

## TRANSLUCENT CUSTOM CANOPIES

### SECTION 10 73 00- TRANSLUCENTCUSTOM CANOPIES

NOTE:

- THIS IS A PERFORMANCE SPECIFICATION IN CSI FORMAT.
- IN ORDER TO ENSURE THE BEST SPECIFICATION FOR YOUR APPLICATION WE RECOMMEND THAT YOU CONSULT WITH YOUR LOCAL CPI REPRESENTATIVE FOR ASSISTANCE.
- DELETE OPTIONAL/UNNECESSARY ITEMS IN [BRACKETS].  
Note:  $\Rightarrow$  in left margin denotes option(s).
- [Downloadable Word Doc. file is available on our web site:  
[www.cpidaylighting.com](http://www.cpidaylighting.com)]

# CPI DAYLIGHTING TRANSLUCENT CUSTOM CANOPIES SPECIFICATION

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CPI DAYLIGHTING, INC. IS ENGAGED IN CONTINUING RESEARCH TO IMPROVE ITS PRODUCTS. THEREFORE, THE RIGHT IS RESERVED TO MODIFY OR CHANGE MATERIAL IN THIS SPECIFICATION WITHOUT NOTICE

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#### PART 1 GENERAL

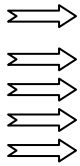
##### 1.1 SUMMARY

Section includes requirements for Daylighting-insulated Translucent Single panel system as shown and specified herein,

##### 1.2 WORK INCLUDED:

- A. Design, Engineer manufacture and installation of translucent insulating single panel glazing system. An assembly of extruded Nano-Cell<sup>®</sup> polycarbonate glazing panels incorporated into a complete framed system from the ground up that has been tested and warranted by the manufacturer as a single source system.
- B. All anchors, brackets, and hardware attachments necessary to complete the specified structural assembly, weatherability and water-tightness performance requirements. All flashing up to but not penetrating adjoining work are also required as part of the system and shall be included.
- C. Trained and factory authorized labor with supervision to complete the entire panel installation.

##### 1.3 RELATED WORK SPECIFIED ELSEWHERE:



- A. Section - Structural Steel/Wood Framing/Concrete. \_\_\_\_\_
- B. Section - Curbs and supporting members. \_\_\_\_\_
- C. Section - Roofing. \_\_\_\_\_
- D. Section - Sheet Metal and Flashing. \_\_\_\_\_
- E. Section - Sealant. \_\_\_\_\_

##### 1.4 QUALITY ASSURANCE.

- A. System must be evaluated and listed by recognized building code authorities: International Council Evaluation Service Inc (ICC-ES)
- B. Materials and Products shall be manufactured by a company continuously and regularly employed in the manufacture, stocking, engineering, designing and building of Canopies using polycarbonate (not glass) panel systems for a period of at least ten (10) years. Manufacturers shall provide a list of at least ten (10) projects having been in place a minimum of ten (10) years, with similar size, scope, climate and type.
- C. Erection shall be by a factory-approved installer who has been in the business of erecting similar material for at least five (5) consecutive years and can show evidence of satisfactory completion of projects of similar size, scope and type.
- D. The manufacturer shall be responsible for the configuration and fabrication of the complete panel system, and will ensure that it fully meets all requirements of this specification.

##### 1.5 SUBMITTALS:



- A. Submit shop drawings and color samples in accordance with Sec 01\_\_\_\_\_
- B. The manufacturer shall submit written guarantee accompanied by substantiating data, stating that the products to be furnished are in accordance with or exceed these specifications.

