

UNIVERSE® CORPORATION SPECIFICATION
UNIVERSE® 2400 “Dry-gasket joint” ATTACHMENT SYSTEM

Section 07420
Aluminum Composite Panel System

PART 1 - GENERAL

1.01 - References

- A. The General Conditions, as may be listed in the table of contents, shall be included in and made part of this section.

1.02 - Scope of Work

- A. Furnish all labor and materials necessary to complete all aluminum composite building panels indicated on the project drawings and as specified herein.
- B. Composite building panels are hereby defined as the composite aluminum panels including the UNIVERSE® 2400 “Dry-Gasket Joint” Attachment System, utilizing IntelliClad™ methodology as supplied by Universe® Corporation, St. Louis, MO. (314-439-2800) www.universecorp.com or contact@universecorp.com, based on design and tested criteria.
- C. The work of this section consists of the following general categories of work:
 - 1. Exterior Building Skin: Spandrels, Parapets, Soffits, Copings.
 - 2. Exterior Column Covers: Circular, Elliptical, Rectangular and Square.
 - 3. Interior Cladding: Beams, Walls, Columns and Ceilings.
- D. Sealant for a complete panel system shall be a part of this section. Sealant type to be as recommended by the panel system fabricator, supplied and installed by the panel installer. Color to be selected by architect from manufacturer's standard color selector card. All metal surfaces to be primed per recommendations and instructions of sealant manufacturer prior to sealant installation.
- E. Metal stud framing and furring (18-gauge minimum) as may be required for the support of the panel wall is to be supplied and installed under the related specification.

1.03 - Related Work Under Other Sections

- A. The following items of related work, specified in other sections, are not included.
 - 1. Structural Steel.
 - 2. Metal Stud Framing System.
 - 3. Gypsum Wallboard Systems.
 - 4. Flashings.
 - 5. Aluminum Curtainwall; Window Frames.
 - 6. Glass and Glazing.
 - 7. Insulation and Safing.
 - 8. Caulking and Sealants, except as noted in 1.02.D. above.

1.04 - Submittals

- A. Shop Drawings: Submit complete shop drawings, with drawing submittals done in a CAD format utilizing IntelliClad™ methodology of all work of this section through the general contractor for approval, including large scale details of construction and showing method of installation and attachment to the building's supporting structure.
- B. Submit samples of typical aluminum composite panels, of type, thickness and finish specified.

- C. Submit panel manufacturer's product data, consisting of complete product description and specification.
- D. Submit panel system fabricator's installation manual, indicating the procedures to be followed by the installer in forming, sealing and installing the attachment system.

I.05 - Performance: This is a performance specification; panel systems that are not in compliance with the required performance standards listed herein are unacceptable. Note: The listing of a product name, system, or fabricator does not constitute approval unless all performance criteria are met. If the product bid does not comply with the criteria required, the bidder shall compensate the architect for additional time spent to review the non-compliant material and any additional design costs incurred.

- A. Provide a composite building panel system which has been **pretested by an independent testing laboratory** to provide specified resistance to air and water infiltration and structural deflection, when installed. Systems that are not pretested and certified by an independent laboratory prior to bid are unacceptable. The use of a panel manufacturer's generic tests reports are unacceptable; the tests must be for the specific system submitted by the panel system engineer and fabricator.
- B. **Structural Deflection:** Deflection of perimeter framing members shall not exceed L/175 of span length or 3/4 inches, whichever is less; or there shall be no permanent set in excess of .100 inches.
- C. **Performance Test Standards:**
 1. **Static Air Infiltration** (ASTM E283-84) at 10.0 psf (63.3 mph wind and 1.92" H₂O). Air infiltration shall not exceed .06 cfm per square foot for the fixed wall.
 2. **Static Water Infiltration** (ASTM E331-83) at 15.0 psf (77.5 mph wind and 2.88" H₂O) with a water spray rate of five (5) gallons per hour per square foot minimum for 15 minutes, no uncontrolled water infiltration on roomside.
 3. **Structural Performance** (ASTM E330) shall be tested in accordance with a design pressure of 40 psf. Deflection limitations as listed previously (1.05.B). After initial test, test at 150% of design pressure. No permanent deformation exceeding L/1000 or failure to structural members allowed.
 4. **Fire Performance Characteristics:**
Provide test report on the panel material in accordance with the following:
 - a. ASTM-E84
 - b. ASTM-E108, Modified

1.06 - Quality Assurance

- A. The panel system fabricator shall be approved by the panel manufacturer.
- B. Panel system fabricator shall have a minimum of ten (10) years experience.
- C. The panel system installer shall be responsible for a complete, sealed and weathertight installation.
- D. The panel system fabricator will prepare the shop drawings in accordance with their standard published product data and criteria established by others. The general contractor and subcontractor shall be responsible to verify the information contained therein including all dimensions.

