

**UNIVERSE CORPORATION SPECIFICATION**  
for  
**UNIVERSE® 4000 “Dry-set” 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® 4000 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. Description: The Universe 4000 “dry-set” system is a shop assembled system utilizing a perimeter extruded frame for attaching the panels to the building framing without the use of a continuous wet-seal between the panels. The perimeter frame, gutter and hanger extrusion are stacked together with their weatherstripping forming the seal between the panels when they are interlocked together, which is a “dry-set” system. The system is guttered and weeped and does not require the use of a secondary air and moisture barrier membrane wrap to meet the air and water infiltration requirements. The perimeter extrusions on the panel are vented/weeped to allow for any moisture within the panel to be drained out. The panel’s top “hanger rail” also performs as a “gutter rail”, collecting any additional moisture.
- D. 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.
- E. 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.
- 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 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.

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. Static Air Infiltration (ASTM E283-84) at 10.0 psf (63.3 mph wind and 1.92" H<sub>2</sub>O). 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" H<sub>2</sub>O) 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. Dynamic Water Infiltration (AAMA 501.1) with a 100 mph slip stream velocity creating a pressure on the wall equivalent to 15 psf. Water to be applied at a rate of five (5) gallons per hour per square foot for 15 minutes, no uncontrolled water infiltration on roomside.
4. Structural Performance (ASTM E330) shall be tested in accordance with a design pressure of 40 psf. Deflection limitations are listed previously. After initial test, test at 150% of design pressure. No permanent deformation exceeding L/1000 or failure to structural members allowed.
5. 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 and attachment system shall be approved by the panel manufacturer.
- B. Panel systems manufacturer 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 fabricator 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 an aluminum composite material fabricated and assembled into panel units using a custom perimeter extrusion and a dry set weather stripping and internal gutters.

- 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 \_\_\_\_\_
- D. The exposed aluminum perimeter framing will be a standard low gloss black polyurethane coating. An optional finish/color is available at an additional cost, to be selected by the Architect from manufacturer's standard paint colors or custom color as supplied by Architect.

2.03 - Panel System Performance Requirements

- A. The panel system shall be a "Dry Set" guttered and weeped panel attachment system, defined as:
1. The System is defined as a panel with a rout and return perimeter flange.
  2. Shop fabricated and assembled with a perimeter frame extrusion (standard black), including an integral weatherstripping (EPDM) and extruded aluminum stiffeners as may be required.
  3. The perimeter extrusion are attached to the panel flanges with both a structural silicone and a mechanical fastener/clip. The aluminum stiffeners are attached to the back of the panel with structural silicone and with a mechanical fastener at each end of the stiffener to the perimeter extrusion.
  4. The top (gutter) and leading edges of the panel will have a shop applied "Hanger" extrusion for attaching the panels to the building frame. The "Hanger" extrusion also allows for the panels to be stacked together forming "dry-set" seal between panels without a continuous wet-seal. The 4-way joint between the panels is spliced/sealed and covered with an aluminum cover plate avoiding any exposed sealant at the 4-way joints.
  5. The overall depth of the panel assembly is two inches (2") without shims.
  6. The completed panel assembly is to have weep/vent holes at two locations; one at quarter points in the bottom of the panel return flange and also at quarter pointer in the "gutter hanger".
  7. The panel assembly shall meet the air and water infiltration requirements of this specification without reliance on a secondary backup air and moisture barrier membrane or sheathing.

- B. Fabricate panels to the sizes, configurations and layouts as shown on 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.
- C. Shop fabricate and assemble units ready for installation.
- D. When possible factory curve panels with extrusion rolled to match.
- E. When required for structural support, stiffeners will be shop applied with structural silicone and mechanically fastened at ends to perimeter framing.
- F. Grain pattern of anodized and metallic finished aluminum facing sheets to run in same direction, unless otherwise specified.
- G. Panels shall be marked to coordinate with the approved shop drawings.
- H. 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.
- B. Penetrations required by other trades will be field cut by the trade involved or as an add to the contract of this subcontractor with the general contractor bearing the cost.

#### 3.02 - Installation

- A. Install composite metal panel system in accordance with the panel system fabricator's instructions and approved shop drawings.
- B. Erect and securely anchor all panels plumb, level, square and true to line in accordance with 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 1/4" in any total run in any line.
- D. Use concealed fastening system of non-corrosive type fasteners as recommended by the panel system fabricator. These fasteners to occur under all sealant joints. No exposed, visible fasteners are permitted.
- E. 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. Finished sealant joints to have clean edges.
- F. Remove protective film from panel faces immediately upon completion of panel and sealant installation.

#### 3.03 - Cleaning and Protection

- A. Protective film is removed upon installation and caulking, after installation any additional protection becomes the responsibility of the general contractor.

- B. Trash is to be deposited into containers supplied by the general contractor.
- C. The general contractor shall be responsible to assure that gutters and weep remain clean and unobstructed after installation.

**END OF SECTION**