of dressed, preservative treated, key-beveled lumber not less than 1-1/2 inches wide and of thickness required to bring face of ground to exact thickness of finish material involved. Remove temporary grounds when no longer required.
- D. Provide pressure treated blocking at all locations in contact with concrete. Fire treated where required.

### 3.3 INSTALLATION OF CONSTRUCTION PANELS

- A. Installation of Structural-Use Panels: Comply with applicable recommendations contained in APA Form No. E30, "APA Design/Construction Guide: Residential & Commercial," for types of structural-use panels and applications indicated.
  - 1. Fastening Methods: Nail to framing using ring shank nails

### 3.4 INSTALLATION OF EQUIPMENT BACKER BOARDS

- A. Install 3/4 inch panels mounted to fire-retardant treated 2 by 4, providing a 3 1/2 inch space behind panel for wiring.

END OF SECTION 06 1000

## SECTION 06 2023 INTERIOR FINISH CARPENTRY

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes:
  - 1. Interior standing and running trim
  - 2. Other milled wood items
  - 3. Shop finishing of woodwork

#### 1.2 SUBMITTALS

- A. Samples: 50 square inches of lumber for finish system and color specified
- B. Samples: 12 inch long section of each milled trim detailed with primer
- C. Qualification data for firms and persons specified in the Quality Assurance Article demonstrating capabilities and experience. Include list of completed projects with contact information for Architects and Owners.
- D. Quality Certification: Manufacturer's (fabricators) certification stating work complies with quality grade and other requirements specified.

#### 1.3 QUALITY ASSURANCE

- A. Installer Qualifications: Installation by a firm that can demonstrate successful experience in installing finish carpentry items similar in type and quality for this Project.
- B. Quality Standard: Comply with the Architectural Woodwork Standard, Latest Edition for grades of interior architectural woodwork, construction, finishes and other requirements.
- C. Measurements: Before proceeding with woodwork required to be fitted to other construction, obtain measurements and verify dimensions and any shop drawing details as required for accurate fit.
- D. Optimum Moisture Content: Kiln-dry woodwork to an average moisture content within 6 to 11 percent or as otherwise recommended by applicable Quality Standards for the regional climatic conditions involved.

#### 1.4 PROJECT CONDITIONS

- A. Environmental Conditions: Obtain and comply with manufacturer's and installer's coordinated advice for optimum temperature and humidity conditions during storage and installation.

### PART 2 - PRODUCTS

#### 2.1 GRADING

- A. Painted Standing and Running Trim: Pre primed MDF in profile indicated on Drawings.

#### 2.2 MATERIALS

- A. Standing and Running Trim:

1. Grade: Comply with AWI for Custom Grade
2. Plain Sawn
3. Moisture Content: Comply with Division 06 Section, Common Work Results for Wood, Plastics, and Composites
4. Painted per Division 09, Painting

## 2.3 WOOD JAMBS FOR WOOD FRAMED DOOR AND WINDOW UNITS

### A. Material:

1. Frame and trim: Solid stock wood, finger jointed to meet the requirements of AWI Grade I, for opaque finish, or NWWDA I.S.6.91, Standard Grade.
2. Trim profile: As indicated on drawings.
3. Glass: 1/4 inch clear tempered with speaking wicket

### B. Fabrication: Split jamb design, meeting AWI reference standard, Custom Grade for Opaque Finish.

1. Frame depth: Match wall thickness.
2. Frame shall be completely assembled and door mounted in frame within specified tolerances.

## 2.4 MISCELLANEOUS MATERIALS

### A. Fasteners: Nails, screws, and other anchoring devices of type, size, material, and finish required for application indicated to provide secure attachment, concealed where possible.

1. Countersink nails, fill surface flush, and sand where face nailing is unavoidable

### B. Adhesives: Comply with Division 06 Section, Common Work Results for Wood, Plastics, and Composites

## 2.5 FABRICATION

### A. Fabricate finish carpentry to dimensions, profiles and details indicated. Ease edges to radius indicated for the following:

1. Lumber less than 1 inch in nominal thickness: 1/16 inch.
2. Lumber 1 inch or more in nominal thickness: 1/8 inch.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Condition woodwork to average prevailing humidity conditions in installation areas before installing.
- B. Clean substrates of projections and substances detrimental to application.
- C. Coordinate work with other trades affected by this installation. Give particular attention to timely furnishing of supporting and attachment steel embedded in concrete and to providing of wood grounds, nailers, and blocking as not to delay progress.
  1. Ensure that mechanical and electrical items affecting this work are placed, complete, and inspected prior to start of installation.

- D. Backprime lumber for painted finish exposed on the exterior. Comply with requirements for surface preparation and application in Division 09 Section, Painting.

### 3.2 INSTALLATION

- A. Do not use finish carpentry materials that are unsound, warped, bowed, twisted, improperly finished, or not adequately seasoned.
  - 1. Do not use manufactured units with defective surfaces, sizes, or patterns.
- B. Install finish carpentry plumb, level, true, and aligned with adjacent materials. Use concealed shims where required for alignment.
  - 1. Scribe and cut finish carpentry to fit adjoining work. Refinish and seal cuts as recommended by manufacturer.
  - 2. Install to tolerance of 1/8 inch in 8 feet for plumb and level. Install adjoining finish carpentry with 1/16 inch maximum offset for flush installation and 1/8 inch maximum offset for reveal installation.
  - 3. Coordinate finish carpentry with materials and systems that may be in or adjacent to standing and running trim and rails. Provide cutouts for mechanical and electrical items that penetrate exposed surfaces.
  - 4. Do not use pieces less than 36 inches long, except where necessary.
- C. Install with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available. Cope at returns and miter at corners to produce tight-fitting joints with full-surface contact throughout length of joint. Use scarf joints for end-to-end joints. Plane back of casings to provide uniform thickness across joints if required.
  - 1. Match color and grain pattern across joints.
  - 2. Install trim after drywall joint finishing operations are completed.
  - 3. Drill pilot holes in hardwood prior to nailing or fastening to prevent splitting. Fasten to prevent movement or warping. Countersink nail heads on exposed carpentry work and fill holes.
  - 4. All wood mounting devices or wood frame work in contact with concrete or masonry shall be pressure treated.
- D. Use purpose designed fixture attachments for mounted components.
- E. When necessary to scribe on site, make material with ample allowance for cutting.

### 3.3 CLEANING, AND PROTECTION

- A. Clean finish carpentry on exposed and semi-exposed surfaces Repair damaged or defective carpentry where possible to eliminate functional or visual defects. Where not possible to repair, replace.

END OF SECTION 06 2023

## SECTION 07 1326 SELF-ADHERING SHEET WATERPROOFING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section Includes: Modified bituminous sheet waterproofing.

#### 1.2 SUBMITTALS

- A. Product Data: For each type of product.
1. Include construction details, material descriptions, and tested physical and performance properties of waterproofing.
  2. Include manufacturer's written instructions for evaluating, preparing, and treating substrate.
- B. Samples: For each exposed product and for each color and texture specified, including the following products:
1. 8-by-8-inch square of waterproofing and flashing sheet.
- C. Qualification Data: For Installer.
- D. Sample Warranty.

#### 1.3 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by waterproofing manufacturer.

#### 1.4 FIELD CONDITIONS

- A. Environmental Limitations: Apply waterproofing within the range of ambient and substrate temperatures recommended by waterproofing manufacturer. Do not apply waterproofing to a damp or wet substrate.
1. Do not apply waterproofing in snow, rain, fog, or mist.
- B. Maintain adequate ventilation during preparation and application of waterproofing materials.

#### 1.5 WARRANTY

- A. Manufacturer's Warranty: Manufacturer's standard materials-only warranty in which manufacturer agrees to furnish replacement waterproofing material for waterproofing that does not comply with requirements or that fails to remain watertight within specified warranty period.
1. Warranty Period: Five years from date of Substantial Completion.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS, GENERAL

- A. Source Limitations for Waterproofing System: Obtain waterproofing materials and protection course from single source from single manufacturer.

#### 2.2 MODIFIED BITUMINOUS SHEET WATERPROOFING

- A. Modified Bituminous Sheet: Minimum 60-mil nominal thickness, self-adhering sheet consisting of 56 mils of rubberized asphalt laminated on one side to a 4-mil-thick, polyethylene-film reinforcement, and with release liner on adhesive side; formulated for application with primer or surface conditioner that complies with VOC limits of authorities having jurisdiction.
  - 1. Products: Subject to compliance with requirements, provide one of the following:
    - a. CCW MiraDRI 860/861 by Carlisle Coatings & Waterproofing Inc.
    - b. Bituthene by W. R. Grace, & Co.
    - c. Blueskin WP 200 by Henry Company
    - d. Balconyguard by Polyguard Products Inc.
    - e. Mel-Rol by W.R. Meadows, Inc.
  - 2. Physical Properties:
    - a. Tensile Strength, Membrane: 250 psi minimum; ASTM D 412, Die C, modified.
    - b. Ultimate Elongation: 300 percent minimum; ASTM D 412, Die C, modified.
    - c. Low-Temperature Flexibility: Pass at minus 15 Deg F; ASTM D 1970.
    - d. Puncture Resistance: 40 lbf minimum; ASTM E 154.
  - 3. Sheet Strips: Self-adhering, rubberized-asphalt strips of same material and thickness as sheet waterproofing.

## 2.3 AUXILIARY MATERIALS

- A. General: Furnish auxiliary materials recommended by waterproofing manufacturer for intended use and compatible with sheet waterproofing.
  - 1. Furnish liquid-type auxiliary materials that comply with VOC limits of authorities having jurisdiction.
- B. Primer: Liquid waterborne primer recommended for substrate by sheet-waterproofing material manufacturer.
- C. Liquid Membrane: Elastomeric, two-component liquid, cold fluid applied, of trowel grade or low viscosity.
- D. Substrate Patching Membrane: Low-viscosity, two-component, modified asphalt coating.
- E. Metal Termination Bars: Aluminum bars, approximately 1 by 1/8 inch thick, predrilled at 9-inch centers.
- F. Protection Course: ASTM D 6506, semirigid sheets of fiberglass or mineral-reinforced- asphaltic core, pressure laminated between two asphalt-saturated fibrous liners and as follows:
  - 1. Thickness: Nominal 1/4 inch.
  - 2. Adhesive: Rubber-based solvent type recommended by waterproofing manufacturer for protection course type.

## PART 3 - EXECUTION



### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions for compliance with requirements and other conditions affecting performance of the waterproofing.
  - 1. Verify that concrete has cured and aged for minimum time period recommended in writing by waterproofing manufacturer.
  - 2. Verify that substrate is visibly dry and within the moisture limits recommended in writing by manufacturer. Test for capillary moisture by plastic sheet method according to ASTM D 4263.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 SURFACE PREPARATION

- A. Clean, prepare, and treat substrates according to manufacturer's written instructions. Provide clean, dust-free, and dry substrates for waterproofing application.
- B. Mask off adjoining surfaces not receiving waterproofing to prevent spillage and overspray affecting other construction.
- C. Remove grease, oil, bitumen, form-release agents, paints, curing compounds, and other penetrating contaminants or film-forming coatings from concrete.
- D. Remove fins, ridges, mortar, and other projections and fill honeycomb, aggregate pockets, holes, and other voids.
- E. Prepare, fill, prime, and treat joints and cracks in substrates. Remove dust and dirt from joints and cracks according to ASTM D 4258.
  - 1. Install sheet strips of width according to manufacturer's written instructions and center over treated construction and contraction joints and cracks exceeding a width of 1/16 inch.
- F. Bridge and cover expansion joints and discontinuous deck-to-wall and deck-to-deck joints with overlapping sheet strips of widths according to manufacturer's written instructions.
  - 1. Invert and loosely lay first sheet strip over center of joint. Firmly adhere second sheet strip to first and overlap to substrate.
- G. Corners: Prepare, prime, and treat inside and outside corners according to ASTM D 6135.
- H. Prepare, treat, and seal vertical and horizontal surfaces at terminations and penetrations through waterproofing and at drains and protrusions according to ASTM D 6135.

### 3.3 MODIFIED BITUMINOUS SHEET-WATERPROOFING APPLICATION

- A. Install modified bituminous sheets according to waterproofing manufacturer's written instructions and recommendations in ASTM D 6135.
- B. Apply primer to substrates at required rate and allow it to dry. Limit priming to areas that will be covered by sheet waterproofing in same day. Reprime areas exposed for more than 24 hours.
- C. Apply and firmly adhere sheets over area to receive waterproofing. Accurately

align sheets and maintain uniform 2-1/2-inch- minimum lap widths and end laps. Overlap and seal seams, and stagger end laps to ensure watertight installation.

1. When ambient and substrate temperatures range between 25 and 40 deg F, install self-adhering, modified bituminous sheets produced for low-temperature application. Do not use low-temperature sheets if ambient or substrate temperature is higher than 60 deg F.
- D. Horizontal Application: Apply sheets from low to high points of decks to ensure that laps shed water.
- E. Apply continuous sheets over already-installed sheet strips, bridging substrate cracks, construction, and contraction joints.
- F. Seal edges of sheet-waterproofing terminations with mastic.
- G. Install sheet-waterproofing and auxiliary materials to tie into adjacent waterproofing.
- H. Repair tears, voids, and lapped seams in waterproofing not complying with requirements. Slit and flatten fishmouths and blisters. Patch with sheet waterproofing extending 6 inches beyond repaired areas in all directions.

#### 3.4 PROTECTION, REPAIR, AND CLEANING

- A. Protect waterproofing from damage and wear during remainder of construction period.
- B. Correct deficiencies in or remove waterproofing that does not comply with requirements; repair substrates, reapply waterproofing, and repair sheet flashings.
- C. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 07 1326

## SECTION 07 2100 THERMAL AND ACOUSTICAL INSULATION

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes:
  - 1. Glass fiber batt insulation
  - 2. Extruded polystyrene insulation board (EPS)

#### 1.2 DEFINITIONS

- A. R-values indicated are for insulation tested at 75 degrees F mean temperature, for the total thickness of the insulation, and exclude surface resistance.

#### 1.3 SUBMITTALS

- A. Product Data for each type of insulation product specified.
- B. Product test reports from and based on tests performed by a qualified independent testing agency evidencing compliance of insulation products with specified requirements including those for thermal resistance, fire-test-response characteristics, water-vapor transmission, water absorption, and other properties, based on comprehensive testing of current products.
- C. Samples: Submit manufacturer's sample of reflective insulation, minimum 6 inches square.
- D. Research or evaluation reports evidence compliance of foam-plastic insulations with FBC.
- E. Manufacturer's certificate certifying insulation provided meets or exceeds specified requirements
- F. Letter from pipe insulation manufacturer(s) and HVAC Duct insulation manufacturer(s) insulations provided contain no added urea formaldehyde.

#### 1.4 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: Provide materials specified as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.
  - 1. Surface-Burning Characteristics: ASTM E84
  - 2. Combustion Characteristics: ASTM E136
- B. Toxicity/Hazardous Materials
  - 1. Formaldehyde: Provide products that contain no added urea formaldehyde

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect materials from physical damage and from deterioration by moisture, soiling, and other sources. Store inside and in a dry location. Comply with

manufacturers written instructions for handling, storing, and protection during installation.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

#### A. Available Manufacturers:

##### 1. Glass-Fiber Batt Insulation:

- |    |                                |                       |
|----|--------------------------------|-----------------------|
| a. | CertainTeed Corporation        | Insulpure             |
| b. | Johns Manville                 | FKS Faced and unfaced |
| c. | Knauf Insulation               | Knauf ECOBatt         |
| d. | Owens Corning Fiberglas Corp.: | EcoTouch              |

##### 2. Extruded Polystyrene Insulation Board:

- |    |                                |           |
|----|--------------------------------|-----------|
| a. | Dow Chemical Co.:              | Styrofoam |
| b. | Owens Corning Fiberglas Corp.: | Foamular  |
| c. | Johns Manville                 | CI Max    |

##### 3. Low Expanding Foam Insulation: Any manufacturer meeting specification.

### 2.2 INSULATING MATERIALS

#### A. General: Provide insulating materials that comply with requirements and with referenced standards.

##### 1. Preformed Units: Sizes to fit intended application from manufacturer's standard widths.

#### B. Sound Attenuation Blankets: Unfaced glass fiber insulation conforming to ASTM C665, Type I. Flame spread 25 or less, smoke developed 50 or less in accordance with ASTM E136 and ASTM E84

#### C. Extruded Polystyrene: Conform to ASTM C578, Type IV, minimum 25 psi compressive strength. Board edges: Tongue and groove. Thickness: 2 inches or as otherwise indicated. Minimum aged R value of 5.0 per inch.

#### D. Low Expanding Foam Insulation: 1.75 PCF (nominal 2-pound), Class I.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

#### A. Examine product upon delivery. Reject insulation delivered without identification or having lower efficiency than specified.

#### B. Examine substrates and conditions, under which Work is to be performed. Do not proceed with installation until unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

#### A. Clean substrates of substances harmful to insulations.

#### B. Remove projections that interfere with placement.

### 3.3 INSTALLATION, GENERAL

- A. Comply with insulation manufacturer's written instructions applicable to products and application indicated.
- B. Install insulation that is undamaged, dry, unsoiled, and has not been exposed at any time to ice and snow.
- C. Extend insulation in thickness indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation.
- D. Water-Piping Coordination: If water piping is located within insulated exterior walls, coordinate location of piping to ensure that it is placed on warm side of insulation and insulation encapsulates piping.
- E. Apply single or multiple layers of insulation to produce thickness required for indicated R Value.

### 3.4 INSTALLATION OF BUILDING INSULATION

- A. Install blanket insulations in cavities formed by framing members according to the following requirements:
  - 1. Use blanket widths and lengths that fill cavities formed by framing members. Where more than one length is required to fill cavity, provide lengths that will produce a snug fit between ends.
  - 2. Place blankets in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
- B. Install board insulation on concrete substrates by adhesive, attach spindle-type insulation anchors as follows:
  - 1. Fasten anchors to concrete substrates with adhesive according to anchor manufacturer's written instructions.
  - 2. Apply insulation standoffs to each spindle to create cavity width indicated.
- C. Provide low expanding foam insulation around doors, windows, and utility penetrations to seal areas otherwise difficult to stuff with batts or mineral wool. Not to be used in rated assemblies unless it is specifically permitted by the UL rating system being used.
  - 1. Install at 10mil wet for a dry film minimum 7mils.
  - 2. Prepare surface per manufacturer's recommendations.
- D. Stuff glass-fiber loose-fill insulation into miscellaneous voids and cavity spaces where shown. Compact to approximately 40 percent of normal maximum volume equaling a density of approximately 2.5 lb/cu. ft.

### 3.5 PROTECTION

- A. Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 07 2100

## SECTION 07 2200 ROOF AND DECK INSULATION

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes tapered and parallel polyisocyanurate roof insulation and accessories.

#### 1.2 SUBMITTALS

- A. Product Data:
  - 1. Roof insulation boards
  - 2. Fasteners
- B. Shop Drawings: Insulation layout and attachment patterns for roof and saddle areas

#### 1.3 QUALITY ASSURANCE

- A. Insulation shall meet physical properties of ASTM C1289, Type II; Class 1 and provide a minimum Long Term Thermal Resistance (LTTR) value of 5.67 per inch (the basis for establishing thickness).
  - 1. The use of aged R-values based on the RIC-TIMA conditioning procedure 281-1 is not acceptable.
- B. Design roof system to meet wind-loading requirements for FBC. Refer to Structural Drawings for wind and design pressures.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products in manufacturer's original packaging, dry, undamaged, with seals and labels intact.
- B. Store products in weather protected environment, clear of ground and moisture, and in accordance with manufacturer's instructions.
- C. Protect from direct exposure to sunlight.
- D. Do not install insulation that has become wet or damaged.

#### 1.5 WARRANTY

- A. Refer to Division 07 Section, Modified Bituminous Membrane Roofing for required system warranty.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. Polyisocyanurate roof insulation:
  - 1. Atlas Roofing Corp.
  - 2. Firestone Building Products
  - 3. Hunter Panels
  - 4. Johns Manville

5. Rmax, Inc.
- B. Roof Insulation shall meet:
  1. FM Class 1 construction
  2. Glass fiber reinforced facer sheets integrally laminated to both sides of polyisocyanurate
  3. Total LTTR value shall be minimum 30, unless otherwise indicated.
  4. Achieve LTTR by assembly of layers using a maximum individual board thickness of 2 inches
  5. Cover Board: Glass mat faced gypsum board with water resistant core, 1/2-inch thickness. Dens Deck Prime roof board by Georgia Pacific Corporation or ACFoam-HS Coverboard by Atlas Roofing when acceptable to meet Performance requirements of the roof assembly.
    - a. Cover board shall be as tested when a tested assembly is required.
  6. Compressive Strength: 25 pounds per square inch minimum.
  7. Board Size: 4 foot x 8 foot maximum
- C. Roof Saddle System: Glass fiber reinforced face sheets on both sides with iso core. Conform to ASTM C728.
- D. Cants and Edge Strips: ASTM C 208, Type II, Grade 1, cellulosic-fiber insulation board.
- E. Tapered Insulation: Provide factory-tapered insulation boards fabricated to 1/4 or 1/2 inch per foot slope unless otherwise indicated.
- F. Fasteners: Fasteners shall be approved by the membrane manufacturer to assure that required conditions are met to provide a system roof warranty. Fasteners shall also meet the following requirements:
  1. FM 4470 SPRI Corrosion Test Procedure for Roofing Fasteners. To pass, the fasteners shall not accumulate more than 15 percent red rust after the "required number cycles" in the Kesternich cabinet.
    - a. The required number of cycles is as currently recommended by FM and SPRI, but in no case shall it be less than 15.
- G. Adhesives: Conform to manufacturer's recommendations.

## 2.2 COMPATIBILITY OF PRODUCTS

- A. Verify the compatibility of products specified in this Section with products specified in Division 07 Section, Fully Adhered Thermoplastic Membrane Roofing. Substitution of components that restrict or limit the warranty will not be accepted.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Comply with insulation manufacturer's instructions and recommendations for the handling, installation, and bonding or anchorage or insulation to substrate.

- B. Install cover board in accordance with final Shop Drawings and roof system Performance Requirements
- C. Areas to be re-roofed shall have the existing roof and insulation removed down to the substrate. Substrate shall be cleaned prior to laying the new insulation.
- D. Insulation: Lay in multiple courses. Butt edges to provide contact, do not deform or place in surface compression. Cut and fit insulation around projections and vertical surfaces. Miter edges at ridges and elsewhere to prevent open joints. Stagger end joints in adjoining courses or base course. Stagger joints in succeeding layers with joints of layer below.
  - 1. Mechanically fastened at metal deck locations: Secure all layers of insulation to deck using approved mechanical fasteners specifically designed and sized for attachment of specified insulation type to metal deck. Fasteners penetrating metal deck shall be exposed not more than a maximum of 1/2 to 3/4 inch beyond top flute of the deck.
    - a. Option: Mechanically fasten first layer to metal decking and adhere top layer(s) per manufacturers tested assemblies meeting Performance Requirements of roofing system and warranty requirements.
- E. Attach roof insulation to roof deck in accordance with ASCE 7-16 requirements.

### 3.2 COORDINATION

- A. Coordinate installation with other relative work preceding and subsequent to actual insulation installation including, but not limited to, the following:
  - 1. Nailers, blocking, and insulation strips
  - 2. Roof curbs
  - 3. Flashings
  - 4. Roof membrane

END OF SECTION 07 2200



## SECTION 07 5400 THERMOPLASTIC MEMBRANE ROOFING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section Includes: Single-ply TPO roofing system
  - 1. Coordinate with Division 07 Section, Roof and Deck Insulation

#### 1.2 PERFORMANCE REQUIREMENTS

- A. General: Provide installed roofing membrane and base flashings that remain watertight; do not permit the passage of water; and resist specified uplift pressures, thermally induced 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. Base wind load design on requirements of the FBC based on requirements of ASCE 7-16. Refer to the Structural Drawings for wind Velocity.

#### 1.3 SUBMITTALS

- A. Product Data:
  - 1. Manufacturer's technical data for each type of roofing product required
  - 2. Roof Maintenance and Inspection Manual
- B. Shop Drawings: Include roof outline, slopes, penetrations, terminations, insulation type and thickness, crickets, saddles, cants, piece layout, perimeters and parapet sizes, and special details that may affect the suitability and installation of the roofing system.
  - 1. Calculations for wind load design shall be sealed and signed by a Professional Engineer in the State of Florida verifying compliance with ASCE 7-16
- C. Sample warranty
- D. Inspection Report: Copy of roofing system manufacturer's inspection report of completed roofing installation.

#### 1.4 QUALITY ASSURANCE

- A. Inform roofing manufacturer, with regard to warranties, that warranties shall be issued, based on the acceptance of the roofing work, and that deficiencies noted on inspection reports have been corrected. Manufacturer shall not refuse or restrict the provisions of its warranty, based on noted deficiencies.
  - 1. Manufacturer's representative shall inspect the roof within one year after the Date of Substantial Completion.
- B. Membrane formulation to have a minimum 10 year performance record without change to the formulation.
- C. Roofing installer must have a minimum 5 years experience in the type of roofing

system specified.

- D. A foreman/supervisor with a minimum 3 years experience in the type of roofing specified or the roofing manufacturer's technical field representative shall be present at all times when roofing work is being preformed.
- E. Installer to be certified by or otherwise approved by the membrane manufacturer.
- F. All roofing materials shall be labeled Class A per ASTM E108 and be certified by a nationally recognized independent testing laboratory.
- G. Preinstallation Conference:
  - 1. Conduct Conference at the Site with installer, installers of deck, installers of other work in and around roofing that must follow the roofing work (including Mechanical Work, if any), Architect, and other representatives directly concerned with performance of the work, including (where applicable) insurers, test agencies, product manufacturers, governing authorities, and the Owner. Record discussions, agreements, and disagreements. Furnish a copy of the record to each party attending. Review foreseeable methods and procedures related to roofing work, including, but not necessarily limited to, the following:
    - a. Project requirements (Contract Documents)
    - b. Submittals, both completed and yet to be completed
    - c. Status of substrate work, including drying, structural loading limitations, and similar considerations
    - d. Structural loading limitations
    - e. Availability of materials, tradesmen, equipment, and facilities needed to make progress and avoid delays
    - f. Inspection, testing, certifying, and accounting procedures
    - g. Forecasted weather conditions and procedures for coping with unfavorable conditions, including the possibility of temporary roofing
    - h. Code compliance regulations, environmental protection, health, safety, fire, and similar considerations
    - i. Procedures needed for protection of roofing during the remainder of the construction period
    - j. Roof inspection and repair procedures

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to the Site in original, unopened containers, with legible labels and in sufficient quantity to allow continuity of work.
  - 1. Deliver materials having fire resistance classifications to the Site with labels attached as required.
  - 2. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- B. Store products indoors or in protected areas outdoors. Provide continuous protection against wetting, moisture absorption, and sunlight. Emulsion shall be stored in temperature above 40 degrees F.
  - 1. Materials stored outdoors shall be on raised platforms. Cover top and sides with waterproofed materials. Discard wet products.

2. Handle roll goods to prevent edge and end damage.
3. Store flammable materials in a cool, dry area away from sparks and open flame. Comply with precautions on container and SDS.
4. Do not store roofing materials in concentrated areas of roof deck.

## 1.6 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.

## 1.7 WARRANTY

- A. Furnish a written guarantee warranting the roofing, insulation, and flashing work, including the installation of products furnished by others and installed under this Section, against defects in materials and workmanship for a period of 5 years from the Date of Substantial Completion.
1. Guarantee shall include, but not be limited to, roofing, roof insulation, sheet metal flashings and gravel stops, gutters and downspouts, flexible flashings, expansion joints, control joints, and curbs at roof openings.
  2. Guarantee period shall begin on the date of Substantial Completion for the Project or such date that the roof is accepted by the Architect and Owner, if the date is after the date of Substantial Completion.
  3. Repairs required, either permanent or temporary, to roofing system under this guarantee to keep the roof watertight shall be made within 3 days after notice of the need for repairs. Should the Contractor fail to make such repairs within the time period, the Owner may have such repairs made and charge the cost to the Contractor.
- B. In addition to the guarantee above, provide to the Owner a written NDL warranty from the roofing membrane manufacturer, warranting the roofing system membrane, insulation, flashing, walkways, and expansion joint covers against leaks and defects in materials and workmanship for a period of 20 years from the Date of Substantial Completion.
1. Warranty shall not be limited by windloading less than the design windloading and wind uplift. Include a wind warranty rider up to the designed wind and design pressures.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Acceptable Manufacturers: Subject to compliance with requirements, provide products by one of the following manufacturers:
1. BoD: Everguard by GAF
  2. Carlisle SynTec Incorporated
  3. Firestone Building Products Company
  4. Versico Roofing Systems

### 2.2 THERMOPLASTIC POLYOLEFIN ROOFING MEMBRANE

- A. Roofing Membrane: Thermoplastic Polyolefin based membrane having a minimum nominal thickness of 60 mils and Meeting ASTM D6878 – Standard

#### Specification for Thermoplastic Polyolefin Based Sheet Roofing

1. Color: Tan or white
- B. Cover Tape: Cured butyl membrane as recommended by manufacturer meeting Performance Requirements
- C. Cant Strips, tapered Edge Strips, and Flashing Accessories: Types recommended by manufacturer and meeting Performance Requirements
- D. Flashings: Manufacturer's standard meeting Project conditions and Performance requirements
  1. Provide pre-molded pipe seals and pre-molded corners

#### 2.3 AUXILIARY MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing.
  1. Liquid-type auxiliary materials shall meet VOC limits of authorities having jurisdiction.
- B. Bonding Adhesive: Manufacturer's standard bonding adhesive meeting Performance Requirements.
- C. Slip Sheet: Manufacturer's recommended slip sheet, of type required for application.
- D. Termination Bars: Manufacturer's standard predrilled aluminum bars, approximately 1 by 1/8 inch thick; with stainless steel anchors.
- E. Expansion Joints: Manufacturer's standard expansion joint design with aluminum covers. Joints to be designed by manufacturer to meet local code and Performance requirements.

#### 2.4 WALKWAYS

- A. Flexible Walkways: Factory-formed, nonporous, heavy-duty, solid-rubber, slip-resisting, surface-textured walkway pads or rolls, approximately 3/16 inch thick, and acceptable to membrane roofing system manufacturer.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Verify deck condition is suitable for the installation of the specified roofing system. Do not proceed until unsatisfactory conditions have been corrected.
  1. Substrate should provide positive slope and subsequent positive drainage of new Roofing System.
  2. Substrate shall be smooth without significant surface depressions or irregularities. Camber differentials greater than 3/16 inch must be leveled using a cementitious grout.
  3. Verify blocking, curbs, and nailers are anchored to deck at penetrations and terminations and that nailers match insulation thickness.
- B. Finished surfaces shall be free of moisture, dust, loose debris and other irregularities that may hinder the performance of Roofing System

### 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 roof-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 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. Align roofing membrane and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.
- D. Bonding Adhesive: Apply bonding adhesive to substrate and membrane as required at rate required by manufacturer and install roofing membrane after flash-off requirements. Do not apply bonding adhesive to splice area of roofing membrane.
- E. Apply roofing membrane with side laps shingled with slope of roof deck where possible.
- F. Seams: Clean seam areas, overlap roofing membrane, and hot-air weld 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 lap sealant to seal cut edges of roofing membrane.
  - 2. Repair tears, voids, and lapped seams in roofing membrane that does not meet requirements.
- G. Spread sealant or mastic bed over deck drain flange at deck drains and securely seal roofing membrane in place with clamping ring.

### 3.4 BASE FLASHING INSTALLATION

- A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.
- B. Apply solvent-based bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply bonding adhesive to seam area of flashing.
- C. Flash penetrations and field-formed inside and outside corners with sheet

flashing.

- D. Clean seam areas and overlap and firmly roll sheet flashings into the adhesive. Weld side and end laps to ensure a watertight seam installation.

### 3.5 WALKWAY INSTALLATION

- A. Flexible Walkways: Install walkway products in locations indicated. Adhere walkway products to substrate with compatible adhesive according to roofing system manufacturer's written instructions.

### 3.6 MANUFACTURER'S INSPECTION

- A. Prior to the date of Substantial Completion, the membrane manufacturer's representative, in the presence of the Owner, Architect, and Construction Manager shall inspect the Roof System. Discrepancies shall be recorded and rectified.

### 3.7 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform roof tests and inspections and to prepare test reports.
- B. Provide Electronic Leak Detection (ELD) in accordance with ASTM D7877 and flood testing of drain locations in accordance with ASTM D5957.
- 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.

### 3.8 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 in or 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.

### 3.9 ATTACHMENTS

- A. Manufacturer's Notice of Intent to Issue Roof Warranty

END OF SECTION 07 5400

MANUFACTURER'S NOTICE OF INTENT TO ISSUE ROOF WARRANTY

Whereas \_\_\_\_\_  
herein called the "Roofing System Manufacturer" hereby gives notice to:

Owner: \_\_\_\_\_

Address: \_\_\_\_\_

of its Notice of Intent to issue its Roof Warranty, in accord with the attached pages to Owner for the Project.

Project: \_\_\_\_\_

Address: \_\_\_\_\_

incorporating the Manufacturer's \_\_\_\_\_

\_\_\_\_\_

roofing system or product is installed in accord with the Contract Documents.

Manufacturer is to perform yearly inspection of the roof from year one thru warranted period, provide written report to owner and perform repairs under warranty as required.

By signing the above, the Authorized Representative of said Manufacturer certifies and represents that he is an Officer of the Roofing System Manufacturer with the authority to contract and make the above representations to Owner.

By: \_\_\_\_\_  
Signature of Authorized Representative / Date

SEAL

Witness: \_\_\_\_\_  
Signature / Date

FIVE (5) YEAR APPLICATOR WARRANTY  
FOR ROOFING, FLASHING AND SHEET METAL, ROOF ACCESSORIES

Whereas \_\_\_\_\_

of (Address) \_\_\_\_\_

herein called the "Roofing Contractor", has performed the roofing, flashing, sheet metal, and roofing accessories on the following project:

Owner: \_\_\_\_\_

Address: \_\_\_\_\_

Name and Type of Building: \_\_\_\_\_

Address: \_\_\_\_\_

Area of Work: \_\_\_\_\_

Date of Acceptance: \_\_\_\_\_

Warranty Period: \_\_\_\_\_

Date of Expiration: \_\_\_\_\_

AND WHEREAS Roofing Contractor has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship, to include membrane blistering, for designated Warranty Period.

NOW THEREFORE Roofing Contractor hereby warrants, subject to the terms and conditions herein set forth, that during Warranty Period it will at its own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work, and as are necessary to maintain said work in watertight condition.

This Warranty is made subject to the following terms and conditions.

1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by: a) lightning; b) windstorm exceeding wind speed noted on Structural Documents; c) fire; d) failure of roofing system substrate including cracking, settlement, excessive deflection, deterioration, and decomposition. When work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Contractor, and until cost expense thereof has been paid by Owner or by another responsible party so designated.
2. Roofing Contractor is responsible for damage to work covered by this Warranty.
3. Owner will promptly notify Roofing Contractor of observed, known or suspected leaks, defects, and deterioration. Roofing Contractor shall guarantee to respond to all notifications within 24 hours and to make all such repairs as deemed necessary to correct said leaks and/or defects to a condition satisfactory to Owner. Repairs shall be made by workman in the employment of Roofing Contractor. Subcontracting of repair work is not permitted.



4. This Warranty is recognized to be the only warranty of Roofing Contractor on said work, and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to it in cases of roofing failures. Specifically, this Warranty shall not operate to relieve Roofing Contractor of responsibility for performance of original work in accord with requirements for the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.
5. Contractor is to perform yearly inspection with manufacturer for first five years, provide written report to owner and perform repairs under warranty as required.

BY: \_\_\_\_\_  
Signature of Authorized Representative

Subscribed and sworn to before me this \_\_\_\_\_  
\_\_\_\_\_ Day of \_\_\_\_\_, 20\_\_\_\_\_

Notary Public: \_

My Commission Expires: \_\_\_\_\_

SECTION 07 6000  
FLASHING AND SHEET METAL

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes:
1. Aluminum flashing and counterflashing
  2. Downspouts
  3. Exposed metal trim units
  4. Miscellaneous sheet metal accessories
  5. Coping caps
  6. Collection boxes
  7. Scuppers

1.2 PERFORMANCE REQUIREMENTS

- A. General: Install sheet metal flashing and trim to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing, rattling, leaking, and fastener disengagement.
- B. Design coping assemblies in accordance with the FBC. Refer to structural drawings for wind and design pressures.
1. Coping design shall meet ANSI/SPRI ES-1 per the FBC
  2. Coping design shall be compliant with Florida Building Code rule 61G20-3 for statewide product approval and require a Florida Product approval number.
- C. Coping, Fascia and Gutters shall be premanufactured. Products fabricated by installer, will not be acceptable unless proof of the following testing is provided:
1. Coping and Fascia products have been tested and passed ANSI/SPRI/FM4435/ES1 RE-1, RE-2 (fascia) and RE-3 (coping) Wind Design Standard and meet specified design pressures for perimeter and corner zones as indicated on roof plan and/or structural drawings.
  2. Gutter shall be GT-1 tested and FM approved.
- D. Thermal Movements: Provide sheet metal flashing and trim that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, hole elongation, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Provide clips that resist rotation and avoid shear stress as a result of sheet metal and trim thermal movements. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.
- E. Water Infiltration: Provide sheet metal flashing and trim that do not allow water infiltration to building interior.

1.3 SUBMITTALS

A. Shop Drawings:

1. Showing layout, profiles, methods of joining, and anchorages details, including major counterflashings, trim/fascia units, and scuppers
2. Plans to be at 1/4-inch scale and details at 3-inch scale, for all sheet metal pieces and accessories
3. Coping cap shop drawings are to be designed to meet the wind loading requirements of ASCE 7-16 and shall be signed and sealed by a licensed engineer registered in the State of Florida

B. Samples:

1. 8-inch-square samples of specified sheet materials to be exposed as finished surfaces
2. 12-inch-long samples of factory-fabricated products exposed as finished work. Provide complete with specified factory finish
3. Manufacturer's standard color chart for specified coating system

C. Sample warranties

1.4 QUALITY ASSURANCE

- A. Except as otherwise shown on Drawings or specified, the workmanship of sheet metal work, method for forming joints, anchoring, cleating and provisions for expansion shall conform to the standard details and recommendations of the Copper and Brass Research Association; and workmanship shall be of the best quality, in accordance with best trade practice and the recommendations and specifications of the Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA).
- B. Where pre-engineered manufactured systems are specified, other field fabricated or shop fabricated substitutions will not be accepted.
- C. Downspouts shall conform to SMACNA "Architectural Sheet Metal Manual" for sizing components for rainfall intensity determined by a storm occurrence of 1 in 10 years.
- D. Fabricator and installer shall be a company specializing in sheet metal work and installation with five (5) years documented experience.
- E. Forming and assembling of sheet metal components shall be performed using methods that will not void the manufacturer's finish warranties.

