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This Manu-Spec utilizes the Construction Specifications Institute (CSI) *Project Resource Manual* (PRM), including *MasterFormat*<sup>™</sup>, *SectionFormat*<sup>™</sup> and *PageFormat*<sup>™</sup>. A Manu-Spec is a manufacturer specification using the proprietary method of specifying applicable to project specifications and master guide specifications. Optional text is indicated by brackets [ ]; delete optional text in final copy of specification. Specifier notes precede specification text; delete notes in final copy of specification. Trade/brand names with appropriate product model numbers, styles and types are used in specifier notes and in the text Article or Paragraph titled "Acceptable Material". Metric conversion, where used, is soft metric conversion.

This Manu-Spec specifies metal wall panels manufactured by Unience USA, Inc. Revise Manu-Spec section number and title below to suit project requirements, specification practices and section content. Refer to CSI MasterFormat for other section numbers and titles.

## **SECTION 07 42 13 METAL WALL PANELS**

### **PART 1 GENERAL**

#### 1.1 SUMMARY

- A. Section Includes:
1. Composite metal wall panels for exterior or interior installation.

**Specifier Note:** Revise paragraph below to suit project requirements. Add section numbers and titles per CSI MasterFormat and specifier's practice.

- B. Related Sections:

**Specifier Note:** Include in this paragraph only those sections and documents that directly affect the work of this section. If a reader of this section could reasonably expect to find a product or component specified in this section, but it is actually specified elsewhere, then the related section number(s) should be listed in the subparagraph below. Do not include Division 00 documents or Division 01 sections, as it is assumed all technical sections are related to all project Division 00 documents and Division 01 sections to some degree. Refer to other documents with caution, as referencing them may cause them to be considered part of the contract.

1. Section [07 62 00 – Sheet Metal Flashing and Trim].
2. Section [07 92 00 – Joint Sealants].
3. Section [\_\_\_\_].

**Specifier Note:** Define terms unique to this Section and not provided elsewhere in the contract documents. Include in the Article terms unique to the work result specified that may not be commonly known in the construction industry.

#### 1.2 DEFINITIONS

- A. Wet Seal: Attachment method using silicone sealant and male/female clips between panels to form an air and water barrier.
- B. Dry seal: Attachment method incorporating gaskets into the joints between panels, with extrusions to maintain structural integrity and a secondary gutter for water performance.
- C. Rain screen: An exterior wall detail where wall cladding stands off from the moisture-resistant surface of an air barrier applied to wall sheathing or masonry substrate to create a capillary break and allow drainage and evaporation.
- D. [\_\_\_\_].

**Specifier Note:** Paragraph below may be omitted when specifying manufacturer's proprietary products and recommended

installation. Indicate issuing authority name, acronym, standard designation and title. Contract Conditions Section 01 42 00 - References may be used to establish the edition date of standards. This Paragraph does not require compliance with standard(s). It is a listing of all references used in this section. Only include here standards that are referenced in the body of the specification in PARTS 1, 2 and/or 3. Do not include references to building codes at any level.

### 1.3 REFERENCE STANDARDS:

- A. American Architectural Manufacturers Association (AAMA):
  - 1. AAMA 2605 Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.
- B. ASTM International (ASTM):
  - 1. ASTM C393 Standard Test Method for Flexural Properties of Sandwich Constructions.
  - 2. ASTM C1087 Standard Test Method for Determining Compatibility of Liquid-Applied Sealants with Accessories Used in Structural Glazing Systems.
  - 3. ASTM D1781 Standard Test Method for Climbing Drum Peel for Adhesives.
  - 4. ASTM D1929 Standard Test Method for Determining Ignition Temperature of Plastics.
  - 5. ASTM E72 Standard Test Methods of Conducting Strength Tests of Panels for Building Construction.
  - 6. ASTM E8 Standard Test Methods for Tension Testing of Metallic Materials
  - 7. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials.
  - 8. ASTM E119 Standard Test Methods for Fire Tests of Building Construction and Materials.
  - 9. ASTM E330 Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
  - 10. ASTM E331 Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
  - 11. ASTM E413 Classification for Rating Sound Insulation.
- C. Standards Council of Canada/UL of Canada (CAN/ULC):
  - 1. CAN/ULC S102 Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings and Miscellaneous Materials and Assemblies.
  - 2. CAN/ULC S134 Standard Method of Fire Test of Exterior Wall Assemblies.
- D. European National Standard (EN):
  - 1. EN 13501-1 Fire Classification of Construction Products and Building Elements-Part 1: Classification Using Data from Reaction to Fire Tests.
- E. National Fire Protection Association (NFPA):
  - 1. NFPA 285 Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components.

