

Specifier Notes: This product guide specification is written according to the Construction Specifications Institute (CSI) Format, including MasterFormat (1995 / 2004 Editions), SectionFormat, and PageFormat, contained in the CSI Manual of Practice. The section must be carefully reviewed and edited by the Architect to meet the requirements of the project and local building code. Coordinate this section with other specification sections and the drawings. Delete all "Specifier Notes" when editing.

## **SECTION 08950 / 08 45 00**

### **TRANSLUCENT WALL AND ROOF ASSEMBLIES**

Specifier Notes: This section covers Major Industries "LightBasic™ Translucent Curtainwall Systems. The wall systems are self-supporting, structural composite sandwich panels with translucent skins and aluminum interlocking grid framework. Consult Major Industries for assistance in editing this section for the specific application.

#### **PART 1 - GENERAL**

##### **1.1 SECTION INCLUDES**

- A. Metal-framed translucent curtainwall system, including aluminum framing, fiberglass panels and accessories.

##### **1.2 RELATED SECTIONS**

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

- A. Section 07620 - Sheet Metal Flashing and Trim.
- B. Section 07900 - Joint Sealers.

##### **1.3 REFERENCES**

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

- A. American Society for Testing and Materials (ASTM) E283 - Test Method for Rate of Air Leakage through Exterior Windows, Curtain Walls and Doors.
- B. American Society for Testing and Materials (ASTM) E330 - Structural Performance of Exterior Windows, Curtainwall, and Doors by Uniform Static Air Pressure Difference.
- C. American Society for Testing and Materials (ASTM) E331 - Test Method for Water Penetration of Exterior Windows, Curtain Walls and Door by Uniform Static Air Pressure Difference.
- D. Aluminum Association (AA) - Specifications for Aluminum Structures.
- E. American Architectural Manufacturers Association (AAMA) 603-98 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.
- F. American Architectural Manufacturers Association (AAMA) 2604-98 - Voluntary Specification for High Performance Organic Coatings on Architectural Extrusions and Panels.
- G. American Architectural Manufacturers Association (AAMA) 611-98 - Specification for Anodized Architectural Aluminum.

##### **1.4 SYSTEM DESCRIPTION**

- A. Performance Requirements: Provide translucent system which has been manufactured, fabricated and installed to withstand environmental loads from and to maintain performance criteria without defects, damage or failure.
- B. System Performance Requirements:
  - 1. Analyze and design framing system including translucent glazing material to support the following loads with required safety factors: Load values shall be as required by code or ASCE 7 whichever is greater.
    - a. Wind Loads.

- b. Snow Loads.
  - c. Seismic Loads: As required by applicable earthquake zone for project location.
  - d. Thermal Loads: As required by AMMA Structural Design Guidelines for Aluminum Framed Systems.
  - e. Apply and combine all loads in accordance with the building code.
2. Deflection of framing members normal to the glazing plane shall be limited to 1/120 of the un-supported span.
- a. Air and Water Resistance: Provide test report from accredited laboratory showing successfully passed the following ASTM:
  - b. ASTM E283 - Static Air @ 1.56 psf (74.69 Pa): 0.06 cfm/sf (0.31 L/s/m<sup>2</sup>).
  - c. ASTM E331 - Static Water @ 12 psf (575 Pa): No Leakage.

## 1.5 SUBMITTALS

- A. General: Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures Section.
- B. Product Data: Submit manufacturer's product data and test reports showing compliance with performance requirements specified. Include both published data and specific data prepared for this project.
- C. Shop Drawings: Submit shop drawings showing layout, profiles and product components, including anchorage, accessories, finish colors, patterns and textures.
  - 1. Submit shop drawings for approval prior to fabrication. Include detailed plans, elevations, and details of framing members, translucent panels, sealants, fasteners, anchors, and thicknesses and types of formed flashing and closures and relationship with adjacent materials. Indicate maximum horizontal and vertical forces at framing connections for support from building structure.
- D. Selection Samples:
  - 1. Aluminum Finish: Submit color charts or range samples for initial color selection.
  - 2. Translucent Glazing Materials: Submit range of colors and light transmission construction samples, 6 in<sup>2</sup> (3871 mm<sup>2</sup>), of the specified translucent glazing material specified.
- E. Verification Samples: Aluminum Finish:
  - 1. Aluminum Finish: Submit finished sample of color selected for use on metal coupons.
  - 2. Translucent Glazing Materials: Submit a verification sample, 6 in<sup>2</sup> (3871 mm<sup>2</sup>), of the specified translucent glazing material specified.
- F. Closeout Submittals: Submit the following:
  - 1. Operation and Maintenance Data: Operation and maintenance data for installed products in accordance with Division 1 Closeout Submittals (Maintenance Data and Operation Data) Section. Include methods for maintaining installed products, and precautions against cleaning materials and methods detrimental to finishes and performance.
  - 2. Warranty: Warranty documents specified herein.
  - 3. Record Documents: Project record documents for installed materials in accordance with Division 1 Closeout Submittals (Project Record Documents) Section.