1.5 PROJECT CONDITIONS

- A. Coordinate work of this section with interfacing and adjoining work for proper sequencing of each installation. Ensure best possible weather resistance and durability of work and protection of materials and finishes.

1.6 WARRANTIES

- A. Flashing warranty shall be part of the roofing system warranty. Refer to Division 07 Section, Modified Bituminous Sheet Roofing
- B. Coping warranty shall be a wind warranty matching the roofing membrane design wind pressures.
1. Warranty period: 20 years starting on the Date of Substantial Completion

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. The type and locations of the various kinds, gages, thickness, and finish of sheet metal to be used is specified hereinafter under the individual items. Where sheet metal is indicated on Drawings and kind or type of metal is not definitely specified, sheet metal shall match the type as used on the rest of the project.
- B. Aluminum Sheet: ASTM B 209, Alloy 3003, 3004, 3105, or 5005, Temper suitable for forming and structural performance required, but not less than H14:
- C. Extruded Aluminum: Manufacturer's standard extrusions of sizes and profiles indicated, 60063-T52, AA-C22A41 clear anodized finish; 0.080-inch minimum thickness for primary legs of extrusions.
- D. Finish (exposed to view)
  - 1. Comply with NAAMM "Metal Finishes Manual" for recommendations relative to application and designations of finishes.
  - 2. Finish designations prefixed by "AA" conform to the system established by the Aluminum Association for designating aluminum finishes.
  - 3. Fluoropolymer Coating (where indicated on Drawings): Manufacturer's standard three-coat, thermo-cured, full-strength 70 percent Kynar 500 FSF resin, 1 mil thick with 0.5 mil clear coat and 30 percent reflective gloss when tested in accordance with ASTM D 523. A 20 year limited warranty against failure of the finish shall begin on the Date of Substantial Completion
- E. Prefabricated reglets and counterflashings by
  - 1. Manufacturers:
    - a. Basis of Design: Fry Reglet Corp.
    - b. Architectural Products Co.
    - c. Metal-Era
    - d. W.P. Hickman Company
  - 2. Type: "SM" made of .025 Epox-E-Koted aluminum with slots for expansion, punched approximately 16 inches o.c. for surface mounting. Provide factory fabricated mitered corners.
    - a. Provide Type MA at masonry
    - b. Provide Type ST/STX for stucco
    - c. Provide Type CO for concrete embedment (poured in place only)
  - 3. Provide Fry "Springlock" counterflashing.
- F. Shop fabricate aluminum flashings to configurations indicated on Drawings.
  - 1. Fabricate flashings and drip edges from nominal, .040 inch (Low slope) or 0.032 inch (Steep slope) thick aluminum sheet with factory applied finish.
  - 2. Color shall be as selected by Architect.
  - 3. Fascia shall be provided with concealed splice plates for joints 10 feet on center.
- G. Termination bar shall be 1/8 inch by one inch aluminum bar.

H. Coping Caps:

1. .063 inches aluminum formed as indicated on the Drawings and as required for the installation. Support shall be coping cleat assembly. Concealed splice plate shall match color and finish of coping caps.
2. Finish: Kynar 500 FSF finish where indicated on the Drawings.
3. Manufacturers:
  - a. Permasnap Coping by W.P. Hickman Company
  - b. Roof Edge Systems by Metal Era
4. Shop or field fabricated coping caps are not acceptable.
5. All corners shall be pre-formed, mitered, and welded tight.
6. Provide continuous cleats at all copings.

I. Downspouts:

1. Downspouts: 0.032 aluminum except for grade to 8 feet provide 0.125 extruded. Coordinate with drawings for cross section size.
2. Finish: Kynar 500 FSF finish where indicated on the Drawings.

J. Collection Boxes: 20 gage galvanized sheet metal. Finish same as gutters.

K. Scuppers:

1. Fabricate using sheet aluminum to profiles and details shown.
2. Lock seam corners, solder watertight and hem outer exposed edges.
3. Provide 4-inch wide minimum flanges formed to fit cants, decks and vertical wall surface.
4. Shop punch flanges for fastenings at 6 inches on center.
5. Finish to match gutters

2.2 MISCELLANEOUS MATERIALS AND ACCESSORIES

- A. Fasteners: Stainless steel
- B. Bituminous Coating: SSPC - Paint 12, solvent-type bituminous mastic, nominally free of sulfur, compounded for 15-mil dry film thickness per coat.
- C. Mastic Sealant: Polyisobutylene; nonhardening, nonskinning, non-drying, nonmigrating sealant.
- D. Elastomeric Sealant: Generic type recommended by manufacturer of metal and fabricator of components being sealed and complying with requirements for joint sealants as specified in Division 07 Section, Joint Protection.
- E. Epoxy Seam Sealer: 2-part noncorrosive metal seam cementing compound, recommended by metal manufacturer for exterior/interior nonmoving joints including riveted joints.
- F. Adhesives: Type recommended by flashing sheet manufacturer for waterproof/weather-resistant seaming and adhesive application of flashing sheet.
- G. Paper Slip Sheet: 5-lb. rosin-sized building paper.
- H. Polyethylene Underlayment: Minimum 6-mil carbonated polyethylene film resistant to decay when tested in accordance with ASTM E 154.
- I. Metal Accessories: Provide sheet metal clips, straps, anchoring devices, and similar items required for installation, matching or compatible with material being

installed, noncorrosive, size and gage required for performance.

- J. Elastic Flashing: Butyl Rubber Flashing: Composite, self-adhesive, flashing product consisting of a pliable, butyl rubber compound, bonded to a high-density polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than 0.030 inch.
- K. Roofing Cement: ASTM D 4586, asbestos-free.

## 2.3 FABRICATION

- A. General Metal Fabrication: Shop-fabricate work to greatest extent possible. Comply with details shown and with applicable requirements of SMACNA "Architectural Sheet Metal Manual" and other recognized industry practices. Fabricate for waterproof and weather-resistant performance, with expansion provisions for running work, sufficient to permanently prevent leakage, damage, or deterioration of the work. Form work to fit substrates. Comply with material manufacturer instructions and recommendations for forming material. Form exposed sheet metal work without excessive oil-canning, buckling, and tool marks, true to line and levels indicated, with exposed edges folded back to form hems.
- B. Seams: Fabricate nonmoving seams in sheet metal with flat-lock seams. For metal other than aluminum, tin edges to be seamed, form seams, and solder. Form aluminum seams with epoxy seam sealer; rivet joints for additional strength where required.
- C. Expansion Provisions: Where lapped or bayonet-type expansion provisions in work cannot be used or would not be sufficiently water/weatherproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).
- D. Sealant Joints: Where movable, non-expansion type joints are indicated or required for proper performance of work, form metal to provide for proper installation of elastomeric sealant, in compliance with SMACNA standards.
- E. Separations: Provide for separation of metal from non-compatible metal or corrosive substrates by coating concealed surfaces at locations of contact, with bituminous coating or other permanent separation as recommended by manufacturer/fabricator.
- F. Aluminum Extruded Units: Fabricate extruded aluminum running units with formed or extruded aluminum joint covers for installation behind main members where possible. Fabricate mitered and welded corner units.

## PART 3 - EXECUTION

### 3.1 INSPECTION

- A. Examine substrates and conditions under which items will be installed. Do not proceed with installation until unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Separate dissimilar metals from each other by painting each metal surface in area of contact with a heavy application of bituminous coating.

### 3.3 INSTALLATION REQUIREMENTS

- A. General: Comply with recommendations with SMACNA "Architectural Sheet Metal Manual." Anchor units of work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weatherproof. Lap seam at movement joints and flat lock at non-movement joints.
- B. Install work with provisions for thermal expansion of flashings, gravel stops, and other items exposed for more than 15 feet continuous length. Maintain a watertight installation at expansion seams. Locate expansion seams where shown, or if not shown, in conformance with applicable recommendations of "Architectural Sheet Metal Manual" by SMACNA.
- C. Sheet metal work shall be watertight and weathertight; lines, arises, and angles sharp and true; plain surfaces free from waves and buckles. Workmen shall be experienced in the trade and thoroughly capable of performing the Work in accordance with these requirements.
- D. Underlayment: Where aluminum is to be installed directly on cementitious or wood substrates, install a slip sheet of red rosin paper and a course of polyethylene underlayment.
- E. Bed flanges of work in a thick coat of bituminous roofing cement where required for waterproof performance.
- F. Install elastic flashing in accordance with manufacturer's recommendations. Where required, provide for movement at joints by forming loops or bellows in width of flashing. Locate cover or filler strips at joints to facilitate complete drainage of water from flashing. Seam adjacent flashing sheets with adhesive, seal and anchor edges in accordance with manufacturer's recommendations.
- G. Install reglets to receive counterflashing in manner and by methods indicated. Where shown in concrete, furnish reglets to trades of concrete work for installation as work of Division 3 sections. Where shown in masonry, furnish reglets to trades of masonry work, for installation as work of Division 4 sections.
  - 1. Apply continuous bead of sealant or plastic cement to back of type "SM" reglet.
  - 2. Install Type "SM" reglet on surface of flexible flashing on wall parallel to roof slope with fasteners furnished by manufacturer. Fill top groove with sealant and tool tight against wall with surface of sealant sloping to outside.
- H. Install counterflashing in reglets, either by snap-in seal arrangement or by welding in place for anchorage and filling reglet with mastic or elastomeric sealant, as indicated and depending on degree of sealant exposure.
- I. Flashing installations at roof penetrations not detailed on the Drawing shall be performed according to the recommendations and specifications of the Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA), subject to approval by the Architect.
- J. Install coping caps in accordance with the manufacturer's written installation instructions to furnish the wind warranty.

### 3.4 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces, removing substances that might cause corrosion of metal or deterioration of finishes.
- B. Protection: Provide protection of flashings and sheet metal work during construction to ensure that work will be without damage or deterioration other than natural weathering at time of Substantial Completion.

END OF SECTION 07 6000



## SECTION 07 7233 ROOF HATCHES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes roof hatches with safety railing

#### 1.2 PERFORMANCE REQUIREMENTS

- A. Design roof hatches to meet wind-loading requirements for the FBC. Refer to Structural Drawings for wind and design pressures.
- B. Railing Structural requirements: Horizontal rails and uprights shall withstand a minimum concentrated load of 200 lbs. applied in a downward or outward direction.

#### 1.3 SUBMITTALS

- A. Product Data
- B. Shop Drawings: Show sizes, materials, and details of construction including location of railings and attachment details. Show compliance with OSHA 29 CFR roof fall protection.
- C. Sample warranty
- D. Documentation showing compliance with wind loading requirements.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in manufacturer's original packaging.
- B. Store materials in a dry, protected, vented area. Inspect product upon receipt and report damaged material to delivering carrier and note such damage on the carrier's freight bill of lading.
- C. Remove protective wrapping immediately after installation.

#### 1.5 JOB CONDITIONS

- A. Coordinate installation with roofing system installation.

#### 1.6 WARRANTY

- A. Manufacturer's standard warranty: System to be free of defects in material and workmanship for a period of five years from the Date of Substantial Completion. Should a part fail to function in normal use within this period, manufacturer shall furnish a new part at no charge.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS AND CONSTRUCTION

- A. Insulation: 2 inch rigid foam-type
- B. Lid Liner: 22 gage zinc-coated, prime painted steel.
- C. Curb Liner: 14 gage zinc-coated, prime-painted steel, double wall

- D. Curb: 12 inches in height, 14 gage zinc-coated steel, 14 gage zinc-coated steel integral counterflashing, 3-1/2 inch wide mounting flange with pre-drilled holes, and one inch fiberboard insulation on the exterior.
- E. Assemble hatch with heavy steel pintle hinges, automatic locking hold-open arms, snap latch, turn handles, padlock hasp inside, and closed-cell rubber weather seal.
- F. Torsion Spring: Cover operation shall be assisted by a torsion spring mounted within the confines of the cover. Springs mounted in frame are unacceptable.
- G. Hardware: All hardware shall be zinc or cadmium plated.
- H. Prime Paint: All exposed steel shall be prime painted. Primer shall be compatible with finish coats as specified in Division 09 Section, Painting. Verify primer compatibility in writing to Architect.
- I. Safety Post on Ladders to Roof Hatches: Safety post shall be manufactured by high strength steel with telescoping tubular section that locks automatically when fully extended. Upward and downward movement shall be controlled by a stainless steel spring balancing mechanism. Provide standard black enamel.
- J. Safety Guard Rail:
  - 1. Galvanized steel pipe, 1 1/2 inch minimum, ASTM A53, Grade B, painted safety yellow
  - 2. Manufacturer's standard chains, clamps, fasteners, and gaskets meeting Performance Requirements

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Install hatch in accordance with the manufacturer's printed instructions and final Shop Drawings.
- B. Install safety railing per final Shop Drawings and meeting Performance requirements

### 3.2 ADJUSTMENT AND DEMONSTRATION

- A. After installation moving parts shall be properly adjusted to give free, effortless operation. Demonstrate to the Architect that components are fully operable and will perform as intended.

END OF SECTION 07 7233

## SECTION 07 9000 JOINT PROTECTION

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes interior and exterior sealants.
  - 1. All exterior joints and interior joints where thermal or dynamic movement is anticipated shall be subcontracted to a single firm specializing in sealant installation.
- B. VOC limits for sealants and adhesives

#### 1.2 SYSTEM PERFORMANCE REQUIREMENTS

- A. Provide joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.

#### 1.3 SUBMITTALS

- A. Certifications:
  - 1. Certification by joint sealant manufacturer that sealants, primers, and cleaners required for sealant installation comply with local regulations controlling use of volatile organic compounds (VOC) if more stringent than limits specified.
    - a. Refer to Division 09 Section, Carpet Tile for VOC limits with regards to adhesives for use with carpet products
    - b. Refer to Division 09 section, Painting for VOC limits with regards to paints and coatings
  - 2. Certification by sealant manufacturer that sealants, primers, and cleaners comply with Regulation 8, Rule 51 of the Bay Area Air Quality Management District.
  - 3. Certification by adhesive manufacturer that adhesives comply with the South Coast Air Quality Management District Rule 1168.
  - 4. Highlight VOC's for each product
- B. Sealant, Waterproofing, and Restoration Institute (SWRI) Validation Certificate: For each sealant specified to be validated by SWRI's Sealant Validation Program.
- C. Sample warranties

#### 1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain joint sealant materials from a single manufacturer for each different product required and who will, if required, send a qualified technical representative to project site for the purpose of advising the Installer of procedures and precautions for the use of the materials.
- B. Installer Qualifications: Engage an experienced installer who has completed joint sealant applications similar in material, design, and extent to that indicated for Project that have resulted in construction with a record of successful in-service performance.

1. Installer shall be a sealant and caulking subcontractor, authorized or licensed by the sealant manufacturer, with a minimum of 5 years of successful experience in the application of the types of materials required.
- C. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C1021 to conduct the testing indicated, as documented according to ASTM E548.
  1. Test according to SWRI's Sealant Validation Program for compliance with requirements specified by reference to ASTM C920 for adhesion and cohesion under cyclic movement, adhesion-in-peel, and indentation hardness.
- D. Preconstruction Compatibility and Adhesion Testing: Submit samples of materials that will contact or affect joint sealants to joint sealant manufacturers for compatibility and adhesion testing as indicated below:
  1. Use test methods standard with manufacturer to determine if priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
    - a. Perform tests under normal environmental conditions that will exist during actual installation.
  2. Submit minimum of 9 pieces of each type of material, including joint substrates, shims, joint sealant backings, secondary seals, and miscellaneous materials.
  3. Schedule sufficient time for testing and analyzing results to prevent delaying Work.
  4. Investigate materials failing compatibility or adhesion tests and obtain joint sealant manufacturer's written recommendations for corrective measures, including use of specially formulated primers.
  5. Testing will not be required when joint sealant manufacturer is able to submit joint preparation data required above that are acceptable to Architect and are based on previous testing of current sealant products for adhesion to, and compatibility with, joint substrates and other materials matching those submitted.
- E. Product Testing:
  1. Provide joint sealant based on tests conducted by a qualified independent testing laboratory on current product formulations within a 24 month period preceding date of Contractor's submittal of test results to Architect.
    - a. Test elastomeric sealants for compliance with requirements specified by reference to ASTM C920. Include test results for hardness, stain resistance, adhesion and cohesion under cyclic movement (per ASTM C 719), modulus of elasticity at 100 percent strain, effects of heat aging, and effects of accelerated weathering.
    - b. Sealants with warranty of 10 or more years to be tested using Procedure C of ASTM C1589 Standard Practice for Outdoor Weathering of Construction Seals and Sealants. If sealant has not been tested to this standard, explain weathering testing that

- has been performed.
- c. Include test results performed on joint sealants after they have cured for 1 year.
2. VOC Limits (South Coast Air Quality Management District Rule 1168) for adhesives, sealers, and primers:
- a. Architectural Applications:
- |     |  |         |
|-----|--|---------|
| 1)  | Indoor Carpet Adhesives                | 50 g/L  |
| 2)  | Carpet Pad Adhesives                   | 50 g/L  |
| 3)  | Wood Flooring Adhesives                | 100 g/L |
| 4)  | Ceramic Tile Adhesives                 | 65 g/L  |
| 5)  | Dry Wall and Panel Adhesives           | 50 g/L  |
| 6)  | Subfloor Adhesives                     | 50 g/L  |
| 7)  | Rubber Floor Adhesives                 | 60 g/L  |
| 8)  | VCT and Asphalt Adhesives              | 50 g/L  |
| 9)  | Multipurpose Construction Adhesives    | 70 g/L  |
| 10) | Structural Glazing Adhesives           | 100 g/L |
| 11) | PVC Welding                            | 510 g/L |
| 12) | CPVC Welding                           | 490 g/L |
| 13) | ABS Welding                            | 325 g/L |
| 14) | Plastic Cement Welding                 | 250 g/L |
| 15) | Cove Base Adhesives                    | 50 g/L  |
| 16) | Adhesive Primer for Plastic            | 550 g/L |
| 17) | Contact Adhesive                       | 80 g/L  |
| 18) | Special Purpose Contact Adhesive       | 250 g/L |
| 19) | Structural Wood Member Adhesives       | 140 g/L |
| 20) | Sheet Applied Rubber Lining Operations | 850 g/L |
| 21) | Top and Trim Adhesive                  | 250 g/L |
- b. Substrate Specific Applications:
- |    |                               |         |
|----|-------------------------------|---------|
| 1) | Metal to Metal                | 30 g/L  |
| 2) | Plastic Foams                 | 50 g/L  |
| 3) | Porous Material (Except Wood) | 50 g/L  |
| 4) | Wood                          | 30 g/L  |
| 5) | Fiberglass                    | 80 g/L  |
| 6) | Architectural                 | 250 g/L |
| 7) | Roadway                       | 250 g/L |
| 8) | Other                         | 420 g/L |
- c. Sealant Primers: Provide sealants and sealant primers for use inside the weatherproofing system that comply with the following limits for VOC content when calculated according to 40 CFR 59, Part 59, Subpart D (EPA Method 24)
- |    |                                      |         |
|----|--------------------------------------|---------|
| 1) | Architectural,                       | 250 g/L |
| 2) | Non-porous Substrates                | 250 g/L |
| 3) | Porous Substrates                    | 775 g/L |
| 4) | Plastic Foam Adhesives:              | 50 g/L. |
| 5) | Gypsum Board and Panel Adhesives:    | 50 g/L. |
| 6) | Multipurpose Construction Adhesives: | 70 g/L. |

- |     |                                    |          |
|-----|------------------------------------|----------|
| 7)  | Fiberglass Adhesives:              | 80 g/L.  |
| 8)  | Contact Adhesive:                  | 80 g/L.  |
| 9)  | Other Adhesives:                   | 250 g/L. |
| 10) | Single-Ply Roof Membrane Sealants: | 450 g/L. |
| 11) | Nonmembrane Roof Sealants:         | 300 g/L. |
3. VOC Limits (Green Seal Standard for Commercial Adhesives GS-36) for aerosol adhesives:
- a. Aerosol Adhesives:
- |    |                            |                     |
|----|----------------------------|---------------------|
| 1) | General Purpose Mist Spray | 65% VOC's by weight |
| 2) | General Purpose Web Spray  | 55% VOC's by weight |
| 3) | Special Purpose Adhesives  | 70% VOC's by weight |
- F. Preconstruction Field Testing: Prior to installation of joint sealants, field-test their adhesion to joint substrates as follows:
1. Locate test joints where indicated or, if not indicated, as directed by Architect.
  2. Conduct field tests for each application indicated below:
    - a. Each type of elastomeric sealant and joint substrate indicated.
    - b. Each type of non-elastomeric sealant and joint substrate indicated.
  3. Notify Architect one week in advance of the dates and times when test joints will be erected.
  4. Arrange for tests to take place with joint sealant manufacturer's technical representative present.
  5. Test Method: Test joint sealants by hand pull method described below:
    - a. Install joint sealants in 60 inch joint lengths using same materials and methods for joint preparation and joint sealant installation required for completed Work. Allow sealants to cure fully before testing.
    - b. Make knife cuts horizontally from one side of joint to the other followed by 2 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 10 seconds.
    - d. For joints with dissimilar substrates, check adhesion to each substrate separately. Do this by extending cut along one side, checking adhesion to opposite side, and then repeating this procedure for opposite side.
  6. 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.

7. Evaluation of Field Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.
  - G. Field-Constructed Mock-Ups: Prior to installation of joint sealants, apply elastomeric sealants as follows to verify selections made under sample submittals and to demonstrate aesthetic effects as well as qualities of materials and execution:
    1. Joints in field-constructed mock-ups of assemblies specified in other Sections that are indicated to receive elastomeric joint sealants specified in this Section.
  - H. A pre-caulking conference shall be held with the Architect and other involved parties to review conditions, materials, colors, and other requirements.
- 1.5 DELIVERY, STORAGE, AND HANDLING
- A. Deliver materials in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration, pot life, curing time, and mixing instructions for multi-component materials.
  - B. Store and handle materials in compliance with manufacturer's recommendations.
- 1.6 PROJECT CONDITIONS
- A. Do not proceed with installation of joint sealants under the following conditions:
    1. When ambient and substrate temperature (or below 40 deg F) conditions are outside the limits permitted by joint sealant manufacturer.
    2. When joint substrates are wet.
    3. Where joint widths are less than allowed by joint sealant manufacturer for application indicated.
    4. Until contaminants capable of interfering with adhesion are removed from joint substrates.
  - B. Preparation of joint surfaces, backing, and the conditions under which the sealant and caulking is to be installed shall conform to manufacturer's recommendations.
    1. Use of bond break tape is prohibited without the expressed permission of the Architect. Each situation will be evaluated with regard to inability to properly use backer rod to prevent adhesion.
- 1.7 WARRANTY
- A. All exterior and building envelope weathertight and watertight sealants shall be warranted by the sealant manufacturer for a period of twenty years from the Date of Substantial Completion. Include coverage for installed sealants and accessories which fail to achieve a watertight seal, exhibit loss of adhesion or cohesion, or do not cure.
  - B. All exterior and building envelope weathertight and watertight sealants shall be guaranteed by the installing contractor for a period of five (5) years from the Date of Substantial Completion, to be weathertight, watertight and moisture tight. Correct defective or failed joints within the warranty period.
  - C. Special warranties specified in this Article exclude deterioration or failure of

elastomeric joint sealants from the following:

1. Movement of the structure resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression caused by structural settlement or errors attributable to design or construction.
2. Disintegration of joint substrates from natural causes exceeding design specifications.
3. Mechanical damage caused by individuals, tools, or other outside agents.

## PART 2 - PRODUCTS

### 2.1 GENERAL

- A. Compatibility: Provide joint sealants, joint fillers, and other related materials that are compatible under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
- B. Surface Hardness: Provide types of sealant to withstand anticipated abrasive or possible indentation as recommended by manufacturer.
- C. Colors: By Architect from manufacturer's full range of standard colors.

### 2.2 MATERIALS

- A. General
  1. Where the term "Acceptable Standard" is used within this Section, it refers to the manufacturer and product listed, which is specified as the type and quality required for this Project.
  2. Products of other manufacturers will be considered, providing their products equal or exceed the quality specified, and they can provide products of the type and quality required.
- B. Caulking Compounds (Acrylic Latex Sealant)
  1. Latex rubber modified, acrylic emulsion polymer sealant compound; manufacturer's standard, one part, non-sag, mildew resistant, acrylic emulsion sealant complying with ASTM C834, recommended for exposed applications on interior locations involving joint movement of not more than plus or minus 5 percent.
  2. Acceptable Standard
    - a. Sonolac; BASF
    - b. Acrylic Latex Caulk; Tremco, Inc.
    - c. Acrylic Latex Caulk with Silicone; DAP
    - d. Powerhouse Siliconized Acrylic 178-1699 (white), Sherwin Williams
- C. One-Part Elastomeric Sealant (Silicone or Silyl Terminated Polyether)
  1. Comply with ASTM C920, Class 50, Type NS (non-sag), unless Type S (self-leveling) recommended by manufacturer for the application shown. Provide manufacturer's non-staining formula where installation is adjacent to absorbent materials that may be stained by the applied sealant.
  2. Acceptable Standard



- a. Dow Corning 790; Dow Corning Corp. (Dow Corning 791 with Kynar coatings), 975 where required by manufacturer
    - b. Pecora 864 Architectural Silicone Sealant; Pecora Corp.
    - c. Silpruf; General Electric
    - d. Sonolastic 150; BASF
    - e. Spectrem 1; Tremco Mfg. Co.
  3. Acceptable Standard at Food and Beverage Areas:
    - a. Dow Corning 780, Dow Corning Corporation
    - b. Dow Corning High Temperature Silicone, Dow Corning Corporation at hot areas.
    - c. White Lightning Silicone, 425-7119 (white), Sherwin Williams
- D. One-part mildew resistant silicone sealant: (Around countertops and backsplashes and other wet interior locations.)
  1. Acceptable Standard
    - a. Dowsil 786; Dow Corning Corp.
    - b. Omniplus; BASF
    - c. SCS 1700 Sanitary; General Electric
    - d. Tremsil 200 Sanitary; Tremco Inc.
    - e. White Lightning, K&B Silicone 918-3484 (white), Sherwin Williams
- E. One-part self-leveling polyurethane sealant, (for traffic areas and slabs-on-grade)
  1. Comply ASTM C920, Type S, Grade P, Class 25.
  2. Acceptable Standard
    - a. Sonolastic 150; BASF
    - b. NR-201 Urexpand; Pecora Corp.
    - c. Vulkem 45 SSL; Tremco Mfg. Co.
    - d. Loxon SL1, Sherwin Williams
  3. Install in horizontal control joints in concrete slabs-on-grade where scheduled.
- F. Miscellaneous Materials
  1. Primer: Type recommended by joint sealer manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint sealer substrate tests, field tests, and Manufacturer's field experience.
  2. Cleaners for Nonporous Surfaces: Non-staining, chemical cleaners of type which are acceptable to manufacturers of sealants and sealant backing materials, which are not harmful to substrates and adjacent nonporous materials, and which do not leave oily residues or otherwise have a detrimental effect on sealant adhesion or in service performance.
  3. Masking Tape: Non-staining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

## 2.3 ACOUSTICAL JOINT SEALANTS

- A. Acoustical Sealant: Manufacturer's standard non-sag, sealant complying with ASTM C834 and the following requirements:
  1. Product is effective in reducing airborne sound transmission through

- perimeter joints and openings in building construction as demonstrated by testing representative assemblies per ASTM E90.
2. Product has flame spread of 25 and smoke developed ratings of less than 50 per ASTM E84.
  3. AC-20 FTR Acoustical and Insulation Sealant, Pecora Corp.
  4. Smoke and Sound Sealant by Tremco, Inc.
  5. Sheetrock Brand Acoustical Sealant by USG Corporation
  6. Powerhouse Siliconized Acrylic 178-1699, Sherwin Williams
- B. Acoustical Sealant for Concealed Joints: Manufacturer's standard, nondrying, non-hardening, non-skinning, non-staining, gunnable, synthetic rubber sealant recommended for sealing interior concealed joints to reduce transmission of airborne sound.
1. Acoustical Sealant for Concealed Joints:
    - a. Any of the products listed above
    - b. ASI-919 or BA-98 by Pecora Corp. as recommended by Manufacturer for specific application
    - c. Tremco Acoustical Sealant, Tremco, Inc.
    - d. Specific products recommended by a manufacturer to meet a specific tested assembly.

## 2.4 JOINT SEALANT BACKING

- A. Provide sealant backings of material and type that are non-staining, compatible with substrates, sealants, primers and other joint fillers, and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Plastic Foam Joint Fillers: ASTM C1330, of type indicated below and of size and density to control sealant depth and otherwise contribute to produce optimum sealant performance:
1. Type C: Closed-cell material with a surface skin
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer. Provide self adhesive tape where applicable.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine joints to receive joint sealants for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint sealant performance. Do not proceed with installation of joint sealants until unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants complying with recommendations of sealant manufacturer and the following requirements:
1. Remove all foreign material from joint substrates that could interfere with adhesion, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by

- sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, and surface dirt.
2. Clean concrete, masonry, unglazed surfaces of ceramic tile, and similar porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining from cleaning operations by vacuum or blowing out joints with oil-free compressed air.
  3. Remove laitance and form release agents from concrete.
  4. Clean metal, glass, porcelain enamel, glazed surfaces of ceramic tile, and other nonporous surfaces with cleaners that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.
    - a. When using alcohol, use isopropyl alcohol, not denatured alcohol.
- B. Joint Priming: Prime joint substrates where recommended by joint sealant manufacturer. Apply primer to comply with joint sealant manufacturer's recommendations. Confine primers to areas of joint sealant bond; do not allow spillage or migration onto adjoining surfaces.
1. Priming is required if primers were used in testing and as prescribed by warranty requirements.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

### 3.3 SELECTION OF MATERIAL

- A. Caulking compounds shall be used for interior nonmoving joints and at locations specifically indicated on Drawings.
- B. One component elastomeric silicone sealants shall be used at all exterior joints and interior joints where thermal dynamic movement is anticipated.
  1. Use Silyl Terminated Polyether over exterior porous surfaces subject to painting.
- C. One component elastomeric polyurethane sealants shall be used at interior joints where weatherproofing is required.
- D. One part self-leveling polyurethane sealants shall be used for exterior and interior horizontal joints subject primarily to pedestrian traffic and light and moderated vehicular traffic, and in all control joints in slab-on-grade; interior.
- E. Acoustical joint sealants shall be used at all walls that are STC rated or where sound attenuation blankets are used.

### 3.4 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint sealant manufacturer's printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply.
  1. Interior joints which require caulking are to be caulked with the specified

- caulking compound, unless noted otherwise.
- 2. Exterior joints which require sealant are to be filled with one of the specified sealants even though the note may read "Caulked".
- 3. Joints to be filled shall be dry and free from dust, dirt, oil, and grease at the time of application or caulks or sealants.
- 4. Expansion and control joints in exterior walls shall have the joint filler material built into the wall, or between wall and slab, at the time of construction.
- 5. Masking: Metal shall be masked with masking tape, as well as other surfaces where it's required to prevent the sealant smearing the adjacent surface. Upon completion of the caulking, remove the tape.
- B. Sealant Installation Standard: Comply with recommendations of ASTM C1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Acoustical Sealant Application Standard: Comply with recommendations of ASTM C 919 for use of joint sealants in acoustical applications as applicable to materials, applications, and conditions indicated.
- D. Installation of Sealant Backings: Install sealant backings to comply with the following requirements:
  - 1. Install joint fillers of type indicated to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
    - a. Do not leave gaps between ends of joint fillers.
    - b. Do not stretch, twist, puncture, or tear joint fillers.
    - c. Remove absorbent joint fillers that have become wet prior to sealant application and replace with dry material.
    - d. Provide backer rods and tapes per manufacturer's joint details, not allowing three sided adhesion.
    - e. Use open cell only when necessary by the Manufacturer's instructions for substrate materials drying.
- E. Installation of Sealants: Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability. Install sealants at the same time sealant backings are installed.
- F. Tooling of Non-sag Sealants: Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated, to eliminate air pockets, and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint.
  - 1. Provide concave joint configuration per Figure 5A in ASTM C1193, unless otherwise indicated.
  - 2. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.

3. Do not use fingers as the spatula.

### 3.5 FIELD QUALITY CONTROL

- A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:
  1. Extent of Testing: Test completed and cured sealant joints as follows:
    - a. Perform 10 tests for the first 1000 feet of joint length for each kind of sealant and joint substrate.
    - b. Perform one test for each 1000 feet of joint length thereafter or one test per each floor per elevation.
  2. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.
    - a. For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
  3. Inspect tested joints and report on the following:
    - a. Whether sealants filled joint cavities and are free of voids.
    - b. Whether sealant dimensions and configurations comply with specified requirements.
    - c. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. Compare these results to determine if adhesion complies with sealant manufacturer's field-adhesion hand-pull test criteria.
  4. Record test results in a field-adhesion-test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant material, sealant configuration, and sealant dimensions.
  5. Repair sealants pulled from test area by applying new sealants following same procedures used originally to seal joints. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.
- B. Evaluation of Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

### 3.6 CLEANING AND PROTECTION

- A. Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealants and of products in which joints occur.
- B. 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 without deterioration or damage at time of

Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so that and installations with repaired areas are indistinguishable from original work.

END OF SECTION 07 9000

## SECTION 08 1100 METAL DOORS AND FRAMES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes hollow metal doors and frames.
- B. Refer to Division 08 Section, Glazing for glass requirements.

#### 1.2 DEFINITIONS

- A. Standard Hollow Metal Work: Hollow metal work fabricated according to ANSI/SDI A250.8.

#### 1.3 SUBMITTALS

- A. Product Data: Details of construction, materials, dimensions, hardware preparation, core, label compliance, sound ratings, profiles, and finishes.
- B. Shop Drawings:
  - 1. Show elevations, details and methods of assembling sections, hardware locations and installation methods, dimensions, shapes of materials, anchorage and fastening methods, wall opening construction details, and weatherstripping.
  - 2. Provide schedule of doors and frames using same reference numbers for details and openings as those on Contract Documents.
  - 3. Wind loading Calculations shall be stamped, sealed and signed by a Professional Engineer in the State of Florida verifying compliance with ASCE 7-16.
  - 4. Submit current Miami-Dade NOA for all exterior door and window units
- C. Sample warranty

#### 1.4 QUALITY ASSURANCE

- A. Provide hollow metal work from a single manufacturer complying with Steel Door Institute "Recommended Specifications for Standard Steel Doors and Frames" ANSI/SDI A250.8 and as specified.
- B. Hollow metal supplier shall be a qualified direct distributor of products to be furnished. In addition, the distributor shall have in their regular employment an A.H.C./C.D.C. who will be available at reasonable times to consult with the Architect regarding matters affecting the doors and frames.
- C. Design exterior steel door assemblies to meet wind-loading requirements for the FBC. Refer to Structural Drawings for wind and design pressures.
  - 1. All exterior door assemblies shall be compliant with Florida Building Code rule 61G20-3 for statewide product approval and require a Florida Product approval number for the Miami-Dade area.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver doors and frames cardboard-wrapped or crated to provide protection during transit and job storage. Provide additional protection to prevent damage to finish.
- B. Inspect units upon delivery for damage. Minor damages may be repaired provided refinished items are equal in all respects to new work and acceptable to Architect; otherwise, remove and replace damaged units as directed.
- C. Store doors and frames at building site under cover. Place units on minimum 4 inches high wood blocking. Avoid use of non-vented plastic or canvas shelters that could create humidity chamber. If cardboard wrapper becomes wet, remove carton immediately. Provide 1/4 inch spaces between stacked units to promote air circulation.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Provide products from one of the following manufacturers:
  - 1. Amweld Building Products
  - 2. Ceco Door Products
  - 3. Steelcraft, an Ingersoll-Rand business
  - 4. Curries Company
  - 5. Mesker Door, Inc.
  - 6. Firedoor Corp.
  - 7. Architectural Openings, Inc.

### 2.2 MATERIALS

- A. Cold-Rolled Steel Sheets: ASTM A 1008, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Galvanized Steel Sheets: ASTM A 653, Commercial Steel (CS), Type B; with minimum A90 metallic coating.
- C. Supports and Anchors: Fabricate of not less than 18-gage Commercial Steel (CS) 40Z coating designation; mill phosphatized.
  - 1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008 or ASTM A 1011, hot-dip galvanized according to ASTM A 153, Class B.
- D. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153.
- E. Asphaltic Emulsion Coating: Water-based, brush applied, emulsion dampproofing.
  - 1. Provide products within VOC limits specified for non-porous sealant primer in Division 07 Section, Joint Protection.

### 2.3 FABRICATION, GENERAL

- A. Fabricate units rigid, free from defects, warp, or buckle. Form metal to required sizes and profiles. Wherever practicable, fit and assemble units in the manufacturer's plant. Identify work that cannot be permanently factory assembled before shipment, to assure proper assembly at the Site.



- B. Tolerances: Fabricate hollow metal work to tolerances indicated in SDI 117.
  - 1. Lock edge of doors: Bevel 1/8 inch in 2 inches.
- C. Fabricate panels and edge channels from galvanized sheet steel for exterior doors. For interior doors, fabricated from cold rolled sheet steel.
- D. Fabricate concealed stiffeners, reinforcement, edge channels, and moldings from either cold rolled or hot rolled steel (at fabricator's option).
- E. Unless otherwise indicated, provide countersunk flat Phillips heads for exposed screws.
- F. Hardware Preparation:
  - 1. Prepare hollow metal units to receive mortised and concealed hardware, including cutouts, reinforcing, drilling, and tapping in accordance with final hardware schedule and templates provided by hardware supplier. Comply with applicable requirements of ANSI/SDI A250.6 and ANSI/DHI A115 Series "Specifications for Door and Frame Preparation."
  - 2. Reinforce hollow metal units to receive surface applied hardware. Drilling and tapping for surface applied hardware may be done on Site.
  - 3. Locate finish hardware as shown on final shop drawings, or if not shown, in accordance with recommended hardware locations specified in ANSI/SDI A250.8.
  - 4. Reinforce all steel doors and frames to receive surface mounted closers, whether or not scheduled to receive them.
  - 5. Coordinate locations of conduit and wiring boxes for electrical connections with Electrical Sections.
- G. Shop Painting
  - 1. Clean, treat, and shop paint all surfaces of fabricated hollow metal doors and frames, including galvanized surfaces plus back priming at the following conditions:
    - a. All exterior doors in concrete or masonry
    - b. Interior doors in concrete or masonry
  - 2. Clean steel surfaces of mill scale, rust, oil, grease, dirt, and other foreign materials before the application of the shop coat of paint.
  - 3. Apply shop coat of prime paint of even consistency to provide a uniformly finished surface ready to receive field applied paint.
    - a. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with ANSI/SDI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.
- H. Asphaltic Emulsion Coating: Shop apply to frames; field application is not acceptable.