**Specifier Note: Article below includes submittal of relevant data to be furnished by Contractor before, during or after construction. Coordinate this article with Architect's and Contractor's duties and responsibilities in Contract Conditions and Section 01 33 00 - Submittal Procedures.**

### 1.4 SUBMITTALS

- A. Product Data: Manufacturer's standard specifications and descriptive literature, including:
  - 1. Spec-Data product information sheets.
  - 2. Catalog cut-sheets.
  - 3. Standard color charts.
  - 4. Safety Data Sheets (SDS).
  - 5. Building code evaluation reports.
  - 6. Sample warranty forms.
- B. Shop Drawings: Information specifically prepared for this project, including:
  - 1. Dimensioned plans, elevations, and construction details indicating full extent of composite wall panel work, including: metal support framing, flashing, trim, and accessories.
  - 2. Verified field dimensions.
- C. Samples: Manufacturer's standard size fluoropolymer color samples, prepared on same material as wall panels for Architect's verification of color selection.
- D. Installer Certification: Approval letter prepared by manufacturer to document experience, training and acceptance of authorized

installer.

**Specifier Note: Specify submittals intended to document manufacturer storage, installation and other instructions.**

- E. Manufacturer's Instructions, including:
  - 1. Delivery, storage and handling.
  - 2. Preparation and installation.
  - 3. [\_\_\_].

#### 1.5 CLOSEOUT SUBMITTALS

**Specifier Note: Coordinate Article below with Contract Conditions and with Section 01 78 36 - Warranties.**

- A. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under the Contract Documents.
- B. Finish Warranty: Manufacturer's [\_\_\_ year] limited warranty against defects in fluoropolymer finish.
- C. Installation Warranty: Installer's [\_\_\_ year] warranty against defects in installation including material and labor.
- D. Project Warranty: Refer to Conditions of the Contract.

#### 1.6 QUALITY ASSURANCE

- A. Installer: Experienced in performing work of this section and specialized in the installation of work similar to that required for this project. When requested, submit certification indicating qualification.
- B. Manufacturer: Minimum of [5] years of continuous documented experience manufacturing panel material of the type specified, with ISO 9001-2000 certification.
- C. Fabricator Qualifications: Company with at least 3 years documented experience on similar sized metal panel projects and qualified by the panel material manufacturer. Capable of providing field service representation during construction
- D. Mock-up:
  - 1. At location on building and to extent directed by Architect, install areas of specified wall panels, support framing, flashing, trim and accessories to show:
    - a. Substrate preparation.
    - b. Support framing, furring and flashing.
    - c. Clearances and gaps between members.
    - d. Fastening methods.
    - e. Trim details.
    - f. Joint protection.
    - g. Workmanship.
  - 2. Prepare mock-up for Architect's approval before start of wall panel work. Prepare additional mock-ups, if required by Architect, until approved.
  - 3. Maintain approved mock-up during construction to establish required standard of workmanship and basis of comparison for installation of wall panel work. Approved mock-up may remain as part of finished work.
- E. Installation Documents On-Site: Maintain copies of manufacturer's installation instructions, approved submittals and other execution related documents on-site; make available as needed to confirm proper installation.
- F. [\_\_\_].

#### 1.7 DELIVERY, STORAGE AND HANDLING

- A. Protect finish of panels by applying protective film.
- B. Deliver, store and handle composite wall panels in accordance with manufacturer's instructions. Exercise care in unloading, storing and installing panels to prevent bending, warping, twisting and surface damage.
- C. Deliver materials in manufacturer's original, unopened and undamaged containers with identification labels intact.
- D. Store materials protected from exposure to harmful weather conditions and at temperature conditions in accordance with manufacturer's instructions.
  - 1. Store panels in well-ventilated space out of direct sunlight.
  - 2. Protect panels from moisture and condensation with tarpaulins or other suitable weathertight covering in-stalled to provide ventilation.
  - 3. Slope panels to ensure positive drainage of any accumulated water.