In the interest of maintaining job schedules, the panel system fabricator will fabricate all of the materials from the approved set of shop drawings. If field verification of dimensions is required the general contractor/subcontractor shall be responsible to supply these dimensions to the panel system fabricator prior to engineering/fabricating of the materials. Discrepancies found

during field verification shall be corrected by the general contractor at no cost to the panel system fabricator.

1.07 - Product Delivery, Storage & Handling

- A. All materials under this section shall be packaged, boxed, wrapped, or otherwise protected to assure complete protection from damage during shipment.
- B. Materials shall be stored in interior spaces or above ground under protective and ventilated covers.
- C. The subcontractor shall be responsible for proper storage and handling. Extra protective measures shall be taken to assure that panel edges are secured from damage at all times.

1.08 - Coordination

- A. The general contractor and subcontractor responsible for the work of this section shall coordinate the work of this section with work of other trades affecting, or affected by, this work to assure the steady progress of all the work of the contract
- B. Before proceeding with installation, the general contractor shall require the installer to inspect all project conditions affecting the work of this section to assure that all such conditions and work are suitable to satisfactorily receive the work of this section.

1.09 - Warranty

- A. The panel system manufacturer will warrant that the system it supplies will be free from defects in materials and workmanship for a period of three (3) years.
- B. The aluminum composite material manufacturer (sheet stock) will provide its standard product warranty.
- C. The finish warranty will vary depending on the finish supplied and/or the paint color selected, but will generally follow the guidelines below:
 - Chalk, Peel, Crack or Check 10 years
 - Fade (will vary by color selection and jobsite environment) 10 years

PART 2 - PRODUCTS

2.01 - Acceptable Composite Panel Manufacturers

- A. Alucobond® by Alcan Composites, Inc., St. Louis, MO.
- B. Alpolic® by Mitsubishi Chemical America, Inc., Chesapeake, VA.
- C. Reynobond® by Alcoa Architectural Products, Eastman, GA.

2.02 - Materials

- A. The drawings and specifications are based on composite metal facing panels with non-progressive, mechanical/ sealant type attachment method.
- B. Composition: Two sheets of .020 aluminum sandwiching a core of extruded thermoplastic formed in a continuous process with no glues or adhesives between dissimilar materials. Core material to be polyethylene (PE) unless noted otherwise. Laminated panels are not acceptable. Preferred total thickness of panel shall be 4mm (approx. 3/16"), or {6mm (approx. ¼")}, depending on product application. Unless specifically stated as 6mm, the panels will be 4mm.
- C. Panel finish/color to be as selected by the architect from the composite panel manufacturer's standard paint color charts, or custom color as supplied by architect.
Architect to {select one} appropriate finish from the following:

1. **Fluoropolymer Resin Coating {Kynar/PVDF or Lumiflon/FEVE}**
2. *Anodized - Class I.*
3. *Titanium.*
4. *Dull stainless steel.*
5. *Brushed stainless steel.*
6. *Natural copper.*

Color to be {select one- if none selected, assumed to be standard 2-coat}:

2-coat “nonmetallic/nonexotic” Manufacturer’s stock standard 2-coat nonmetallic inventory colors (this does not include preformulated colors that may be shown on color charts for additional ideas, unless specifically noted).

or

3-coat “Metallic” Manufacturer’s stock standard Silver Metallic or Champagne Metallic

or

2-coat custom “nonmetallic/nonexotic” color; color to be _____

or

3-coat custom “metallic” color; color to be _____.

or

Natural metal; finish to be _____

2.03 - Panel System Performance Requirements

- A. The panel system is to be of a rout and return configuration utilizing a continuous aluminum extrusion attachment system.