## 2.4 DOOR TYPES

- A. Conform to the Steel Door Institute Standards, ANSI/SDI A250.8, and as follows:

- B. Exterior Doors: Grade III, 1-3/4 inches extra heavy duty, 16 gage galvanized, Model 2, seamless design. (Coordinate gage with tested assemblies required for wind loading at exterior locations.)
  - 1. Form door face sheets from one sheet of metal, with no visible seams on the door face or edges.
  - 2. Provide weep-hole openings in bottom of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.
  - 3. Design: Flush panel
  - 4. Core: Rigid polystyrene slabs bonded to door face sheets.
- C. Interior Doors: Grade II, 1-3/4 inch heavy duty, 18 gage cold rolled, Model 1, full flush, hollow steel construction.
  - 1. Form door face sheets from one sheet of metal with no face seams. Seams on vertical door edges shall be tight, smooth, and devoid of irregularities. A kraft resin impregnated honeycomb core or rigid polystyrene slab shall be permanently bonded to both door skins with adhesive recommended by the manufacturer.
- D. Seamless construction by welding and filling at factory only.

## 2.5 DOOR ACCESSORIES

- A. Glass Stops and Moldings: Provided for vision light openings.
  - 1. Glaze doors from the secure side.
- B. Verify undercut requirements with Division 08 Section, Finish Hardware, for exterior doors with thresholds. Standard undercut will not be acceptable for low profile handicap thresholds.
- C. Provide plastic water stop insert at the top of all exterior doors where steel closure is not provided at top.

## 2.6 FRAME TYPES

- A. Frames for Exterior Door Openings: 14 gage
  - 1. Frames for exterior use shall be hot-dipped galvanized steel after fabrication.
- B. Frames for Interior Door and Window Openings: 16 gage, fabricated from cold rolled sheet steel.
- C. Welded Frames: Weld flush face joints continuously, grind, fill, dress, and make smooth, flush and invisible. Knock-down frame types are not permitted.

## 2.7 FRAME ASSEMBLIES

- A. Frame Anchors
  - 1. Wall anchors for frame attachment to masonry construction: Adjustable, flat, corrugated or perforated 'T' shaped anchors with leg not less than 2 inches wide by 10 inches long or masonry "wire" type not less than 3/16 inch diameter.

2. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch thick.
    - a. Size anchors to accommodate frame jamb depth and face dimension on all welded frames
  3. Masonry Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 30 inches o.c.
  4. Floor anchors:
    - a. Angle clip type
    - b. 16 gage minimum
    - c. Two fasteners per jamb
    - d. Weld to the bottom of each jamb
  5. Head Struts: For frames not anchored to masonry or concrete construction provide ceiling struts spot welded to jambs each side extending to building structure where called for on schedule.
- B. Stops and Beads: 20 gage, installed on the interior side of exterior frames.
- C. Mortar Boxes: 26 gage steel, welded to the frame, at back of hardware cutouts where mortar or other materials might obstruct hardware operation.
- D. Sidelites, Transom Bars, and Interior Window Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
- E. Silencers: Drill stops and install 3 silencers on strike jambs of single swing frames and 2 silencers on heads of double swing frames.

## 2.8 LOUVERS

- A. Provide louvers for interior doors, where indicated, that comply with SDI 111C, with blades or baffles formed of 0.020 inch thick, cold-rolled steel sheet set into 0.032 inch thick steel frame.
1. Sightproof Louver: Stationary louvers constructed with inverted V-shaped or Y-shaped blades.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Install standard steel doors, frames, and accessories in accordance with final Shop Drawings and the Contract Documents.
- B. Placing Frames: Comply with ANSI A250.11.
1. Except for frames located at existing concrete, masonry or drywall installations, place frames prior to construction of walls.
  2. Set frames, plumbed, aligned, and braced until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders.

- a. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.
  3. In masonry construction, locate 3 wall anchors per jamb adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Coordinate installation to allow for grouting frames solid. Do not allow frames to deform by grout forces.
  4. In metal stud partitions, install at least 3 wall anchors per jamb at hinge and strike levels.
  5. Anchor bottom of frames to floors with expansion bolts or with power fasteners. Where frames require ceiling struts or other structural overhead bracing, anchor to ceilings or structural framing above, as indicated or specified.
  6. Ceiling Struts: Extend struts vertically from top of frame at each jamb to overhead structural supports or substrates above frame unless frame is anchored to masonry or to other structural support at each jamb.
  7. Finished work shall be rigid, neat in appearance, and free from defects. Form molded members straight and true with joints coped or mitered, well formed, and in true alignment. Welded joints on exposed surfaces shall be dressed smooth so they are invisible after finishing.
  8. Refer to Division 04 Section, Concrete Masonry Units for metal frame grout. Do not spot grout metal frames in gypsum wallboard partitions.
  9. Metal frame grout. ASTM C 476, fine grout, 2000 psi.
  10. Recess bolt heads, bondo and sand smooth where anchor bolts are used in concrete or masonry openings
  11. Provide filler plate at all hardware preps, such as hinge and strike preps, that are unused.
  - C. Door Installation: Fit hollow metal doors accurately in frames, within clearances specified in ANSI/SDI A250.8.
    1. Jambs and Head: 1/8 inch plus or minus 1/16 inch.
    2. Between Edges of Pairs of Doors: 1/8 inch plus or minus 1/16 inch.
- 3.2 ADJUST AND CLEAN
- A. Prime Coat Touch-up: Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply touch-up of compatible air-drying primer.
  - B. Final Adjustments: Check and readjust operating hardware items, leaving steel doors and frames undamaged and in complete and proper operating condition.
- 3.3 FIELD QUALITY CONTROL
- A. Damaged work will be rejected. Replace with new work at no additional cost to the Contract.
  - B. After installation, protect doors and frames from damage during subsequent construction activities.

END OF SECTION 08 1100

SECTION 08 1416  
FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes solid core wood veneer doors

1.2 REFERENCES

- A. References:
  - 1. AWI (AWS) – Quality Standards of the Architectural Woodwork Institute

1.3 SUBMITTALS

- A. Product Data: Manufacturer's published data for each type of door, including details of core and edge construction, trim for openings and louvers, and factory-finishing specifications.
- B. Shop Drawings
  - 1. Indicate location and size of each door, elevation of each kind of door, details of construction, location and extent of hardware blocking.
  - 2. Matrix of performance grades and recommended changes for architect's approval.
  - 3. Indicate dimensions and locations of cutouts for locksets and other cutouts adjacent to light and louver openings.
  - 4. Provide schedule of doors and frames using same reference numbers for details and openings as those on Contract Drawings and Schedules.
- C. Samples:
  - 1. 12 inch by 12 inch (approximately) section of door faces at corner, with solid wood edging, showing factory finish and representing typical range of color and grain for veneer and solid lumber required.
  - 2. Metal Louvers: Blade and frame in 6" lengths
  - 3. Metal Frames for Light Openings: Metal light frames in 6" lengths
- D. Sample warranty

1.4 QUALITY ASSURANCE

- A. Coordinate solid core material with Owner for Door into Radiology Room 605.
- B. Architectural Woodwork Standard: Current edition of the "Architectural Woodwork Standards"; including Section 9 "Doors", for grade of door, core construction, finish and other requirements exceeding those of ANSI/WDMA I.S. 1A.
  - 1. Performance Duty Level (WDMA): Heavy duty
  - 2. Manufacturer may recommend a different performance grade for specific locations. Changes to be approved by Architect prior to ordering doors.
- C. Manufacturer: Obtain doors from a single manufacturer.
- D. VOC levels for adhesives and finishes to meet minimum requirements specified in Division 07 Section, Joint Protection.

## 1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Protect doors during transit, storage and handling to prevent damage, soiling and deterioration. Comply with requirements of referenced standards and recommendations of WDMA pamphlet "How to Store, Handle, Finish, Install, and Maintain Wood Doors," as well as with manufacturer's instructions.
- B. Identify each door with individual opening numbers which correlate with designation system used on final Shop Drawings for door, frames, and hardware, using temporary, removable or concealed markings.

## 1.6 PROJECT CONDITIONS

- A. Conditioning: Do not deliver or install doors until conditions for temperature and relative humidity have been stabilized and will be maintained in storage and installation areas during remainder of construction period to comply with the following requirements applicable to project's geographical location:
  - 1. Referenced AWS quality standard including Section 2 "Care and Storage".

## 1.7 WARRANTY

- A. The manufacturer shall warrant each door against manufacturing defects for the "lifetime of original installation", including cost of refinishing and rehangings if doors do not comply with specified tolerances. Include coverage for delamination, warping beyond specified installation tolerances, defective materials and telegraphing core construction.
- B. Contractor's Responsibilities: Replace all doors where installation and subsequent construction work contributed to rejection or to voiding of manufacturer's warranty where doors have been damaged. Prior to the Date of Substantial completion.

# PART 2 - PRODUCTS

## 2.1 MANUFACTURERS

- A. Products of the following manufacturers are acceptable:
  - 1. Algoma Hardwoods, Inc., a Division of Masonite Architectural Door Systems
  - 2. Lambton Doors
  - 3. Marshfield DoorSystems, Inc., a Division of Masonite Architectural Door Systems
  - 4. Mohawk Flush Doors, Inc., a Division of Masonite Architectural Door Systems
  - 5. Oshkosh Architectural Wood Door Company
  - 6. VT Industries, Inc.
  - 7. Eggers Industries

## 2.2 MATERIALS AND COMPONENTS

- A. Provide interior flush wood doors conforming to the following requirements:
  - 1. Grade AA is specified below however, Grade A will be acceptable for

back of house doors.

2. Faces: Rotary Cut, White (sapwood) Birch veneer, minimum 5 inch flitch, Premium Grade AA per AWI Architectural Woodwork Standards, latest edition.
3. Core Construction: Structural composite lumber core (SCLC-5) WDMA I.S.10. (Coordinate core material for Door into Radiology Room 605)
  - a. Screw Withdrawal, Face: 700 lbf
  - b. Screw Withdrawal, Edge: 400 lbf
4. Edges: Provide manufacturers standard, laminated edge construction with improved screw-holding capability and split resistance. Edges shall match face veneer, sand and finish to match door faces.
5. Adhesives: As required to meet Duty Level specified
6. Thickness: 1-3/4 inches, unless noted otherwise.
7. Performance Duty Level: As specified in Quality Assurance Article

## 2.3 PREFITTING AND PREPARATION FOR HARDWARE

- A. Pre-fit and pre-machine doors at factory, including beveling both edges 1/8 inch in 2 inches.
- B. Comply with tolerance requirements of WDMA for Duty Level specified. Machine doors for hardware requiring cutting 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.
- C. Coordinate with the metal frame supplier the locations of hardware mortises in metal frames to verify dimensions and alignment before proceeding with machining in factory.
- D. Light openings and other detail work shown shall be in accordance with manufacturer's standard details or as detailed by the Architect.

## 2.4 LOUVERS AND LIGHT FRAMES

- A. Light Frames: Provide lip-type bead wood stops for glass.
- B. Metal Louvers Size, type and profile shown and fabricated from the following:
  1. Steel: 0.040 inch, galvanized and factory primed for field paint finish.

## 2.5 FABRICATION

- A. Fabricate flush wood doors to produce doors complying with following requirements:
  1. Factory-prefit and pre-machine doors to fit frame opening sizes indicated with the following uniform clearances and bevels:
    - a. Comply with tolerance requirements of AWI for pre-fitting. Comply with final hardware schedules and door frame shop drawings and with hardware templates.
    - b. Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before proceeding with factory pre-machining.

- B. Openings: Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of doors required.
  - 1. Factory install louvers and lights in prepared openings.

## 2.6 FACTORY FINISHING

- A. Prefinish wood doors at factory.
- B. Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
  - 1. Finish faces, all four edges, edges of cutouts, and mortises.
- C. Transparent Finish: Comply with requirements indicated for grade, finish system, staining effect and sheen.
  - 1. AWI Grade: Custom
  - 2. Finish: Catalyzed Polyurethane.
  - 3. Staining: None required.
  - 4. Effect: Open grain finish.
- D. Factory finished doors damaged after installation shall be replaced with factory finished doors at no additional cost to the Owner.
  - 1. Field repair of doors will not be allowed.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine installed door frames prior to hanging door:
  - 1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with plumb, parallel jambs and level heads. Correct frames prior to hanging doors.
  - 2. Reject doors with defects.
- B. Do not proceed with installation until unsatisfactory conditions have been corrected.

### 3.2 DOOR INSTALLATION

- A. Pre-fit Doors: Fit to frames for uniform clearance at each edge and machine for hardware to whatever extent not previously worked at factory as required for proper fit and uniform clearance at each edge.
  - 1. Install doors in accordance with manufacturer's instructions and as shown.
- B. Clearance: Provide clearances of 1/8-inch at jambs and heads; 1/8-inch at meeting stiles for pairs of doors; and 1/2-inch from bottom of door to top of decorative floor finish or covering. Where threshold is shown or scheduled, provide 1/4-inch clearance from bottom of door to top of threshold.
- C. Doors having any of the following defective conditions will not be accepted:
  - 1. Not operating properly, such as swinging, sliding or latching



- 2. Damaged face or edge.
  - 3. Unsealed edges, tops and bottoms.
  - 4. Irregularities in surface finish, such as roughness, "skips", "runs" or other blemishes in color or gloss.
- D. If operation defects cannot be corrected by repairing or rehang, replace door with new unit.
- E. Doors damaged prior to or during installation shall be replaced at no cost to the Owner.
- F. Factory Finished Doors: Restore finish before installation, if fitting or machining is required at the job site and permitted by warranty.

### 3.3 ADJUSTING AND PROTECTION

- A. Operation: Rehang or replace doors that do not swing or operate freely.
- B. Protect doors as recommended by door manufacturer to ensure that doors will be without damage or deterioration at time of Substantial Completion.
- C. Replace doors that are damaged or that do not comply with requirements.

END OF SECTION 08 1416

SECTION 08 1723  
PRE HUNG WOOD DOOR ASSEMBLIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes pre-hung interior wood door and frame units for the bi-fold doors.

1.2 SUBMITTALS

- A. Product Data: Indicate materials, construction, finishes and installation instructions for pre-hung units.
- B. Shop Drawings: Schedules, elevation and frame details indicating door sizes, swing, fire rating, undercut and hardware locations.
- C. Samples: One of each type door and frame assembly and 1'-0 by 1'-0 door corner samples indicating construction for each door type. Full size units will be available to Contractor for use in the construction following approval by Architect.

1.3 QUALITY ASSURANCE

- A. Allowable door tolerances:
  - 1. Overall dimension: +/- 1/16 inch
  - 2. Maximum warp, bow, cup or twist: 1/4 inch
  - 3. Squareness: Maximum 1/8 inch difference in diagonal measurement
- B. Allowable door assembly and installation tolerances:
  - 1. Variation from specified clearances: +1/32 inch; -0 inches
  - 2. Maximum variation in edge alignment, pairs of doors: 1/16 inch
- C. Other tolerances shall be as specified in NWWDA reference standards.
- D. Applicable standards:
  - 1. American Hardboard Association (AHA)
  - 2. American National Standards Institute (ANSI)
  - 3. National Wood Window and Door Association (NWWDA)
  - 4. Architectural Woodwork Institute (AWI), "Architectural Woodwork Quality Standards, Guide Specifications and Quality Certification Program," Sixth Edition, 1996, herein referred to as AWI Standards.
- E. Labels:
  - 1. Provide each door with a label, which identifies manufacturer, trade association of which he is a member, grade and type of door or industry standard with which it complies.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Deliver doors when weatherproof storage space is available. Store doors in a space having controlled temperature and humidity.
- B. Stack doors flat, off of floor supported to prevent warpage. Protect from damage and direct exposure to sunlight.

- C. Store doors upright, off floor and supported to prevent warpage. Protect from damage and direct exposure to sunlight.
- D. Seal edges of wood doors immediately after delivery, unless factory sealed.
- E. Provide corrugated cardboard, polyethylene foam or heavy polyethylene sheet protection between stacked individual doors and for door faces in contact with other surfaces. Cover stacked doors with polyethylene.
  - 1. Do not walk or stack other materials on top of doors.
  - 2. Do not drag doors across one another.

## 1.5 WARRANTIES

- A. Provide manufacturer's door replacement warranty against warpage, delamination and manufacturing defect for two years after the Date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 INTERIOR BI-FOLD DOORS

- A. Manufacturers:
  - 1. Premdor Bi-fold.
  - 2. Stanley Works.
  - 3. Craftmaster by Masonite.
  - 4. Florida Wood Doors.
- B. Flush at designated closets.
  - 1. 1-3/8" thick.
- C. Material: Wood veneer over solid core.
- D. Door Finish: Paint per Division 09 Section, Painting

### 2.2 WOOD JAMBS

- A. Material:
  - 1. Frame and trim: Solid stock wood, finger jointed to meet the requirements of AWI Grade I, for opaque finish, or NWWDA I.S.6.91, Standard Grade.
  - 2. Trim profile: As indicated on drawings.
  - 3. Hinges: Minimum 3-1/2 by 3-1/2 inches with removable pin, finish to match lockset finish.
- B. Fabrication: Split jamb design, meeting AWI reference standard, Custom Grade for Opaque Finish.
  - 1. Frame depth: Match wall thickness.
  - 2. Frame shall be completely assembled and door mounted in frame within specified tolerances.
  - 3. Shim door brace frame to maintain tolerances during shipping and erection.

### 2.3 FACTORY FITTING MACHINING AND HANGING

- A. Factory machining is required for all wood and panel doors.

- B. Pre-fitting and pre-machining:
  - 1. Factory pre-fit and machine doors to clearances and bevels specified.
  - 2. Prepare for hardware installation using hardware manufacturer's templates. Locate in accord with ANSI/NWDA I.S. 1-A-93, unless otherwise indicated.
  - 3. Protect door faces from damage during cutting.
- C. Fit doors for width by planning equally from both stiles; for height by sawing not more than 1/4 inch from each top and bottom rail.
- D. Following cutting or planning, sand sharp corners and edges smooth.
- E. Hardware installation:
  - 1. Install doors on hinges using threaded-to-the-head wood screws furnished by hardware manufacturer.
  - 2. Drill pilot holes for all screws.
  - 3. Anchor hardware in correct position and alignment.
- F. Fitting: Shim frames to specified clearances and attach bracing to maintain door/frame alignment until unit is installed.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Pre-hung Door Units: Install door/frame assembly in accord with fabricator's printed instructions.
  - 1. Install units where possible without removing temporary bracing. Re-shim doors to maintain specified door/frame clearances where bracing is removed.
  - 2. Level and align door and shim unit to rough opening. Attach split jamb to structure using casing nails or trim head screws so that and heads will be concealed behind stop of other jamb half.
  - 3. Re-check door unit level and clearances, and anchor frame molding to structure with finish nails or trim head screws, anchor heads countersunk and filled.
  - 4. Installation shall comply with AWI Custom Grade interior Millwork requirements.
  - 5. Doors shall operate freely, within specified clearances.
- B. Replace doors with defect in material, finish, fit or machining.

END OF SECTION 08 1723

## SECTION 08 3100 ACCESS DOORS AND PANELS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes access doors.
- B. Refer to MEP documents for additional requirements.

#### 1.2 SUBMITTALS

- A. Product Data: Manufacturer's technical data for each type of access door assembly, including setting drawings, and directions for installation of anchorage devices.
  - 1. Schedule, including types, general locations, sizes, wall and ceiling construction details, finishes, latching, or locking provisions, and other pertinent installation data.

#### 1.3 QUALITY ASSURANCE

- A. Coordinate locations and sizes of access doors with Electrical and Mechanical Drawings. Provide access doors as required for access to concealed valves, pipes, connections, motors, and other items that will need to be accessed for maintenance purposes.
- B. Design exterior access panels to meet wind-loading requirements for the FBC. Refer to Structural Drawings for wind velocity.
  - 1. All exterior access panels shall be compliant with Florida Building Code rule 9N-3 for statewide product approval and require a Florida Product approval number.
- C. Fire Rated Openings: Provide only units which have been tested and listed by UL, FM, or WH and are acceptable to the authorities having jurisdiction and for the types required.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Provide framed access doors by one of the following:
  - 1. Cesco Products
  - 2. Milcor, Inc., A Gibraltar Co.
  - 3. Nystrom, Inc.

#### 2.2 MATERIALS AND FABRICATION

- A. Provide each access door assembly manufactured as an integral unit, complete, ready for installation.
- B. Provide stainless steel doors and frames at restrooms, high humidity areas, and where located on Drawings for conditions noted.
  - 1. Stainless-Steel Sheet, Strip, Plate, and Flat Bars: ASTM A 666, Type 304. Remove tool and die marks and stretch lines or blend into finish.

2. Finish: Directional Satin Finish, No. 4
- C. Gypsum Board Walls and Ceilings:
  1. Frames: 16 gage cold rolled steel, perforated with galvanized drywall bead attached to all four sides
  2. Recess: 5/8 inch
  3. Hinges: Cold rolled with stainless steel pin, continuous piano type
  4. Doors: 20 gage cold rolled steel
  5. Size: 24 by 24 inch, unless indicated otherwise
- D. Detention doors in locations designated to have ligature furnishings.
- E. Latching Devices: Furnish flush, screwdriver operated cam locks of number required to hold door in flush, smooth plane when closed.
- F. Provide one key-operated cam lock per access door. Furnish 2 keys per lock. Key locks alike, unless otherwise scheduled.
  1. Only one key operated latching device is required per panel.
- G. Factory primed with manufacturer's standard primer for condition indicated.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION

- A. Provide UL Labeled, fire-rated access doors and panels when required to be installed in fire-rated walls or ceilings.
- B. Comply with manufacturer's instructions for installation of access doors and panels.
- C. Install frameless access where detailed or scheduled on Drawings.
- D. Coordinate installation with work of other trades.
- E. Coordinate locking requirements with the Owner.
- F. Set frames accurately in position and securely attach to supports with face panels plumb or level in relation to adjacent finish surfaces.
- G. Finish: Field paint by Division 09 Section, Painting.

#### 3.2 ADJUST AND CLEAN

- A. Adjust hardware and panels after installation for proper operation.
- B. Remove and replace panels or frames which are warped, bowed, or otherwise damaged.

END OF SECTION 08 3100

SECTION 08 4113  
ALUMINUM ENTRANCES AND STOREFRONTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes aluminum doors and frame storefront systems

1.2 PERFORMANCE REQUIREMENTS

- A. Design aluminum door and frame assemblies in accordance with the FBC Refer to structural drawings for wind and design pressures.
1. All exterior assemblies shall be compliant with Florida Building Code rule 61G20-3 for statewide product approval and require a Florida Product approval number.
- B. Deflection: Limit mullion deflection to 1/240 of span with full recovery of glazing materials.
- C. System Assembly: Accommodate without damage to components or deterioration of seals, movement within system, movement between system and peripheral construction, dynamic loading and release of loads, deflection of structural support framing.
- D. Air Infiltration: Limit air leakage through assembly to 0.06 cfm/min/sq ft of wall area, measured at a reference differential pressure across assembly of 6.24 psf as measured in accordance with ASTM E283.
- E. Air and Vapor Seal: Maintain continuous air barrier and vapor retarder throughout assembly, primarily in line with inside pane of glass, and heel bead of glazing compound.
- F. Water Leakage: None, when measured in accordance with ASTM E331 with a test pressure difference of 10 lbf/sq ft.
- G. Condensation Resistance Factor: CRF of 45 minimum when measured in accordance with AAMA 1503.1.
- H. Provide for expansion and contraction within system components caused by cycling temperature range of 180 degrees F over a 12 hour period without causing detrimental effect to system components, anchorage, and other building elements.
1. Ensure doors function normally within limits of specified temperature range.

1.3 SUBMITTALS

- A. Product Data:
1. Manufacturer's published data for specified system
2. Maintenance Data to include in maintenance manuals for aluminum, glass, and sealants.
- B. Shop Drawings:
1. Show elevations, details and methods of assembling sections, hardware

locations, glass and infill details, dimensions, shapes of materials, anchorage and fastening methods, wall opening construction details, and weatherstripping.

2. Provide schedule of doors and frames using same reference numbers for details and openings as those on Drawings and Schedules.
3. Shop Drawings shall be signed and sealed by a licensed engineer registered in the State of Florida.
4. Calculations for wind load design shall be stamped, sealed and signed by a Professional Engineer in the State of Florida verifying compliance with ASCE 7-16.
5. Sample of Approved Product Label and location of attachment to assembly for exterior applications.

C. Certifications:

1. Provide test reports from AAMA accredited laboratories certifying the performance as specified.
2. Test reports shall be accompanied by the storefront manufacturer's letter of certification stating that the tested storefront meets or exceeds the referenced criteria for the appropriate storefront type.
3. Sample of Approved Product Label and location of attachment to assembly.

D. Color selection materials for type of finish specified

E. Hardware Schedule: Complete itemization of each hardware item provided for each entrance door, cross-referenced to door identification numbers in Contract Documents.

F. Pre-Installation Conference minutes

G. Field quality-control test and inspection reports.

H. Sample warranties

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Capable of assuming engineering responsibility and performing work of this Section and who is acceptable to manufacturer.

1. Engineering Responsibility: Preparation of data for aluminum-framed systems including Shop Drawings based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project and submission of reports of tests performed on manufacturer's standard assemblies.

B. Testing Agency Qualifications: An independent agency qualified according to ASTM E699 for testing indicated.

C. Design Requirements:

1. Drawings are diagrammatic and do not purport to identify nor solve problems of thermal or structural movement, glazing, anchorage, or moisture disposal.
2. Requirements shown by details are intended to establish basic dimension of units, sight lines and profiles of members.



- a. If modifications are proposed, submit explanatory data to Architect for review
  3. Provide storefront systems, including necessary modifications, to meet specified requirements and maintaining visual design concepts.
  4. Anchors, fasteners and braces shall be structurally stressed not more than 50 percent of allowable stress when maximum loads are applied.
  5. Provide for expansion and contraction due to structural movement without detriment to appearance or performance.
  6. Assemblies shall be free from rattles, wind whistles and noise due to thermal and structural movement and wind pressure.
  7. Not Permitted: Vibration harmonics, wind whistles, noises caused by thermal movement, thermal movement transmitted to other building elements, loosening, weakening, or fracturing of attachments or components of system.
- D. Pre-Installation Conference: Meet at the project site with the installers and Architect prior to beginning installation. Record meeting minutes.

#### 1.5 PROJECT CONDITIONS

- A. Field Measurements: Verify actual locations of structural supports for aluminum-framed systems by field measurements before fabrication and indicate measurements on Shop Drawings.
1. Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating aluminum-framed systems without field measurements. Coordinate construction to ensure that actual dimensions correspond to established dimensions.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Handle Products in accordance with AAMA – CW-10, Care and Handling of Architectural Aluminum from Shop to Site.
- B. Protect finished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond when exposed to sunlight or weather.
- C. Follow manufacturer's instructions for storing materials.

#### 1.7 WARRANTY

- A. Special Assembly Warranty: Manufacturer agrees to repair or replace components of aluminum-framed systems that do not comply with requirements or that deteriorate as defined in this Section within specified warranty period.
1. Failures include, but are not limited to, the following:
    - a. Structural failures including, but not limited to, excessive deflection.
    - b. Noise or vibration caused by thermal movements.
    - c. Deterioration of metal finishes and other materials beyond normal weathering.
    - d. Water leakage through fixed glazing and framing areas.
    - e. Failure of operating components.
  2. Warranty Period: Two years from date of Substantial Completion.

- B. Special Finish Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components on which finishes fail within specified warranty period. Warranty does not include normal weathering.
  - 1. Warranty Period: 20 years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Basis of Design: Kawneer Company, Inc.
  - 1. Entrance: 260 Outswing Aluminum Storefront Doors by Kawneer Company, Inc.
  - 2. Storefront: Trifab 451UT by Kawneer Company, Inc.
- B. Similar products by the following are also acceptable:
  - 1. Guardian Industries
  - 2. Trulite

### 2.2 MATERIALS

- A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
  - 1. Sheet and Plate: ASTM B209
  - 2. Extruded Bars, Rods, Profiles, and Tubes: ASTM B221
  - 3. Extruded Structural Pipe and Tubes: ASTM B429.
  - 4. Structural Profiles: ASTM B308
  - 5. Welding Rods and Bare Electrodes: AWS A5.10
- B. Steel Reinforcement (if required): With manufacturer's standard corrosion-resistant primer complying with SSPC-PS Guide No. 12.00 applied immediately after surface preparation and pretreatment.
  - 1. Structural Shapes, Plates, and Bars: ASTM A36
  - 2. Cold-Rolled Sheet and Strip: ASTM A1008
  - 3. Hot-Rolled Sheet and Strip: ASTM A1011

### 2.3 FRAMING SYSTEMS

- A. Framing Members: Manufacturer's standard extruded-aluminum framing members of thickness required and reinforced as required to support imposed loads and meet Performance Requirements.
  - 1. Framing members are composite assemblies of two separate extruded-aluminum components permanently bonded by an elastomeric material of low thermal conductance.
- B. Backer Plates: Manufacturer's standard, continuous backer plates for framing members, if not integral, where framing abuts adjacent construction.
- C. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.
- D. Fasteners and Accessories: Manufacturer's standard concealed, corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials and meeting Performance requirements.

1. Where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration, use self-locking devices.
  2. Reinforce members as required to receive fastener threads.
  3. Use exposed fasteners (where concealed is not possible) with countersunk Phillips screw heads, stainless steel with finish matching storefront.
- E. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts complying with ASTM A 123 or ASTM A 153 requirements.
- F. Framing System Gaskets and Sealants: Manufacturer's standard recommended by manufacturer for joint type.

## 2.4 GLAZING SYSTEMS

- A. Glazing: As specified in Division 08 Section, Glazing.
- B. Glazing Gaskets: Type to suit application to achieve weather, moisture, and air infiltration requirements.
- C. Spacers and Setting Blocks: Manufacturer's standard elastomeric types.
- D. Glazing Sealants: As recommended by manufacturer for joint type.

## 2.5 DOOR HARDWARE

- A. Heavy-duty units required for operation and to meet Performance Requirements; finish to match door. Install reinforcing for hardware as necessary.
1. Offset Pivot Sets: Comply with ANSI A156.4, Grade 1; exposed parts of cast aluminum alloy; provide intermediate pivot for doors.
  2. Overhead Closers: LCN 4040XP Surface Closer; or Architect approved equal. Provide parallel arms only.
  3. Cylinders are supplied under Division 08 Section, Finish Hardware
  4. Exit Device: Concealed Rod Device for double door set.
  5. Pull Handles: Pulls with stainless steel US32D dull finish.
  6. Thresholds: Provide thermal thresholds for system specified that meet accessibility requirements.
  7. Weatherstripping as required for single or double door sets.

## 2.6 ACCESSORIES

- A. Anchors: Adjustable, that accommodates fabrication and installation tolerances in material and finish compatible with adjoining materials and recommended by manufacturer, and meeting Performance Requirements.
- B. Flashing: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding flashing compatible with adjacent materials. Form exposed flashing from sheet aluminum finished to match framing and of sufficient thickness to maintain a flat appearance without visible deflection.
- C. Bituminous Paint: Cold-applied asphalt-mastic paint complying with SSPC-Paint 12 requirements except containing no asbestos, formulated for 30mil thickness per coat.
- D. Touch-Up Primer for Galvanized Steel Surfaces: SSPC-Paint 20, zinc rich.

## 2.7 FABRICATION

- A. Form aluminum shapes before finishing.
- B. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.
- C. Fabricate components that, when assembled, have the following characteristics:
  - 1. Sharp profiles, straight and free of defects or deformations.
  - 2. Accurately fitted joints with ends coped or mitered.
  - 3. Means to drain water passing joints, condensation occurring within framing members, and moisture migrating within the system to exterior.
  - 4. Physical and thermal isolation of glazing from framing members.
  - 5. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
  - 6. Provisions for field replacement of glazing from interior.
  - 7. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.
- D. Door Frames: Reinforce as required to support loads imposed by door operation and for installing hardware.
  - 1. At exterior doors, provide compression weather stripping at fixed stops.
  - 2. At interior doors, provide silencers at stops to prevent metal-to-metal contact. Install three silencers on strike jamb of single-door frames and two silencers on head of frames for pairs of doors.
- E. Doors: Reinforce doors as required for installing hardware.
  - 1. At pairs of exterior doors, provide sliding weather stripping retained in adjustable strip mortised into door edge.
  - 2. At exterior doors, provide weather sweeps applied to door bottoms.
  - 3. Provide nonremovable glazing stops on outside of door.
- F. Hardware Installation: Factory install hardware to the greatest extent possible. Cut, drill, and tap for factory-installed hardware before applying finishes.

## 2.8 FINISHES

- A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
- C. Fluoropolymer Coating: Manufacturer's standard three-coat, thermo-cured, full-strength 70 percent Kynar 500 FSR resin, 1 mil thick with 0.5-mil clear coat and 30 percent reflective gloss when tested in accordance with ASTM D 523 complying with AAMA 2605. A 20 year limited warranty against failure of the finish shall begin on the Date of Substantial Completion.
- D. Shop and Touch-Up Primer for Steel Components: SSPC-Paint 25, zinc oxide, alkyd, linseed oil primer.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine areas for compliance with requirements for installation tolerances, methods of attachment, and other conditions affecting performance of work.
  - 1. Verify wall openings and adjoining air and vapor seal materials are ready to receive work of this section.
  - 2. Do not proceed until unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. General:
  - 1. Comply with manufacturer's written instructions.
  - 2. Do not install damaged components.
  - 3. Coordinate attachment and seal of perimeter air and vapor barrier materials.
  - 4. Fit joints to produce hairline joints free of burrs and distortion.
  - 5. Rigidly secure nonmovement joints.
  - 6. Seal joints watertight, unless otherwise indicated.
  - 7. Do not install sealants when ambient temperature is less than 40 degrees F. Maintain this minimum temperature during and 48 hours after installation.
  - 8. Provide thermal isolation where components penetrate or disrupt building insulation.
  - 9. Where fasteners penetrate sill flashings, make watertight by seating and sealing fastener heads to sill flashing.
  - 10. Touch-up minor damage to factory applied finish; replace components that cannot be satisfactorily repaired.
- B. Metal Protection:
  - 1. Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape or installing nonconductive spacers as recommended by manufacturer for this purpose.
  - 2. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.
  - 3. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration.
- C. Install components to drain water passing joints, condensation occurring within framing members, and moisture migrating within the system to exterior.
- D. Set continuous sill members and flashing in full sealant bed as specified in Division 07 Section, Joint Protection and to produce weathertight installation.
- E. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work. Allow for adjustments to accommodate construction tolerances.
- F. Install glazing as specified in Division 08 Section, Glazing to meet Performance Requirements
- G. Install perimeter joint sealants as specified in Division 07 Section, Joint Protection and to produce weathertight installation.
- H. Entrances: Install to produce smooth operation and tight fit at contact points.

1. Install to produce tight fit at weather stripping and weathertight closure.
2. Field-Installed Hardware: Install surface-mounted hardware according to hardware manufacturers' written instructions using concealed fasteners to greatest extent possible.
- I. Erection Tolerances: Install aluminum-framed systems to comply with the following maximum tolerances:
  1. Location: Limit variation from plane to 1/8 inch in 12 feet; 1/4 inch accumulative.
  2. Plumb: 1/8 inch in 10 feet, 1/4 inch in 40 feet
  3. Level: 1/8 inch in 20 feet, 1/4 inch in 40 feet
  4. Alignment:
    - a. Where surfaces abut in line, limit offset from true alignment to 1/16 inch.
    - b. Where surfaces meet at corners, limit offset from true alignment to 1/32 inch.
  5. Diagonal Measurements: Limit difference between diagonal measurements to 1/8 inch.

### 3.3 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.
  1. Testing and inspecting agency will interpret tests and state in each report whether tested work complies with or deviates from requirements.
- B. Testing Services: Test and inspect representative areas to determine compliance of installed systems with specified requirements. Architect will determine areas to be tested.
  1. Subsill water Test: Test each installed subsill per AAMA 511 by filling the subsill that has been temporarily sealed for 15 minutes.
  2. Water Spray Test: Before installation of interior finishes has begun, a minimum area of 10 percent of the aluminum-framed system, designated by Architect shall be tested according to AAMA 501.2 and shall not evidence water penetration.
- C. Repair, or remove and replace non-complying storefront assemblies.
- D. Upon failure, additional testing will be at the discretion of the Architect for location and frequency, at no additional cost to the Owner.

### 3.4 ADJUSTING

- A. Entrances: Adjust operating hardware for smooth operation according to hardware manufacturers' written instructions.
  1. For doors accessible to people with disabilities, adjust closers to provide a 3-second closer sweep period for doors to move from a 70-degree open position to 3 inches from the latch measured to the leading door edge.

### 3.5 CLEANING

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

- B. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.
- C. Remove excess sealant by method acceptable to sealant manufacturer.

END OF SECTION 08 4113

## SECTION 08 7113 AUTOMATIC DOOR OPERATORS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Power operator
  - 2. Flush wall switch

#### 1.2 QUALITY ASSURANCE

- A. Automatic door operator shall comply with the requirements of ANSI Standard A117.1.
- B. Automatic entrances shall comply with American National Standard for power-operated doors, ANSI A156.10 and ANSI A156.19. Provide custom designed installation utilizing slow opening, low powered automatic doors as described in paragraph 1.1.1 of ANSI A156.10, not opening to backcheck faster than 3 seconds and requiring no more than 15 lbf to stop door movement.
  - 1. Designate frequency for Owner's approval.
- C. Manufacturer: Provide units produced by a firm with not less than 5 years successful experience in the fabrication of automatic door operator units of the type required for this Project.