4. Do not store panels in any enclosed space where ambient temperature can exceed 120 degrees F (49 degrees C).
- E. Handle composite wall panels and accessories with care to avoid damage.
  1. Avoid contact with any other materials that might cause staining, denting or other surface damage.
  2. Do not install damaged products; remove damaged products from work area upon discovery.

## **PART 2 PRODUCTS**

**Specifier Note: Retain Article below for proprietary method specification. Add product attributes performance characteristics, material standards and descriptions in other Articles as applicable. Use of such phrases as “or equal,” “approved equal” or similar phrases may cause ambiguity in specifications. Such phrases require verification (procedural, legal and regulatory) and assignment of responsibility for determining or equal products.**

### **2.1 COMPOSITE WALL PANELS**

**Specifier Note: Include, in the following Paragraph, manufacturer’s name, address, phone number, fax number, email address and website URL.**

- A. Manufacturer: Unience USA, Inc.; 2115 Linwood Avenue, Suite 500; Fort Lee, NJ 07024; Phone: 201-676-2467; Fax: 201-944-3660; Email: [alfrex@alfrexusa.com](mailto:alfrex@alfrexusa.com); Website: [www.alfrexusa.com](http://www.alfrexusa.com).

**Specifier Note: Substitution procedures must either be in the Contract Conditions or in Section 01 25 00 - Substitution Procedures. Do not include substitution procedures here.**

1. Single Source Responsibility: Provide components and materials specified in this section from same manufacturer.
2. Substitutions: No substitutions permitted.

**Specifier Note: Include an overall description of the system, assembly, product or material. Include required properties or characteristics that do not obviously belong under other titles. Examples: Configuration, size and color.**

- B. Description: Alfrex fr; fire-rated MCM wall panels, composed of aluminum facer sheets laminated to fire-rated mineral core; non-structural.
  1. Configuration: [[Rectangular] [Square] [Custom shaped] [\_\_\_\_] with [straight] [curved] [\_\_\_\_] profile]] [As shown on drawings].

**Specifier Note: Alfrex fr MCM is available in 4 mm and 6 mm thicknesses. Select one of the two following paragraphs.**

2. Panel thickness and weight: 0.157 inch (4 mm) thick; 1.43 lb/ft<sup>2</sup> (7.02 kg/m<sup>2</sup>).
  - a. Front facer sheet: 0.020 inch (0.5 mm).
  - b. FR mineral core: 0.117 inch (3.0 mm).
  - c. Back facer sheet: 0.020 inch (0.5 mm).]
3. Panel thickness and weight: 0.236 inch (6 mm) thick; 2.02 lb/ft<sup>2</sup> (9.88 kg/m<sup>2</sup>).
  - a. Front facer sheet: 0.020 inch (0.5 mm).
  - b. FR mineral core: 0.196 inch (5 mm)
  - c. Back facer sheet: 0.020 inch (0.5 mm).]

**Specifier Note: Alfrex fr MCM is available in three standard widths. Select width to meet project requirements.**

4. Panel width: [40.2 inches (1021 mm)] [49.2 inches (1250 mm)] [62 inches (1575 mm)] [As shown on drawings].
5. Panel length: 18 feet (5500 mm) maximum.

**Specifier Note: Alfrex fr MCM is available for three installation methods. Select method to meet project requirements.**

6. Installation method: [Dry seal] [Wet seal] [Rain screen].
- C. Material and finish:
  1. Front facer: Aluminum sheet; 3003-H16 alloy; with fluoropolymer finish containing minimum 70 percent PVDF resins meeting AAMA 2605; in color selected by Architect from manufacturer’s full range of colors.
  2. Back facer: Aluminum sheet; 3003-H16 alloy; with standard paint finish.
- D. Performance:
  1. Fire rating:
    - a. ASTM E84: Passed; Class A.
    - b. ASTM E119: 2 hours.