## 1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer to have minimum ten years documented experience in the fabrication and installation of custom daylighting systems and be capable of providing field service representation during installation.
- B. Installer Qualifications: Installer to have minimum five years documented experience in the work of this section who has specialized in the installation of work similar to that required for this project and is approved by the system manufacturer.
- C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.

1. Finish areas designated by Architect.
2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
3. Refinish mock-up area as required to produce acceptable work.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name, manufacturer, and location of installation.
- B. Store products in a clean, dry area until ready for installation and follow all other requirements specified by manufacturer.
- C. Handling: Protect materials and finish from damage during handling and installation.

#### 1.8 PROJECT CONDITIONS

- A. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.
  1. Measurements: When practical, take accurate field measurements before preparation of shop drawings and fabrication. Do not delay job progress; work from "guaranteed dimensions" and allow for field trimming of perimeter flashing if taking field measurements before fabrication is not possible.

#### 1.9 WARRANTY

- A. Project Warranty: Refer to Conditions of the Contract for project warranty provisions.
- B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official.
  1. System Warranty: Provide written warranty signed by manufacturer, agreeing to repair or replace work which exhibits defects in materials or workmanship. Defects are defined to include uncontrolled leakage of water, abnormal aging or deterioration, or failure to perform as required.
    - a. Warranty Period: 1 year non-prorated from date of completion.
  2. Translucent Glazing Material Warranty: Provide written warranty signed by manufacturer, agreeing to repair or replace glazing materials which exhibit defects in materials or workmanship.
    - a. Fiberbloom Warranty - 10 years from date of manufacture.
    - b. Color-Change Warranty - no more than 4.0 Delta E units of discoloration - 5 years from date of manufacture.
    - a. Note: Provide written warranty by manufacturer, agreeing to repair or replace glazing materials which exhibit fiberbloom or color change.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Major Industries Inc.; P. O. Box 306, Wausau, WI 54402-0306. Phone Toll Free: (888) 759-2678. Phone: (715) 842-4616. Fax: (715) 848-3336. Web: [www.majorskylights.com](http://www.majorskylights.com). E-mail: [sales@majorskylights.com](mailto:sales@majorskylights.com).
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

#### 2.2 CONSTRUCTION

- A. Product: LightBasic™ Translucent System

- B. Panel Construction:
1. Provide double-faced, insulated, translucent fiberglass sandwich panels complying with the following:
    - a. Thickness: 2-3/4 inches (70 mm).
    - b. Grid Size: 12 inches by 24 inches (305 mm by 610 mm).
    - c. Grid Size: 8 inches by 20 inches (203 mm by 508 mm).
    - d. Grid Size: 12 inches by 12 inches (305 mm by 305 mm).
  2. Grid Pattern:
    - a. Shoji.
    - b. Staggered Shoji.
    - c. Tuckerman (square).

\*\* NOTE TO SPECIFIER \*\* Insert percent light transmission Delete if not required.

3. Light Transmission:

\*\* NOTE TO SPECIFIER \*\* Insert percent U-factor value. Delete if not required.

4. U-factor:

\*\* NOTE TO SPECIFIER \*\* Delete exterior sheet color not required.

5. Exterior Sheet:
- a. 0.070 inch (1.8 mm) thick; Crystal
  - b. 0.070 inch (1.8 mm) thick; White
6. Interior Sheet:
- a. 0.045 inch (1.1 mm) thick; Crystal
  - b. 0.045 inch (1.1 mm) thick; White
7. Fabricate panels as a true sandwich panel of flat fiberglass sheet bonded to a grid core of mechanically interlocking aluminum I-beams, laminated under a controlled process of heat and pressure.
- a. Maximum of 4 unbonded areas, a maximum of 3/64 inch (1.2 mm) in diameter, in a maximum area of 40 ft<sup>2</sup> (3.7 m<sup>2</sup>) of panel surface.

- C. Panel Performance:
1. Deflection: Not to exceed 3-1/2 inches (89 mm) at 35 lb/sf (171 kg/m<sup>2</sup>) loading, and not to exceed 0.090 inch (2.3 mm) set deflection after 5 minutes per ASTM E72 on a 4 foot by 12 foot (1.22 m by 3.66 m) panel.
  2. Support Strength: Panel capable of supporting, without failure, a 300 lb (136 kg) concentrated load when applied to a 3 inch (76 mm) diameter disk per ASTM E661.