#### 1.3 FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION

- A. Automatic door operator shall conform with the Accessibility Requirements Manual from the Florida Department of Community Affairs, Florida Board of Building Codes and Standards.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURER AND OPERATOR TYPE

- A. Basis of Design: "Senior-Swing" by Dor-O-Matic Division, Republic Industries, Inc.
- B. Products of the following manufacturer's are also acceptable, providing their products equal or exceed the quality specified, and they can provide products of the type, size, function, and arrangement required.
  - 1. Horton Automatics
  - 2. Besam Inc.
  - 3. Norton Door Controls
- C. Provide materials and equipment necessary for the proper installation of a surface applied "Senior Swing" handicap low energy power operated door system.
  - 1. Unit shall be completely electromechanical with micro compressor control requiring no micro switches on the operator.
  - 2. In handicap mode, the activating switch, on either side of the door, shall open the door to back check (80 degrees) in 3 to 6 seconds and to fully



open position in 4 to 7 seconds, remain open 5 to 30 seconds, then after the time delay, the door will close from 90 degrees to 10 degrees in 3 to 6 seconds and from 10 degrees to full closed in 1-1/2 to 2 seconds. Provide power boost feature to increase the closing force from 6 lbf to 15 lbf against wind pressure. Control box and motor/gear box shall be contained in an extruded aluminum housing designed for surface applied, interior application.

3. Operator in non-activated mode shall be manual with no push-n-go feature. Opening force shall be a maximum of 5 pounds.
4. Activation Switches: Low voltage, stainless steel wall mount type. Switches shall be wired to operating unit. (No RF switches required). Button to be 4 to 6 inches in diameter.
  - a. Push button shall activate door when pushed at any point on button face.
  - b. Push button shall not require depressing for a sustained period of time.
  - c. Install on custom post where detailed. Refer to Drawings for post detailing.
5. Provide door decals visible from either side, instructing the user as to the operation and function of the door.
6. Door operator shall be installed on stop side of doors. Provide mounting plates, angles, and brackets as required.

D. Finish: Match aluminum door and frame finish.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Installer must examine the doors and frames for which automatic door operators are to be installed.
  1. Only one leaf of each pair of doors to receive a power assist shall be active by means of an electronic operator.
- B. Install automatic door operators in accordance with manufacturer's instructions.
- C. Automatic door operators shall be installed as a complete system with peripheral items and concealed wiring as required.
- D. Coordinate the time delay setting for holding the door open with the Owner's representative.

### 3.2 ADJUST AND CLEAN

- A. Clean aluminum surfaces and adjacent area. Remove excess dirt and other substances.
- B. Demonstrate operation and maintenance of operator and peripheral items to the Owner.

END OF SECTION 08 7113

## SECTION 08 8000 GLAZING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes glazing for the following:
  - 1. Entrances and other doors
  - 2. Storefront construction
  - 3. Curtain wall
  - 4. Interior glazing
  - 5. Wall mirror
  - 6. One-way mirror
  - 7. Interior glass partitions and hardware
  - 8. Switchable glass

#### 1.2 DEFINITIONS

- A. Deterioration of Coated Glass: Defects developed from normal use attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning coated glass contrary to manufacturer's directions. Defects include peeling, cracking, and other indications of deterioration in metallic coating.
- B. Deterioration of Insulated Glass: Failure of the hermetic seal under normal use due to causes other than glass breakage and improper practices for maintaining, and cleaning insulating glass. Evidence of failure is the obstruction of vision by dust, moisture, or film on the interior surfaces of glass. Improper practices for maintaining and cleaning glass do not comply with the manufacturer's directions.

#### 1.3 PERFORMANCE REQUIREMENTS

- A. Provide glazing systems that are capable of withstanding normal thermal movement, wind loading, and impact loading (where applicable), without failure including loss or glass breakage attributable to the following: Defective manufacture, fabrication, installation; failure of sealants or gaskets to remain watertight and airtight; or deterioration of glazing materials.
- B. Glass Design:
  - 1. Determine minimum thickness according to ASTM E1300
    - a. Minimum glass thickness for exterior lites: 6.0 mm
  - 2. Tinted and heat-absorbing glass thicknesses for each tint indicated are the same throughout Project.
  - 3. Design windloads to meet performance requirements in applicable sections specifying glazing assemblies.
  - 4. Minimum glass thicknesses of lites, whether composed of annealed or heat-treated glass, are selected so the worst-case probability of failure does not exceed the following:
    - a. 8 lites per 1000 for lites set vertically or not over 15 degrees off vertical and under wind action.

5. Maximum Lateral Deflection: For the following types of glass supported on all 4 edges, provide thickness required that limits center deflection at design wind pressure to 1/50 times the short side length or 1 inch, whichever is less.
  - a. For monolithic-glass lites heat treated to resist wind loads.
  - b. For insulating glass.
- C. Glass thicknesses and interlayer thicknesses are minimum and must be equal to the thicknesses in the as tested assemblies for state product approvals.
- D. Normal thermal movement results from the following maximum change (range) in ambient and surface temperatures acting on glass-framing members and glazing components. Base engineering calculation on materials' actual surface temperatures due to both solar heat gain and nighttime sky heat loss.
  1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

#### 1.4 SUBMITTALS

- A. Product data for each glass product and glazing material indicated.
- B. Samples: 12-inch-square samples of each type of glass indicated except for clear monolithic glass products. Install sealant or gasket sample between two strips of material representative in color of the adjoining framing system.
- C. Product Certificates: Signed by manufacturers of glass and glazing products certifying that products furnished comply with requirements.
  1. For solar-control low-e-coated glass, provide documentation demonstrating that manufacturer of coated glass is certified by coating manufacturer.
- D. Qualification Data: For installers.
- E. Maintenance data for glass and other glazing materials to include in Operating and Maintenance Manual.
- F. Sample warranties

#### 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed glazing similar in material, design, and extent to that indicated for this Project; whose work has resulted in glazing installations with a record of successful in-service performance; and who employs glazing installers for this Project who are certified under the National Glass Association's, Certified Glass Installers Program.
- B. Glass Testing Agency Qualifications: Independent testing agency accredited to the NFRC CAP 1 Certification Agency Program.
- C. Sealant Testing Agency Qualifications: An independent testing agency qualified according to ASTM C1021 to conduct the testing indicated, as documented according to ASTM E548.
- D. Single-Source Responsibility for Glass: Obtain each type of glass from a single

source for each product specified

- E. Single-Source Responsibility for Glazing Accessories: Obtain glazing accessories from one source for each product and installation method indicated.
- F. Provide labels showing glass manufacturer's identity, type of glass, thickness, and quality. Labels shall remain on glass until set and approved by the Architect.
  - 1. All clear tempered safety glass must have permanently affixed labels for verification.
- G. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.
  - 1. GANA Publication: GANA Glazing Manual
  - 2. IGMA Publications: IGMA TM-3000 Vertical Glazing Guidelines and IGMA TB-3001 Sloped Glazing Guidelines
  - 3. Applicable requirements for the FBC
- H. Safety Glazing: Comply with testing requirements in CPSC 16 CFR 1201, Category I or II as allowed by code
  - 1. Provide safety glass permanently marked with certification label of Safety Glazing Certification Council (SGCC) or other certification agency acceptable to authorities having jurisdiction.
- I. Insulating Glass Certification Program: Provide insulating glass units permanently marked either on spacers or at least one component lite of units with appropriate certification label of Insulating Glass Certification Council (IGCC).
- J. Preconstruction Adhesion and Compatibility Testing: Submit to glazing sealant manufacturers, for testing, samples of each glazing material type, tape sealant, gasket, glazing accessory, and glass-framing member that will contact or affect elastomeric glazing sealants.
  - 1. Testing will not be required if elastomeric glazing sealant manufacturers submit data based on previous testing of current sealant products for adhesion to, and compatibility with, glazing materials matching those submitted.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver glass to Site in suitable containers that will protect glass from the weather and from breakage. Store material in a safe place where breakage can be reduced to a minimum. Deliver sufficient glass to allow for normal breakage. Deliver glazing compounds in unopened, labeled containers.
- B. Comply with manufacturer's directions to prevent damage to glass and glazing materials from handling, storing, condensation, temperature changes, direct exposure to sun, or other causes.
  - 1. Where insulating glass units will be exposed to substantial altitude changes, comply with insulating glass fabricator's recommendations for

venting and sealing to avoid hermetic seal ruptures.

## 1.7 PROJECT CONDITIONS

- A. Do not proceed with glazing when glazing channel substrates are wet from rain, condensation, or other causes.
  - 1. Install liquid sealants when ambient and substrate temperatures are above 40 deg F.

## 1.8 WARRANTY

- A. Warranties specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under requirements of the Contract Documents.
- B. Manufacturer's Warranty on Coated Glass Products: Manufacturer's standard form, made out to Owner and signed by coated-glass manufacturer agreeing to replace coated-glass units that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to Project site, within specified warranty period indicated below.
  - 1. Warranty Period: Manufacturer's standard but not less than 5 years after Date of Substantial Completion.
- C. Manufacturer's Warranty on Insulating Glass: Manufacturer's standard form, made out to Owner and signed by insulating-glass manufacturer agreeing to replace insulating-glass units that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to Project site, within specified warranty period indicated below.
  - 1. Warranty Period: Manufacturer's standard but not less than 10 years from the Date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Primary Glass:
  - 1. Cardinal Glass Industries previously AGC Flat Glass North America
  - 2. Guardian Industries Corp.
  - 3. Pilkington Building Products
  - 4. Vitro, Inc., formally PPG
  - 5. Versalux Architectural Glass
- B. Architectural Glass Fabricators:
  - 1. All of the above primary glass manufacturers
  - 2. AFGD, Inc. (American Flat Glass Distributors)
  - 3. Arch Aluminum & Glass Co., Inc.
  - 4. Oldcastle Glass Group
  - 5. Viracon

### 2.2 GLASS TYPES AND USAGE

- A. Exterior:
  - 1. Basis of Design: Solargray + Solarban 70 (3) Clear, by Vitro, Inc.
    - a. Summer U Value: 0.26
    - b. Shading Coefficient: 0.27
    - c. Solar Heat Gain Coefficient: 0.24
- B. Glass for Interior Doors and Windows: 1/4 inch clear tempered

## 2.3 GLASS PRODUCTS

- A. Annealed Float Glass: ASTM C1036, Type I (transparent glass, flat), Class as indicated below, and Quality q3 (glazing select).
  - 1. Class 1 (clear) unless otherwise indicated.
  - 2. Class 2 (tinted, heat-absorbing, and light-reducing) where indicated.
- B. Heat-Treated Float Glass: ASTM C1048; Type I (transparent flat glass); Quality-Q3; of class, kind, and condition indicated.
  - 1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed, unless otherwise indicated.
  - 2. For uncoated glass, comply with requirements for Condition A.
  - 3. For coated vision glass, comply with requirements for Condition C (other uncoated glass).
  - 4. Provide Kind FT (fully tempered) float glass in place of annealed or Kind HS (heat-strengthened) float glass where scheduled or required by Code.
- C. Sealed Insulating Glass Units: Pre-assembled units consisting of organically sealed lites of glass separated by dehydrated air spaces complying with ASTM E774 for CBA units and the following:
  - 1. For properties of individual glass lites making up units, refer to requirements specified elsewhere in this Section, classes, kinds, and conditions of glass products comprising lites of insulating glass units.
  - 2. Provide glass lites to comply with system Performance Requirements specified and Kind FT (fully tempered) where safety glass is designated or required.
  - 3. Performance characteristics designated for coated insulating glass are nominal values based on manufacturer's published test data for units with lites 6.0 mm (0.23 inch) thick and nominal 1/2 inch dehydrated space between lites, unless otherwise indicated.
  - 4. U-values are expressed as Btu/hour x sq. ft. x deg F.
  - 5. Edge Spacer: Spacer using warm edge technology.

## 2.4 GLAZING SEALANTS

- A. General: Provide products of type indicated, complying with the following requirements:
  - 1. Compatibility: Select glazing sealants that are compatible with one another and with other materials they will contact, including glass products, seals of insulating-glass units, and glazing channel substrates,

- under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
  3. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range of available colors
- B. Elastomeric Glazing Sealants: Comply with ASTM C920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C920 classifications for type, grade, class, and uses related to exposure and joint substrates.
- C. Single-Component, Neutral Curing, Silicone Glazing Sealants: Class 50 or 100/50. Provide acid type for nonporous channel surfaces and provide nonacid medium-modulus type for porous channel surfaces.
- D. Preformed Butyl Rubber Glazing Sealant: Shall be tape or ribbon (coiled on release paper) of polymerized butyl or mixture of butyl and polyisobutylene, compounded with inert fillers and pigments, solvent-based with minimum of 95 percent solids with thread or fabric reinforcement, tack-free within 24 hours, paintable, nonstaining.
1. Provide combination tape and encased continuous rubber shim of approximately 50 durometer hardness.
- E. Glazing Sealant for Fire-Resistant Glazing Products: Identical to product used in test assembly to obtain fire-resistive rating.

## 2.5 GLAZING GASKETS

- A. Lock-Strip Gaskets: Neoprene extrusions in size and shape indicated, fabricated into frames with molded corner units and zipper lock strips, complying with ASTM C542, black.
- B. Dense Compression Gaskets: Molded or extruded gaskets of any material indicated below, complying with standards referenced with name of elastomer indicated below, and of profile and hardness required to maintain watertight seal:
1. Neoprene, ASTM C864.
  2. EPDM, ASTM C864.
  3. Silicone, ASTM C1115.
  4. Thermoplastic polyolefin rubber, ASTM C1115.

## 2.6 MISCELLANEOUS GLAZING MATERIALS

- A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials involved for glazing application indicated, and with a proven record of compatibility with surfaces contacted in installation.
- B. Cleaners, Primers and Sealers: Type recommended by sealant or gasket manufacturer.
- C. Setting Blocks: Elastomeric material with a Shore A durometer hardness of 85 plus or minus 5.

- D. Spacers: Elastomeric blocks or continuous extrusions with a Shore A durometer hardness required by glass manufacturer to maintain glass lites in place for installation indicated.
- E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side-walking).
- F. Cylindrical Glazing Sealant Backing: ASTM C1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.

## 2.7 FABRICATION OF GLASS

- A. Fabricate glass and other glazing products in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with recommendations of product manufacturer and referenced glazing standard as required to comply with system performance requirements.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine glass framing for compliance with the following:
  - 1. Manufacturing and installation tolerances, including those for size, squareness, offsets at corners.
  - 2. Presence and functioning of weep system.
  - 3. Minimum required face or edge clearances.
  - 4. Effective sealing between joints of glass-framing members.
- B. Verify insulating glass unit secondary seal is compatible with glazing sealants.
- C. Do not proceed until unsatisfactory conditions have been corrected.

### 3.2 GLAZING, GENERAL

- A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings that may interfere with bonding to substrates.
- B. Comply with combined recommendations of manufacturers of glass, sealants, gaskets, industry standards, and other glazing materials, except where more stringent requirements are indicated, including those in referenced glazing publications.
- C. Adjust glazing channel dimensions as required by each assembly Performance Requirements to provide necessary bite on glass, minimum edge and face clearances, and sealant thicknesses, with reasonable tolerances. Adjust as required by Project conditions during installation within Performance Requirements tolerances.
- D. Protect glass from edge damage during handling and installation as follows:
  - 1. Use a rolling block in rotating glass units to prevent damage to glass corners. Do not impact glass with metal framing. Use suction cups to shift glass units within openings; do not raise or drift glass with a pry bar. Rotate glass lites with flares or bevels on bottom horizontal edges so



- edges are located at top of opening, unless otherwise indicated by manufacturer's label.
2. Remove damaged glass from Site and legally dispose of off site. Damaged glass is glass with edge damage or other imperfections that, when installed, weaken glass and impair performance and appearance.
- E. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction sealant-substrate testing.
  - F. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
  - G. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
  - H. Provide spacers for glass sizes larger than 50 united inches (length plus height) as follows:
    1. Locate spacers inside, outside, and directly opposite each other. Install correct size and spacing to preserve required face clearances, except where gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and comply with system performance requirements.
    2. Provide 1/8-inch minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.
  - I. Provide edge blocking to comply with requirements of referenced glazing publications, unless otherwise required by glass manufacturer.
  - J. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.
  - K. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.
  - L. Square cut wedge-shaped gaskets at corners and install gaskets in manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

### 3.3 TAPE GLAZING

- A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.
- B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.
- C. Cover vertical framing joints by applying tapes to heads and sills first and then to jambs. Cover horizontal framing joints by applying tapes to jambs and then to heads and sills.
- D. Place joints in tapes at corners of opening with adjoining lengths butted together,

not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.

- E. Do not remove release paper from tape until just before each glazing unit is installed.
- F. Apply heel bead of elastomeric sealant as required.
- G. Center glass lites and glazing units in openings on setting blocks and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.
- H. Apply cap bead of elastomeric sealant over exposed edge of tape when glass stop is located on the exterior.

### 3.4 GASKET GLAZING (DRY)

- A. Cut gaskets in lengths recommended by gasket manufacturer to fit openings exactly, with stretch allowance during installation.
- B. Insert soft compression gasket securely in place between glazing unit and frame or fixed stop, with joints miter cut and bonded together at corners.
- C. Center glazing units in openings on setting blocks and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glazing lites. Seal gasket joints with sealant recommended by gasket manufacturer.
- D. Install gaskets so they protrude past face of glazing stops.

### 3.5 SEALANT GLAZING (WET)

- A. Install continuous spacers between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel and weep systems until sealants cure. Secure spacers in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.
- B. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.
- C. Tool exposed surfaces of sealants to provide a substantial wash away from glass. Install pressurized gaskets to protrude slightly out of channel to eliminate dirt and moisture pockets.
  - 1. Clean excess sealant or compound from glass and framing members immediately after application, using solvents or cleaners recommended by manufacturers.

### 3.6 CLEANING AND PROTECTION

- A. Clean excess sealant and compound from glass and framing members immediately after application using solvents or cleaners recommended by manufacturers.

- B. Protect exterior glazing units from breakage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels, and clean surfaces.
- C. Protect glazing units from contact with contaminating substances resulting from construction operations including weld splatter, concrete, mortar, and all other alkaline or acidic substances. If, despite such protection, contaminating substances do come into contact with glass, remove them immediately as recommended by glass manufacturer.
- D. Examine glazing units surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, for build-up of dirt, scum, alkali deposits, or stains, and remove as recommended by glass manufacturer.
- E. Remove and replace glass that is broken, chipped, cracked, abraded, or damaged in any way, including natural causes, accidents and vandalism, during construction period.
- F. Wash glass on both faces in each area of Project not more than 4 days prior to date scheduled for inspections that establish Date of Substantial Completion.
  - 1. Glass to be cleaned according to:
    - a. GANA Glass Informational Bulletin GANA 01-0300 – Proper Procedure for Cleaning Architectural Glass Products
    - b. GANA Glass Informational Bulletin GANA TD-02-0402 – Heat Treated Glass Surfaces are Different
  - 2. Do not use razor blades, scrapers or metal tools to clean glass.

END OF SECTION 08 8000

## SECTION 09 2216 NON STRUCTURAL METAL FRAMING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes: Non-load-bearing steel framing

#### 1.2 SUBMITTALS

- A. Product Data: Manufacturer's published data on metal studs, deflection track, and fasteners.
- B. Shop Drawings: Show deflection track details. Include testing laboratory's assembly number for the rated conditions.
- C. Design analysis data showing design loads, stud gages, and necessary bracing for each condition.
  - 1. Profile equivalence as approved by Structural Engineer.

#### 1.3 QUALITY ASSURANCE

- A. Single-Source Responsibility: Obtain steel framing members for gypsum board assemblies from a single manufacturer.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Store materials inside under cover, dry, and protected against damage.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Manufacturers:
  - 1. Steel Framing and Furring:
    - a. Clark Dietrich Building Systems
    - b. Consolidated Fabricators Corp.
    - c. Marino\WARE
      - 1) StudRite by Marino/WARE is acceptable at contractor's option when utilities within walls is congested.

#### 2.2 STEEL FRAMING COMPONENTS FOR SUSPENDED AND FURRED CEILINGS

- A. Provide components of sizes indicated but not less than that required to comply with ASTM C754 for conditions indicated.
- B. Powder-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hangers of type indicated, and with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling construction, as determined by testing per ASTM E1190 conducted by a qualified testing agency.
- C. Wire for Hangers and Ties: ASTM A641, Class 1 zinc coating, soft temper.

1. Tie Wire: 18 gage galvanized annealed
2. Hanger Wire: 8 gage galvanized annealed
- D. Hanger Rods: Mild steel and zinc-coated or protected with rust-inhibitive paint
- E. Flat Hangers: Mild steel and zinc-coated or protected with rust-inhibitive paint.
- F. Angle-Type Hangers: Angles with legs not less than 7/8-inch wide, formed from 0.0635-inch thick galvanized steel sheet complying with ASTM A653 Coating Designation G90, with bolted connections and 5/16-inch diameter bolts.
- G. Channels: Cold-rolled steel, 0.0538-inch minimum thickness of base (uncoated) metal and 1/2 inch wide flanges, and as follows:
  1. Carrying Channels: 1-1/2 inch deep.
  2. Furring Channels: 7/8-inch deep.
  3. Finish: G-90 hot-dip galvanized coating per ASTM A653 for framing for exterior soffits and where indicated.
- H. Steel Rigid Furring Channels: AISI S220, hat-shaped, depth of 7/8-inch, and minimum thickness of base (uncoated) metal as follows:
  1. Thickness: 0.0329-inch, unless otherwise indicated.
  2. Protective Coating: G40 hot-dip galvanized coating per ASTM A653.
- I. Steel Studs and Runners for Ceiling Framing: AISI S220, 20 gage.

## 2.3 STEEL FRAMING FOR WALLS AND PARTITIONS

- A. Provide steel framing members complying with the following requirements:
  1. Component Sizes and Spacings: Comply with ASTM C754 under the following maximum deflection and lateral loading conditions:
    - a. Maximum Deflection at 5 pound-foot per square foot:
      - 1) Painted Interior Partitions: L/240
      - 2) Tiled Interior Walls: L/360
      - 3) Large Format Tiled Walls: L/360
  2. Protective Coating: G60 hot-dip galvanized coating per ASTM A653.
- B. Steel Studs and Runners: AISI S220
- C. Steel Rigid Furring (Hat) Channels: AISI S220, hat-shaped, 7/8-inch deep, 20 gage.
- D. Z-Shaped Furring: With slotted or non-slotted web, face flange of 1 1/4 inches, wall attachment flange of 3/4 inch, and depth required to fit insulation thickness indicated.
- E. Clip Angles: Corrosion resistant galvanized steel in 16 gage material. Clip angles shall be used to laterally brace 2-1/2 inch metal studs to the interior side of the concrete tilt-wall panels.
  1. Attach clip angles to concrete tilt wall and the metal stud at third points along the length of metal stud.

- F. Fasteners for Metal Framing: Provide fasteners of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel framing and furring members securely to substrates involved; complying with the recommendations of gypsum board manufacturers for applications indicated.
- G. Unless indicated otherwise, metal stud framing shall be formed from the following gage metal. If two conditions apply in the following listing, use the heavier gage:
  - 1. Framed openings (heads and jambs of door and window openings) - 16 gage.
    - a. 16 gage studs include both (2) studs at each jamb, full height, and headers.
    - b. One piece header/jamb unit acceptable only if approved by Architect.
  - 2. Remaining Metal Studs: Minimum 20 gage necessary to achieve the deflection requirement

## 2.4 MISCELLANEOUS MATERIALS

- A. Isolation Gaskets: Minimum 1/4 inch thick closed-cell neoprene foam. Width to match track bottom.
  - 1. Gaskets at sound rated walls to be same materials as tested for specific ratings.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates to which gypsum board assemblies attach or abut, installed hollow metal frames, and structural framing for compliance with requirements for installation tolerances and other conditions affecting performance of assemblies. Do not proceed with installation until unsatisfactory conditions have been corrected.

### 3.2 INSTALLING STEEL FRAMING, GENERAL

- A. Steel Framing Installation Standard: Install steel framing to comply with ASTM C754 and with ASTM C840 requirements that apply to framing installation.
- B. Install supplementary framing, blocking, and bracing at terminations in gypsum board assemblies to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction. Comply with details indicated and with recommendations of gypsum board manufacturer.
- C. Isolate steel framing from building structure to prevent transfer of loading imposed by structural movement. Use vertical sliding slide clip application or use of deflection track and plate track two-piece system, or slip-joint with U-channel.
  - 1. Where building structure abuts ceiling perimeter or penetrates ceiling.
  - 2. Where partition framing and wall furring abut structure, including steel beams, steel joists, at bottom of roof decks and floor decks, except at floor.

- a. Provide slip-type joints to attain lateral support and avoid axial loading.
- D. Do not bridge building expansion and control joints with steel framing or furring members. Independently frame both sides of joints with framing or furring members as indicated.
- E. Install isolation gasket where detailed, scheduled, or as a barrier from steel to cementitious substrates.

### 3.3 INSTALLING STEEL FRAMING FOR SUSPENDED AND FURRED CEILINGS

- A. Suspend ceiling hangers from building structural members and as follows:
  - 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
  - 2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with the location of hangers required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.
  - 3. Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, eyescrews, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause them to deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
  - 4. Secure flat, angle, channel, and rod hangers to structure, including intermediate framing members, by attaching to inserts, eyescrews, or other devices and fasteners that are secure and appropriate for structure as well as for type of hanger involved, and in a manner that will not cause them to deteriorate or fail due to age, corrosion, or elevated temperatures.
  - 5. Do not support ceilings directly from permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
  - 6. Do not attach hangers to steel deck tabs.
  - 7. Do not attach hangers to steel roof deck. Attach hangers to structural members.
  - 8. Do not connect or suspend steel framing from ducts, pipes or conduit.
- B. Sway-brace suspended steel framing with hangers used for support.
- C. Install suspended steel framing components in sizes and at spacings indicated but not less than that required by the referenced steel framing installation standard.
  - 1. Wire Hangers: 0.1620-inch (8-gage) diameter, 4 feet o.c.
  - 2. Carrying Channels (Main Runners): 1-1/2 inch, 4 feet o.c.
  - 3. Rigid Furring Channels (Furring Members): 16 inches o.c.

- D. Wire-tie or clip furring members to main runners and to other structural supports as indicated.

### 3.4 INSTALLING STEEL FRAMING FOR WALLS AND PARTITIONS

- A. Install runners (tracks) at floors, ceilings, and structural walls and columns where gypsum board stud assemblies abut other construction.
  - 1. Where metal framing is installed directly against exterior walls, install isolation gasket between studs and wall.
    - a. Metal framing includes Z-furring channels, hat-shaped furring, and metal studs.
- B. Installation Tolerances: Install each steel framing and furring member so that fastening surfaces do not vary more than 1/8 inch from the plane formed by the faces of adjacent framing.
- C. Extend partition framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Cut studs 1/2 inch short of full height. Continue framing over frames for doors and openings and frame around ducts penetrating partitions above ceiling to provide support for gypsum board.
- D. Install steel studs and furring in sizes and at spacing indicated but not less than that required by the referenced steel framing installation standard to comply with maximum deflection and minimum loading requirements specified.
  - 1. Install metal studs at 16 inches o.c. at partitions scheduled to receive tile finishes.
- E. Install steel studs so that flanges point in the same direction and so that leading edges or ends of each gypsum board can be attached to open (unsupported) edges of stud flanges first.
- F. Frame door openings to comply with details indicated, with GA-219, and with applicable published recommendations of gypsum board manufacturer. Attach vertical studs at jambs with screws either directly to frames or to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
  - 1. Extend vertical jamb studs through suspended ceilings and attach to underside of floor or roof structure above.
- G. Frame openings other than door openings to comply with details indicated or, if none indicated, in same manner as required for door openings. Install framing below sills of openings to match framing required above door heads.

END OF SECTION 09 2216



SECTION 09 2423  
PORTLAND CEMENT STUCCO

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes portland cement stucco.
- B. The phrase "Cement Plaster(ing)" shall mean the same as "Portland Cement Stucco" or "Stucco" as used throughout the Contract Documents.

1.2 PERFORMANCE REQUIREMENTS

- A. Provide completed assemblies with the following characteristics:
  - 1. Maximum Deflection of Vertical Assemblies: 1:360 under lateral point load of 100 lbs.
  - 2. Maximum Deflection of Horizontal Assemblies: 1:240 deflection under dead loads and wind uplift.
- B. Fire-Resistance Ratings: Where stucco systems with fire-resistance ratings are indicated, provide materials and installations identical to those assemblies tested per ASTM E119 by fire testing laboratories acceptable to authorities having jurisdiction.
  - 1. Provide stucco for fire-resistance-rated systems that has same aggregate as specified for similar non-rated work, unless specified aggregate has not been tested by accepted fire testing laboratories.
  - 2. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.
- C. Performance Requirements:
  - 1. For Soffit and Ceiling Framing: Engineer products and systems to withstand loads within limits of allowable working stresses of the materials involved under conditions indicated and without permanent deformation or failure of materials.
  - 2. Structural Requirements: Engineer products and systems to withstand loads within limits of allowable working stresses of the materials involved under conditions indicated and without permanent deformation or failure of materials. Engineer products and systems according to delegated engineering quality standards to withstand live and dead loads according to authorities having jurisdiction, applicable local building codes, and information indicated within limits and under conditions indicated.
    - a. Wind Loads: Engineer to withstand effects of a wind load acting inward and outward, normal to plane of soffit.
    - b. Thermal Movement: Engineer for expansion and contraction movement of framing members without damage to plaster finish, connection failure, undue or excessive strain on structural members, fasteners and anchors, reduction of performance, or other detrimental effects when subject to a maximum ambient temperature change (range) of 120 deg F, which may result in a surface temperature up to 180 deg F. Base calculations on actual

surface temperatures of surfaces due to both solar heat gain and nighttime sky heat loss.

### 1.3 SUBMITTALS

- A. Shop Drawings: Fastening requirements for lath attachments
- B. Samples: 18 inch long sample of hard coat trim shape
- C. Sample panels
- D. Hot Weather Work Plan: Submit written plan detailing methods, materials and equipment to be used to comply with weather requirements.
- E. Certification showing materials comply with Contract Documents
  - 1. Include manufacturer's certification showing lath meets ASTM C874
  - 2. ESR Report validating plastic or fiberglass lath
- F. Field Quality Control Reports
- G. Mock-Up

### 1.4 QUALITY ASSURANCE

- A. Single Source Responsibility: Furnish each type of product from single manufacturer. Provide secondary materials only as recommended by manufacturer of primary materials.
- B. Installer Qualifications:
  - 1. Experience: Installer with not less than 10 years experience in performing specified Work similar to scope of this Project, with a record of successful in-service performance and completion of projects for a period of not less than 10 years and with sufficient production capability, facilities, and personnel to produce required Work.
  - 2. Supervision: Installer shall maintain a competent supervisor who is at Project site during times specified Work is in progress that is experienced in installing systems similar to type and scope required for Project.
- C. Mock-Up: Prior to installation of stucco, fabricate panels for each type of finish required. Build mock-ups to comply with the following requirements, using materials indicated for final unit of Work, including all accessories fasteners, and sealants.
  - 1. Locate mock-up on Site in location directed by Architect.
  - 2. Size: 8 foot by 4 foot minimum, by full thickness mock-up using materials including lath and support system indicated for final work. Include an outside and inside corner
  - 3. Show proposed range of aesthetic effects and workmanship.
  - 4. Obtain Architect's acceptance of mock-ups before start of stucco work.
  - 5. Protect mock-up during construction in undisturbed condition as a standard for judging completed stucco work. Aesthetic review will be at 10'-0.
    - a. When directed, demolish and remove mock-ups from Site.
  - 6. If mock-up has previously been constructed by the same workmen that will be performing work here, the existing mock-up may remain. Existing

mock-up must have also been protected throughout the construction process.

- D. Lath attachment shall meet the requirements of the FBC for Project location

## 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in the original packages, containers, or bundles bearing the name of the manufacturer and brand.
- B. Store materials inside, under cover, dry, and protected from weather, direct sunlight, surface contamination, aging, corrosion, and damage from construction traffic.
- C. Remove wet or deteriorated materials from the Site
- D. Stack lath flat to prevent deformation.
- E. Handle lath to prevent damage to edges, ends, or surfaces.
- F. Protect corner beads and trim and accessories from being bent or damaged.

## 1.6 PROJECT CONDITIONS

- A. Environmental Requirements: Comply with requirements of referenced application standards and recommendations of stucco manufacturer for environmental conditions before, during, and after application.
- B. Protect contiguous work from soiling, spattering, moisture deterioration and other harmful effects that might result from plastering.
- C. Exterior Stucco Work:
  - 1. Apply and cure stucco for minimum 48 hours to prevent material from drying out during curing period. Use procedures required by climatic conditions, including moist curing, providing coverings, and providing barriers to deflect sunlight and wind.
  - 2. Apply stucco when ambient temperature is greater than 40 deg F.
- D. Stain Prevention: Prevent soil from staining exposed plaster. Immediately remove soil from exposed plaster.
  - 1. Protect base of walls from rain-splashed mud and plaster splatter.
  - 2. Protect sills, ledges, and projections from plaster droppings.
  - 3. Protect surfaces of window and door frames, and other adjacent with painted and integral finishes from plaster droppings.
  - 4. Turn scaffolding planks near work on edge at end of each day to prevent rain from splashing plaster droppings or dirt onto face of exposed plaster.

## 1.7 TESTING

- A. Testing may be requested at Architect's discretion for strength, fastening, thickness, framing, mixtures, code, and standards requirements. Initial costs will be by the Owner, unless test results are unsatisfactory.
- B. Replace unsatisfactory work at no additional cost.

## PART 2 - PRODUCTS

### 2.1 LATH

- A. Expanded Metal Lath: ASTM C847 with ASTM A653, G60, hot-dip galvanized zinc coating.
  - 1. Diamond mesh lath, 1/4 inch self furring:
    - a. Weight: 4.5 lbs. per sq. yd (2.5 lbs. per sq. yd when using paperbacked products)
    - b. Paper Backing: Where paper-backed lath is indicated, provide asphalt-impregnated paper factory-bonded to back, complying with FS UU-B-790, Type I, Grade D (vapor permeable), Style 2.

## 2.2 FASTENERS

- A. All fasteners to be corrosion resistant.
- B. Screw Fasteners for Attaching Metal Lath to Sheathed Steel Studs:
  - 1. Product Quality Standard: ASTM C1063.
  - 2. Description: Self-drilling and self-tapping screws with pan or wafer type head of size to engage 3 strands of lath; fabricated from corrosive resistant or nonferrous metal; in lengths required to achieve minimum penetration of 3/8 in beyond stud.
  - 3. Galvanized fasteners in contact with stainless steel lath shall be separated by washers made of neoprene or other inert material per manufacturer recommendations.
- C. Powder Actuated Fasteners for Attaching Metal Lath to Cementitious Substrates:
  - 1. Product Quality Standard: ANSI A10.3.
  - 2. Product Description: Low velocity, powder actuated fasteners, stainless steel drive pins, length as required for minimum 3/4 in long penetration, with washers sized engage 3 strands of lath; powder loads suitable for application indicated; sufficient to correctly attach or anchor metal lath to substrate indicated without failure.
  - 3. Obtain Owner's written permission to use powder charges on airport property prior to bringing any live rounds onto Site.

## 2.3 ACCESSORIES

- A. Comply with material provisions of ASTM C1063; coordinate depth of accessories with thicknesses and number of coats required.
  - 1. Accessories in contact with stainless steel lath shall be stainless steel to avoid galvanic corrosion.
- B. All metal accessories such as foundation weep screeds, corner beads, casing beads, control joints, and the like are to be solid zinc alloy. Comply with ASTM B69.
- C. Prefabricated Control Joints:
  - 1. One-Piece Type: Folded pair of non-perforated screeds in M-shaped configuration, with expanded flanges, or
  - 2. Two-Piece Type: Pair of casing beads with back flanges formed to provide slip-joint action, adjustable for joint widths from 1/4 inch to 5/8 inch.
  - 3. Vertical: Standard M-shaped

- 4. Horizontal: Offset M-shape, intended for horizontal applications with top leg non-perforated.
- D. Wire: ASTM A641, Class 1 zinc coating, soft temper, not less than 0.0475 inch diameter, unless otherwise indicated.
- E. Fiber for Base Coat: Alkaline-resistant glass or polypropylene fibers, 1/2 inch long, free of contaminants, manufactured for use in portland cement plaster.
- F. Glass Fiber Mesh: Glass mesh 10 x 10 construction, white resin coated, conforming to ASTM D1668, Type III, self-adhering.
  - 1. Basis of Design: Type PGM 207, Perma-Glass-Mesh by Saint Gobain
- G. Drainage Plane: Super Jumbo Tex 60 Minute by Fortifiber Building Systems Group

## 2.4 PORTLAND CEMENT STUCCO MATERIALS

- A. Base Coat Cements:
  - 1. Portland Cement: ASTM C150, Type I
  - 2. Masonry Cement: ASTM C91, Type N or S
- B. Factory-Prepared Finish Coat: Manufacturer's standard requiring addition of water only; white unless otherwise indicated.
- C. Sand Aggregate for Base Coats: ASTM C897 or C926, natural or manufactured sand as required to match finish required by Architect.
- D. Fiber for Base Coat: Alkaline-resistant (AR) glass or polypropylene fibers, 1/2 inch long, free of contaminants, meeting requirements of ASTM C116.
- E. Dash Bond coat: ASTM C1328 or ASTM C926
- F. Bonding Agent: ASTM C932, non-oxidizing, non-crystallizing, and non-re-emulsifiable.
- G. Water: Drinkable and free of substances capable of affecting stucco set or of damaging stucco, lath, or accessories.

## 2.5 STUCCO MIXES AND COMPOSITIONS

- A. Comply with ASTM C926 for stucco base and finish coat mixes as applicable to stucco bases, materials, and other requirements indicated.
- B. Base Coats: Proportion materials for respective base coats in parts by volume for cementitious materials and in parts by volume per sum of cementitious materials for aggregates to comply with the following requirements for each method of application and stucco base indicated. Adjust mix proportions within limits of ASTM C926 to attain workability.
  - 1. Fiber Content: Add fiber after ingredients. Mix at least 2 minutes. Comply with fiber manufacturer's directions but do not to exceed 2 lbs. per cu. ft. of cementitious materials. Reduce aggregate quantities accordingly to maintain workability.
- C. Factory-Prepared Finish Coats: Add water only per manufacturer's directions.

## PART 3 - EXECUTION

### PORTLAND CEMENT STUCCO

09 2423-5

### 3.1 EXAMINATION

- A. Examine surfaces to receive stucco. Do not begin until unsatisfactory conditions have been corrected.
  - 1. Substrate to conform to the requirements of ASTM C926.
  - 2. Verify weather barriers are installed.
  - 3. Verify no liquid flashing is on any face of walls at any penetrations without written verification the flashing is compatible with the entire stucco and waterproofing system.