- c. CAN/ULC S102: Passed.
  - d. CAN/ULC S134: Passed.
  - e. EN 13501-1: Classified B-S1,d0.
  - f. NFPA 285: Passed.
2. Flexural Elasticity:

**Specifier Note: Select 5221 for 4 mm Alfrex fr; select 5772 for 6 mm Alfrex fr to meet project requirements.**

- a. ASTM C393: [5221] [5772] x 10<sup>3</sup> psi.
3. Strength:

**Specifier Note: Select 6962 psi for 4 mm Alfrex fr; select 5366 psi for 6 mm Alfrex fr.**

- a. Yield: [6962] [5366] psi.

**Specifier Note: Select 7252 psi for 4 mm Alfrex fr; select 5511 psi for 6 mm Alfrex fr.**

- b. Tensile: [7252] [5511] psi.

**Specifier Note: Select 5 percent for 4 mm Alfrex fr; select 4.4 percent for 6 mm Alfrex fr.**

- c. Elongation: [5] [4.4] percent.

**Specifier Note: Select accessories to meet project requirements. Note accessories on drawings or schedule in PART 3, Attachments.**

## 2.2 ACCESSORIES

- A. Flashing and trim: Specified in Section [07 62 00 – Sheet Metal Flashing and Trim].
- B. Support members: Vertical joint drainage channels, furring, and sub-framing: Recommended by wall panel manufacturer.
- C. Attachment clips and fasteners: Recommended by wall panel manufacturer.
- D. Joint sealers: Specified in Section [07 92 00 – Joint Sealants].

**Specifier Note: Select following paragraph if dry seal installation method is specified above.**

- E. Weatherstripping gaskets: Recommended by wall panel manufacturer for dry seal installation.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify that conditions of work previously installed under other sections or contracts are acceptable for installation of composite wall panels in accordance with manufacturer's instructions, and approved submittals.
  - 1. Notify [Architect] of unacceptable conditions upon discovery.
  - 2. Proceed with preparation and installation only after unacceptable conditions have been corrected.
- B. [\_\_\_\_].

**Specifier Note: Specify actions required to prepare the surface, area or site for incorporation of the section's primary products. Describe requirements for exposure or removal of existing assemblies, components, products or materials.**

### 3.2 PREPARATION

**Specifier Note: Specify preparatory work required prior to installation/application/erection of primary products.**

- A. Prepare substrates, framework and clips to receive composite wall panels in accordance with manufacturer's instructions and approved submittals.
- B. Protect adjacent products from damage by installation of wall panels.
- C. [\_\_\_\_].

### 3.3 INSTALLATION

- A. Install panels plumb, level and true, in compliance with manufacturer's recommendations.

- B. Anchor panels securely in place, in accordance with manufacturer's approved shop drawings.
- C. Comply with manufacturer's instructions for installation of concealed fasteners and with provisions of Section 07 90 00 for installation of joint sealers.
- D. Installation Tolerances: Maximum deviation from horizontal and vertical alignment of installed panels: 0.25 inch (6.4 mm) in 20 feet (6.1 m), non-cumulative.
- E. Repair panels with minor damage such that repairs are not discernible at a distance of 10 feet (3.1 m).
- F. Remove and replace panels damaged beyond repair.
- G. Remove protective film immediately after installation of joint sealers and immediately prior to completion of composite metal panel work.
- H. Remove from project site damaged panels, protective film and other debris attributable to work of this section.

#### 3.4 CLEANING

- A. Clean-up packaging, waste material and construction debris daily during installation; legally dispose of as directed by Contractor.
- B. Upon completion, remove surplus materials, remaining debris, tools and equipment.
- C. [ ].

**Specifier Note: Specify protection methods completed after installation, but prior to acceptance by the owner. Protection of surrounding areas and surfaces during application or installation is included under PART 3, Preparation. Include only statements unique to this Section.**

**Specifier Note: Coordinate the following Article with Section 01 76 00 - Protecting Installed Construction.**

#### 3.5 PROTECTION

- A. Protect installed products from damage during subsequent construction work until final inspection and acceptance by Owner.
- B. [ ].

**Specifier Note: Schedules are sometimes placed in the specifications rather than on drawings. Include schedules that indicate item/element/product/equipment, location and other coordinating data.**

#### 3.6 ATTACHMENTS

- A. Composite Wall Panel Schedule:
- B. [ ].

**END OF SECTION**