C. The manufacturer shall submit certified test reports made by an independent organization for each type and class of panel system. Reports shall verify that the material will meet all performance requirements of this specification. Previously completed test reports will be acceptable if they are indicative of products used on this project. Test reports required are:

1. Self-Ignition Temperature per (ASTM 1929-3)
2. Smoke Density per (ASTM D-2843)
3. Burning Extent per(ASTM D-635)
4. Interior Flame Spread per (ASTM E-84)
5. Color Difference per (ASTM D-2244).
6. Weathering (ASTM D-4364)
7. Weathering Evaluation before and after 25 minute exposure to 300°F, for Light Transmission and Color Change, per ASTM E-1175, ASTM D-2244.
8. Large Missile Test - Impact Resistance per SFBC PA 201-94.
9. Impact loading per ASTM E 695.
10. Impact level D per ASTM 1886 & ASTM E1996.
11. Insulation "U" Factor per NFRC 100 test methods & procedures.
12. Solar Heat Gain Coefficient (SHGC) per methods and procedures given in the NFRC Calorimeter Standard. Independent Test Reports or calculations based on this test standard are acceptable.
13. Visible light Transmission (VT) per ASTM E972 & ASTM E1084.
14. Water Penetration per (AAMA 501.2)
15. Uniform load per (ASTM E-330) Cyclic wind load per ASTM 1886 & ASTM E 1996
16. ICC evaluation service report for compliance with IBC building code as an approved light transmission plastic with a CC1 rating.

D. MAINTENANCE DATA: The manufacturer shall provide recommended maintenance procedures, schedule of maintenance and materials required or recommended for maintenance.

E. Submit Installer Certificate signed by installer, certifying compliance with project qualification requirements.

#### 1.6 WARRANTY:

⇒ A. Provide a single source Canopy system manufacturer warranty against defective materials and fabrication. Submit manufacturer's written warranty agreeing to repair Canopy system work, which fails in materials within [one year] [Extended warranty: for [2], [3]] years of the date of delivery.

B. Provide single source manufacturer 10 year glazing panel warranty. Third party warranty for glazing panels shall not be acceptable. Glazing warranty to include:

1. Change in light transmission of no more than 6% per ASTM D-1003.
2. No delamination of panel affecting appearance, performance or structural integrity of the panel or the system.
3. Thermal aging - the light transmission and the color shall not change after exposure to heat of 300°F for 25 minutes. (When measured per ASTM D-1003 and ASTM D-2244 respectively).

⇒ C. In addition submit installer's written warranty agreeing to repair installation workmanship, defects and leaks within [one year] [Extended warranty for [two years], [3 years]] of the date of delivery.

## PART 2 PRODUCTS

### 2.1 MANUFACTURER

A. The design and performance criteria of this job are based on Briteway- Pentaglas12 as manufactured by CPI Daylighting, A Kingspan Light + Air Company, Phone: (800) 759-6985, Fax (847) 816-0425; Website: [www.cpidaylighting.com](http://www.cpidaylighting.com) [www.kingspanlightandair.com](http://www.kingspanlightandair.com)



And as locally represented by: \_\_\_\_\_



Telephone: \_\_\_\_\_.

**B. APPROVED MANUFACTURERS**

Other manufacturers may bid this project provided they comply with all requirements of the specification and submit evidence of compliance with all performance criteria specified herein. This evidence must include proof of conformance and test reports as per section 1.5. Any exceptions taken from this specification must be noted on the approval request. If no exceptions are noted and approval is given, product performance will be as specified. Should non-compliance be subsequently discovered, the previously given approval will be invalidated and use of the product on the project will be disallowed. All manufacturers acceptable for use on this project under this section must be approved prior to bid. Requests for approval, with all appropriate submittal data and samples must be received no less than 10 days prior to bid date. A list of all approved manufacturers and products will be issued by addendum. No other manufacturers will be acceptable. No verbal approval will be given. Listing manufacturers' names in this specification does not constitute approval of their products or relieve them of compliance with all the performance requirements contained herein. Fiberglass skins are unacceptable.

**2.2 TRANSLUCENT PANEL PERFORMANCE**

**A. Nano-Cell® Panel Technology – Longevity and Resistance to Buckling and Pressure:**

1. Translucent Panels must be of Nano-Cell® technology (cell sizes less than 0.18"). Wide Cell technology (cell size exceeding 0.18") shall not be acceptable.
2. The translucent panel shall include an integral extruded Nano-Cell® structural core. The panel's exterior skins shall be connected with supporting continuous ribs, perpendicular to the skins, at a spacing not to exceed 0.18" (truss-like construction). In addition, the space between the two exterior skins shall be divided by multiple parallel horizontal surfaces, at a spacing not to exceed 0.18".