### 3.2 PREPARATION

- A. Protect adjacent work from soiling, spattering, moisture deterioration, and other harmful effects caused by plastering.
- B. General: Comply with manufacturer's instructions, recommendations, and specifications for cleaning and surface preparation. Surfaces shall have no defects, contaminants, or errors which would result in poor or potentially defective installation or would cause latent defects in Work.
- C. Substrate Condition: Verify that gypsum sheathing and vapor retarder are properly installed.
- D. Steel Stud Framing: Locate and identify horizontal deflection tracks at top of wall framing.
- E. Temporary Grounds and Screeds: Install as necessary to ensure accurate rodding of plaster to true surfaces; coordinate with scratch-coat work.
- F. Prepare solid substrates for plaster that are smooth or that do not have the suction capability required to bond with plaster according to ASTM C926.
  - 1. Remove any form release agents and correct out of tolerance substrates before starting plaster work.

### 3.3 LATH INSTALLATION

- A. Install lathing and furring materials indicated to comply with ASTM C1063 and ANSI A42.3.
  - 1. Concrete or Block Walls with Weather Barrier: Install self-furring diamond-mesh lath.
  - 2. Flat-Ceiling and Horizontal Framing: Install flat rib lath. **Or** Install high ribbed lath
- B. Installation of Metal Lath over Synthetic Sheet Air/Water Barrier on Sheathed Steel Stud Walls:
  - 1. Install metal lath to form continuous plane over substrate.
    - a. Provide stainless steel lath at locations near water or over chlorinated water.
  - 2. Layout and arrange so that metal lath joints will not occur over vertical and horizontal laps of previously installed weather resisting sheets.
  - 3. Begin installation at bottom of substrate wall; install with long dimension at horizontal and stagger vertical end laps.

4. Lap horizontal sides not less than 1/2 inch, and securely tie between supports with lath tie wire at not more than 9 inches on centers.
  5. Attach metal lath to each support with screw fasteners at not more than 7 in on centers.
  6. Lap vertical ends not less than 1 inch.
    - a. If lap occurs over a support, securely attach with screw fasteners at not more than 7 inches on center.
    - b. If lap does not occur over a support, securely tie with lath tie wire at not more than 9 inches on center
  7. Screw fasteners shall extend through not less than 3 strands of metal lath, weather resisting sheets, gypsum sheathing and into steel stud; tip of fastener shall extend beyond stud not less than 3/8 inch.
  8. Do not extend metal lath behind or across control and expansion joints; attach each side of metal lath to separate joint accessory flange.
  9. Do not attach metal lath to horizontal deflection track at top of wall framing.
- C. Installation of Metal Lath at Cementitious Substrates:
1. Install metal lath to form continuous plane over substrate.
    - a. Provide stainless steel lath at locations near water or over chlorinated water.
  2. Install with long dimension at horizontal and stagger vertical end laps.
  3. Lap horizontal sides not more than 2 inches, and ensure horizontal edge of upper metal lath laps, or shingles, over lower metal lath.
  4. Attach metal lath with powder actuated fasteners at following locations:
    - a. At each corner.
    - b. At midpoint of long side.
    - c. At not more than 16 inches on center horizontally and not more than 7 inches on center vertically.
  5. Lap vertical ends not more than 2 inches.
  6. Ensure there is lath-to-lath continuity.
- D. Continuously reinforce internal angles with corner mesh, except where the metal lath returns 3 inches from corner to form the angle reinforcement; fasten at perimeter edges only.
- E. Place corner bead at external wall corners; fasten at outer edges of lath only.
- F. Place base screeds at termination of plaster areas; secure rigidly in place.
- G. Place 4 inch wide strips of metal lath centered over junctions of dissimilar backing materials and around all openings in plaster walls. Secure rigidly in place.
- H. Place a double layer of lath vertically above each top corner and each side of door frames to 6 inches above ceiling line, unless indicated otherwise on Drawings.
- I. Install supplementary framing, blocking, and bracing at terminations in the work.

- J. Isolation: Where lathing and metal support systems abut building structure horizontally and where walls abut overhead structure, isolate the work from structural movement sufficiently to prevent transfer of loading into the work from the building structure. Install slip- or cushion-type joints to absorb deflections but maintain lateral support.
  - 1. Frame both sides of control and expansion joints independently; do not bridge joints with furring and lathing. Lath shall be discontinuous behind control joints.
  - 2. Fasten edges of lath at control and expansion joints to prevent edge curling.

### 3.4 ACCESSORIES INSTALLATION

- A. Comply with ASTM C1063 (ASTM C1787 for non-metallic reinforcement) for provision and location of stucco accessories of type indicated. Miter or cope accessories at corners; install with tight joints and in alignment. Attach accessories to stucco bases to hold accessories in place and alignment during plastering.
  - 1. Install longest lengths possible, avoid butt joints.
  - 2. Install so that finished plaster surfaces will be true to line, level, plumb, square, curved or as otherwise required, without excessive thickness of plaster.
  - 3. Set vertical accessories plumb, and horizontal accessories level, and form true and neat corners.
  - 4. Vertical accessories shall pass through horizontal accessories.
  - 5. External Corners at Masonry Construction: Strip formed.
  - 6. Terminations of Plaster: Install casing beads, unless otherwise indicated.
  - 7. Control Joints: Install at locations indicated on Drawings or;
    - a. Where an expansion or contraction joint occurs in surface of construction directly behind stucco membrane. One piece where crack control is shown and two piece at building joints and at change of materials. No saw-cut joints allowed.
    - b. Distance between Control Joints: Not to exceed 18 feet in either direction or a length-to-width ratio of 2-1/2 to 1.
    - c. Wall Areas: Not more than 250 sq. ft. for solid substrates.
    - d. Horizontal Surfaces: Not more than 100 sq. ft. in area.
    - e. Where plasterwork areas change dimensions, to delineate rectangular-shaped areas (panels) and to relieve the stress that occurs at the corner formed by the dimension change.
  - 8. Provide water pathways and weeps at base of walls and at vertical to horizontal transitions per ASTM C1063 and C926
- B. Casing Beads: Install continuous at edges and terminations of plaster. Use perforated beads at bottom of plaster areas and non-perforated at sides and top.
- C. Install glass fiber mesh at 45 degree angle at openings in the plane of the stucco surface such as doors and windows. Mesh strips shall be 4 inches wide and a minimum of 9 inches long, installed in accordance with manufacturers written installation instructions.



### 3.5 STUCCO INSTALLATION

- A. Plastering application to be in accordance with ASTM C926.
- B. Mixing: Use mechanical mixers of approved type. Keep mixer and tools clean. Re-tempering will not be permitted.
  - 1. Mechanically mix materials to comply with applicable referenced application standards and with recommendations of stucco manufacturer.
- C. Stucco shall be three coat work, 7/8 inch thick (5/8 inch when directly applied to concrete or CMU with appropriate bonding agent).
- D. Scratch Coat: Approximately 3/8 inch thick (1/4 inch when directly applied), trowel applied with pressure and heavily cross scratched.
- E. Brown Coat: Approximately 3/8 inch thick (1/4 inch when directly applied), applied with pressure and brought to an even surface with wood float, then cross scratched.
- F. Finish Coat: Approximately 1/8 inch thick.
  - 1. Texture: Sand Finish
  - 2. Tolerance: Finish Plane: Do not deviate more than plus or minus 1/8 in per 10 ft from a true plane in finished plaster surfaces, as measured by a 10 ft straightedge placed on surface.
- G. Dampen previous stucco coats which have dried out prior to time for application of next coat. Dampen with water as required for uniform suction.
- H. Curing: Allow each coat to cure minimum 48 hours before applying subsequent coatings. Moist cure each coat to comply with installation quality standard.
  - 1. Compensate ambient climatic conditions by providing sufficient moisture in plaster mix to permit continuous hydration of cementitious materials.
  - 2. Allow sufficient time between coats to permit curing and development of sufficient rigidity to resist cracking when subsequent coat is applied.
  - 3. Utilize any of following for curing:
    - a. Fog spray of water.
    - b. Vapor barrier over plastered area.
    - c. Barriers to deflect sunlight and wind.
- I. Stucco which is cracked or crazed due to improper timing and curing will not be accepted. Remove and replace defective stucco base materials if damaged during removal of defective stucco.
- J. Moisture Retention, Curing: Dampen previous stucco coats which have dried out prior to time for application of next coat. Dampen with water as required for uniform suction. Determine the most effective procedure for curing and time lapse between application of coats based on climatic and job conditions. Stucco which is cracked or crazed due to improper timing and curing will not be accepted. Remove and replace defective stucco base materials if damaged during removal of defective stucco.

### 3.6 FIELD QUALITY CONTROL

- A. Owner's Testing Agency Field Service: The Owner may employ and pay a qualified independent testing agency to perform field quality control. Materials and installation failing to meet specified requirements shall be replaced at Contractor's expense. Retesting of materials and installations failing to meet specified requirements shall be done at Contractor's expense.
  - 1. Testing: Testing agency will test and evaluate Work during construction.
  - 2. Plaster Tests: Verify plaster composition with specified requirements according to ASTM C 780, Annex A4; made at following times during Work:
    - a. First day
    - b. 5 percent
    - c. 15 percent
    - d. 30 percent
    - e. 60 percent.
  - 3. Evaluation of Quality Control Tests: Replace Work in areas where test results fail to comply with requirements indicated.
- B. Inspection of In-Progress Work: Owner may employ and pay a qualified independent inspection agency to perform the inspections for field quality control. Re-inspections of materials failing to meet specified requirements shall be done at Contractor's expense.

### 3.7 CUTTING, PATCHING AND REPAIRS

- A. Cut, patch, point up, and repair stucco as necessary, per PCA details and ACI 524, to accommodate other work and to restore cracks, dents, and imperfections. Point-up finish plaster surfaces around items that are built into or penetrate plaster surfaces. Repair or replace work to eliminate blisters, buckles, excessive crazing and check cracking, dry outs, efflorescence, sweat outs, and similar defects and where bond to the substrate has failed.

### 3.8 CLEANING AND PROTECTION

- A. Remove temporary protection and enclosure of other work. Remove stucco from door frames, windows, and other surfaces that are not to receive stucco. Repair floors, walls, and other surfaces that have been stained, marred, or otherwise damaged during the plastering work.
- B. Provide final protection and maintain conditions, in a manner suitable to Installer that ensures stucco work being without damage or deterioration at time of Substantial Completion.

END OF SECTION 09 2423

## SECTION 09 2900 GYPSUM BOARD

### PART 1 - GENERAL

#### 1.1 SUMMARY

A. Section includes:

1. Gypsum board
2. MR board
3. Fiberglass-mat faced gypsum sheathing
4. Fiberglass mat, water-resistant gypsum tile backer
5. Abuse resistant gypsum board

#### 1.2 DEFINITIONS

- A. Gypsum Board Construction Terminology: Refer to ASTM C11 and GA-505 for definitions of terms related to gypsum board assemblies not defined in other referenced standards.

#### 1.3 ASSEMBLY PERFORMANCE REQUIREMENTS

- A. Sound Transmission Characteristics: Where indicated, provide assemblies tested for STC ratings per ASTM E90 and classified according to ASTM E413 by an independent testing agency.

#### 1.4 SUBMITTALS

- A. Product Data: Manufacturer's published data on wall board, fasteners, trim accessories, and finishing materials.

#### 1.5 QUALITY ASSURANCE

- A. Refer to "Recommended Specification on Levels of Gypsum Board Finish" published by the Gypsum Association for finish levels specified.
- B. Fire-Test-Response Characteristics: Where indicated, provide assemblies tested for fire resistance per ASTM E119.
1. Fire Resistance Ratings:
    - a. GA File Numbers in GA-600 "Fire Resistance Design Manual"
    - b. UL "Fire Resistance Directory"
    - c. Other nationally recognized testing agency
- C. Single-Source Responsibility:
1. Obtain each type of panel product from a single manufacturer.
  2. Obtain finishing materials from or approved by the same manufacturer that supplies panel products.
  3. Acoustical Sealant: Per Division 07 Section, Joint Protection.
- D. Replace all board that has become wet at any point prior to the Date of Substantial Completion, including board that has been installed and finished.

1. Exception: Installed sheathing designed for exposure to the elements, within time limits established by ASTM C1280. Longer times must be approved by the building officials.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store materials inside under cover, dry, and protected against damage. Stack panels flat to prevent sagging.
- B. Handle panels to prevent damage to edges, ends, and surfaces.
- C. Do not bend or otherwise damage metal trim accessories.

## 1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with ASTM C840 or with gypsum board manufacturer's recommendations, whichever is more stringent.
- B. Do not install interior products until installation areas are enclosed and conditioned.
- C. Ventilate building spaces as required for drying joint treatment. Avoid drafts during hot dry weather to prevent finishing materials from flash drying.

# PART 2 - PRODUCTS

## 2.1 MANUFACTURERS

- A. GWB Manufacturers:
  1. Georgia-Pacific Corp.
  2. National Gypsum Co.
  3. United States Gypsum Company
  4. CertainTeed Corp.
- B. Accessories Manufacturers:
  1. Custom Building Products
  2. Clark-Detrich (Metal, Vinyl, or Composite accessories)
  3. Fry Reglet
  4. Pittcon Industries

## 2.2 GYPSUM BOARD PRODUCTS

- A. Provide gypsum board of types indicated in maximum lengths available, minimizing joints.
  1. Thickness: Provide gypsum board 5/8-inch thick to comply with ASTM C840 for application system and support spacing indicated.
- B. Gypsum Wallboard: ASTM C1396 and as follows:
  1. Type X. Mold resistant where indicated
  2. Edges: Tapered
- C. Fiberglass-Mat Faced Gypsum Sheathing: ASTM C1177 and ASTM D3273, Score 10, Type "X" or Regular
  1. DensGlass Fireguard by Georgia Pacific Corp.

2. DensElement by Georgia Pacific Corp. (Zip board type Air barrier)
  3. e<sup>2</sup>XP by National Gypsum Company
  4. GlasRoc by CertainTeed Corporation
  5. Securock Firecode Type X by United States Gypsum Company
  6. Pabco Glass by Pabco Gypsum
- D. Fiberglass Mat, Water-Resistant Gypsum Tile Backer: ASTM C1178
1. DensShield Tile Backer by Georgia Pacific
  2. GlasRoc Tile Backer by CertainTeed Corporation
  3. e<sup>2</sup>XP Tile Backer by National Gypsum Company
- E. Abuse Resistant Gypsum Board:
1. USG Fiber Rock Brand
  2. 5/8-inch Hi-Abuse XP Wallboard by National Gypsum Company
  3. Mold Tough AR By United States Gypsum Company
  4. ToughRock Fireguard Type X Abuse Guard Gypsum Board by Georgia Pacific Corp.
  5. Extreme Abuse by CertainTeed Corporation

## 2.3 TRIM ACCESSORIES

- A. Interior Trim: ASTM C1047
1. Material: Sheet steel zinc-coated by hot-dip process
  2. Shapes indicated below by reference to Fig. 1 designations in ASTM C1047:
    - a. Cornerbead on outside corners, unless otherwise indicated.
    - b. LC-bead (J-Bead) with both face and back flanges; face flange formed to receive joint compound. Use LC-beads for edge trim unless otherwise indicated.
    - c. L-bead with face flange only; face flange formed to receive joint compound. Use L-bead where indicated.
    - d. U-bead with face and back flanges; face flange formed to be left without application of joint compound. Use U-bead where indicated.
    - e. One-piece control joint formed with V-shaped slot, with removable strip covering slot opening.
- B. Exterior Trim: ASTM C1047

## 2.4 JOINT TREATMENT MATERIALS

- A. General: Complying with ASTM C475
- B. Joint Tape for Panels:
1. Fiberglass-Mat Faced and Mildew Resistant Gypsum Sheathing: Glass mesh, 10 by 10
  2. All other Locations: Paper
- C. Setting-Type Joint Compounds for Gypsum Board: Factory-packaged, job-mixed, chemical-hardening powder products formulated for uses indicated.

1. Where setting-type joint compounds are indicated as a taping compound only or for taping and filling only, use formulation that is compatible with other joint compounds applied over it.
  2. For prefilling gypsum board joints, use formulation recommended by gypsum board manufacturer for this purpose.
- D. Joint Compound for Tile Backer Panels:
1. Glass-Mat Water Resistant Tile Backer: As recommended by board manufacturer

## 2.5 MISCELLANEOUS MATERIALS

- A. Provide miscellaneous materials for gypsum board construction that comply with referenced standards and manufacturer's recommendations.
- B. Steel drill screws complying with ASTM C1002 for the following applications:
1. Fastening gypsum board to steel members less than 0.03 inch thick.
  2. Fastening gypsum board to gypsum board.
- C. Steel drill screws complying with ASTM C954 for fastening gypsum board to steel members from 0.033 to 0.112 inch thick.

## PART 3 - EXECUTION

### 3.1 APPLYING AND FINISHING GYPSUM BOARD, GENERAL

- A. Comply with ASTM C840.
1. Do not install imperfect, damaged, or damp panels.
- B. Install ceiling panels across framing to minimize the number of abutting end joints. Avoid abutting end joints in the central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- C. Install wall/partition panels to minimize the number of abutting end joints or avoid them entirely. Stagger abutting end joints not less than one framing member in alternate courses of board.
- D. Tile Backer Board Installation:
1. Install on metal studs that are spaced at 16 inches o.c., maximum.
  2. Attach with minimum 1 1/4 inch screws at 8 inches o.c. for walls.
  3. Hold bottom 1/4 inch from shower pan or floor substrate
  4. Finish joints by pre filling with latex-fortified mortar, embed glass fiber tape, and smooth joint.
  5. Fit around penetrations with 1/4 inch maximum space
- E. Install gypsum panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.
- F. Locate edge or end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Avoid joints at corners of framed openings where possible.
- G. Attach gypsum panels to framing provided at openings and cutouts.

- H. Form control joints and expansion joints with space between edges of adjoining gypsum panels, as well as supporting framing behind gypsum panels.
  - 1. Partitions: Provide vertical control joints spread not more than 30 feet on center in partitions.
  - 2. Ceilings: Provide control joints limiting areas to 2500 square feet with the longest distance being 50 feet.
- I. Cover both faces of partition framing with gypsum panels in concealed spaces (i.e. above ceilings), except in chase walls that are braced internally.
  - 1. Except where concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
  - 2. Fit gypsum panels around ducts, pipes, and conduits.
  - 3. Where partitions intersect open concrete coffers, concrete joists, and other structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by coffers, joists, and other structural members; allow 1/4 to 3/8-inch wide joints to install sealant.
- J. Isolate perimeter of non-load-bearing gypsum board partitions at structural abutments, except floors, as detailed. Provide 1/4-inch to 1/2-inch wide spaces at these locations and trim edges with U-bead edge trim where edges of gypsum panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- K. Where STC-rated gypsum board assemblies are indicated, seal construction at perimeters, behind control and expansion joints, openings, and penetrations with a continuous bead of acoustical sealant including a bead at both faces of the partitions. Comply with ASTM C919 and manufacturer's recommendations for location of edge trim and closing off sound-flanking paths around or through gypsum board assemblies, including sealing partitions above acoustical ceilings.
- L. Space fasteners in gypsum panels according to referenced gypsum board application and finishing standard and manufacturer's recommendations.

### 3.2 GYPSUM BOARD APPLICATION METHODS

- A. Single-Layer Application:
  - 1. Ceilings: Apply gypsum panels prior to wall/partition board application to the greatest extent possible and at right angles to framing, unless otherwise indicated.
  - 2. Partitions/walls: Apply gypsum panels vertically or horizontally. Use maximum length panels to minimize end joints.
  - 3. Fastening Method: Steel drill screws
- B. Wall Tile Substrates: For substrates indicated to receive thin-set ceramic tile and similar rigid applied wall finishes, comply with manufacturer's installation directions.
- C. Exterior Soffits and Ceilings: Apply fiberglass mat faced board perpendicular to supports, with end joints staggered over supports. Install with 1/4-inch open space where panels abut other construction or structural penetrations.

1. Fasten with corrosion-resistant screws

### 3.3 INSTALLING TRIM ACCESSORIES

- A. General: For trim with back flanges, fasten to framing with the same fasteners used for panels. Otherwise, fasten trim accessories according to accessory manufacturer's directions for type, length, and spacing of fasteners.
- B. Install corner beads (bullnose beads) at outside corners.
- C. Install edge trim where edge of gypsum panels would otherwise be exposed or semi-exposed. Provide edge trim type with face flange formed to receive joint compound except where other types are indicated.
  1. Install LC-bead where gypsum panels are tightly abutted to other construction and back flange can be attached to framing or supporting substrate.
  2. Install L-bead where edge trims can only be installed after gypsum panels are installed.
  3. Install U-bead where indicated.
- D. Control Joints: Install per ASTM C840, and in locations approved by Architect for visual effect.
- E. All trim, accessories and corner beads shall be installed using screws. "Crimping" tool and staple attachment is not allowed.

### 3.4 FINISHING GYPSUM BOARD ASSEMBLIES

- A. Mix all joint compounds per manufacturer's instructions. Do not over dilute mixtures causing final finish to be unacceptably friable.
- B. Apply joint treatment at gypsum board joints (both directions); flanges of corner bead, edge trim, and control joints; penetrations; fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration and levels of gypsum board finish indicated.
- C. Prefill open joints, rounded or beveled edges, and damaged areas using setting-type joint compound.
- D. Apply joint tape over gypsum board joints and to trim accessories with concealed face flanges as recommended by trim accessory manufacturer and as required to prevent cracks from developing in joint compound at flange edges.
- E. Levels of Gypsum Board Finish: Provide the following levels of gypsum board finish per GA-214.
  1. Level 0: For temporary construction only.
  2. Level 1: For plenum areas above ceilings, concealed smoke barriers, attics, and areas where the assembly is concealed.
  3. Level 2: For areas where tile backing board (ASTM C630) is used as a substrate for tile only.
  4. Level 3: For areas to receive heavy textured, thick (1/8 inch or greater) or heavy wall coverings.
  5. Level 4: For light textured finishes, wall coverings, and painted finishes.

### 3.5 CLEANING AND PROTECTION



- A. Remove any residual joint compound from adjacent surfaces.
- B. Provide final protection and maintain conditions to ensure gypsum board assemblies remain without damage or deterioration at the Date of Substantial Completion.
- C. Remove and replace panels that are wet, moisture damaged, or mold damaged.
  - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
  - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 09 2900

## SECTION 09 3000 TILING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes:
  - 1. Glazed ceramic tile
  - 2. Porcelain tile

#### 1.2 REFERENCES

- A. TCNA Handbook for Ceramic Stone, and Glass Tile Installation by the Tile Council of North America, Inc. (TCNA).

#### 1.3 PERFORMANCE REQUIREMENTS

- A. Dynamic Coefficient of Friction on Walkway Surfaces: 0.42 minimum threshold per ANSI A137.1 AcuTest test protocol when used with slightly soapy water solution, in level interior spaces expected to be walked on when wet. 0.44 minimum on sloped surfaces using the same test methods.

#### 1.4 SUBMITTALS

- A. Product Data:
  - 1. Published data for each type of tile, mortar, grout, and other products specified with VOC levels of adhesives and other products containing VOCs highlighted
  - 2. One current TCNA Handbook on Site for reference
  - 3. Maintenance instructions, including cleaning methods, chemical solutions, stain removal methods, polishes, and sealants recommended.
- B. Shop Drawings:
  - 1. Waterproofing details
  - 2. Widths, details, and locations of expansion, contraction, control, and isolation joints in tile substrates and finished tile surfaces.
- C. Samples:
  - 1. Color samples showing the full range of colors, textures, and patterns in all price groupings. For the glazed ceramic tile use Color Groups 1 and 2 for the field and all color groups for accent and trim colors. Include samples of accent and trim involving color selection.
  - 2. Color samples consisting of actual sections of grout (cured).
- D. Certification or other proof of installers attending training session.
- E. Pre-Installation Conference notes
- F. Moisture test results
- G. Mock-up

#### 1.5 QUALITY ASSURANCE

- A. 2019 TCNA Handbook or later, to be available on site at the request of the Architect or Owner
- B. Engage an experienced installer who has completed tile installations similar in material, design, and extent to that indicated for this Project.
  - 1. Installers are required to attend a training session reviewing industry standards applicable to installations for this Project.
  - 2. At a minimum, installers (one installer in each area) shall be Journeymen Tile Layers, as recognized by the Department of Labor, tested as part of the Certified Tile Installer Program offered thru the Ceramic Tile Education Foundation, or equivalent programs offered by the National Tile Contractors Association (Five star Contractor Program), the Tile Contractor's Association of America (Trowel of Excellence), or Tile-installer Thin-set Standards verification thru the University of Ceramic Tile and Stone.
- C. Obtain each color, grade, finish, type, composition, and variety of tile from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.
- D. Test sealants to show compliance with ASTM C920. Show sealants have been tested for performance per ASTM C719, C794, and C1248.
- E. Do not use mortars for leveling or truing substrates unless product is specifically designed for that purpose.
- F. Mock-up:
  - 1. Construct mockup for each tile type, minimum 6 foot by 4 foot, with waterproofing, finish grout, sealants, and scheduled accessories
  - 2. Locate where directed
  - 3. Accepted mockup may remain as part of the work if protected thru Substantial Completion
- G. Conduct a Pre-Installation Conference prior to the start of the tiling work.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use.
- B. Prevent damage or contamination to materials by water, foreign matter, and other causes.

#### 1.7 PROJECT CONDITIONS

- A. Do not install tile until construction in spaces is completed and ambient temperature and humidity conditions are being maintained per manufacturer's written instructions.
- B. Shade work areas from direct sunlight to prevent rapid evaporation caused by excessive heat.

#### 1.8 EXTRA STOCK

- A. Deliver tile, consisting of not less than 2 percent of the total quantity of each

type, size, pattern, and color installed, to the Owner. Furnish tile in original boxes, properly marked.

- B. Supply two pieces of each shape of trim tile used, by type, shape and color, in clean cartons for Owner's use.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Refer to Interior Design Schedules for manufacturer, style, and color of tile(s) required.
- B. Tile-Setting and Grouting Materials:
  - 1. American Olean Tile Co., Inc.
  - 2. Ardex Engineered Cements
  - 3. TEC a division of H. B. Fuller Co.
  - 4. H. B. Fuller Co.
  - 5. Laticrete International, Inc.
  - 6. Mapei Corporation
  - 7. Merkrete by Parex USA
  - 8. SikaTile family of products by Sika Corporation
  - 9. Summitville Tiles, Inc.
  - 10. Upco Co. Div., Emhart Corp.
- C. Tile Accessories
  - 1. Schluter-Systems
  - 2. Ceramic Tool Company
- D. Substitutions: Where a basis of design has been specified, an equal or superior product may be accepted only upon review and written acceptance by the Architect.
  - 1. Submit substitutions in accordance with Contract Documents
  - 2. Include actual samples of proposed tile (3 total of each tile type being requested)
  - 3. All substitutions for tile shall have samples submitted within 30 days of the date of the Guaranteed Maximum Price.

### 2.2 PRODUCTS, GENERAL

- A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1, "Specifications for Ceramic Tile," for types, compositions, and other characteristics indicated.
  - a. LHT and GPT to be manufactured to meet physical properties of ANSI A137.3
- B. Colors, Textures, and Patterns:
  - 1. Architect shall select appearance characteristics from manufacturer's standard products, regardless of differing price groupings.
  - 2. Architect reserves the right to use a maximum of 3 colors in each room/space at no additional cost.

3. Grout color as selected by Architect from all available price groups.
- C. Factory Blending: For tile exhibiting color variations within ranges selected during Sample submittals, blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages and match approved Samples.

## 2.3 TILE PRODUCTS

- A. Glazed Ceramic Tile
  1. Module Size: As scheduled
  2. Thickness: 5/16 inch
  3. Face: Plain with cushion edges
  4. Use master set, back mounted sheets
  5. Trim Units: As scheduled
- B. Porcelain Tile:
  1. Composition: Porcelain, ISO 13006 Groups Ala and Bla for water absorption and dimensional tolerances
  2. Module Size: As indicated on Finish Schedule (Large Format is any tile 15 inches or more on any side. Heavy Format is defined as tile weighing over 5 lbs. per square foot.
  3. Edges rectified

## 2.4 SETTING MATERIALS

- A. Portland Cement: ASTM C150 Type 1
- B. Improved Latex-Portland Cement Mortar: ANSI A118.15
  1. Mixture of Dry-Mortar Mix and Latex Additive: Mixture of prepackaged dry-mortar mix and liquid acrylic latex additive.
  2. For wall applications, provide non-sagging, latex-portland cement mortar complying with ANSI A118.15.
  3. Use specifically formulated setting mortars for LHT and GPT.
  4. Glazed Wall Tile: Minimum 450 psi mix
  5. Porcelain Tile: Minimum 400 psi mix
- C. Epoxy Mortar: ANSI 118.3, ISO Category R.
- D. Hydrated Lime: ASTM C206 or C207 Type S
- E. Sand: ASTM C144
- F. Water: Clean and drinkable
- G. Metal Lath: ANSI A42.4, expanded, painted, 2.5 lb./sq. yd. minimum

## 2.5 GROUTING MATERIALS

- A. Standard Sanded Cement Grout: ANSI A118.6, for joints 1/8 inch or wider.
- B. Standard Unsanded Cement Grout: ANSI A118.6, for joints less than 1/8 inch
- C. Latex-Portland Cement Grout: ANSI A118.6 for materials described in Section H-2.4, composed as follows:

1. Sanded Dry-Grout Mix and Latex Additive: Factory-prepared, dry-grout mix and liquid acrylic latex additive.
- D. One hundred percent solids epoxy grout, complying with ANSI A118.3.
- E. Color: Selected by Architect.

## 2.6 MISCELLANEOUS MATERIAL

- A. Latex Underlayment: Quick set type, as recommended by membrane manufacturer, as required to provide positive drainage to floor drains.
  1. Refer to Division 03 Section Cement Based Underlayment for self leveling Underlayment
- B. Expansion Joints
  1. If not indicated on the Drawings, expansion joints shall be installed in accordance with the Tile Council of North America, Inc., Handbook for Ceramic Tile Installation, Section EJ171, latest edition, as follows:
    - a. Interior: 20' to 25' in each direction.
    - b. Exterior: 8' to 12' in each direction.
    - c. Interior tilework exposed to direct sunlight or moisture: 8' to 12' in each direction.
    - d. Where tilework abuts restraining surfaces such as perimeter walls, dissimilar floors, curbs, columns, pipes, ceilings, and where changes occur in backing materials.
    - e. All expansion, control, construction, and cold joints in the structure shall continue through the tilework including such joints at vertical surfaces.
    - f. Joints through tilework directly over structural joints shall never be narrower than the structural joint.
    - g. Joints at perimeter of each space where no field joints are detailed.
- C. Miscellaneous accessories indicated below as a profile example, any manufacturer's product meeting same performance will be acceptable:
  1. Schluter-SCHIENE, aluminum, tile termination strip. Use at all edges adjacent to different flooring materials. Height shall match adjacent flooring materials.
  2. Schluter-RENO, aluminum, stepless termination strip. Use at all edges where the tile is higher than the adjoining different floor materials.
  3. Schluter-JOLLY, Aluminum edge protection profile. Use at outside corners of tiled surfaces as detailed and at other transitions of differing materials.
  4. Schluter- DILEX-AHK, aluminum, Cove Base.
  5. Schluter-QUADEC, aluminum, finishing and edge strip.
- D. Sealant requirements per ASTM C920. Refer to Division 07 Section, Joint Protection for other requirements. Provide manufacturer's recommended primers and backers for specific joints.

## 2.7 CRACK ISOLATION MEMBRANE

- A. General: Manufacturer's standard product that complies with ANSI A118.12 for standard performance and is recommended by the manufacturer for the application indicated. Include reinforcement and accessories recommended by manufacturer.
- B. Corrugated Polyethylene (Uncoupling membrane): Corrugated polyethylene with dovetail-shaped corrugations and with anchoring fleece laminated to its underside; 1/8 inch nominal thickness.
  - 1. Basis of design: Ditra crack isolation membrane by Schluter.

## PART 3 - EXECUTION

### 3.1 INSPECTION

- A. Prior to installing tile, inspect surfaces to receive tile. Do not proceed with installation until such defects or conditions have been corrected.
  - 1. Verify walls have no efflorescence
  - 2. Examine drains, and clamping devices to verify that they are in a condition ready to receive waterproofing membrane with no deficiency that could result in a potentially defective installation
  - 3. Verify wall substrate surfaces are a maximum of 1/8 inch in 10 feet, any direction.
  - 4. Verify tolerances meet manufacturer's recommendations for GPT and LHT which may be more stringent than for thin set applications.
- B. All flattening must be completed prior to any cleavage membranes or waterproofing membranes are installed.
- C. Do not install tile over waterproofing until waterproofing has cured and been tested to determine that it is watertight.

### 3.2 PREPARATION

- A. Consult Architect to establish floor levels and required pitch to drains and floor recesses before setting any work. Maximum surface variation shall not exceed 1/4 inch in 10 feet, non-accumulative.
  - 1. Verify variations with manufacturer for LHT applications
- B. Clean rough concrete slab surface of drippings and other debris. Roughen surface if necessary. Wash thoroughly with clean water permitting concrete to become saturated. Slush with neat cement grout to insure good bond.
  - 1. Neutralize any trace of strong acid or alkali (PH level 7 to 9).
- C. When necessary because of unevenness or roughness of base, or to bring tile to proper flatness, install leveling coat and permit to set and harden, wet cure.
- D. Provide tape reinforcement at joints including inside corners and outside corners.

### 3.3 LAYOUT

- A. Determine locations of movement joints before starting tilework.
- B. Lay out tile work so as to minimize cuts less than one-half tile in size.

- C. Locate cuts in both walls and floors so as to be least conspicuous.
- D. Lay out tile wainscots to next full tile beyond dimensions shown.
- E. Align wall joints to give straight, uniform grout lines, plumb and level.
- F. Align floor joints to give straight uniform grout lines parallel with walls.
- G. Make joints between tile sheets same width as joints within sheets so extent of each sheet is not apparent in finished Work.
- H. Porcelain tile can have large variances in sizing. Do not mix sizes and types of tiles in pattern areas. Joints that do not line up or joint widths that vary will be unacceptable.
  - 1. Joint Width: 1/4 inch wide, unless otherwise recommended.

### 3.4 MIXING MORTARS AND GROUT

- A. Proportion mixes in accordance with latest ANSI standard specifications.
- B. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions using mixing equipment designed for optimum performance characteristics for installations indicated.
- C. Add materials, water, and additives in accurate proportions according to manufacturer's written instructions.
  - 1. Liquid latex additive shall be added undiluted.

### 3.5 SETTING METHODS

- A. Comply with parts of ANSI A108 series of tile installation standards in "Specifications for Installation of Ceramic Tile" that apply to types of setting and grouting materials and to methods indicated in ceramic tile installation schedules.
- B. Install floor tile, thresholds and base in accordance with Tile Council of North America recommendations.
- C. All areas must have a crack isolation membrane installed under 100 percent of tiled floor area.
- D. Concrete Subfloors
  - 1. New slabs on Grade (Thin-Set Method): TCNA F113 dry-set mortar with Tile Installation Specification ANSI A108.5.
  - 2. LHT Mortar Bed Method (Interior): Latex-portland cement mortar bond coat using the mortar bed to assist in filling the irregular space between the tile and the underlayment, ANSI A118.15. Tile Installation Specification ANSI A108.19.
- E. Walls
  - 1. Fiber Cement Board (Thin-Set Method): TCNA W244F Cementitious bond coat, vapor retarder membrane; with Tile Installation Specification ANSI A108.4.
  - 2. Fiber Cement Board (Thin-Set Method): TCNA W244F Cementitious bond coat, vapor retarder membrane except formulated specifically for LHT or GPT installations; with Tile Installation Specification ANSI



A108.19.

- F. Sound each tile after set. Replace all tiles sounding hollow.

3.6 INSTALLATION, GENERAL

- A. Perform cutting and drilling of tile without marring visible surfaces. Grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.
1. Smooth exposed cut edges.
  2. When using glazed tile sheets, minimize tearing sheets apart by drilling pipe holes as much as possible.
- B. Extend tile work into recesses and under or behind equipment and fixtures. Terminate work at obstructions, edges, and corners without disrupting pattern or joint alignments.
- C. Ensure tile joints are uniform in width, subject to normal variance in tolerance allowed in tile size. Ensure joints are watertight, without voids, cracks, excess mortar or grout.
- D. Locate expansion, control, contraction, and isolation joints, during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.
1. Locate joints in tile surfaces directly above joints in concrete substrates.
  2. Prepare joints and apply sealants to comply with requirements of Division 07 Section, Joint Protection.
  3. Isolate repaired structural cracks and shrinkage cracks per TCNA Detail F125
- E. Allow tile to set for a minimum of 48 hours prior to grouting. Follow manufacturer's directions if longer waiting period is required.
- F. Curing:
1. Flattening Beds: Moist cure for 20 hours at minimum 70° F for dry-set mortar installations. Allow to dry before setting tile. Environmental conditions and manufacturer may require longer cure times.

3.7 GROUTING

- A. Install grouting in accordance with ANSI A108.10 (A108.6 for epoxy) and manufacturer's written instructions during application and cleaning.
1. Floor application shall receive epoxy type grout and wall applications shall receive latex type grout.
- B. Rinse tile work with clean water before and after using chemical cleaners.

3.8 CLEANING AND PROTECTING

- A. Clean tile and grout as recommended by manufacturer. Remove all traces of grout.
- B. Cover exposed hardware with a heavy coating of Vaseline to protect the metal

from the possible effects of the acid or its fumes, when acid solutions are recommended by manufacturer to clean the face of finished tile work of surplus grouting or pointing mortar. Do not use acid solution for cleaning glazed tile.

- C. Protect the tile against damage after installation. Damaged tile that appears in the finish work prior to the date of Substantial Completion is to be repaired or replaced. Protect adjoining areas and surfaces.

END OF SECTION 09 3000

## SECTION 09 5100 ACOUSTICAL CEILINGS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes acoustical ceilings and related items.