Attachment methods using **clips attached with fasteners through the panel's return flange will not be allowed.**
- B. The aluminum composite **panel attachment system shall be thermally broken** and incorporate the necessary thermal expansion and contraction movements within the confines of the attachment mechanism surrounding each panel without the use of any metal to metal sliding joints.
- C. The **attachment system shall allow for removal of any individual panel** within the erected system for damage replacement or access to structure behind the panel, without disturbing adjacent panels. The removed panel must be put into the original tested attachment system.
- D. Panel system to be field sealed between panels with silicone materials as specified in the related specification. The joint will have silicone sealant recessed as a weather barrier, with a dry-cured gasket (standard color- black) exposed to view. The gasket will be either a reveal (depending on depth of panel return) or flush, as shown on the drawings.
- E. Detail and fabricate panels to the sizes, configurations and layouts as shown on the approved shop drawings. Panel system fabricator's shop drawings will provide for flat panel surfaces within the tolerances and performance requirements of the panel manufacturer.
- F. Fabricate all materials in accordance with the approved shop drawings. However, if field measurements are required, they will be supplied to the panel fabricator by others at no expense to the panel fabricator. All schedules will be based on the later occurrence, shop drawing approval or approval of field measurements.
- G. Grain pattern of anodized and metallic finished aluminum facing sheets to run in same direction, unless otherwise specified.
- H. Panels shall be marked to coordinate with the approved shop drawings.
- I. Provide protective film on exposed panel faces and leave in place during fabrication.

PART 3. - EXECUTION

3.01 - Preparation

- A. Installer shall examine all surfaces and conditions which the work of this section is to be applied and notify the general contractor, in writing, of any defects which would be detrimental to proper installation and alignment of the work. No work shall be erected until all discrepancies have been resolved. Application of materials constitutes acceptance of subsurfaces and conditions.

3.02 - Installation

- A. Install composite metal panel system in accordance with the panel system fabricator's approved shop drawings and as illustrated in the fabricator's panel system "Installation Instruction Manual".
- B. Erect and securely anchor all panels plumb, level, square and true to line in accordance with approved shop drawings. Metal grain of panels to be installed in same direction on anodized and metallic finished material, unless otherwise noted on the approved shop drawings.
- C. Tolerances: Maximum deviation from vertical and horizontal alignment of erected panels shall not exceed 1/8" inch per 12 foot length of any member, or ¼" in any total run in any line.
- D. Use concealed fastening system of non-corrosive type fasteners as recommended by the panel systems manufacturer. These fasteners to occur under all sealant joints. No exposed, visible fasteners are permitted.
- E. Provide for necessary structural movement as indicated on the approved shop drawings.
- F. Sealant at all panel joints to be installed as part of the related specifications.
 - 1. Installer to prime metal surfaces as recommended by sealant manufacturer. Install sealant in accordance with sealant manufacturer's recommendations.
- G. Dry-cured gasket is installed into bed of silicone in joint. Gasket needs to be installed before weather barrier silicone cures.
- H. Remove protective film from panel faces immediately upon completion of panel installation.

3.03 - Panel Attachment System

- A. Attachment system includes:
 - 1. Fabricated composite metal panels.
 - 2. Attachment System.
 - 3. Protective film one (1) side of panels.
- B. Attachment system does not include:
 - 1. Flashings.
 - 2. Stud framing members required for panel systems support.
 - 3. Insulation.
 - 4. Wood blocking, furring.
 - 5. Sheathing and gypsum drywall.
 - 6. Sealant and primers.
- C. Attachment System to freely allow thermal movement of each panel.
 - 1. **Fasteners into or attached to panels are not permitted.**
 - 2. **Metal to metal sliding joints are not permitted.**
 - 3. **Panels to use a continuous perimeter extrusion** in a rout and return configuration.

- D. Vapor Barrier
The designed system is a wet sealed weather tight system, without weeps. The building envelope shall include a continuous vapor barrier system to prevent conditioned air from reaching the interior panel surfaces and forming condensation.
- E. Panel Removal
1. Panels are to be **removable from the exterior without disturbing adjacent panels** and are to be reinstalled with the original installation method, so the tested performance is assured.
- F. Panel Joints
1. Joint width to be 1/2".
2. All metal surfaces to be primed per recommendations of sealant manufacturer.
- G. Panel Protection
1. Panels to be covered with a protective film during fabrication and erection.
2. Film is to be removed immediately after panel installation. Final cleaning and protection then becomes the responsibility of the general contractor.
- H. Fasteners
1. Fasteners exposed to atmosphere to be stainless steel or equal.
- I. Installation
1. Panel installation to be performed by workers experienced with commercial panel installation.
2. Sealant & gasket to be installed by the same workmen as above or independent caulking contractor.

3.05 - Glazing System

- A. See Section 08800 - Glazing for coordination of this work.

3.06 - Clean-Up

- A. Upon completion, remove and legally dispose of all trash and debris resulting from operations of this section.

END of SECTION