

**Article I. UNIVERSE® CORPORATION SPECIFICATION**  
**UNIVERSE® 2000R “Rainscreen” ATTACHMENT SYSTEM**

**Section 07420**

**Aluminum Composite Panel Dry-joint Rainscreen 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 and air and moisture barrier indicated on the project drawings and as specified herein.
- B. Composite building panels are hereby defined as the composite aluminum panels including the UNIVERSE® 2000R “**Rainscreen**” Attachment System utilizing IntelliClad® methodology as supplied by Universe® Corporation, St. Louis, MO. (314-439-2800) [www.universecorp.com](http://www.universecorp.com) or [contact@universecorp.com](mailto: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.
  - 4. Air and moisture barrier.
- D. As this is a rainscreen ventilated wall, there is no sealant in the panel joints. The wall system is rear ventilated.
- E. Air and moisture barrier to be manufactured for commercial use, and is to be self-healing at fastener penetrations. All laps to be sealed, holes or tears repaired prior to installation, and the system is to be installed per manufacturer instructions. If the air & moisture barrier is not self-healing, an appropriate tape material that will gasket between the aluminum extrusions and the air & moisture barrier must be used to prevent leakage at the fasteners.
- F. 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 Saffing.
  - 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<sup>®</sup> 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.

1.05 - 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. Air Infiltration: Tested- Air leakage through assembly of not more than 0.06 cfm/sq. ft. of wall area when tested according to ASTM E 283 at a static-air-pressure difference of 10.0 lbf/sq. ft.
  - 2. Water Penetration: Tested- No water penetration when tested according to ASTM E 331 at a minimum differential pressure of inward-acting, wind-load design pressure of not less than 15.0 lbf/sq. ft. and not more than 12 lbf/sq. ft.  
  
Water Leakage: Uncontrolled water infiltrating the system or appearing on system's normally exposed interior surfaces from sources other than condensation. Water controlled by flashing and gutters that is drained back to the exterior and cannot damage adjacent materials or finishes is not water leakage.
  - 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 including the air and moisture barrier.
- 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 are 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.

2.02 - Materials

- A. The drawings and specifications are based on composite metal facing panels with non-progressive, mechanical 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/PDVF or Lumiflon/FEVE}**
2. *Anodized - Class I.*
3. *Titanium.*
4. *Dull stainless steel.*
5. *Brushed stainless steel.*
6. *Natural copper.*
7. *Pre-patinated 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 secured with snap-in aluminum extrusion at joints; color assumed to match panel color. {Other color snap-in extrusions can be furnished if specified.}
- 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. Typically, all aluminum composite panels will be shipped folded and assembled, ready for installation.
- B. 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".
- C. 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.
- D. 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 1/4" in any total run in any line.
- E. Use concealed fastening system of non-corrosive type fasteners as recommended by the panel systems manufacturer. These fasteners to occur under snap-in extrusions at reveal joints.
- F. Provide for necessary structural movement as indicated on the approved shop drawings.
- G. Air and moisture barrier behind system.
- 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. Air and moisture barrier.
  4. 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. Air & Moisture Barrier

The designed system is a dry joint rear ventilated, pressure equalized rainscreen. The air & moisture barrier is a required component for weathertightness

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. Sealant Joints

1. Joint width to be 5/8" (+/-1/16").

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. Air and moisture barrier.

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**