#### 1.2 SUBMITTALS

- A. Product Data: Manufacturer's published data on lay-in ceiling panels, fasteners, and grid
- B. Shop Drawings:
  - 1. Ceiling suspension members.
  - 2. Method of attaching hangers to building structure.
  - 3. Ceiling-mounted items including light fixtures; air outlets and inlets; speakers; sprinkler heads; and special moldings at walls, column penetrations, and other junctures with adjoining construction.
- C. Samples:
  - 1. Manufacturer's standard sample size for each panel type specified.
  - 2. Manufacturer's standard sample for grid showing all components in grid system.
- D. Qualification data for firms and persons specified in "Quality Assurance" Article. Include list of completed projects with project names, addresses, names of Architects and Owners.
- E. Sample warranty

#### 1.3 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced Installer who has successfully completed acoustical ceilings similar in material, design, and extent to that indicated for Project.
- B. Single-Source Responsibility for Ceiling Units: Obtain each type of acoustical ceiling unit from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.
- C. Single-Source Responsibility for Suspension System: Obtain each type of suspension system from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.
- D. Fire Performance Characteristics:
  - 1. Surface Burning Characteristics: Tested per ASTM E 84 and complying with ASTM E 1264 for Class A products.
    - a. Flame Spread: 25 or less.
    - b. Smoke Developed: 50 or less.

2. Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.
  - E. Coordination of Work: Coordinate layout and installation of acoustical ceiling units and suspension system components with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system components, and partition system.
- 1.4 DELIVERY, STORAGE, AND HANDLING
  - A. Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.
  - B. Before installing acoustical ceiling units, permit them to reach room temperature and stabilized moisture content.
  - C. Handle acoustical ceiling units to avoid chipping edges or damaging units.
- 1.5 PROJECT CONDITIONS
  - A. Do not install interior acoustical ceilings until space is enclosed and weatherproof, wet work in space is completed and nominally dry, work above ceilings is complete, and ambient conditions of temperature and humidity will be continuously maintained at values near those indicated for final occupancy.
- 1.6 EXTRA MATERIALS
  - A. Furnish 02 percent extra materials of the quantity installed for ceiling panels, suspension system, and hold down clips.
- 1.7 WARRANTY
  - A. Acoustical Panel: Submit a written warranty executed by the manufacturer agreeing to repair or replace acoustical panels that fail within the warranty period. Failures include sagging and warping, and rusting of the suspension system and components.
  - B. Warranty Periods:
    1. Acoustical Panels: Ten (10) years from the Date of Substantial Completion.
    2. Grid: Ten (10) years from the Date of Substantial Completion.
    3. Acoustical panels and grid system provided by the same manufacturer shall be warranted for fifteen (15) years from the Date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Acoustical ceiling panels:
  1. Armstrong World Industries
  2. Certainteed Ceilings
  3. USG Interiors Inc.
- B. Acoustical ceiling grid systems:

1. Armstrong World Industries
2. Certainteed Ceilings
3. Donn "DX" by USG Interiors Inc.

## 2.2 MATERIALS

- A. Refer to Interior Design Documents for ceiling tile and grid required
- B. Acoustical Ceiling Tile: Shall meet ASTM E 1264 classifications as designated. Tile shall carry the humidity resistant performance characteristics. Finish shall be factory applied, washable, white latex paint, unless noted otherwise.

## 2.3 CEILING SUSPENSION SYSTEMS

- A. Suspension systems shall meet or exceed the requirements of ASTM C 635 for dimensional tolerances, coatings and finishes, and load carrying capabilities. Individual component deflection shall not exceed 1/360 of the span.
- B. Finishes and Colors: Provide hot-dipped galvanized finish (G-30 minimum) on all ceiling suspension components. Exposed surfaces of suspension system components shall receive white baked-on enamel paint.
  1. High-Humidity Finish: Comply with ASTM C 635 requirements for "Coating Classification for Severe Environment Performance" where high-humidity finishes are indicated.
- C. Grid Face: 9/16 and 15/16 inch as scheduled
- D. Wall Channel: Hemmed edge type.
- E. Rough Suspension Materials
  1. Metal Channel Runners: 1-1/2", 475 pounds per thousand lineal feet and 3/4", 300 pounds, per thousand lineal feet, cold rolled painted channels.
  2. Hanger and Tie Wire: Not less than 12 gauge galvanized soft annealed steel.
- F. Attachment Devices: Size for 5 times design load indicated in ASTM C 635, Table 1, Direct Hung, unless otherwise indicated.
  1. Powder-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attachment of hangers of type indicated and with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling construction, as determined by testing per ASTM E 1190, conducted by a qualified testing laboratory.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates and structural framing to which ceiling system attaches. Do not proceed with installation until unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Coordination: Furnish layouts for preset inserts, clips, and other ceiling anchors whose installation is specified in other sections.

- B. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Border to be 12 inches or greater, and comply with reflected ceiling plans.
- C. Laid out grid and coordinate for lighting fixtures and mechanical systems
- D. Application of acoustical treatment shall be done by the manufacturer or his authorized applicator and in accordance with the manufacturer's specifications, except as herein modified.
- E. The installation of the ceiling shall be done prior to the installation of shelving, built-in counters, and finished floors; but after the other work in the room has been completed, including painting.

### 3.3 INSTALLATION

- A. General: Install acoustical panel ceilings to comply with ASTM C 636 according to manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."
- B. Install suspension wires 4 foot on center, maximum, in each direction. Secure suspension hangers to building structure above. For lighting fixtures, install hanger wires to runners at all 4 corners of fixtures. Do not attach hanger wire to metal deck, electrical equipment, mechanical equipment or related support systems.
  - 1. Maximum splay of hanger wire is 10 degrees and must be offset per ASTM C 636.
- C. Install metal channel by saddle tying hanger wire or with leveling clips to a leveling tolerance of 1/8" in 12 feet each way.
- D. Install grid suspension system in accordance with the manufacturer's recommendations.
- E. Install wall angle at intersection of suspended ceiling and vertical surfaces. Where plenum space occurs above ceiling, apply continuous ribbon of acoustical adhesive or caulking compound on top of vertical wall angle after installation.
- F. Install acoustical units in a true and even plane, in straight line courses following lay out pattern shown in reflective ceiling plan. Fit border units neatly against vertical surfaces.
- G. Seal joints in acoustical units around pipes, ducts, and electrical outlets with caulking compound.
- H. Install edge moldings of type indicated at perimeter of acoustical ceiling area and at locations where necessary to conceal edges of acoustical units.
  - 1. Screw-attach moldings to substrate at intervals not over 16 inches o.c. and not more than 3 inches from ends, leveling with ceiling suspension system to tolerance of 1/8 inch in 12'-0". Miter corners accurately and connect securely.
- I. Install acoustical tile in coordination with suspension system.

### 3.4 CLEANING

- A. Clean exposed surfaces of acoustical ceilings, including trim, edge moldings,

and suspension members. Comply with manufacturer's instructions for cleaning and touch-up of minor finish damage. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

- B. Just prior to the Date of Substantial Completion, remove and replace broken, skinned, damaged, or dirty tile with new.

END OF SECTION 09 5100

## SECTION 09 6519 RESILIENT TILE FLOORING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes:
  - 1. Luxury vinyl tile (LVT)
  - 2. Vinyl coved base

#### 1.2 SUBMITTALS

- A. Product Data: Manufacturer's published data including maintenance data.
- B. Samples: Manufacturer's color charts consisting of actual tiles or sections of tiles showing full range of colors and patterns available for each type of resilient floor tile and base indicated.
- C. Results from Bond and Moisture Test.
- D. Installer Statement of Compliance: Certify flooring is installed in accordance with manufacturer's installation instructions, including moisture test values, to validate manufacturer's warranty.
- E. Sample warranty

#### 1.3 QUALITY ASSURANCE

- A. Single-Source Responsibility: Obtain each type, color, and pattern from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.
- B. Contractor Qualifications:
  - 1. Employ contractors skilled in the successful installation of the specified materials and accessories on similar projects for a minimum of five years.
  - 2. Installing company shall employ a minimum of three qualified installers each with a minimum of two years experience installing VCT flooring.
- C. Fire Performance Characteristics: Determined by testing products per ASTM test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
  - 1. Critical Radiant Flux: 0.45 watts per sq. cm or more per ASTM E 648.
  - 2. Smoke Density: Less than 450 per ASTM E 662.
  - 3. Flame Spread: Less than 75 per ASTM E 84.
- D. Bond and Moisture Tests: Conduct bond and moisture tests prior to installation. Bond and moisture tests shall be in accordance with manufacturer's recommendations. Provide frequency of tests as recommended by manufacturer.
  - 1. Test concrete slabs in accordance with ASTM F 1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride to ensure emission of no more than 3 lbs of water/1000 sf of slab in 24-hour period.



2. When test cannot be conducted under temperature and humidity conditions that will prevail under normal conditions, provide and maintain the 75 Deg F (+/- 5 Deg F) temperature and 50 percent (+/- 10 percent) humidity for 48 hours prior to and during the test.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Site in original unopened containers each bearing names of product and manufacturer, project identification, and shipping and handling instructions.
- B. Store materials in dry spaces protected from the weather. Maintain ambient temperatures between 50 and 90 degrees F.
- C. Store tiles on flat surfaces. Condition materials in spaces where they will be installed a minimum of 48 hours prior to installation.

#### 1.5 PROJECT CONDITIONS

- A. Maintain a minimum temperature of 70 degrees F in spaces to receive tiles for at least 48 hours prior to installation, during installation, and for not less than 48 hours after installation. After this period, maintain a temperature of not less than 55 degrees F.
- B. Do not install tiles until they have been conditioned to the space where they are to be installed.
- C. Close spaces to traffic during tile installation.

#### 1.6 SEQUENCING AND SCHEDULING

- A. Do not deliver or install products until building is enclosed, wet work completed, and HVAC system is operating and maintaining temperature and humidity at occupancy level during remainder of construction period.
- B. Install tiles and accessories after other finishing operations, including painting, have been completed.
- C. Do not begin installation until concrete slabs have cured, dry, and able to bond with adhesive as determined by manufacturer.

#### 1.7 EXTRA MATERIALS

- A. Furnish, not less than one box for each 50 boxes or fraction thereof, of each class, wearing surface, color, pattern and size of resilient floor tile installed.
- B. Furnish not less than 30 linier feet of each type, color, pattern, and size of resilient base installed.

#### 1.8 WARRANTY

- A. Manufacturer's Warranty: Standard warranty covering manufacturing defects and installation integrity: Installation integrity is defined as products installed in accordance with the manufacturer's installation manual.
  1. Flooring: Five years minimum
  2. Base: One year minimum

- B. Installer's Warranty: Guarantee flooring and base installation against defects in installation, workmanship and loss of adhesion for one year.
- C. Warranty period begins on the Date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Refer to Floor Finish Legend for manufacturer, styles, and colors required.

### 2.2 TILE AND ACCESSORIES

- A. LVT and LVP: ASTM F1700, Class III, Type B
  - 1. Thickness: Not less than 0.10 inches
  - 2. Wear Layer Thickness: Not less than 20 mil
  - 3. Maximum static load must exceed 900 PSI
- B. Edge Reducing Strips: Beveled one inch to 1-1/2 inch wide by 1/8-inch thick vinyl or rubber, same manufacturer as tile; colors selected by Architect. Use where meeting unfinished floor or flooring of different material.
  - 1. For VCT to carpet transition see Division 09 Section, Carpet Tile/Broadloom Carpet.

### 2.3 RESILIENT BASE

- A. Vinyl Cove Base: ASTM F1861, Type TS (vulcanized thermoset rubber) or Type TP (thermoplastic rubber). 4 inch high by roll stock, 1/8-inch thick, ribbed back, rounded top, and set on type. (4 foot length base material is not acceptable.)
  - 1. Provide molded corners 4 inches in height by 4 inches in length each way for internal and external corners.

### 2.4 MISCELLANEOUS MATERIALS

- A. Adhesive: Manufacturer's heavy duty adhesive, with pick-proof sealant as detailed.
- B. Subfloor Filler: Portland cement-based latex underlayment; type recommended by flooring manufacturer.
- C. Cleaner: "Spal Concentrate" by Huntington Laboratories or approved equal, required for vinyl composition tile.
- D. Floor Polish: Equinox by Pioneer/Eclipse.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine areas where installation of tiles will occur. Do not proceed until unsatisfactory conditions have been corrected.
- B. Concrete Subfloors: Verify concrete slabs comply with ASTM F 710 and the following:

1. Dry and free of curing compounds, sealers, hardeners, and other materials whose presence would interfere with bonding of adhesive. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by tile manufacturer.
2. Finishes of subfloors comply with tolerances and other requirements specified in Division 03 Section, Cast-In-Place Concrete for slabs receiving resilient flooring.
3. Subfloors are free of cracks, ridges, depressions, scale, and foreign deposits of any kind.
4. Provide a 100 percent solids epoxy membrane over concrete substrates that do not meet the required moisture vapor transmission rate, as recommended by flooring manufacturer to maintain warranty conditions.

### 3.2 PREPARATION

- A. Comply with manufacturer's installation specifications to prepare substrates to receive tile.
- B. Use trowelable leveling and patching compounds per tile manufacturer's directions to fill cracks, holes, and depressions in substrates.
- C. Remove coatings, including curing compounds, and other substances that are incompatible with flooring adhesives and that contain soap, wax, oil, or silicone, by using a terrazzo or concrete grinder, a drum sander, or a polishing machine equipped with a heavy-duty wire brush.
- D. Broom and vacuum substrates immediately before tile installation. Following cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust.
- E. Apply concrete slab primer, if recommended by flooring manufacturer, prior to applying adhesive. Apply according to manufacturer's directions.

### 3.3 INSTALLATION

- A. Comply with tile manufacturer's installation directions and other requirements indicated applicable to each type of tile installation scheduled.
- B. Lay out tile from center marks established with principal walls so tiles at opposite edges of room are of equal width. Adjust to avoid using widths less than half of a tile. Install tiles square with room axis, unless otherwise indicated.
  1. Install vinyl composition tiles in a parquet pattern.
- C. Match tiles for color and pattern by selecting tiles from cartons in same sequence as manufactured and packaged, if so numbered. Cut tiles neatly around all fixtures. Discard broken, cracked, chipped, or deformed tiles.
  1. Lay tiles in pattern with respect to location of colors, patterns, and sizes as indicated on Drawings.
- D. Scribe, cut, and fit tiles to butt tightly to vertical surfaces, permanent fixtures, built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings.
- E. Extend tiles into toe spaces, door reveals, closets, and similar openings.

- F. Maintain reference markers, holes, or openings that are in place or plainly marked for future cutting by repeating on finish flooring as marked on subfloor. Use chalk or other nonpermanent marking device.
- G. Install tiles on covers for telephone and electrical ducts, and similar items occurring within finished floor areas. Maintain overall continuity of color and pattern with pieces of flooring installed on these covers.
- H. Set tile to substrates without producing open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, or other surface imperfections in completed tile installation.
- I. Use full spread of adhesive applied to substrate in compliance with tile manufacturer's directions for trowel notching, adhesive mixing, and adhesive open and working times. Spray applied adhesives are not allowed.
- J. Hand roll tiles where required by tile manufacturer.

### 3.4 RESILIENT WALL BASE INSTALLATION

- A. Apply wall base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
  - 1. Weld base to flooring where scheduled.
- B. Install wall base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.
- C. Tightly adhere wall base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
- D. Do not stretch wall base during installation.
- E. On masonry surfaces or other similar irregular substrates, fill voids along top edge of wall base with manufacturer's recommended adhesive filler material.
- F. Premolded Corners: Install premolded corners before installing straight pieces.
- G. Job-Formed Corners: Not allowed

### 3.5 CLEANING AND PROTECTION FOR LVT

- A. Sweep, dust mop or vacuum the floor thoroughly to remove all loose dust, dirt, grit and debris.
- B. Remove any dried adhesive residue with a clean, white cloth dampened with mineral spirits, carefully following the warnings on the container.
- C. Damp mop the floor with a properly diluted neutral (pH 6 to 8) detergent solution.
- D. If necessary, scrub the floor using a rotary machine or auto scrubber with a properly diluted neutral detergent solution and the appropriate scrubbing brush (aggressiveness equivalent to 3M red pad for light scrub, 3M blue pad or equal for a deep scrub).

- E. Thoroughly rinse the entire floor with fresh, clean water. Remove rinse water and allow the floor to dry completely.
- F. Protect flooring against mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period. Use protection methods indicated or recommended by tile manufacturer.
- G. Clean tiles not more than 4 days prior to dates scheduled for inspections intended to establish date of Substantial Completion in each area of Project. Clean tiles using method recommended by manufacturer.

END OF SECTION 09 6519

SECTION 09 6813  
CARPET TILE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes carpet tile and accessories

1.2 SUBMITTALS

- A. Product Data:

1. Printed data sheets for each type of carpet and accessory specified
2. Installation system proposed
3. Care, cleaning, and maintenance information. Include two copies of each of the following CRI publications:
  - a. "Steps in the right direction, an Owner's Manual for Your Carpet" with pertinent treatment highlighted
  - b. Carpet Maintenance Guidelines for Commercial Applications
4. Smoke and flammability reports

- B. Shop Drawings:

1. Working layout for each area to be carpeted. Include location of accent tile.
2. Show pattern, color, trim units, and other pertinent installation details
3. Maintenance training video

- C. Samples:

1. Manufacturers standard color books of actual samples
2. Manufacturers standard trim chain
3. Three full size samples of each carpet tile pattern submitted
4. Three 12-inch long strips of each trim unit submitted

- D. Certifications and Testing:

1. Provide certification that tile has been manufactured in accordance with the Contract Documents.
2. Traffic Appearance Retention Rating (TARR) documentation
3. Test results of the Bond and Moisture tests
4. Test results from the Calcium Chloride tests

- E. Sample Warranty

1.3 QUALITY ASSURANCE

- A. Commitment to Sustainability: Carpet manufacturer shall have an operational carpet-recycling program for 100 percent of the new carpet product (at the end of its useful life). This program shall not consist of incineration.
- B. Contractor's Qualifications:
1. Employ only experienced installers, skilled in installation of the specified systems.

2. Installation company shall employ a minimum of three qualified installers with a minimum of three years experience each of installing similar systems.
- C. Manufacturer's Qualifications:
  1. Employ only manufacturers making the specified materials as a current production item.
  2. Manufacturers shall have a minimum of five years of production experience with carpet of similar types to that specified.
- D. Source Limitations: Obtain carpet from a single source, unless otherwise directed by Architect.
- E. Install carpet after building is enclosed, wet work complete, and HVAC system operational.
  1. Maintain temperature and humidity at designed level for the remainder of the construction period.
- F. Carpeting shall have a minimum critical radiant flux of 0.45 watts per square centimeter (radiant panel test) per ASTM E648 "Standard Test Methods for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source."
- G. Carpeting shall meet a minimum TARR rating 3.0 for Heavy Traffic
- H. Carpet Fire-Test-Response Characteristics: Provide carpeting with the following characteristics as determined by testing identical products per test method indicated below by U.L. or another nationally recognized testing laboratory acceptable to the authorities having jurisdiction. Identify carpet with appropriate markings of applicable agency.
  1. Surface Flammability: Passes CPSC 16 CFR, Part 1630
  2. Flam Spread 25 or less per ASTM E 84
  3. Smoke Density: 450 or less per ASTM E 84
  4. Static: Under 3.5 kv. Below the average level of human sensitivity
- I. Adhesives: VOC levels shall comply with Division 07 Section, Joint Protection.
- J. Carpet shall have been tested against and passed the CRI Green Label Plus Program.
- K. Calcium Chloride Test: Measure moisture vapor emissions from concrete slab prior to the installation of the carpeting. Maximum moisture emissions levels shall be as recommended by the carpeting manufacturer.
- L. Bond and Moisture Tests: Provide bond and moisture tests prior to the installation of the carpet. Tests shall be in accordance with the carpet manufacturer's recommendations. Provide amount of tests as recommended by the carpet manufacturer.
- M. The Architect may send samples of materials, taken at random from the jobsite, to an independent testing laboratory. The cost of testing shall be borne by the contractor if the material is found non compliant with specifications.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in the original factory packaging, labeled with identification of manufacturer, brand name, lot number, and test data.
- B. Store materials on site, in original packaging, inside a well ventilated area protected from weather, moisture, soilage, extreme temperatures, and humidity.

#### 1.5 PROJECT CONDITIONS

- A. Dimensions on Drawings are approximate. Field verify dimensions and other conditions affecting Work.

#### 1.6 EXTRA STOCK

- A. Two percent of the amount installed for each Carpet Type

#### 1.7 WARRANTIES

- A. Manufacturer's Warranty:
  - 1. Warranty shall be non-prorated against surface pile wear, zippering, edge ravel, excessive static, loss of resiliency, tough bind, moisture barrier (passes British Spill Test), and delamination of secondary backing.
  - 2. Surface pile wear for warranty purposes shall be no more than 10% loss of face fiber.
  - 3. Warranty shall be for a minimum of twenty years.
- B. Installer's Warranty: Guarantee the installation against defects in workmanship, seaming, and loss of adhesion for a period of three years.
- C. Warranties shall begin on the date of Substantial Completion.
- D. Upon written notice from the Architect, correct or replace improper work and material that may become apparent within the warranty period. Repairs will be made in accordance with this specification.
  - 1. Exception: Any problems arising from improper adherence to the manufacturer's recommended maintenance program.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Refer to Interior Design Documents for Manufacturer, style and color
- B. Basis of Design: Carpet Tile from the Furrows and Aiki Collection by Interface Flooring Systems
- C. Products of the following manufacturers will be considered substitutions provided they equal or exceed the performance specifications of the basis of design and satisfy the aesthetic and design concept of the Project.
  - 1. Shaw Tek
  - 2. Collins & Aikman
- D. Substitutions: Where a basis of design has been specified, an equal or superior product may be accepted only upon review and written acceptance by the Architect and Interior Designer.



1. Submit substitutions in accordance with Division 01 Section, Product Substitutions
2. Include actual samples of proposed carpet tile patterns (5 total) in addition to the Division 1 requirements
3. All substitutions for carpet tile shall have samples submitted within 30 days of the date of the Granted Maximum Price.

## 2.2 MATERIALS

- A. If chosen carpet tile does not meet the following, notify Architect for direction.
- B. Carpet shall have been tested against and passed the Indoor Air Quality Carpet Testing Program requirements of CRI.
- C. Vinyl Carpet Trims: Basis of Design is products by Johnsonite Rubber Co. Colors as selected by Architect. Provide edge type as follows:
  1. Transition between 1/8 inch resilient and 1/4 inch carpet to encapsulate both cut edges. CTA-XX-A. Adjust part number in CTA series for actual carpet thickness.
  2. Transition from 1/4 inch thick carpet to substrate. CTA-XX-J. Adjust part number in CTA series for actual carpet thickness.
- D. Adhesive:
  1. Releasable pressure sensitive type as recommended by the carpet manufacturer which will allow removal of carpet tile at any time without damage or adherence to carpet.
    - a. Grid Set Adhesive 2000 or Spray Adhesive 5400 with Spray System for GlasBac and GlasBac RE
  2. Adhesive must contain antimicrobial preservative; have "zero" calculated VOC's and be on "greenlist."

## PART 3 - EXECUTION

### 3.1 SURFACE PREPARATION

- A. Examine substrate for compliance with the Contract Documents. Do not proceed until unsatisfactory conditions have been corrected.
- B. Remove subfloor coatings, including curing compounds, dust, dirt, solvents, soaps, silicone, wax, oil, grease, paint, plaster, and other substances that are incompatible with adhesives. Allow floors to dry. Apply sealer to prevent dusting.
- C. Ensure concrete floors are free from cracks, ridges, depressions, scaling and irregularities.
- D. Ensure constant floor height after installation with a maximum variation of 1/4-inch per 10 feet non-cumulative in any direction.

### 3.2 INSTALLATION

- A. Install carpet system in accordance with manufacturer's recommendations.
  1. Carpet coverage shall be complete to edges of space and free of gaps

2. between tiles and at bases of permanent fixtures within designated areas.  
Install using direct glue-down method. Comply with CRI 104, Section 8,  
Direct Glue-Down Installation

- B. Check matching of carpet before cutting and ensure no visible variation between dye lots.
- C. Cut carpet in a manner to allow proper seam and pattern match. Ensure cuts are straight, true, and not frayed.
- D. Adhesive: Prime substrate as recommended by adhesive manufacturer. Spread adhesive at stipulated rates for full adhesion.
- E. Install trims where carpet terminates at other floor coverings. Use full-length pieces only. Where splicing cannot be avoided, butt ends tight and flush.
- F. Install tile to be free of air pockets.
- G. Do not place heavy objects such as furniture on carpeted areas for a minimum of 24-Hours after completed installation or until adhesive is set.
- H. Separate waste in accordance with the Waste Management Plan. Manufacturer to reclaim all scrap not retained by Owner.

### 3.3 CLEANING AND PROTECTION

- A. All scrap carpet shall be palletized and returned to the manufacturer.
- B. Immediately after installation, remove visible cement, dirt, wrappings, cartons, clippings, and other foreign substances. Vacuum carpet.
- C. Provide final protection and maintain conditions in a manner acceptable to the manufacturer and installer until the Date of Substantial Completion.
- D. Conduct an instruction class for the Owner's maintenance staff prior to the Date of Substantial Completion.
  1. Instruct personnel on the proper method of cleaning the material as recommended by the manufacturer.
  2. Videotape this session.

END OF SECTION 09 6813

## SECTION 09 7216 WALL COVERINGS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section Includes wall coverings

#### 1.2 SUBMITTALS

- A. Product Data: For adhesives, primers, adhesives, and sealers.
- B. Shop Drawings: Show location and extent of each wall covering type. Indicate termination points.
- C. Samples: Full complement of colors and patterns available for each type specified, to the Architect for selection. Include variations in texture as well as quality, weight, and other information as necessary for an adequate consideration of the materials.
- D. Product certificates signed by wall covering manufacturer certifying materials furnished comply with specified requirements.
- E. Certified test reports showing compliance with requirements for fire performance characteristics and physical properties.
- F. Maintenance data for inclusion in Operating and Maintenance Manual. Include the following:
  - 1. Methods for maintaining wall covering.
  - 2. Precautions for use of cleaning materials and methods that could be detrimental to finishes and performance.

#### 1.3 QUALITY ASSURANCE

- A. Qualifications of Installers: For actual cutting and installation of wall covering, use experience installers familiar with the installation recommendations of the manufacturer.
- B. Material must be Class "A" interior finish where indicated and meet or exceed the flame spread, fuel contributed, and smoke developed ratings per ASTM E 84.

#### 1.4 PROJECT CONDITIONS

- A. Maintain a constant temperature not less than 60 degrees F in installation areas for at least 10 days before and 10 days after installation.

#### 1.5 EXTRA MATERIALS

- A. Furnish extra materials from same production runs as wall covering installed. Package materials with protective covering and identify with labels describing contents. Deliver extra materials to Owner.
  - 1. Rolls: Furnish quantity of full-size units equal to 10 percent of amount installed.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURER

- A. Refer to Interior Design schedules for manufacturers, styles, and colors.

## 2.2 MATERIALS

- A. The finished product shall comprise a backing material of the weight and quality called for and a surface material bonded to the fabric backing material with a uniform impervious surface texture of pleasing appearance of smooth or textured design.
  - 1. Type I for vinyl faced units
- B. Pigments used in the covering material shall be color fast and deliver a finished appearance of uniform color and consistent shade. When designs are used, they shall be uniform in size and the run shall be of such a nature that exact matching at seams can be achieved. Unless otherwise called for, the width shall be the standard 54 inches width as produced by the manufacturer.
- C. Adhesive: Only that adhesive recommended by the manufacturer of the wall covering being used will be accepted. This adhesive to be resistant to mildew and vermin. It shall provide a permanent bond between the wall covering and the backing material.
  - 1. Only latex vinyl adhesives will be accepted. Clay based adhesives are not allowed.
- D. Primers and Sealers: Only low VOC primers and sealers recommended by the manufacture of the wall covering being used for anticipated substrate.
- E. Refer to Color Schedule for color selections.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Where wall covering is scheduled to be installed, prime, seal, and perform other preparation work of substrates in accordance with the wall covering manufacturer's recommendations, and specifications.
- B. Spread adhesives to insure bond between the wall covering and the substrate. Avoid spreading adhesive too far ahead to the application. Make sure that adhesives are uniformly spread and free of excess that will cause bumps or imperfections on the finished surface.
- C. Seams must be closely and neatly butted; do not overlap. Horizontal seams will not be acceptable.
- D. Edges around protruding equipment, devices, and adjoining surfaces shall be neatly butt fitted. Poor Workmanship will not be acceptable. Corner Work shall be neatly, in accordance with the manufacture's recommendations; and where the material is bent around interior or exterior corners, it shall be done in such a way that there will be no void in the corner or adjacent to same. Interior corners may be butt fitted providing the Work is neatly and accurately done. No seams shall occur closer than 4 inches away from a corner.

### 3.2 CLEANING

- A. Remove excess adhesive immediately after installation and keep the surface clean and free from soil and stains which may appear thereon. After hanging,

surfaces must be cleaned immediately of traces of paste and dirt by washing with clean water. Do not use carbon tetrachloride or lacquer solvent.

END OF SECTION 09 7216

SECTION 09 7416  
FLEXIBLE WOOD VENEER WALLCOVERING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes wood veneer wallcoverings.

1.2 SUBMITTALS

- A. Submit manufacturer's product data and installation instructions for each type of wood veneer wallcovering, adhesive and accessory required.
  - 1. Include data on physical properties, fire hazard classification and fire detection characteristics of wallcoverings.
  - 2. Include manufacturer's recommendations for maximum permissible moisture content of substrates.
- B. Submit 6" X 9" samples of each type of wood wallcovering specified, inclusive of product name, wood species and cut and/or figure labeled on the back of each sample.
- C. Submit a copy of maintenance instructions.
- D. Mock-up

1.3 QUALITY ASSURANCE

- A. Manufacturer: Provide each type of wood wallcovering required produced by one manufacturer.
- B. Applicator: Installation by skilled commercial wallcovering applicators with no less than three years of documented experience installing wallcovering of the types and extent specified for the project.
- C. Fire Hazard Classification: Provide materials that comply with Class A Fire Rating when tested in accordance with ASTM E84.
  - 1. Flame Spread: 10
  - 2. Smoke Developed: 25
- D. Mock-up: Install not less than three full-width sheets of each pattern designated by the architect. Architect will review installation for conformance to the Contract Documents. Maintain approved test area as part of the finished installation work and as a standard of comparison for the installation throughout the project.

1.4 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver all wood wallcovering to the job site in the distributor's undamaged packaging clearly labeled and properly identified.
- B. Store materials in a clean, dry, protected area where temperature and humidity remain stable and within the ranges specified by the distributor.

1.5 PROJECT CONDITIONS

- A. Maintain a constant temperature range of 65 degrees F to 85 degrees F, with not more than 50% relative humidity and not less than the relative humidity specified for the project area in the AWI Quality Standards Section 1700-T-19, for at least 4 days

prior to, throughout the installation period and maintained consistently thereafter.

- B. Lighting: Provide permanent lighting during the installation process. If temporary lighting is required, provide not less than an 80-foot candles per square foot lighting level minimum measured mid-height at substrate surfaces.

## 1.6 ATTIC STOCK

- A. Replacement Materials: Provide between 5 percent of each species, cut and finish of wallcovering installed for attic stock. Furnish replacement materials from same production run as installed materials. Protect material with clearly marked packaging indicating product identification and project location.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Basis of Design: Akupanel Fusion Profile Wrapped Wood Veneer Wallcovering by Acoustical Art Concepts.
  - 1. Species: English Oak.
- B. Composition: MDF and polyester fiber with authentic wood veneer.
  - 1.
  - 2. Factory applied protective urethane coating to ensure quality and help maintain the integrity of the wood veneer wallcovering.

### 2.2 ACCESSORIES

- A. Adhesive:
  - 1. Roman Decorating Products: Extra Strength Pro-732, Clay Strippable Pro-774
- B. Substrate Primer/Sealer: Acrylic base primer specifically formulated for use with flexible wood veneer wallcovering.
  - 1. Romans Decorating Products: Pro-935 (R 35), Pro-977

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates and installation conditions. Confirm GWB is a Level 4 finish.
- B. Test substrates with suitable moisture meter and verify that moisture content does not exceed 7%.
- C. Verify that substrate surfaces are clean, dry, smooth, structurally sound and free from surface defects and imperfections that would show through the finished surface.
- D. Notify architect in writing of any conditions detrimental to the installation.
- E. Do not proceed with work until conditions have been corrected.

### 3.2 INSTALLATION

- A. Install wood veneer wall coverings in accordance with manufacturer's written

installation instructions.

- B. Install each sheet in sequential, numerical order, as printed on the back of each sheet.
- C. Install as delivered from the factory with the standard urethane finish applied by the manufacturer.
- D. Surface preparation: Provide hanging surface that is smooth and free of all excess dust, oils or other foreign matter.

### 3.3 CLEAN-UP COMPLETION

- A. Protect the finished wood wallcovering from damage that may occur from other trades until project has been completed.

END OF SECTION 09 7416



## SECTION 09 9000 PAINTING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes painting and finishing work.
- B. The Architect shall not be limited in the number of colors selected for single space or for the complete Project.

#### 1.2 DEFINITIONS

- A. The terms "paint", "protective coating", and similar terms include paints, special coatings, stains, sealers, fillers, and other types of coatings and coating materials whether used as primers, barrier, intermediate, or finish coats individually or as a system.
- B. Exposed Surfaces: Surfaces exposed to view when permanent or built-in fixtures, covers, grilles, mechanical and electrical equipment housings, ducts and conduits, are in place; surfaces in back of movable equipment and furniture; and interior surfaces of ducts visible through grilles, interior surfaces visible through equipment covers, and blank-off panels.

#### 1.3 SUBMITTALS

- A. Product Data: Manufacturer's published data for each type of product indicated.
- B. Materials List: An inclusive list of required coating materials. Indicate each material and cross reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
  - 1. Prepare coating systems schedule proposed on the basis of the surfaces, types of materials, and their dry film thickness. List the name and product number for the products proposed for each use.
  - 2. This shall in no way be construed as permitting substitution of materials for those specified or approved for this Work by the Architect.
- C. Color Chip Catalog: Provide Architect with a complete current color chip catalog from which colors may be selected. Manufacturers may fulfill this requirement by updating catalog that Architect may presently have in possession.
- D. Draw Downs: Two 9 x 9 inch samples of each selected color and texture.
- E. Manufacturer's Recommendations: In each case where material proposed is not the material specified or specifically described as an acceptable manufacturer in this Section, submit for the Architect's review the current recommended system published by the manufacturer of the proposed material.
- F. Manufacturer's Inspection report showing the substrate has been reviewed; is properly prepared, and compatible for the scheduled coating system.
- G. Field samples
- H. Attic Stock

#### 1.4 QUALITY ASSURANCE

- A. Single Source Responsibility: Provide primers and undercoat materials produced by the same manufacturer as the finish coats.
  - 1. Do not mix products from differing manufacturers unless specifically permitted and accepted in writing by the involved manufacturers. Such acceptance shall not affect printed recommendations or warranties. Provide such acceptances prior to commencing work.
  - 2. Paint containers must display label showing manufacturer's product identification.
- B. Material Quality: Provide the manufacturer's best quality materials of the various coating types specified. Paint material containers not displaying manufacturer's product identification will not be accepted.
- C. Applicator: Company specializing in commercial blast cleaning and painting, with at least five years experience under the same name, and three projects of equal size and comparable scope using identical generic coating types.
  - 1. Applicator for metal work to have blast cleaned two projects to SSPC SP5, SP6 or SP10 specifications within the past two years.
- D. Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
- E. Codes and Standards: In addition to complying with pertinent codes and regulations, comply with the Painting and Decorating Contractors of America (PDCA) in their "PDCA Industry Standards" unless more stringent requirements are specified in the Contract Documents.
- F. Field Samples:
  - 1. Provide a complete room field sample illustrating coating color, texture, and finish.
  - 2. Provide exterior field sample at an outside corner condition with finish extending minimum 10 feet both directions and selected height. Field Sample may include trim colors.
  - 3. Locate where directed by Architect and Owner. Permanent lighting may be required by Architect prior to inspections.
  - 4. Accepted sample may remain as part of the work if undisturbed at the Date of Substantial Completion.
- G. Environmental Requirements:
  - 1. VOC emissions from architectural paints and coatings shall not exceed the VOC and chemical component limits of Green Seal Standard GS-11 requirements.
    - a. Non-flat 150 g/l
    - b. Flat 50 g/l
    - c. Exceptions: Specialty coatings where durability is the dominant priority.
      - 1) Surfaces with epoxy paint system Scheduled

2. VOC emissions from Anti-corrosive and anti-rust paints applied to interior ferrous metal substrates shall not exceed the VOC content limit of 250 g/L established in Green Seal Standard GC-03, Anti-Corrosive Paints, 2nd Edition, January 07, 1997.
3. Floor coatings, primers, sealers, and shellacs applied to interior elements must not exceed the VOC content limits established in South Coast Air Quality Management District (SCAQMD) Rule 1113, Architectural Coatings, rules in effect on January 1, 2004.
4. Paints shall be manufactured without the use of any formaldehyde precursors.

#### 1.5 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
- B. Do not apply materials when the surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer
- C. Do not apply exterior coating during rain, or when relative humidity is outside the humidity ranges required by the paint product manufacturer
- D. Provide adequate lighting during the application of any coating system, minimum level shall be that level that will be required for the intended use of the space.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver paint materials to the job site in their original unopened containers with labels intact and legible at time of use.
- B. Store materials at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in well ventilated area.
  1. Provide a 10B:C fire extinguisher in the immediate vicinity of the storage area.
  2. Store only the approved materials at the job site and store only in a suitable and designated area restricted to the storage of paint materials and related equipment.
  3. Use means necessary to ensure the safe storage and use of paint materials and the safe disposal of waste.