## 2.3 COMPONENTS AND ACCESSORIES

- A. LightBasic™ Framing System:
1. Fabricate framing members from 6063-T5 or 6061-T6 extruded aluminum for screw-tight closure system.
    - a. Framing System Minimum Thickness: 0.090 inches (2.3 mm).
- B. Panel Grid: Fabricate the panel grid core from extruded 6063-T6 or equivalent aluminum I-beams with a minimum width of 7/16 inch (11 mm). Mechanically interlock the muntin and mullion I-beam grid to prevent mis-alignment at intersections and to minimize bond skips.
- C. Translucent Facing: Fabricate panels using fiberglass face sheet material manufactured with uniform color which is free of ridges, wrinkles, clusters of air bubbles and pinholes and with the following characteristics:
1. Flammability for Interior Face Sheet: Flame spread no greater than 20 and smoke development, no greater than 200 per ASTM E84.
    - a. Burn extent for interior sheet, shall not exceed 1 inch (25 mm) per ASTM D635.

2. Weatherability of Exterior Face Sheet: Not more than 4.0 Delta E units of color variation per ASTM D2244 using Xenon Arc 1500 hours of aging per ASTM G155.
- D. Fasteners:
1. Clips for Attachment of Rafter Bars:
    - a. Aluminum.
    - b. Attach using bolted fastening methods.
  2. Construction and Glazing Cap Fasteners:
    - a. 18-8 stainless steel.
    - b. Include gasketed sealing washers.
  3. Field Anchors: Cadmium plated, unless otherwise specified.
  4. Exposed Fasteners: Finish to match aluminum.
- E. Sealants:
1. System manufacturer shall approve sealants for all metal to metal and metal to panel joints. Provide standard color sealant selection for approval. Apply sealants in accordance with the manufacturer's instructions.

## 2.4 FINISHES

- A. Aluminum Finishes: Provide the following finish for interior and exterior exposed aluminum surfaces:
1. Anodized Coating: Architectural Class I clear anodized, Type AA-M10C22A41.
  2. Anodized Coating: Architectural Class II clear anodized, Type AA-M10C22A31.
  3. Anodized Coating: Architectural Class I pigmented anodized, Type AA-M10C22A42/A44.
    - a. Color: \_\_\_\_\_.
    - b. Color: As selected by Architect from manufacturer's standard colors.
    - c. Color: As indicated on the Drawings.
  4. Pigmented Organic Coating: AAMA 2604.
    - a. Color: \_\_\_\_\_.
    - b. Color: As selected by Architect from manufacturer's standard colors.
    - c. Color: As indicated on the Drawings.
  5. High-Performance Pigmented Organic Coating: AAMA 2605.
    - a. Color: \_\_\_\_\_.
    - b. Color: As selected by Architect from manufacturer's standard colors.
    - c. Color: As indicated on the Drawings.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. Examine areas to receive translucent system with installer and manufacturer's representative present, including supporting structure and substrate for dimensions, tolerances, material conditions, and support.
- C. Notify Architect of conditions that would adversely affect installation or subsequent utilization of system. Do not proceed with installation until unsatisfactory conditions are corrected.

### 3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Ensure supports to receive system are clean, flat, level, plumb, and square.
- C. Aluminum Protection: Apply a protective coating of bituminous paint or other neutral material to dissimilar materials coming in contact with aluminum or separate with a nonabsorbent isolator.

### 3.3 INSTALLATION

- A. Install translucent system in accordance with manufacturer's instructions at locations indicated on the Drawings.
- B. Install system level, plumb, square, accurately aligned, correctly located, and without warp or rack.
- C. Do not install system components with deficiencies or dimensional errors. Do not proceed with installation until unsatisfactory components are replaced.
- D. Anchor system securely in place to supports. Use attachment methods permitting adjustment for construction tolerances, irregularities, alignment, and expansion and contraction.
- E. Repair damages to protective weathering surface of exterior face sheet in accordance with manufacturer's instructions and as approved by Architect.

### 3.4 FIELD QUALITY CONTROL

- A. Water Test: Test system according to procedures in AAMA 501.2.
- B. Repair or replace work that does not pass testing or is damaged by testing and retest work.
- C. Inspect installation of sheet metal flashing and sealants.
- D. Inspect face sheets for cracks, deep scratches, and other damage.

### 3.5 CLEANING

- A. Clean installed system in accordance with manufacturer's instructions.
- B. Clean system inside and outside, including member connections and inside corners, immediately after installation and after sealants have cured.
- C. Remove temporary protective coverings and strippable coatings from prefinished metal surfaces.
- D. Remove labels and part number markings from components.
- E. Do not use harsh cleaning materials or methods that would damage metal finishes or glazing.

### 3.6 PROTECTION

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

**END OF SECTION**