

**Completing Your Specification  
for  
4” STRUCTURED POLYCARBONATE WALL ASSEMBLIES  
084513**

**Instructions:**

**Step 1.** (The script highlighted in RED and enclosed in brackets is intended to be instructions for that portion of the specifications) After completing the task, which usually requires making a selection, delete the Red script from the specification.

**Step 2.** (Scripts highlighted in BLUE are selection items.) Change the item you want to use to BLACK text and delete all the other Blue text in that area of the specification.

**Step 3.** Add the project name at the top of each page and the correct page numbering system at the bottom.

**Step 4.** Delete this page from your new specification and copy and paste it into your master specification document.

**Please call Crystal Structures/Sunshine Rooms at 1-800-222-1598 for any help with this specification or other issues regarding your translucent wall assembly design, such as component sizing, special glazing requirements, or for drawing details.**

**Continue to Specification below -**

## SECTION 084513

### 4" STRUCTURED POLYCARBONATE WALL ASSEMBLIES

#### Part 1 - General

##### 1.01 Description of Work

- A. Furnish all materials, labor, and related services required to provide structured polycarbonate wall assemblies(s) as specified on drawings and in this section.
- B. Work is limited to the translucent wall assembly system only and includes the following:
  - 1. Aluminum framing and compatible flashing (additional structural support as depicted in the architectural and structural drawings shall be supplied by other trades)
  - 2. Glazing and all necessary glazing gaskets and tapes
  - 3. Installation shall be by a factory-approved installation company

##### 1.02 Performance Requirements

- A. Deflection – All load-bearing members under any design load combination (including dead load) shall not exceed L/120 of its clear span
- B. Air Infiltration – Complies with testing per ASTM-E283-04 and shall meet or exceed <0.01cfm/ft<sup>2</sup>
- C. Static Water Resistance – Complies with testing per ASTM-E331 and shall meet or exceed 527Pa (11.0psf)
- D. Wind Load – Withstands wind loads based on ANSI-A58.1/ASCE-7 guidelines and 90 mph wind, exposure C, per Uniform Building Code
- E. Wind Load: 90 mph psf on vertical projected areas or as required by the governing building code in which the structure is located, whichever is greater
- F. Local building load requirements may supersede these minimums
- G. Plastic Self-Ignition Temperature: 650 deg F or more per ASTM D1929
- H. Smoke-Developed Index: 450 or less per ASTM E 84, or 75 or less per ASTM D2843
- I. Flame-Spread Index: Not more than 25 per ASTM E 84
- J. Combustibility Classification: Class CC1 per ASTM D635
- K. Color Tolerance: Passes IBC 2006 requirements per ASTM E 308, ASTM E313 and ASTM G 155
- L. Provide a pre-engineered weepage system that collects condensation and directs it to the exterior of the enclosure
- M. Framing members shall be thermally broken
- N. 4" Polycarbonate Assembly Glazing Performance Requirements:

- 1. Clear over Clear

	Visible Light Transmittance	53%
	Shading Coefficient	.64
	Solar Heat Gain Coefficient	.56
	R Value	5.3
	U Factor	.19
2.	Opal over Clear	
	Visible Light Transmittance	31%
	Shading Coefficient	.54
	Solar Heat Gain Coefficient	.47
	R Value	5.3
	U Factor	.19
3.	Opal over Opal	
	Visible Light Transmittance	19%
	Shading Coefficient	.46
	Solar Heat Gain Coefficient	.40
	R Value	5.3
	U Factor	.19

(Call for other combinations that can include bronze, green and blue options)

**Or** As specified in Section 08800 “Glazing”  
 {Add type, makeup and performance in that section}

#### 1.03 Submittals

A. Shop Drawings – Submit (list quantity) copies of complete shop drawings to the architect for approval prior to any fabrication

B.

**Or** Submit electronic copies of complete drawings electronically by e-mail or downloaded to the projects cloud management folder

C. Samples

1. 2 ea. 12” structural glazing extrusions

2. 2 ea. 12” x 12” glazing units

3. 2 ea. frame color samples

D. Provide engineering showing the structural integrity of the system, stamped by an engineer licensed in the state where the project is located by the method listed above. (Note: Stamped shop drawings and engineering can be provided after the initial set of shop drawings have been returned with the architect’s review or comments)

#### 1.04 Warranty

A. Translucent wall assembly manufacturer shall warrant that the product shall be free of defects in material and workmanship for a period of ten years