#### 1.7 ATTIC STOCK

- A. Deliver to the Owner 1 gallon of extra stock of each type, color, and gloss of material used. Deliver sufficient unmixed proportions of multi component materials to make minimum 1 gallon of each.
- B. Furnish extra paint materials from the same production run as the materials applied in the Work. Package paint materials in unopened, factory-sealed containers for storage and identify with labels describing contents including location of application.
  1. Furnish multi component materials in correct proportions for mixing and label parts respectively.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Products specified are those known suitable for this type of work and are based on products shown on the schedules at the end of this section and require no further approval as to manufacturer or catalog number.
  - 1. Substitution requests shall include manufacturer's literature for each proposed product giving the name, generic type, descriptive characteristics, and independent testing laboratory certification for meeting or exceeding characteristics as listed on data sheets from the design basis products. Systems subject to Architect's approval.
  - 2. Substitute products shall be the highest quality grade of the various types of materials regularly manufactured by the manufacturer for indicated substrates. Substitute products may have to be a different generic type to provide performance comparable to that specified. Materials not displaying the manufacturer's identification as the highest-grade product, or not recommended by the manufacturer's lab as the best and most suitable product will not be accepted.
  - 3. Substitutions which propose decrease the film thickness or fail to meet any of the performance or other characteristics of the design basis materials will not be considered.
- B. Other Acceptable Manufacturers:
  - 1. Carboline Company
  - 2. Tnemec
  - 3. Benjamin Moore & Company
  - 4. Pittsburgh Paints Co. (formally PPG Paints)
  - 5. Sherwin Williams
  - 6. Lanco
  - 7. Florida Paints
- C. Products of the following manufacturers are acceptable for the textured coating materials:
  - 1. Thoro Consumer Products by BASF Construction Chemicals, LLC
  - 2. Textured Coatings of America, Inc.
  - 3. Sherwin-Williams
  - 4. PPG Paints
  - 5. Florida Paints

### 2.2 MATERIALS

- A. Coatings: Ready mixed, except field catalyzed coatings. Prepare pigments:
  - 1. To a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating
  - 2. For good flow and brushing properties
  - 3. Capable of drying or curing free of streaks or sags
  - 4. Interior materials furnished shall produce a surface having a Class A rating for flame, fuel, and smoke.
- B. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other

materials not specifically indicated but required to achieve the finishes specified; commercial quality.

- C. Material Compatibility: Provide primers, finish coat materials, equipment, and related materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by the manufacturer based on testing and field experience.
  - 1. Coordinate primed or pre-finished products specified elsewhere in these Specifications, assuring compatibility of the total systems.
  - 2. Provide barrier material over suspected noncompatible substrates as recommended by coatings manufacturer. If performance of specified finish system will be compromised due to incompatibility, remove the noncompatible finishes and re-prime. Barrier coat, removal and re-priming to be at no additional cost to Owner.
  - 3. Thinners shall be only those thinners recommended for that purpose by the manufacturer of the material to be thinned.
- D. Materials not specifically indicated but required for preparation, application, or clean-up shall be of high grade commercial quality.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine areas and conditions under which painting work is to be applied. Do not proceed with work until unsatisfactory conditions have been corrected.
- B. Starting of painting work will be constructed as Applicator's acceptance of surfaces and conditions within any particular area.
- C. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, friable drywall compound, or conditions otherwise detrimental to formation of a durable paint surface.
- D. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
- E. Test shop applied primers for compatibility with subsequent cover materials.
- F. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the maximums as recommended, for the types of coatings to be used, by the manufacturer.
- G. Measure pH level in concrete and stucco surfaces for compliance with manufacturer's compatible recommendations.
- H. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and application.

### 3.2 SURFACE PREPARATION

- A. General
  - 1. Perform preparation and cleaning procedures in accordance with paint manufacturer's instructions, and as specified, for each substrate condition.

2. Remove hardware, hardware accessories, machined surfaces, plates, lighting fixtures, and similar items in place prior to surface preparation and painting operations. Following completion of painting of each space or area, reinstall removed items.
  - a. If removal is impractical or impossible because of size or weight of the item, provide surface-applied protection before surface preparation and painting.
3. Clean substrates of substances that could impair bond of the various coatings. Remove oil and grease before cleaning. Program cleaning and painting so that contaminants from cleaning process will not fall onto wet, newly painted surfaces.
- B. Provide barrier coats over incompatible primers or remove and re-prime.
  1. Shellac and spot prime with industry accepted "stain killers" at all marks or stains which may bleed through final finishes.
- C. Before applying succeeding coats, primers and undercoats shall be integral and shall function as intended. Touch up all scratches, abrasions and other disfigurements and remove any foreign mater before proceeding with the following coat. All spot-priming or spot-coating shall be feathered into adjacent surfaces for a smooth final surface.
  1. Do not apply topcoats over inadequately cured primers
- D. Do not apply final coats until other work with operations that would be detrimental to finish coats has been completed in that area.
- E. When the manufacturing of paint supplied does not require or recommend a primer, and a single coat will provide required coverage, approval from the Architect must be obtained to delete second coat; and a credit shall be due the Owner.
- F. Unprimed Steel and Iron Surfaces: Use more stringent cleaning methods from material manufacturer or SSPC for substrate and finish system.
  1. Remove dirt, grease, oil, foreign matter, and contaminants by means of chemical or solvent cleaning (SSPC SP-1). Remove residue prior to coating. Surfaces must be clean and dry at the time of hand, power tool, or abrasive blast cleaning.
  2. Hand Tool Cleaning, SSPC SP-2: Use hand methods such as wire brushing, chipping, sanding, scraping, and similar abrasive or impact types of tools.
  3. Power Tool Cleaning, SSPC SP-3: Use power-operated brushes, chipping hammers, scalers, sanders, grinders, and similar abrasive or impact types of equipment.
  4. Abrasive blast cleaning, SSPC SP-6: Use a closed captured abrasive blast cleaning system to remove rust, rust scale, milscale, previous coatings, etc. The preparation shall impart a profile of between 1.5 and 2.5 mils.
  5. Brush-off Blast Cleaning, SSPC SP-7: Remove all visible oil, grease, dirt, loose rust and loose paint by compressed air nozzle blasting, centrifugal

- wheels or other specific method. The preparation shall impart a profile of about 1.0 mill on galvanized or non-ferrous metals.
6. Prime cleaned areas prior to flash rusting, but no later than the same day. If the cleaned surfaces become contaminated prior to priming by hand prints, oil, grease, or other foreign matter, they shall be solvent cleaned and re-cleaned as appropriate.
  - G. Shop Primed Steel and Iron Surfaces: Areas that have had shop prime coat damaged are to be re-prepared by receiving a power tool cleaning (SSPC SP-3), or abrasive blast cleaning (SSPC SP-6) for the respective surface and coating involved. Feather edges to make touch-up patches inconspicuous.
  - H. Welds: Prepare welds by removing oils, greases, foreign matter, and contaminants in accordance with SSPC SP-1. Remove weld spatter, slag, and flux deposits. Grind surface to a smooth transition. Power tool clean or abrasive blast clean, depending on surface and finish system, areas to adhere primer but not less than 2-inches from the weld.
  - I. Galvanized Surfaces: Remove surface contamination, oils, and other residuals, and wash with solvent in accordance with SSPC SP-1. Pretreat in accordance with SSPC PT-2 or apply primer recommended by manufacturer.
  - J. Concrete, Stucco, and Masonry Surfaces:
    1. Remove loose particles, sand, and other contaminants. Test for alkalinity and moisture content.
      - a. Pressure wash concrete, masonry, and stucco, surfaces prior to the application of coating systems.
      - b. Perform water-bead test to assure that contaminants have been removed.
      - c. Allow surfaces to dry a minimum of 48 hours prior to priming or painting.
    2. Do not paint surfaces where moisture content or alkaline level exceeds that permitted in manufacturer's written instructions.
    3. Do not apply any coatings to new concrete until it has reached full cure for 28 days
    4. Remove laitance, efflorescence, form oil, curing compounds, scale, salt or alkali powder, mold, mildew, and other foreign matter by methods recommended by coatings manufacturer. Rinse with fresh water. Allow to dry.
    5. Correct any alkalinity imbalance that may be detrimental to the coating system's performance.
    6. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.
    7. Fill voids, honey-combs, pin holes, and tie holes with flexible epoxy or polymer modified cementitious patching compound.
  - K. Wood Surfaces: Clean surfaces of dirt, oil, grade stamps, pencil marks, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Seal knots, pitch streaks and sappy sections. Fill nail holes and other indentations with putty, flush with adjacent surfaces after primer has dried. Sand

wood surfaces smooth with 100 grit sandpaper and remove dust.

1. Treat surfaces of open-grained woods with paste filler. Thin paste filler to brushing consistency and apply in two coats, with stiff, short-bristled brush. Allow filler to dry. Rub surface across the grain with coarse burlap or 3-M pads until the surplus filler is removed.
2. Scrape and clean small, dry, seasoned knots and apply a thin coat of shellac or other recommended knot sealer before application of primer. Sand smooth when dried.
3. Scuff and pressure wash any exterior wood exhibiting mill glaze (shiny slick spots) before finishing.
4. Prime, stain, or seal wood to be painted immediately upon delivery.
  - a. Do not allow wood to weather more than three days (72 hours) before priming. If three days have passed, wood surface must be scrub sanded with 80 and 100 grits. Exception: Pressure treated wood must be seasoned, dry, and free of salts and other water soluble materials.
  - b. Prime edges, ends, faces, undersides, and backsides of wood, including cabinets, counters, cases, and paneling.
5. When transparent finish is required, backprime with spar varnish.

L. Gypsum Board Surfaces:

1. Fill minor defects with filler compound and spot prime defects after repair.
2. Plaster: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Finish smooth and flush with adjacent surfaces.
3. Prime steel corner beads with appropriate primer before applying waterborne topcoats.
4. Do not begin paint application until finishing compound is dry and sanded smooth.

- M. Non-Compatible Finishes: Materials or equipment with non-compatible factory finishes shall receive an application of an intermediate or barrier material as required by the manufacturer of finish product. If performance of specified finish system will be compromised due to incompatibility, Architect reserves the right to require removal of factory primer or finish, and application of a new compatible primer. Additional work and materials required by non-compatible finishes shall be provided at no additional cost to Owner.

### 3.3 MATERIALS PREPARATION

- A. Mix and prepare painting materials in accordance with manufacturer's written instructions.
- B. Store materials not in actual use in tightly covered containers. Maintain containers used in storage, mixing, and application of paint in a clean condition, free of foreign materials and residue.
- C. Stir materials before application to produce a mixture of uniform density and stir as required during application. Do not stir surface film into material. Remove film and, if necessary, strain material before using.

### 3.4 APPLICATION

#### PAINTING

09 9000-8



- A. General: Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied.
  - 1. Apply additional coats when undercoats, stains, or other conditions show through final coat of paint, until paint film is of uniform finish, color, and appearance. Give special attention to ensure that surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
  - 2. Apply material only to clean, dry surfaces and during periods of favorable weather unless otherwise allowed by the manufacturer.
  - 3. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Paint surfaces behind permanently-fixed equipment or furniture with prime coat only before final installation of equipment.
  - 4. Paint front and back sides of access panels and removable or hinged covers to match exposed surfaces.
  - 5. Seal top and bottom edges of wood doors with two coats of shellac or other effective sealer immediately upon delivery of doors to Site and after trimming to size.
  - 6. Finish exterior doors on tops, bottoms, and side edges same as exterior faces unless otherwise indicated.
  - 7. Sand lightly between each succeeding enamel or varnish coat.
  - 8. Do not apply caulks and sealants until primers or sealers have been applied.
  - 9. If undercoats, stains or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color and appearance.
  - 10. Ensure edges, corners, crevices welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
- B. Take dry bulb and wet bulb temperature readings when preparing and coating metal surfaces. Do not proceed if conditions are not within the recommended or specified tolerances.
- C. Use a tack rag to tack off all gypsum walls prior to priming.
- D. Brush or roll out and work materials onto surfaces in an even film, free of marks.
- E. Spray Application: Utilize spray application on metal surfaces where hand brush work would be inferior.
  - 1. Each application shall provide the equivalent hiding of brush-applications. Do not double back with spray equipment for the purpose of building up film thickness in one pass.
  - 2. Backroll all applications on stucco surfaces.
- F. Make each application to provide a uniform finish, distinctively darker than the proceeding. Make edges adjoining other materials or colors sharp and clean, without overlapping. Sand between applications with fine sandpaper or rub surfaces with pumice stone in accordance with manufacturer's directions, where required to produce a smooth even finish.
- G. Scheduling Painting: Apply first coat material to surfaces that have been

cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

1. Allow sufficient time between successive coatings to permit proper drying. Do not recoat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.
  2. Slightly vary the color of succeeding coats.
- H. Paint Film Thickness: Make as many applications of material as necessary to obtain the minimum dry film thickness recommended by the manufacturer. Rate of application shall not exceed manufacturer's recommendations for each coat.
- I. Prime Coats: Apply prime coat of material which is required to be painted or finished and which has not been prime coated by others.
1. Recoat primed and sealed surfaces where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no burn through or other defects due to insufficient sealing.
  2. Coordinate manufacturer's prime coats with finish coats as specified herein. If compatibility is not ascertained during the bidding period, and verification submitted with the shop drawings, then prime coat paint system as specified herein shall be applied to the item prior to finish painting as specified herein.
- J. Pigmented Finishes: Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.
1. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- K. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not in compliance with specified requirements.

### 3.5 FINISHING MECHANICAL AND ELECTRICAL EQUIPMENT

- A. Paint shop primed equipment. Paint shop finished items when shop finish is damaged. Galvanized items are not considered pre-finished and are to be painted when visible (outside mechanical/electrical closets).
- B. Prime and paint insulated and non-insulated pipes, conduit, boxes, insulated and non-insulated ducts, hangers, brackets, collars and supports exposed to view.
- C. Prime and paint exposed to view mechanical and electrical equipment occurring in finished areas, in addition to manufacturers paint finish if any.
1. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, nonspecular black paint.
  2. Refer to Mechanical and Electrical Sections for schedule(s) of stencil identification and banding for equipment, ductwork, piping, and conduit in accordance with ANSI requirements. Consult Architect for resolution of color or identification conflicts.

- D. Paint both sides and edges of plywood backboards for electrical and telephone equipment with fire-retardant finish before installing backboards or equipment.

### 3.6 FIELD QUALITY CONTROL

- A. Work is subject to inspection by the Architect, Owner, or their representative(s) at any time.
  - 1. Owner may engage the services of a qualified testing agency to sample paint materials being used. Samples of material delivered to Site will be taken, identified, sealed, and certified in presence of Contractor.
- B. The coating thickness shall be determined by the use of a properly calibrated Nordson-Microtest, Elcometer dry film thickness gage, or Tooke gage. Keep one of these instruments on Site with calibration equipment, for field quality control purposes and for use by the Architect, Owner, or their representative(s). Use selected instrument frequently to maintain proper control on film thickness.
- C. Refinish whole wall where portion of finish has been damaged or is not acceptable.

### 3.7 CLEAN-UP AND PROTECTION

- A. Remove from Site discarded paint materials, rubbish, cans, and rags at end of each work day.
- B. Upon completion of painting work clean window glass and other paint-spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
  - 1. Provide "Wet Paint" signs as required to protect newly painted finishes.
- D. At the completion of Work of other trades, touch-up and restore damaged or defaced painted surfaces.

### 3.8 PAINT TYPES AND NUMBER OF COATS

- A. The following schedules are intended to identify the type of finishes which are required for the various surfaces, and to identify the surfaces to which each finish is to be applied.
  - 1. Where the substrate has a compatible and satisfactory prime coat already on it, the prime coat specified for the numbered finish may be omitted. Test prime coat for compatibility before applying additional coats.
  - 2. When the manufacturing of paint supplied does not require or recommend a primer, and a single coat will provide required coverage, approval from the Architect must be obtained to delete second coat; with a credit.
- B. To define requirements for quality, function, and textures, the following list of materials designates the manufacturer's brand, types, and other requirements to conform to the requirements of this Project.

- C. Sheens specified are for consistency in pricing. Coordinate exact sheens required with Architect prior to submitting drawdowns.

### 3.9 EXTERIOR PAINTING SCHEDULE

- A. All surfaces: Touch up surfaces defined by architectural features or changes in plane.

- B. Concrete, Masonry, and Stucco Coatings:

1. High Build Acrylic Finish:

- a. Primer: Acrylic primer applied at spreading rate recommended by the manufacturer.

- |    |                   |   |
|----|-------------------|---|
| 1) | Sherwin-Williams: | Loxon Concrete Masonry Primer Interior/Exterior Latex LX02W0050 |
| 2) | Benjamin Moore:   | Self Priming  |
| 3) | PPG Paints:       | 4-603XI Perma-Crete® Int/ Ext Alkali Resistant Primer           |
| 4) | Lanco Paint:      | Lanco RS3356 Rainshield High pH Acrylic Primer                  |
| 5) | Florida Paints:   | SunFlex 3850 Exterior Masonry & Concrete Primer                 |

- b. First and Second Coats: Satin, exterior, acrylic-latex enamel applied at spreading rate recommended by the manufacturer.

- |    |                   |   |
|----|-------------------|---|
| 1) | Sherwin-Williams: | CF11W0051 ConFlex XL Smooth High Build Acrylic Coating            |
| 2) | Benjamin Moore:   | Flat 400 Regal Select Exterior High Build                         |
| 3) | PPG Paints:       | 4-222 Perma-Crete Interior/Exterior High Build 100% Acrylic Satin |
| 4) | Lanco Paint:      | Lanco RS2918 Rainshield High Build Acrylic Satin                  |
| 5) | Florida Paints:   | SunFlex Exterior Hi-Build 100% Acrylic Satin                      |

- c. Surfaces: Concrete walls, columns, beams, windowsills, and lintels, Masonry walls, and stucco surfaces. Other items as may be indicated, scheduled, or exposed to view.

- C. Ferrous Metal:

1. Alkyd Enamel:

- a. Primer: Metal primer applied at spreading rate recommended by the manufacturer.

- |    |                   |   |
|----|-------------------|---|
| 1) | Sherwin-Williams: | Kem Kromik Universal Metal Primer B50Z Series                   |
| 2) | Benjamin Moore:   | Alkyd Metal Primer P06  |
| 3) | PPG Paints:       | Multiprime 4160/4360  |
| 4) | Lanco:            | Lanco MM100 Metal Master Rust Inhibitive Metal Primer(Red/Gray) |

- 5) Florida Paints: Ironman 5450 Alkyd Metal Primer Interior/Exterior
- b. Second and Third Coat: Semigloss, enamel applied at spreading rate recommended by the manufacturer.
  - 1) Sherwin-Williams: Industrial Enamel, B54 Series.
  - 2) Benjamin Moore: DTM Alkyd Semi-Gloss P24
  - 3) PPG Paints: HPC Urethane Alkyd Semi-gloss 4336
  - 4) Lanco: Lanco SE800 Rust Eliminator Urethane Modified Alkyd
  - 5) Florida Paints: Induzi 5940 PolyThane Industrial Enamel Interior/Exterior
- c. Surfaces: Structural steel members, lintels, bumper posts, hollow metal doors and frames, backflow and valves, exposed plumbing piping, and exposed steel. Refer to MEP documents for other painting requirements.
- d. Paint both interior and exterior side of hollow metal doors and frames.
- e. Primer may not be required on shop-primed items. Confirm in writing with the manufacturer of the type of shop primer being applied. Surface preparation shall be as recommended by the painting materials manufacturer.

### 3.10 INTERIOR PAINTING SCHEDULE

- A. The standard paint finish shall be "satin". In high traffic areas or as deemed necessary for specific building use, "semi-gloss" finish shall be standard where durability is priority.
  - 1. Refer to Schedules on Drawings for selected sheens
  - 2. Architect to have final say on sheen during Shop Drawing Submittal phase.
- B. All surfaces: Touch up surfaces defined by architectural features or changes in plane.
- C. Gypsum Board:
  - 1. Acrylic-Latex Finish:
    - a. Primer: Latex-based, interior primer applied at spreading rate recommended by the manufacturer.
      - 1) Sherwin-Williams: Moisture Vapor Barrier Primer B72W11
      - 2) Benjamin Moore: Super Spec Vapor Barrier Primer 260
      - 3) PPG Paints: Seal Grip Perm Sealer/ Vapor Barrier 17-9801
      - 4) Lanco: Lanco WP3741 Prepare-HB Acrylic Universal High Build

Primer

- 5) Florida Paints:
- b. First and Second Coats: Semigloss, acrylic-latex, interior enamel applied at spreading rate recommended by the manufacturer.
  - 1) Sherwin-Williams: ProMar 200 Zero VOC Latex Semi-Gloss B31W2600
  - 2) Benjamin Moore: Ultra Spec 500 Semi-Gloss N539
  - 3) PPG Paints: Speedhide Zero Interior Latex Semi Gloss 6-5510
  - 4) Lanco: Lanco CO3820 Complete Zero Interior Semi-Gloss
  - 5) Florida Paints: Sunhide 2230 Latex Wall & Trim Paint Semi-Gloss
- c. Surfaces: Gypsum board walls, bulkheads, ceilings, where epoxy is not indicated.
- d. First and Second Ceiling Coats: Flat, acrylic-latex, applied at spreading rate recommended by the manufacturer
  - 1) Sherwin-Williams: Pro Industrial WB Dryfall Flat, B42W181
  - 2) Benjamin Moore: SuperKote 5000 Dryfall Flat (N110)
  - 3) PPG Paints: Speedhide Super Tech WB Dryfall 6-725XI
  - 4) Lanco: DF3738 Dryfall Acrylic Waterborne Flat
  - 5) Florida Paints: StickUp 8800 Waterborne Latex Dryfall Interior
- 2. Epoxy:
  - a. Primer: Waterborne epoxy polyamide.
    - 1) Sherwin-Williams: Moisture Vapor Barrier Primer B72W11
    - 2) Benjamin Moore: Fresh Start Superior 046
    - 3) PPG Paints: Speedhide Zero Interior Sealer 6-4900XI
    - 4) Lanco: Prepare-HB Acrylic High Build Primer
    - 5) Florida Paints: Glawesome 4150 Premium Interior Latex Enamel Undercoater
  - b. First and Second Coats: Semi-Gloss, Waterborne epoxy polyamide.
    - 1) Sherwin-Williams: Water Base Epoxy B70 Series, Semi-Gloss Hardener B60V25
    - 2) Benjamin Moore: Corotech Acrylic Epoxy V450
    - 3) PPG Paints: Aquapon WB EP Epoxy, 98E-1
    - 4) Lanco: LP3825 Pre-Cat Waterborne

- Semi-Gloss Epoxy  
Aquations 5270 WB Epoxy
- 5) Florida Paints:
- c. Surfaces: Gypsum board walls, bulkheads, ceilings where epoxy is indicated.
- D. Painted Wood:
1. Acrylic-Latex Finish:
- a. Primer Coat: Applied at spreading rate recommended by the manufacturer.
- 1) Sherwin-Williams: Premium Wall & Wood Primer
- 2) Benjamin Moore: Fresh Start Superior 046
- 3) PPG Paints: 17-955 SEAL GRIP® Interior Latex Enamel Undercoater
- 4) Florida Paints: Glawesome 4150 Premium Interior Latex Enamel Undercoater
- b. First and Second Finish Coats: Semigloss, acrylic-latex interior enamel applied at spreading rate recommended by the manufacturer.
- 1) Sherwin-Williams: ProMar 200 Interior Latex Semi-Gloss
- 2) Benjamin Moore: Ultra Spec 500 Semi-Gloss N539
- 3) PPG Paints: SpeedHide® Zero Interior Latex Semi Gloss 6-5510
- 4) Florida Paints: SunHide 2230 Latex Wall & Trim Paint Semi-Gloss
- E. Utilities Equipment Backer Boards: Flame Control No. 20-20 flat Intumescent Fire Retardant Paint as provided by most manufacturers.
- F. Ferrous Metal:
1. Acrylic Enamel:
- a. Primer: Metal primer applied at spreading rate recommended by the manufacturer.
- 1) Sherwin-Williams: Pro Industrial Pro-cryl Universal Primer B66W01310
- 2) Benjamin Moore: Acrylic Metal Primer P04
- 3) PPG Paints: 4020 Pitt-Tech Plus Int/Ext Industrial DTM Primer/Finish Enamel
- 4) Florida Paints: Aquatra 5350 Industrial DTM Acrylic Primer Interior/Exterior
- b. Second and Third Coats: Gloss, applied at spreading rate recommended by the manufacturer.
- 1) Sherwin-Williams: Pro Industrial Multi-Surface Acrylic, B66 Series
- 2) Benjamin Moore: DTM Acrylic Gloss P28

- 3) PPG Paints: Pitt Tech Plus EP Gloss 90-1510
- 4) Florida Paints: Aquatratra 5340 Industrial DTM Acrylic Enamel Gloss Interior/Exterior
- c. Surfaces: Hollow metal doors, frames, access doors, miscellaneous steel, etc. where scheduled, noted to be painted, or exposed to view.

END OF SECTION 09 9000



## SECTION 10 1400 SIGNAGE

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Interior signage.
  - 2. Exterior building letters.

#### 1.2 SUBMITTALS

- A. Product data for each item specified.
- B. Samples:
  - 1. Interior room number and name signs.
  - 2. Exterior building letters.
  - 3. Color sample chart for each type of sign indicated
- C. Provide a comprehensive list of all room names and numbers for each building space as well as quantities and locations for all other signs specified.
- D. Provide one set of specialty tools required for changing and maintaining signage.

#### 1.3 QUALITY ASSURANCE

- A. Reference Codes and Specifications: FBC.
- B. Each door to each occupied space shall have a room sign installed.
- C. Signage shall conform with the Accessibility Requirements Manual from the Florida Department of Community Affairs, Florida Board of Building Codes and Standards.
  - 1. All room signage and life safety signage shall be in Braille per the Florida Accessibility Code, 703.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver signage to the Site in protective wrap to prevent damage. Store in a dry area, protected from the elements.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURER

- A. Interior identifying devices and exterior building letters shall be as manufactured by one of the following:
  - 1. Creative Signs Design
  - 2. Rick's Quality Printing & Signs, Inc.
  - 3. Vital Signs of Orlando, Inc.
  - 4. Sign Design of Florida, Inc.
  - 5. Environmental Graphics, Inc.
  - 6. Gemini, Inc.
  - 7. Innerface Architectural Signage
  - 8. Commercial Signs & Graphics

9. Signs Plus
10. APCO Graphics, Inc.
11. ASI Sign Systems
12. Best Sign Systems

## 2.2 INTERIOR SIGNAGE

- A. The following sign description is to be for pricing only. Actual signs will be a "signage Package" to be determined.
- B. General
  1. Graphic Process: Raised letters and Braille, formed as an integral part of the sign face.
  2. Material: 1/8-inch thick clear matted acrylic plastic with all edges eased.
  3. Size: 7-1/2 inches by 7-1/2 inches with 3/8-inch radius corners
  4. Colors: Letters and background colors as selected by Architect from manufacturer's standard colors.
  5. Letters: Letters and numbers shall have width to height ratio between 3:5 and 1:1 and a stroke width to height ratio between 1:5 and 1:10. Letters and numbers shall be raised 1/32-inch, uppercase, sans serif or simple sans serif type and shall be accompanied with Grade 2 Braille. Raised characters shall be 5/8-inch high minimum and 2 inches high maximum.
  6. Characters and backgrounds must be eggshell, matte, or other nonglazed surface.
- C. Maximum Occupancy Signage: Signs reading "MAXIMUM OCCUPANCY xx."
- D. Toilet Room Accessibility Signs: Provide one sign depicting International Men/Women Symbol at each accessible toilet room.
- E. Interior Room Name and Number Signs: Layout of room name and number shall be as directed by the Architect.
  1. Layout of room name and number shall be as directed by the Architect.
- F. Storage Signs: Provide at electrical, mechanical, and fire riser rooms to read NO STORAGE ALLOWED.
- G. Fire Extinguisher and Fire Alarm Sending Station Sign:
  1. Copy to read:
    - a. FIRE ALARM PULL STATION INSIDE
    - b. FIRE EXTINGUISHER INSIDE
  2. Provide the above signs in the corridor adjacent to the primary door that has a fire pull station or fire extinguisher inside. White lettering on red background, same material, size, and mounting as Interior Room Name and Number Signs.

## 2.3 EXTERIOR BUILDING LETTERS

- A. 16 inches high, 2 inches deep letters, 3/4-inch stand out, baked enamel finish. Color as selected by Architect.
- B. Letter Style: Font chosen by Architect
- C. Material: Cast aluminum

- D. Installation Method: Pin mounted, 3/4 inch from wall
- E. Provide a clear back on building letters
- F. Verify actual copy and layout with Owner and Architect prior to fabrication
- G. Provide mounting and installation kits for mounting building letters.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Inspect both the substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.
- B. Mount interior signage with concealed mechanical fasteners recommended by manufacturer.
- C. Install interior signage in accordance with final Shop Drawings, Accessibility Requirements Manual from the Florida Department of Community Affairs.
- D. Secure Work true to line and level. Allow for building expansion.
- E. Visual Effects: Provide uniform joint widths in exposed Work. Arrange joints in exposed Work to obtain the best visual effect. Refer questionable choices to the Architect for final decision.
- F. Isolate incompatible material as necessary to prevent deterioration.
- G. Mounting Heights: Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Architect for final decision.
  - 1. Mount accessible signage at 60-inches above finished floor to the center line of the sign.

END OF SECTION 10 1400

SECTION 10 2310  
GLAZED INTERIOR WALL AND DOOR ASSEMBLY

PART 1 - GENERAL

1.1 SUMMARY

- A. Glazed interior wall and door assemblies.

1.2 ADMINISTRATIVE REQUIREMENTS

- A. Pre-installation Meeting: Convene at project site seven calendar days prior to scheduled beginning of construction activities of this section to review section requirements.
  - 1. Require attendance by representatives of installer, other entities directly affecting, or affected by, construction activities of this section.
  - 2. Notify Architect four calendar days in advance of scheduled meeting date.

1.3 SUBMITTALS

- A. Product Data: Manufacturer's descriptive literature for each component in partition assembly.
- B. Shop Drawings: Drawings showing layout, dimensions, identification of components, and interface with adjacent construction.
  - 1. Include field measurements of openings.
  - 2. Include Elevations Showing:
    - a. Locations and identification of manufacturer-supplied door hardware and fittings.
    - b. Locations and sizes of cut-outs and drilled holes for other door hardware.
  - 3. Include Details Showing:
    - a. Requirements for support and bracing of overhead track.
    - b. Installation details.
    - c. Appearance of manufacturer-supplied door hardware and fittings.
- C. Selection Samples: Two sets, minimum size 2 by 3 inches, representing manufacturer's full range of available metal materials and finishes.
- D. Design Data: Design calculations, bearing seal and signature of structural engineer licensed to practice in the State in which the Project is located, showing loads at points of attachment to the building structure.
- E. Certificates: Contractor to certify that installer of partition assemblies meets specified qualifications.
- F. Operation and Maintenance Data: For manufacturer-supplied operating hardware.
- G. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.
- H. Sample warranty.
- I. Manufacturer's Installation Instructions: Include complete preparation,

installation, and cleaning requirements.

#### 1.4 QUALITY ASSURANCE

- A. Fabricator Qualifications: Minimum three years of experience designing, assembling, and installing partition assemblies similar to those specified in this section.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until installation.

#### 1.6 WARRANTY

- A. Correct defective Work within a one year period after date of Substantial Completion.
- B. Provide five year manufacturer warranty against excessive degradation of metal finishes. Include provision for replacement of units with excessive fading, chalking, or flaking.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Basis of Design:
  - 1. 487 Series Framed Glass Wall Office System by C.R. Laurence Co., Inc.

#### 2.2 FRAMED GLAZED INTERIOR WALL AND DOOR ASSEMBLIES

- A. Framed Glazed Interior Wall Assembly: Factory fabricated assemblies consisting of center-glazed rectilinear aluminum framing with screw spline or clip joinery.
  - 1. Configuration: As indicated on drawings.
  - 2. Profile Width: 1-1/2 inch.
  - 3. Profile Depth: 5-11/16 inch overall.
  - 4. Profile Face Trim: 1-1/2 inch wide by 3/8 inch deep, snap in place.
  - 5. Wall Construction Width, Throat Size: 4-7/8 inch maximum wall, consisting of metal studs.
  - 6. Frame Finish: Class I natural anodized.
  - 7. Provide wood blocking at sill of glazing frame to match height of floor finish.
  - 8. Exposed Fasteners: Aluminum.
  - 9. Perimeter Anchors: Steel, properly separated from aluminum framing.
  - 10. Coordinate wall and door assembly preparation and provide hardware as necessary for fully operable installation.
  - 11. Design system to withstand normal operation without damage, racking, sagging, or deflection.
  - 12. Factory assembled to greatest extent practical; may be disassembled to accommodate shipping constraints.
- B. Sliding Frameless Glass Doors: Top supported without holes required in glass.
  - 1. Door Configuration: As indicated on drawings.
  - 2. Door Weight: 264 lbs. maximum.
  - 3. Glass Thickness: 3/8 inch, 1/2 inch, tempered.
  - 4. Door Hardware: Manufacturer Std Hardware

5. Provide accessories as required for complete installation.
  6. Basis of Design: C.R. Laurence Co., Inc; CRL290 Series Top Hung Sliding Door System.
  - C. Other Manufacturers: Provide either the product identified as "Basis of Design" or an equivalent product of another manufacturer.
- 2.3 FITTINGS AND HARDWARE
- A. Operable Panel Hardware: Coordinate with additional requirements as specified in Section 087100.
- 2.4 MATERIALS
- A. Glass: Flat glass meeting requirements of ASTM C1036, Type I - Transparent Flat Glass, Class 2 - Tinted, Quality Q3, fully tempered in accordance with ASTM C1048, Kind FT, and as follows:
    1. Thickness: As indicated.
    2. Color: Clear
    3. Glazing Stops: Square edge, with rubber glazing gaskets.
    4. Glazing Gaskets: Provide flexible vinyl for non-fire rated and elastomeric silicone for fire rated frames.
    5. Prepare glazing panels for indicated fittings and hardware before tempering.
    6. Polish edges that will be exposed in finished work to bright flat polish.
    7. Temper glass materials horizontally; visible tong marks or tong mark distortions are not permitted.
  - B. Aluminum Components: Conforming to ASTM B221, Alloy 6063, T5 Temper.
  - C. Sealant: One-part silicone sealant, conforming to ASTM C920, clear.
- 2.5 FINISHES
- A. Class I Natural Anodized Finish: AAMA 611 AA-M12C22A41 Clear anodic coating not less than 0.7 mils thick.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that track supports are properly braced, level within 1/4 inch of required position and parallel to the floor surface.
- C. Verify floor flatness of 1/8 inch in 10 feet, non-cumulative.
- D. Do not begin installation until supports and adjacent substrates have been properly prepared.
- E. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

### 3.2 PREPARATION

- A. Clean substrates thoroughly prior to installation.
- B. Prepare substrates using the methods recommended by the manufacturer for

achieving acceptable result for the substrate under the project conditions.

### 3.3 INSTALLATION

- A. Install in accordance with glazed interior wall and door assembly manufacturer's instructions.
- B. Fit and align glazed interior wall and door assembly level and plumb.

### 3.4 ADJUSTING

- A. Adjust glazed interior wall and door assembly to operate smoothly from sliding or pivoting positions.
- B. Adjust swing door hardware for smooth operation.

### 3.5 CLEANING

- A. Clean installed work to like-new condition.

### 3.6 CLOSEOUT ACTIVITIES

- A. Demonstrate operation of glazed interior wall and door assembly and identify potential operational problems.

### 3.7 PROTECTION

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

END OF SECTION 10 2310

## SECTION 10 2813 TOILET ACCESSORIES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes toilet accessory items.
- B. Refer to the Finish schedules on the Drawings.

#### 1.2 SUBMITTALS

- A. Product data for each toilet accessory item specified, including construction and mounting details, dimensions, gages, profiles, specified options, and finishes.
- B. Schedule indicating types, quantities, sizes, and installation locations (by room) for each toilet accessory item to be provided for Project.
- C. Setting Drawings where cutouts are required in other Work, including templates, substrate preparation instructions, and directions for preparing cutouts and installing anchorage devices.
- D. Maintenance instructions including replaceable parts and service recommendations.
- E. Sample warranties.

#### 1.3 QUALITY ASSURANCE

- A. Inserts and Anchorages: Furnish accessory Manufacturers' standard inserts and anchoring devices that must be set in concrete or built into masonry. Coordinate delivery with other Work to avoid delay.
- B. Single-Source Responsibility: Provide products of same Manufacturer for each type of accessory unit and for units exposed to view in same areas, unless otherwise acceptable to Architect.
- C. Performance Requirements:
  - 1. Grab Bar Structural Requirements: FBC 1607.7

#### 1.4 PROJECT CONDITIONS

- A. Coordinate accessory locations, installation, and sequencing with other Work to avoid interference with and ensure proper installation, operation, adjustment, cleaning, and servicing of toilet accessory items.

#### 1.5 WARRANTY

- A. Toilet Accessory Warranty: Provide manufacturers one year warranty from the Date of Substantial Completion, against defects in material and workmanship.
- B. Mirror Warranty: Written warranty executed by mirror manufacturer, agreeing to replace mirrors that develop visible silver spoilage defects within 15 years from the Date of Substantial Completion.

### PART 2 - PRODUCTS



## 2.1 TOILET ACCESSORY MANUFACTURERS

- A. Refer to finish schedules on Drawings for toilet accessories required.

## 2.2 MATERIALS, GENERAL

- A. Stainless Steel: AISI Type 302/304, with polished No. 4 finish, 0.034-inch (22-gage) minimum thickness.
- B. Brass: Leaded and unleaded, flat products, ASTM B 19; rods, shapes, forgings, and flat products with finished edges, ASTM B 16; Castings, ASTM B 30.
- C. Sheet Steel: Cold-rolled, commercial quality ASTM A 366, 0.04-inch (20-gage) minimum. Surface preparation and metal pretreatment as required for applied finish.
- D. Galvanized Steel Sheet: ASTM A 527, G60.
- E. Chromium Plating: Nickel and chromium electro-deposited on base metal, ASTM B 456, Type SC 2.
- F. Mirror Glass: Nominal 6.0-mm (0.23-inch) thick, conforming to ASTM C 1036, Type I, Class 1, Quality q2, and with silvering, electro-plated copper coating, and protective organic coating.
- G. Galvanized Steel Mounting Devices: ASTM A 153, hot-dip galvanized after fabrication.
- H. Fasteners: Screws, bolts, and other devices of same material as accessory unit, or of galvanized steel where concealed.