**B. Appearance:**



1. Single Panel assembly thickness shall be standard 0.47" (12mm) with exposed interlocking U battens to the exterior (standing seam look from exterior)]
2. Panel Width: Shall not exceed 2' to ensure best performance for wind uplift, vibration, oil canning and visual appearance. Panels over 2' wide will not be approved

**C. Thermal and Solar Performance:**



1. Insulation Value ("U") per NFRC 100 test methods & procedures center of glass: U Factor: 0.47, Visible Light Transmission (VT. %) [\_\_\_\_\_] per ASTM E972, E1175.



2. Solar Heat Gain Coefficient (SHGC) [\_\_\_\_\_] independently tested or calculated based on testing per methods and procedures given in the NFRC Calorimeter Standard



3. Color: \_\_\_\_\_.

**D. Translucent Panel Joint System:**

1. Panel shall be extruded in one single formable length'. Transverse connections are not acceptable.
2. The panels should be manufactured with grip-lock double tooth up stands that are integral to the unit. The up stands shall be 90 degrees to the panel face (standing seam dry glazed concept). Welding or gluing of up stands or standing seam is not acceptable.
3. The U battens shall have a grip-lock double tooth locking mechanism to ensure maximum uplift capability.
4. The metal retention clip shall be configured with a 0.4" wide top flange that extends continuously across the web from end to end and from side to side. To allow a safety factor, the clip must be tested to meet a wind uplift standard of 90 psf per ASTM E330
5. Water Penetration: No water penetration of the panel U joint connection length at test pressure of 6.24 PSF per ASTM E-331
6. Free movement of the panels shall be allowed to occur without damage to the weather tightness of the completed system.

- E. Flammability
  1. The exterior and interior faces shall be an approved light transmitting panel with a CC1 fire rating classification per ASTM D-635. Flame spread no greater than 25 per ASTM E-84. Smoke density no greater than 75 per ASTM D2843 and a minimum self-ignition temperature of 1000°F per ASTM 1929. The panel shall be self-extinguishing.
  2. Interior flame spread classification of Class A per ASTM E84.
  
- F. Impact Resistance-the panels shall meet the following test requirements:
  1. SFBC – PA 201-94, impact resistance of 350 ft. lbs.
  2. Impact loading per ASTM E 695 for 500 ft. - lbs.
  3. Impact resistance per ASTM 1886 & ASTM E1996 level D.
  
- G. Weatherability
  1. The light transmission as measured by ASTM D1003 shall not decrease more than 6% over 10 years, or after exposure to temperature of 300°F for 25 minutes (thermal aging).
  2. The panel shall be tested by recognized laboratory for weathering evaluation per ASTM D4364-84 (EMMAQUA, UNBACKED), after exposure to minimum concentrated natural sunlight radiation of 56000 MJ/M (1540 MJ/M of UV, 200 - 385 N.M). The panel shall not change in color more than 4.0 units Delta E, 4.0 units Delta L and Delta B.
  3. The panel shall not change color more than 4.0 units (DELTA-E by ASTM D2244) after 60 months outdoor weathering in Arizona determined by an average of at least two samples.
  4. Thermal aging - the interior and exterior faces shall not change color in excess of 0.75 Delta E by ASTM D2244 and shall not darken more than 0.3 units (Delta L by ASTM D2244) and shall not show cracking or crazing when exposed to 300°F for 25 minutes.
  5. The faces shall not become readily detached when exposed to temp of 300°F and 0°F for 25 minutes.
  6. Panels shall consist of a polycarbonate resin with a permanent, co-extruded, ultra-violet protective layer. Post-applied coating or films of dissimilar materials are unacceptable. Fiberglass skins are unacceptable.
  7. UV Maintenance: The system shall require no scheduled re-coating to maintain its performance or for UV protection.
  8. Panel shall be factory sealed at the sill to restrict dirt ingress.