- B. Wall assembly manufacturer shall warrant structured polycarbonate glazing assembly for a period of ten years. The product will not undergo a loss in light transmission in excess of 6% of its original value or a change in yellowness index in excess of allowable values in accordance with ASTM 1003-95 and ASTM 313-73 standards respectively. Product failure also includes a loss of impact strength within the parameters of ASTM D-2658 standards.
- C. Wall assembly manufacturer shall warrant the frame finish shall be free of defects and shall not fade within acceptable trade standards: **(Select finish)**
  - a. Polycron (AAMA2603) – 5 years
  - b. Class I Anodized finish - 10 years
  - c. 2-Coat flouropolymer paint finish (AAMA 2604) -10 years
  - d. 3-Coat flouropolymer paint finish (AAMA 2605) – 15 years
- D. Installer shall guarantee the system will be watertight for a period of five years

## Part 2 - Products

- 2.01 A. Acceptable Manufacturers and Model:  
Thermal Sky 400 Structured Polycarbonate Wall Assembly by Crystal Structures, Commercial Division of  
Sunshine Rooms, Inc.  
3333 N. Mead  
Wichita, KS 67219  
800-222-1598  
Fax 316-838-0839
- B. Substitute manufacturers shall not be considered unless they have been approved in writing no less than ten days prior to bid date. Only those manufacturers shall be considered as approved suppliers with products in strict conformity with this Section of the specifications and with the Contract drawings details. Complete details and specifications must accompany requests for approval from translucent wall assembly manufacturer.
- 2.02 Materials
  - A. Structural Framing System
    - 1. Frame: Thermal Sky 400 thermally broken system
    - 2. Aluminum members shall be extruded aluminum 6005-T5 or 6061 T6 alloy; non-structural members shall be 6063-T5
    - 3. System shall be thermally broken throughout. Thermal break materials shall be polyurethane.

4. System shall utilize pressure glazing caps to secure the glazing and all caps and fasteners shall be covered with a snap in trim piece designed to cover all fasteners.
5. System shall incorporate Tear-Duct Weepage Control System™ by Crystal Structures. Internal and external moisture diversion channels shall be extruded in the aluminum bars to direct moisture to the outside of the unit. Condensation channels shall drain into a sloping sill and to the exterior of the wall assembly.
9. Color Selection: **(Select one)**
  - i. All exposed aluminum extrusions shall be finished with electrostatically-applied baked PPG Polycron enamel. Finish meets AAMA specification 2603. Choose from the manufacturer's standard colors (bronze or white)
  - ii. Or Class I anodized in a color selected by the architect
  - iii. Or two-coat fluoropolymer paint in a color selected by the architect from manufacturer's standard options
  - iv. Or three coat fluoropolymer paint in a color selected by the architect from manufacturer's standard option.

B. Glazing: **(Select either 1 or 2)**

1. Manufacturer's Recommendation:  
Thermal Sky 400  
2 ¾" Translucent multi-wall polycarbonate structural sandwich panel system with 2 layers of 16 mm polycarbonate and 12" X 24" internal grid.  
**- OR -**
2. Glazing: As specified in Section 08800 "Glazing"

C. Fasteners

All fasteners shall be 18-8 stainless steel. Exposed fasteners are not acceptable.

D. Gaskets

1. Gaskets are to be 60-70 durometer Santoprene rubber.
2. Gaskets shall be designed with four multi-fins
3. Glass setting blocks shall be 90 durometer EDPM.

E. Sealants

1. Sealants shall be 100% silicone to match the color of the exterior frame. In the event the frame color is a custom or unusual color, all caulking shall be black.
2. VOC Content: 8.1 g/L or Less

## Part 3 Execution

### 3.01 Inspection of work area

- A. Inspect area to receive skylight to ensure that all conditions are in accordance with specification sheets and approved shop drawings.
- B. Verify that the flashed curb is in accordance with specification sheets and approved shop drawings.
- C. Inspect material upon arrival at the job site for condition and that the quantity of material is in agreement with the packing slip.
- D. In the event the jobsite is prepared incorrectly it shall be the responsibility of the general contractor or owner to repair site in a fashion acceptable to the translucent wall assembly manufacturer that will allow for the proper installation of the product.

### 3.02 Installation

- A. Install in accordance with manufacturer's instructions.
- B. Align unit plumb, level, and flush with the adjacent surfaces.
- C. Installing contractor shall have at least 5 years experience in the installation of similar projects.

### 3.03 Cleaning and Protection

- A. The frame and glazing shall be cleaned at the time of the installation by the installing contractor. Additional cleanings shall be the responsibility of the general contractor or owner.
- B. For additional cleaning, follow manufacturer's cleaning instructions.
- C. The General Contractor shall exercise caution to prevent alkaline substances, paint, acid, abrasive, or other substances or objects from damaging the finish or glass during and after the wall installation. In the event skylight is damaged after the installation the general contractor or owner shall be responsible to correct any damage.

**END OF SECTION**