## 2.3 FABRICATION

- A. No names or labels are permitted on exposed faces of toilet and bath accessory units. On either interior surface not exposed to view or on back surface, provide identification of each accessory item either by a printed, waterproof label or a stamped nameplate indicating Manufacturer's name and product model number.
- B. Surface-Mounted Toilet Accessories, General: Except where otherwise indicated, fabricate units with tight seams and joints, exposed edges rolled. Hang doors or access panels with continuous stainless steel piano hinge. Provide concealed anchorage wherever possible.
- C. Recessed Toilet Accessories, General: Except where otherwise indicated, fabricate units of all-welded construction, without mitered corners. Hang doors or access panels with full-length, stainless steel piano hinge. Provide anchorage that is fully concealed when unit is closed.
- D. Framed Mirror Units, General: Fabricate frames for glass mirror units to accommodate wood, felt, plastic, or other glass edge protection material. Provide mirror backing and support system that will permit rigid, tamperproof glass installation and prevent moisture accumulation, as follows:
  - 1. Provide galvanized-steel backing sheet, not less than 0.034 inch (22 gage) and full mirror size, with nonabsorptive filler material. Corrugated cardboard is not an acceptable filler material.
- E. Mirror Unit Hangers: Provide system for mounting mirror units that will permit

rigid, tamperproof, and theft proof installation, as follows:

1. One-piece, galvanized-steel, wall-hanger device with spring-action locking mechanism to hold mirror unit in position with no exposed screws or bolts.
  2. Heavy-duty wall brackets of galvanized steel, equipped with concealed locking devices requiring a special tool to remove.
- F. Keys: Provide universal keys for access to toilet accessory units requiring internal access for servicing and re-supply. Provide six keys to Owner's representative.

## 2.4 MISCELLANIOUS ITEMS

- A. Under Lavatory Guard
1. Basis-of-Design Product: Provide "Lav-Guard 2, EZ Series" undersink protective pipe cover kits as manufactured by Truebro by IPS Corporation.
  2. Description: Insulating pipe covering for supply and drain piping assemblies that prevent direct contact with and burns from piping; allow service access without removing coverings.
  3. Material and Finish: Antimicrobial, molded plastic, white.
- B. Mop Holders with Shelf and Rag Hooks: Surface mounted utility shelf with spring loaded rubber cam holders to accommodate mop or broom handles. Bobrick No. B-224 X 30"
- C. Utility Hooks: Surface-mounted, Type-304 stainless steel satin finish. Bobrick No. B-6707

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Install toilet accessory units according to manufacturers' instructions, using fasteners appropriate to substrate as recommended by unit manufacturer. Install units plumb and level, firmly anchored in locations and at heights indicated.
- B. Secure mirrors to walls in concealed, tamperproof manner with special hangers, toggle bolts, or screws. Set units plumb, level, and square at locations indicated, according to Manufacturer's instructions for type of substrate involved.
- C. Install grab bars to withstand a downward load of at least 250 lbf, complying with ASTM F 446, and in accordance with Performance Requirements.

### 3.2 ADJUSTING AND CLEANING

- A. Adjust toilet accessories for proper operation and verify that mechanisms function smoothly. Replace damaged or defective items.
- B. Clean and polish all exposed surfaces strictly according to manufacturer's recommendations after removing temporary labels and protective coatings.

END OF SECTION 10 2813

## SECTION 10 4400 FIRE PROTECTION SPECIALTIES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes:
  - 1. Fire extinguishers
  - 2. Fire extinguisher cabinets
  - 3. Fire extinguisher mounting brackets

#### 1.2 SUBMITTALS

- A. Product data for cabinets include rough-in dimensions, details showing mounting methods, relationships of box and trim to surrounding construction, door hardware, cabinet type and materials, trim style, door construction, panel style, and materials.
- B. Manufacturer's color charts consisting of actual units or sections of units showing full range of colors available for each type of cabinet finish indicated or exposed to view.

#### 1.3 QUALITY ASSURANCE

- A. Single-Source Responsibility: Obtain extinguishers and cabinets from one source from a single Manufacturer.
- B. Coordination: Verify that cabinets are sized to accommodate type and capacity of extinguishers indicated and provided by Owner under separate Contract.
- C. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."
- D. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Manufacturers:
  - 1. J.L. Industries
  - 2. Larsen's Manufacturing Co.
  - 3. Nystrom
  - 4. Potter-Roemer, Inc.

#### 2.2 FIRE EXTINGUISHERS

- A. Provide fire extinguishers for each cabinet and other locations indicated, in colors and finishes selected by Architect from manufacturer's standard that comply with authorities having jurisdiction.
  - 1. Multipurpose Dry Chemical Type: UL-rated 4-A:60-B:C, 10-lb nominal capacity, in enameled steel container.
- B. All fire extinguishers shall have a current inspection tag and an expiration date of

at least eleven months after the Date of Substantial Completion.

## 2.3 MOUNTING BRACKETS

- A. Brackets: Designed to prevent accidentally dislodging extinguisher, of sizes required for type and capacity of extinguisher indicated, in plated finish.
  - 1. Provide manufacturer's standard coated steel brackets for extinguishers not located in cabinets.
- B. Wall Bracket anchors to each have a pull strength of 150 pounds.
- C. Identify bracket-mounted extinguishers with FIRE EXTINGUISHER in red letter decals applied to wall surface. Use letter size, style, and location as selected by Architect.

## 2.4 CABINETS

- A. Construction: Manufacturer's standard box, with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated. Weld joints and grind smooth. Miter and weld perimeter door frames.
- B. Fire-Rated Cabinets: UL listed with UL listing mark with fire-resistance rating of wall where it is installed.
- C. Cabinet Mounting: Suitable for the following mounting conditions:
  - 1. Semi-Recessed: Cabinet box (tub) partially recessed in walls of shallow depth.
- D. Trim Style: Fabricate trim in one piece with corners mitered, welded, and ground smooth.
  - 1. Exposed Trim: One-piece combination trim and perimeter door frame overlapping surrounding wall surface with exposed trim face and wall return at outer edge (backbend).
    - a. Semi-Recessed: Rolled-edge trim with 2-1/2-inch backbend depth.
- E. Door Material and Construction: Manufacturer's standard door construction, of material indicated, coordinated with cabinet types and trim styles selected.
  - 1. Brushed stainless steel, #4 finish, flush, solid, with vertical die-cut red lettering.
- F. Door Hardware: Manufacturer's standard door-operating hardware for cabinet type, trim style, and door material and style indicated. Provide either lever handle with cam-action latch, or exposed or concealed door pull and friction latch and concealed or continuous-type hinge permitting door to open 180 deg.

## 2.5 CABINET FINISHES

- A. Comply with NAAMM "Metal Finishes Manual" for recommendations relative to applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying temporary strippable protective covering prior to shipping.
- C. Interior: White enamel.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine walls and partitions for thickness and framing for cabinets to verify cabinet depth and mounting prior to cabinet installation.
- B. Do not proceed until unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. Follow manufacturer's printed instructions for installation.
- B. Install in locations and at mounting heights indicated or, if not indicated, at heights to comply with applicable regulations of governing authorities.
  - 1. Prepare recesses in walls for cabinets as required by type and size of cabinet and style of trim and to comply with Manufacturer's instructions.
  - 2. Fasten mounting brackets and cabinets to structure, square and plumb.
  - 3. Mounting Height: 54 inches maximum above finished floor to the top of box, making top of bottle at 48 inches AFF.
  - 4. Bracket mounting Height: Top of bottle at 48 inches AFF.

END OF SECTION 10 4400

## SECTION 10 7313 AWNINGS AND CANOPIES

### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. Section includes aluminum awning systems.

#### 1.2 PERFORMANCE REQUIREMENTS

- A. General: Design, fabricate, and install awnings to withstand loads from gravity, wind, ponding, drift, and structural movement, including thermally induced movement; and to resist, without failure, other conditions of in-service use, including exposure to weather.
- B. Design awnings to meet wind-loading requirements for the FBC. Refer to Structural Drawings for wind and design pressures.
  - 1. All awning assemblies shall be compliant with Florida Building Code rule 61G20-3 for statewide product approval and require a Florida Product approval number for Miami Dade area.

#### 1.3 SUBMITTALS

- A. The shop drawing awnings in elevation, plan and section. Drawings shall include the following details:
  - 1. All frame dimensions including overall dimensions module dimensions and fabric panel dimensions.
  - 2. Frame module connection details.
  - 3. Connection details.
  - 4. Material information.
  - 5. Shop Drawings shall be signed and sealed by a licensed engineer registered in the State of Florida.
  - 6. Wind loading Calculations shall be stamped, sealed and signed by a Professional Engineer in the State of Florida verifying compliance with ASCE 7-16.
- B. Samples for Initial Selection: Manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available for each type of material indicated.
  - 1. 8 inch square section of fabric.
  - 2. 12 inch section of frame.
- C. Submit approved shop drawings and wind load calculations to the local building department and maintain one copy on site for use of the building department.

#### 1.4 WARRANTY

- A. Awning System including installation shall be warranted for five years.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Available Manufacturers:

1. Manufacturers of Metal Awnings:
  - a. Dittmer Architectural Aluminum
  - b. B & C Industries, Inc.
  - c. Construction Specialties
  - d. Consolidated Metals of Florida (ASI)
  - e. Mapes Architectural Canopies

## 2.2 MATERIALS

- A. Metal Awnings: All sections shall be 6063 alloy, heat treated to a T-6 temper. Deck, heads, sills and jambs shall be as detailed on the contract drawings. All sections to have integral caulking slot and retaining bead. All fasteners to be stainless steel. Structural supports to be designed by the louver manufacturer to carry a wind load specified in Performance Requirements Article.
  1. Support Arms: Aluminum pipe.
  2. Wall Flange: Extruded aluminum, clear anodized finish, with rubber wall seal and channel slot to retain acrylic pane.
  3. Gutter: Curved extruded aluminum, clear anodized finish, with slotted stainless steel end caps to permit drainage.
  4. Fasteners: Stainless steel to meet performance requirements.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Install awnings to meet Performance Requirements and to final Shop Drawings.
- B. Fasteners to be appropriate for the mounting substrate; and are to be separated not more than 2 feet o.c. along the top bar and not more than 4 feet o.c. along the back-bar.

### 3.2 CLEANING AND PROTECTING

- A. Upon installation, awnings are to be clean and free of any substance that might discolor or damage surfaces. Written cleaning instructions are to be made available from the fabric manufacturer.
- B. Protect assemblies from damage until the Date of Substantial Completion.
- C. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 10 7313

## SECTION 11 3100 RESIDENTIAL APPLIANCES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes installation of kitchen appliances

#### 1.2 SUBMITTALS

- A. Product Data:
  - 1. Catalog brochures of equipment specified
  - 2. Model number and technical requirements of each unit
  - 3. Rough-in dimensions
  - 4. Color selections (if not specified)
- B. Sample warranties

#### 1.3 DELIVERY, STORAGE, AND HANDLING

- A. Deliver in manufacturers unopened containers with model numbers on equipment packaging.
- B. Store up off floor on wood skids.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Refer to schedules on Drawings for required appliances.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION

- A. Comply with manufacturer's installation instructions.
- B. Built-In Equipment: Securely anchor units to supporting cabinetry or countertops and concealed fasteners. Verify that clearances are adequate for proper functioning and rough openings are completely concealed.

END OF SECTION 11 3100



SECTION 12 3216  
MANUFACTURED PLASTIC-LAMINATE-CLAD CASEWORK

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes plastic laminated faced modular casework.

1.2 DEFINITIONS

- A. Exposed Surfaces:
1. Surfaces visible when doors and drawers are closed.
  2. Bottoms of cases more than 4 feet above floor.
- B. Semi-Exposed Surfaces:
1. Members behind opaque doors, such as shelves, divisions, interior faces of ends, case back, drawer sides, backs and bottoms, and back face of doors.
  2. Tops of cases 6'-6 or more above floor.
- C. Concealed Surfaces: Surfaces not visible after installation.

1.3 SUBMITTALS

- A. Product Data
1. Published construction details
  2. Casework hardware
  3. Maintenance recommendations
- B. Shop Drawings:
1. Details and sizes including methods of attachment
  2. Type and locations of furring, blocking, and hanging strips, including concealed blocking and reinforcement within walls
  3. For assemblies between walls, show methods of compensating for variations in measurements after walls are finished
  4. Field verified dimensions
  5. Indicate utility locations to be coordinated with other trades
- C. Samples
1. Full range of colors, textures, and patterns available for plastic laminate and edging.
  2. Pull
  3. Full Size Cabinet: Base cabinet with door, drawer, shelf, and hardware. Unit may be incorporated into Work. Submit within 60 days of Notice to Proceed, a sample base cabinet and countertop constructed in accordance with these specifications.
- D. Qualification Data: For Installer
- E. Keying Schedule: Include schematic keying diagram and index each key set to unique designations that are coordinated with the Contract Documents.

- F. Quality Standard: Comply with the Architectural Woodwork Standard, Latest Edition for grades of interior architectural woodwork, construction, finishes and other requirements.
- G. Pre-Installation Meeting Notes
- H. Sample Warranty

#### 1.4 QUALITY ASSURANCE

- A. Defective workmanship or damaged components shall be corrected, repaired, or replaced as requested by the Architect, without further cost to the Owner.
- B. Manufacturer Qualifications: Minimum 7 years experience in the manufacturer and installation of the type of cabinets specified.
- C. Installer Qualifications: Minimum 5 years experience in the installation of the type of cabinets specified.
- D. Quality Standard: Comply with Section 10 requirements of "Architectural Woodwork Standards" published by the Architectural Woodwork Institute (AWI).
  - 1. Grade: Custom, unless otherwise indicated
- E. Coordinate delivery of templates and other similar items from other trades necessary for the construction of required casework units.
- F. Coordinate required in-wall blocking and with other trades for cutouts.
- G. Pre-Installation Conference: Conduct conference at Site
  - 1. Coordinate utility connections
  - 2. Review Sample

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver casework only after wet work is complete and relative humidity is maintained within manufacturer's recommended range for one week. Store in ventilated spaces. Protect against damage during installation through the Date of Substantial Completion.

#### 1.6 JOB CONDITIONS

- A. Take field measurements for casework items. Show measurements on Shop Drawings.
  - 1. Locate concealed framing, blocking, and reinforcements that support casework on Shop Drawings.
  - 2. Coordinate locations, sizes and job sequencing of power/data/tech/security related devices on interior architectural woodwork.

#### 1.7 WARRANTY

- A. 5 years from the Date of Substantial Completion against defects in material and workmanship. Cover repair or replacement, without cost to the Owner, of items that become defective within the specified warranty period. Exception: Damage caused by improper operation or misuse. Failures include, but are not limited to, the following:

1. Delamination of components or other failures of glue bond.
2. Warping of components.
3. Failure of operating hardware.
4. Deterioration of finishes.

## 1.8 AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS

- A. Casework shall conform with ADA requirements. ADA requirements supersede technical specifications in this Section. Conform to ADA Accessibility Guidelines for Buildings and Facilities.

## PART 2 - PRODUCTS

### 2.1 GENERAL WORKMANSHIP

- A. Machine parts for accurate fit and assemble with appropriate fasteners and adhesives to result in true, square, level, and plumb units.
- B. Coordinate with other trades for required dimensions of items to be built into casework.
  1. Provide cutouts for plumbing fixtures, inserts, appliances, outlet boxes, and other fixtures and fittings.
- C. Provide removable or false backs for access or concealment of heating or plumbing items.
- D. Scribe tops and backsplashes to walls and other adjoining vertical surfaces.
- E. Cabinets at end walls shall have minimum scribe unless shown otherwise.

### 2.2 MATERIALS

- A. Plastic Laminate
  1. Acceptable Manufacturers: Refer to finish schedules on drawings for laminates required.
  2. Decorative Laminates
    - a. High-pressure decorative laminate VGS (.028), NEMA LD 3
    - b. High-pressure decorative laminate HGS (.048), NEMA LD 3
    - c. High-pressure cabinet liner CLS (.020), NEMA LD 3
    - d. High-pressure backer BKH (.028) NEMA LD 3
  3. Exposed horizontal surfaces: HGS
  4. Exposed, interior and exterior vertical surfaces: VGS
  5. Backing sheet for concealed surfaces: BKH or CLS for balanced panel.
  6. Backing sheet for semi-exposed surfaces: BKH
  7. Color (all surfaces): Selected by Architect.
- B. Edging Material: Self Edging
- C. Core Materials:
  1. Particleboard: Composite panel, 1/2 inch to 1 inch thickness, 100% annually-renewable agricultural fibers, with no added urea formaldehyde, ANSI A208.1, M-3.
  2. Water Resistant Particle Board: ANSI A208.1 Grade M3 MR-50

3. MDF, Medium Density Fiberboard: Grade ANSI A208.2 155 or better
  4. Water resistant MDF: ANSI A 208.2 Grade 155 MR-50
  5. Softwood Plywood: DOC PS 1
  6. Hardboard: ANSI A135.4, Class 1 tempered per ASTM D 1037, smooth 2 sides (S2S).
  7. Hardwood: Solid lumber concealed members to be kiln dried, select Poplar, Fir, or mill option lumber.
  8. Hardwood Plywood: Baltic Birch 7-ply, with no added urea formaldehyde cabinet grade.
- D. Lumber (Solid stock): Conform to the American Lumber Standards, Simplified Practice Recommendation, Rule 16. Grades shall conform to the grading rules of the manufacturer's association under whose rules the lumber is produced.
- E. Adjustable Shelf Supports: Molded nylon or nickel, 2 pin, anti-lift, minimum 200 pounds capacity support clip. Support to accept either 3/4 inch or 1-inch thick shelf.

## 2.3 HARDWARE AND MISCELLANEOUS

- A. Hinges:
1. Steel, institutional 5 knuckle with interlaying leaves, BHMA A156.9, Grade 1, 270-degree swing, hospital tipped with non-removable pins fastened with 4 screws each leaf into faces. No edge fastening allowed.
  2. Thickness .090 inch minimum
  3. Doors 48 inches and over shall have 3 hinges per leaf
  4. Finish: Powder coat baked-on enamel, color as selected by Architect.
- B. Pulls:
1. Bent wire, brushed stainless steel or brushed aluminum
  2. Accurately position on drawer and door fronts
  3. Through fastened with machine screws
  4. Provide 2 pulls for drawers more than 24 inches in width.
- C. Drawer Glides (BHMA A156.9, Type B050xx):
1. Manufacturer's standard, epoxy coated metal, nylon rollers, 100 pounds dynamic load or European style, bottom mounted, captive profile, epoxy finished, nylon rollers, and 100 pounds dynamic loading with positive in-stop and out-stop.
    - a. Provide full extension at designated drawers
  2. Provide outstop and outkeeper to maintain drawer in 80 percent open position.
  3. File drawers and paper storage drawers: Same as above except full extension and load rating static position to be no less than 125 pounds.
- D. Locks
1. Cylinder type cast with 5-disc tumbler mechanism. Each lock shall be provided with milled brass key and keying as specified in keyed different and master keyed or keyed alike. Provide locks where scheduled on Drawings.

2. Each area or room shall be keyed alike.
3. Locks shall be master keyed using the casework manufacturer's keying system. (This is independent to the building master keying system.)
4. Provide automatic door bolt on double doors at leaf opposite lock core.
- E. Catches: Magnetic type, adjusted for maximum 5-pound pull. Attach with screws and slotted for adjustment.
- F. Cubicle cabinet dividers shall be 3/4 inch particleboard with laminate on both sides.
- G. Tote Trays: Molded high impact plastic with card holder on front.
  1. Plastic tote tray dividers shall be prefinished 1/4-inch thick tempered hardboard.

## 2.4 CABINET CONSTRUCTION

- A. Cabinet Base: 4-inch high, 3/4 inch CDX plywood. Provide additional center support for cabinets over 24 inches wide.
- B. Base, Wall, and Tall Cabinet Boxes
  1. Sides, bottom, and top: Constructed of glued and spline doweled 3/4 inch particleboard providing balanced construction, surfaced with cabinet liner CLS for semi-exposed and vertical grade laminate for exposed locations.
  2. Wall cabinet bottoms and tops: Constructed of glued and spline doweled one inch thick particleboard, providing balanced construction surfaced with vertical grade laminate for exposed locations and cabinet liner CLS for semi-exposed locations.
  3. Intermediate support rail: Minimum 3/4 inch particleboard, surfaced with vertical grade laminate of balanced construction, glued and doweled into cabinet sides.
  4. Hanger Rails: Two located at top and bottom of cabinet back, 3 on tall cabinets, locate at top, bottom, and center.
- C. Fixed and Adjustable Shelves and Dividers
  1. One inch (particleboard) shelves
  2. Exposed Locations: Vertical grade plastic laminate both sides. Color to match cabinet exterior plastic laminate or as selected by Architect.
  3. Semi-exposed locations: VGS or CLS
  4. Front and back leading edges shall be self edged.
  5. Number of adjustable shelves provided, unless indicated otherwise on the Drawings or on the Schedule
    - a. Low and tall cabinets
      - 1) 1 up to 24 inches: 4 up to 72 inches
      - 2) 2 up to 36 inches: 5 up to 84 inches
      - 3) 3 up to 60 inches: 6 up to 96 inches
    - b. Wall hung cabinets
      - 1) 0 up to 24 inches: 2 up to 36 inches

- 2) 1 up to 30 inches: 3 up to 40 inches
- 6. Adjustable Dividers: 1/4 inch minimum thickness, prefinished tempered hardboard or plywood, smooth both faces, retained by molded plastic support clip.
- 7. Fixed dividers: Constructed of 3/4 inch particleboard, surfaced with vertical grade laminate, providing balanced construction; glued and spline doweled.
- D. Doors
  - 1. 3/4 inch particleboard
  - 2. High pressure plastic vertical grade laminate exterior and interior.
  - 3. Doors 48 inches and less in length shall have 2 hinges per door; doors over 48 inches in length shall have 3 hinges per door.
  - 4. Corners: Self edging.
- E. Drawers
  - 1. Manufacturers standard construction of minimum components listed below; or high density fiber board; glued and doweled or dovetail jointed; surfaced with vertical grade laminate of balanced construction. Bottoms constructed of minimum 1/4-inch particleboard, surfaced to match drawer sides, inset and glued to four sides.
  - 2. Drawer Face
    - a. Constructed of minimum 3/4-inch particleboard, surfaced with VGS, screw attached to the drawer box.
      - 1) Corners: To match doors.
      - 2) Edging: To match doors.
      - 3) Plastic Laminate: To match doors.
      - 4) Equip with rubber bumpers
  - 3. File Drawers: File drawers shall be constructed in accordance with standard drawers specified above with the following: Include front-to-back and side-to-side hanger file capability with hanger channel for letter size files integral with file drawer sides and 3/16-inch by 1/2-inch removable steel channel to span side-to-side for legal size hanging files.
- F. Provide security panel between drawer units and between drawers and cupboard where keyed locks are scheduled.
- G. Quartz Surfacing Countertops: Refer to Interior Design Documents and Division 12 Section Quartz Surfacing Countertops.
- H. Sealants: Fully bed and seal splashes to tops and to other splashes with Dow Corning 786 Mildew Resistant Silicone Sealant, clear; or Architect approved equal.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Examine conditions under which casework will be installed, including locations and adequacy of backing and support framing. Do not proceed with installation

until all unsatisfactory conditions have been corrected.

- B. Before installation, condition cabinets to humidity conditions in installation areas for not less than 72 hours.
- C. Coordinate work with that of other trades including furnishing of support and attachment steel embedded in concrete and to provide wood grounds, nailers, and blocking so not to delay Project.
  - 1. Ensure that mechanical and electrical items affecting this work are placed, complete, and inspected prior to start of installation.

### 3.2 INSTALLATION

- A. Install woodwork to comply with AWI for the same grade specified in Part 2 of this Section.
- B. Set and Secure cabinetwork and finish carpentry items in place rigid, plumb, and square.
  - 1. Scribe and cut woodwork to fit adjoining work, and refinish cut surfaces and repair damaged finish at cuts.
  - 2. When necessary to scribe on site, make material with ample allowance for cutting.
  - 3. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Use fine finishing nails for exposed fastening, countersunk and filled flush with woodwork and matching final finish if transparent finish is indicated.
  - 4. Use purpose designed fixture attachments for mounted components.
  - 5. Counter-sink semi-concealed anchorage devices used to wall mount components and conceal with solid plugs of species to match surrounding wood. Place flush with surrounding surfaces.
  - 6. All wood mounting devices or wood frame work in contact with concrete or masonry shall be pressure treated.
- C. Permanently fix cabinet bases to floor using appropriate components.
- D. Cabinets: Install without distortion so doors and drawers fit openings and are aligned. Adjust hardware to center doors and drawers in openings.
  - 1. Install cabinets to a tolerance of 1/8 inch in 12'-0 for plumb and level and with no variations in flushness of adjoining surfaces.
- E. Countertops: Anchor by screwing through corner blocks of base cabinets or other supports into underside of countertop.
  - 1. Install countertops with no more than 1/8 inch in 12'-0 for plumb and level and with no variations in flushness of adjoining surfaces.
  - 2. Secure backsplashes to walls with adhesive.
  - 3. Calk space between backsplash and wall with sealant specified in Division 07 Section, Joint Protection.
- F. Trim: Install with minimum number of joints possible, using full length pieces (from maximum length lumber available) to the greatest extent possible. Do not use pieces less than 36 inches long, except where necessary.

- G. Install fixtures and accessories supplied under other sections for installation. Install items in accordance with manufacturer's instructions.

### 3.3 ADJUSTMENT AND CLEANING

- A. Repair damaged and defective woodwork where possible. Where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.
- B. Clean, lubricate, and adjust hardware so that doors and drawers operate smoothly and within accessibility requirements.
- C. Install a chain on doors where door will hit an obstruction before it is fully opened.
- D. End cabinets placed against corners or where they tee into other cabinets or obstacles shall be provided with chain or bracket stops on the inside of the doors to prevent the door or door handles from hitting the obstruction.
- E. Repair or remove and replace defective work as directed.
- F. Touch up shop-applied finishes to restore damaged or soiled areas. Clean exposed surfaces, edges, and interiors, and remove construction and installation marks prior to the Date of Substantial Completion. Vacuum interiors.

END OF SECTION 12 3216



SECTION 12 3663  
QUARTZ SURFACING COUNTERTOPS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes quartz surfacing countertops

1.2 SUBMITTALS

- A. Product Data: Manufacturer's data sheets on each product to be used, including:
  - 1. Details of construction and fabrication.
  - 2. Recommendations for handling, storage, installation, protection, and maintenance.
- B. Shop Drawings: Include countertop layout, dimensions, materials, finishes, cutouts, and attachments. Include location and layout of each type of fabrication and accessory.
  - 1. Show field measurements and concealed framing, blocking, and reinforcement locations
- C. Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

1.3 QUALITY ASSURANCE

- A. Fabricator Qualifications: Manufacturer certified solid surface fabricator/installer.
  - 1. Minimum 2 years documented experience in work of this Section.
- B. Installer Qualifications: Firm experienced in installation or application of systems similar in complexity to those required for this Project, including specific requirements indicated.
  - a. Minimum 2 years documented experience in work of this Section.
  - b. Acceptable to or licensed by manufacturer.
- C. Source Limitations: Obtain materials and products from single source.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- B. Store products in fabricator's unopened packaging until ready for installation.
- C. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.5 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
- B. Maintain relative humidity planned for building occupants and an ambient temperature between 65 and 75 degree F for 48 hours prior to and during

installation. After installation, maintain relative humidity and ambient temperature planned for building occupants.

#### 1.6 WARRANTY

- A. Furnish manufacturer's 15-year limited warranty, warranting materials will be free of manufacturing defects.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Refer to finish schedules for quartz surfacing manufacturers, colors, and styles.

#### 2.2 QUARTZ SURFACING

- A. General:
  - 1. Composition: Quartz aggregate, resin, and color pigments formed into flat slabs.
  - 2. Colors: Architect may choose any color(s) from Color Group A, Color Group B, and Color Group C.
  - 3. Thickness: 3cm. See details on drawings for built-up edges and profiles required.
- B. Physical characteristics:
  - 1. Compressive Strength: Minimum 25,000 psi, tested to ASTM C170.
  - 2. Flame Spread Rating: Class 1, tested to ASTM E84.
- C. Installation Accessories:
  - 1. Adhesive: Type recommended by quartz manufacturer.
  - 2. Joint Sealer: per Division 07 Section Joint Protection.
- D. Fabrication:
  - 1. Cut quartz panels accurately to required shapes and dimensions.
  - 2. Radius exposed edges.
  - 3. Fabricate with hairline joints. Reinforce joints as required.
  - 4. Cut holes for sinks, faucets and toilet accessories as required or indicated.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine substrates to receive countertops. Do not commence installation until conditions have been corrected.

#### 3.2 PREPARATION

- A. Precondition Solid Surfacing in accordance with manufacturer's printed instructions.

#### 3.3 INSTALLATION

- A. Install countertops in accordance with manufacturer's instructions and released Shop Drawings.

- B. Adhere countertops to supports with continuous beads of adhesive.
- C. Set plumb and level. Align adjacent pieces in same plane.
- D. Install with hairline joints.
- E. Fill joints between countertops and adjacent construction with joint sealer; finish smooth and flush.
- F. Installation Tolerances
  - 1. Maximum variation from level and plumb: 1/8 inch in 10 feet, noncumulative.
  - 2. Maximum variation in plane between adjacent pieces at joint: Plus or minus 1/16 inch.

#### 3.4 CLEANING

- A. Clean countertops in accordance with manufacturer's instructions.

#### 3.5 PROTECTION

- A. Protect surfaces from damage until Date of Substantial Completion. Repair or replace damaged components that cannot be repaired to architect's satisfaction.
- B. Fabricator/Installer to provide a Care and Maintenance kit, review maintenance procedures and the warranty with the Owner's representative upon completion of project.

END OF SECTION 12 3663

## SECTION 12 9900 BUILDING ACCESSORIES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes: Security lock box

#### 1.2 SUBMITTALS

- A. Product Data: For each type of accessory specified, with installation instructions for each unit built-in or connected to other construction. Include methods of installation for each type of substrate.
- B. Shop drawings showing installation details of accessories permanently affixed to construction, including full scale installation details of special conditions.
- C. Maintenance Instructions: Manufacturer's printed instructions for maintenance of installed work, including methods and frequency recommended for maintaining optimum condition under anticipated use conditions. Include precautions against materials and method which may be detrimental to finishes and performance.

#### 1.3 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to project site in original factory wrappings and containers, labeled with identification of manufacturer, brand name, and lot number.
- B. Store materials in original undamaged packages and containers, in vented area, protected from weather, moisture, soiling, extreme temperatures, humidity; laid flat, blocked off ground to prevent sagging and warping.
- C. Comply with instructions and recommendations of manufacturer for special delivery, storage, and handling requirements.

### PART 2 - PRODUCTS

#### 2.1 PRODUCTS

- A. Security lock box:
  - 1. Basis of design: Series #3270 Recessed (3261 Surface Mounted) by The Knox Company
  - 2. Unit Description
    - a. Size: Approximately 7 inches (5 inches surface mounted) wide by 7 inches high (4 inches surface mounted) by 4 1/2 inches deep (3 inches surface mounted) and is six sided
    - b. Wall Thickness: 1/4 inch
    - c. Construction: Cold-Formed Hollow Structural Steel sections conforming to ASTM A 500, Grade A
    - d. Finish: Manufacturers standard powder coat finish for exterior applications. Color: Black.
    - e. Keying: Security lock box shall be equipped with a removable cover that will allow two different keys (the Owners and the Fire Departments) access into the Box. This can be done using two different cylinders or a cylinder that allows two different keys to

open the cover.

- 1) Fire Department Key: It shall be the responsibility of the Manufacturer to do the Master Keying for the Fire Department's access key. The Manufacturer will coordinate with fire district to supply a cylinder that allows the Fire Department Master Key access for the Facility.
- f. Facility Key: Opening the Security Lock Box will allow access to a Facility Master Key or Keys. The Master Key shall be on a chain or a hook.
- g. Hardware: Each Security Box shall be supplied with four (4) tamper proof (security) bolts, nuts and washers that allow installation of the Box to the 1-3/4" entrance door. A bolt pattern template shall also be supplied with the Box. This template is to be used as a bolt pattern on the outside of the door and a mounting plate on the inside of the door.

## 2.2 FABRICATION, GENERAL

- A. Provide accessory items, both free standing and permanently installed, equipped with functions as specified. Fabricate units with tight seams and joints, exposed metal edges rolled. Manufacturer or product identification on exposed surfaces is unacceptable. Provide products with smooth welds, consistent finish with no evidence of wrinkling, chipping, uneven coloration, dents, or other imperfections.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Verify that materials are those specified before installing.
- B. Install accessories after other finishing operations, including painting, have been completed.
- C. Wall-Mounted Accessory Units: Install accessories complying with manufacturer's printed instruction, using fasteners as recommended by manufacturer as appropriate to substrate.

### 3.2 PROTECTION

- A. Protect accessories against damage during remainder of construction period, complying with manufacturer's directions.

END OF SECTION 12 9900

SECTION 31 3116  
CHEMICAL TERMITE CONTROL

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes soil treatment for termite control at new construction and at slab trenching.

1.2 SUBMITTALS

- A. Product Data:
  - 1. Chemicals and products used
  - 2. Certification that products used comply with U.S. Environmental Protection Agency (EPA) regulations, State of Florida, for termiticides.
  - 3. Information that soil treatment conforms to specified requirements
- B. Provide information regarding the type of equipment to be used to apply the soil treatment, size of volume mixing tank, the pump capacity in gallons per minute, and the application tools with in-line flow meter devices attached.
- C. Certificate of Compliance: Submit as part of the Close-Out Documents the following statement from the pest control company: "The building has received a complete treatment for the prevention of termites. Treatment is in accordance with rules and laws established by the Florida Department of Agriculture and Consumer Services."
- D. Applicator Qualifications
- E. Job site log book
- F. Sample warranty

1.3 QUALITY ASSURANCE

- A. Applicator Qualifications: Materials shall be installed by a bonded exterminator, licensed in the State of Florida for application of soil treatment solutions, and showing evidence of five years continuous business operation under the current name.
- B. Application: Perform application in compliance with the Florida statutes, Chapter 482 and 10D-55, and other state and federal laws.
- C. Use only termiticides that bear a federal registration number of the EPA and are approved by local authorities having jurisdiction.

1.4 JOB CONDITIONS

- A. Restrictions:
  - 1. Do not apply soil treatment solution until excavating, filling, and grading operations are completed, except as otherwise required in construction operations.

- B. To ensure penetration, do not apply soil treatment to excessively wet soils or during inclement weather. Comply with handling and application instructions of the soil toxicant manufacturer.

#### 1.5 REGULATORY REQUIREMENTS

- A. Minimum requirements for application as authorized by the State of Florida to fulfill the work according to manufacturer's specifications.

#### 1.6 PROJECT RECORD DOCUMENTATION

- A. Log Book to be kept at job site and to include:
  - 1. Project name
  - 2. Company providing treatment
  - 3. Applicator's name
  - 4. Time of arrival and departure
  - 5. Product name
  - 6. Record date of all applications
  - 7. Rate of application to all required areas of the designated site
  - 8. All areas to be treated
  - 9. The soil treatment trade name
  - 10. Quantity of concentrate delivered to the site
  - 11. Quantity used for the designated treated areas
  - 12. The percentage of active ingredient in diluted form
  - 13. Finished gallons of soil treatment for each application
  - 14. Linear and square footage amount to determine total finished soil treatment used
- B. Owner's representative will observe both the amount of concentrate delivered to the site and the empty units that total the amount used to the treated areas. The Owner's representative shall sign the logbook as noted.
  - 1. Notify Owner's Representative 48 hours prior to application.

#### 1.7 DELIVERY

- A. Products must be delivered to the jobsite in the original sealed and labeled containers of the manufacturer.

#### 1.8 WARRANTY

- A. Provide a written service agreement stating that soil treatment will prevent termites from attacking the building and its contents for a period of not less than five years from Date of Substantial Completion. The soil treatment firm to inspect the structure(s) annually and retreat as necessary. The service agreement shall cover any damage during the warranty period and repairs to damaged surfaces up to 50,000 dollars.
  - 1. Coordinate with Owner for any existing warranty conditions.
- B. Offer owner an optional renewal contract of services for the same terms.
- C. The warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and

run concurrent with other warranties made by the Contractor under requirements of the Contract Documents.

- D. If, because of the length of Contract time, re-treatment(s) or re-inspection(s) are required for maintenance of the guarantee, perform at no additional cost to the Owner.
  - 1. Re-treat soil to prevent termites from attacking the building(s) or its contents, using means acceptable to the Owner, if termite activity is found to exist in or under the structure(s) during the guarantee period, without additional expense to the Owner. Make good damage caused by termite activity.

## PART 2 - PRODUCTS

### 2.1 SOIL TREATMENT SOLUTION

- A. Label chemical container, indicating types and percentages of toxicants (chemicals) used, and precautions to be observed in their use. Deliver copies of MSD Sheets with chemical containers. File SDS at Job Site.
- B. Acceptable Products:
  - 1. Fipronil: Termidor 80WG by BASF
  - 2. Chloronicotinyl: Premise 75 by Bayer Corp.
  - 3. Chlorpyrifos: Dursban TC by Dow AgroSciences LLC
  - 4. Cypermethrine:
    - a. Prevail FT by FMC Corp.
    - b. Demon MAX by Syngenta Professional Products
  - 5. Permethrin:
    - a. Dragnet SFR by FMC Corp.
    - b. Prelude by Zeneca
- C. Dilute with water to concentration level recommended by manufacturer.
- D. Add a dye solution for visual identification of the solution.

### 2.2 NOTICE OF TERMITE PROTECTION

- A. Signage: Permanent, identifying the treatment provider and required re-inspection and treatment contract renewal(s).

## PART 3 - EXECUTION

### 3.1 APPLICATION

- A. Treatment shall comply with manufacturer's specifications as they currently apply to the treatment of commercial buildings under construction.
- B. Surface Preparation: Remove foreign matter that could decrease treatment effectiveness on areas to be treated. Loosen, rake, and level soil to be treated, except previously compacted areas under slabs and foundations. Toxicants may be applied before placing compacted fill under slabs if recommended by toxicant manufacturer.



- C. Solution mix shall be in accordance with the termiticide Specimen Label as required for termites. Solution shall be mixed on site.

### 3.2 TIME OF APPLICATION

- A. Begin soil poisoning after all foundation and slab preparations have been made and prior to the placement of any vapor barriers (or other barriers).
- B. Do not apply treatment when surface water is present or if inclement weather is expected which would disturb final placement.

### 3.3 APPLICATION RATES

- A. Application Rates: Apply the soil treatment listed above as a water emulsion at not less than the percentage (in finished solution) designated according to manufacturer's label specification.
- B. Spaces in floor slab that are boxed out or cut away shall use a metal form of sufficient depth to eliminate any planed soil disturbances after initial treatment.

### 3.4 SIGNS

- A. Post signs in areas of application to warn workers that soil termiticide treatment has been applied. Remove signs after areas are covered by other construction.
- B. Post Notice of Termite Protection signage near water heater and main electrical panel.

### 3.5 RE-TREATMENT

- A. Reapply soil treatment solution to areas disturbed by subsequent excavation, weather, landscape grading, or other activities following application.

END OF SECTION 31 3116