2.3 METAL FRAME STRUCTURE

A. Design criteria shall be:



1. Negative design wind load: \_\_\_\_\_ psf
2. Positive design wind load: \_\_\_\_\_ psf
3. Snow Load: \_\_\_\_\_ psf
4. Drift Load: \_\_\_\_\_ psf

B. The framing is designed to be self-supporting between the support constructions. The deflection of the structural framing members in a direction normal to the plane of the glazing, when subjected to a uniform load deflection, shall not exceed L/100 for the unsupported span. The Canopy will impose reactions to the support construction. All adjacent and support construction must support the transfer of all loads, both horizontal and vertical, exerted by the Canopy Design or structural engineering services for the supporting structure or other building components not included in the scope are not included under this section.

C. Water Penetration testing of the Metal Frame Structure shall be conducted according to procedures in AAMA 501.2.

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2.4 METAL MATERIALS

A. Extruded Aluminum shall be ANSI/ASTM B221; 6063-T6: 6063-T5 or 6005-T5

B. Flashing:

1. 5005 H34 aluminum 0.04" minimum thickness.

2. Sheet metal flashings/closures/claddings are to be furnished shop formed to profile - when lengths exceed 10 ft. in nominal 10-ft lengths. Field trimming of the flashing and field forming the ends is necessary to suit as-built conditions. Sheet metal ends are to overlap at least 6-in. to 8-in., set in a full bed of sealant and riveted if required.

C. All Fasteners for aluminum framing to be stainless steel or cadmium plated steel, excluding the final fasteners to the building.

D. All exposed ALUMINUM FINISH shall be from CPI standard color range:



E. [Mill Finish]



F. [CPICRF™ - STANDARD TGIC Polyester resin powder coat per AAMA 2603 with [1] [5] year warranty]



G. [CPICRF™ - PREMIUM polymer resin powder coat per AAMA 2604 with 10 years warranty] [CPICRF™ - PREMIUM PLUSE 70% PVDF base resin wet paint per AAMA-2605 non-exotic, non-metallic with [10] year warranty]



H. [CPICRF™ - EXOTIC METALIC 70% PVDF base resin wet paint per AAMA-2605 with [10] year warranty]



I. [Clear Anodize with [1] [5] year warranty] [Bronze Anodize with [1] [5] year warranty] [Black Anodize with [1] [5] year warranty][Other]

### **PART 3 EXECUTION**

#### **3.1 EXAMINATION.**

A. General Contractor to verify when structural support is ready to receive all work in this section and to convene a Pre-Installation Conference at least one week prior to commencing work of this Section. Attendance required of General Contractor, Canopy installer and all parties directly affecting and effected by the work of this section.

B. All submitted opening sizes, dimensions and tolerances are to be field verified by general contractor unless otherwise stipulated

C. Installer to examine area of installation to verify readiness of site conditions. Notify general contractor about any defects requiring correction. Do not work until conditions are satisfactory.

#### **3.2 INSTALLATION**

A. Install components in strict accordance with manufacturer's instructions and approved shop drawings. Use proper fasteners and hardware for material attachments as specified.

B. Use methods of attachment to structure allowing sufficient adjustment to accommodate tolerances.

C. Remove all protective coverings on panels immediately after installation.

#### **3.3 CLEANING**

A. Follow manufacturer's instructions when washing down exposed panel surfaces using a solution of mild detergent in warm water that is applied with soft, clean wiping cloths. Always test a small area before applying to the entire area.

B. Follow strict panel manufacturer guidelines when removing foreign substances from panel surfaces requiring mineral spirits or any solvents that are acceptable for use. Always test a small sample to validate compliance before applying to the Canopy glazing panels.

C. Installers shall leave panel system clean at completion of installation. Final cleaning is by others upon completion of project, following manufacturer's cleaning instructions.

**END OF SECTION**