CRYSTAL STRUCTURES™

Essex Co. Public Works building features blue ThermaLite Plus

1. Product Name

Thermalite Plus Wall System

2. Manufacturer

Crystal Structures Glazing, Commercial
Division of Sunshine Rooms, Inc.
3333 N. Mead
Wichita KS 67219
Phone: 316.838.0033
Email: contactus@csglazing.net
Web: CrystalStructuresGlazing.com

3. Product Description

BASIC USE

Thermalite Plus is a translucent wall system for the primary purpose of creating a cost effective method to build an energy efficient structural wall that allows diffused light to enter into a designated space. Typically used in large, open buildings that are traditionally difficult to illuminate.

Commercial building applications include manufacturing and maintenance facilities, warehouses, schools, gymnasiums, and large hallways. Often used in clerestory configurations.

BENEFITS

ThermaLite Plus panels can reduce the energy and lighting costs in a building while creating a comfortable ambience. Panels come in widths of 23' 11/16". Lengths and heights are customized to fit the job site requirements. The polycarbonate panels are virtually unbreakable making them useful in high crime or heavy hail areas.

COMPOSITION AND MATERIALS

The glazing assembly consists of two mini-cell wall polycarbonate 10mm panels separated by our exclusive TriLock™ aluminum receiver for a combined 4 11/16" thick system. Unlike many other multi-wall polycarbonate systems that rely solely on friction between the polycarbonate panels and the receiver to keep out air and water, ThermaLite Plus also uses gaskets to ensure a weather-tight system.
The panels are co-extruded with a high-performance UV coating on all surfaces to ensure excellent protection against UV rays.

Standard color optionsare clear, white (opal), and bronze. Blue, gray and green are also available.

The TriLock™ receiver is extruded from 6061-T6 aluminum with a clear, anodized finish. The exterior and interior polycarbonate panels snap into the receiver. This allows the system to be aluminum free in appearance, giving the building a very clean, modern effect.

Finish color options include Kynar©, powder coat, or anodized.

All gaskets are UV stabilized Santoprene™ with a low friction

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ThermaLite Plus	Daylight Transmission	Solar Heat Gain	Shading Co-Efficient	U-Value
Crystal/Crystal	49%	.56	.64	.18
Crystal/Opal	27%	.42	.48	.18
Opal/Opal	14%	.31	.36	.18
Crystal/Blue	35%	.44	.50	.18
Crystal/Bronze	32%	.40	.46	.18
Bronze/Bronze	20%	.28	.32	.18

TABLE 1. ENERGY AND LIGHTING PERFORMANCE
Values are estimated for the center of panel, based on individual panel testing calculations and computer analysis.

surface composition that allows the polycarbonate to expand and contract within the framing system. With the gasketed TriLock™ reciever system, the seal tightens when interior and exterior load pressure is applied.

The perimeter fram is thermally broken aluminum to help support the superior R-value performance of the panel system.

ACCESSORY FRAMING SYSTEM

LEED CREDITS

ThermaLite Plus wall panels are an ideal product for projects striving to achieve LEED Certification. Panels contain pre- and post-consumer recycled content and is almost 100% recyclable.

The product is more energy efficient, more durable, and requires less maintenance than similar products.

Achievable points include the following:

Sustainable Sites:

SS Credit 7.1 - Reduce heat islands, non-roof

SS Credit 7.2 - Reduce heat islands, roof

SS Credit 8 - Light pollution reduction

Energy and Atmosphere

EA Credit 1 - Optimize energy performance

Materials and Resources

MR Credit 4 - Recycled and recyclable content

MR Credit 5 - Local/Regional materials

Indoor Environmental Quality

EQ Credit 4 - Low-E emitting materials

EQ Credit 6 - System controls

EQ Credit 7 - Thermal Comfort

EQ Credit 9 - Daylight and views

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Innovation and Design Process

ID Credit 1 - Innovative design feature

4. Technical Data

ENERGY & LIGHTING PERFORMANCE

See table 1 previous page.

STRUCTURAL & LOADING PERFORMANCE

All systems will be designed to meet or exceed the loading requirements called for per specific project. Contact our technical support department for additional information and assistance.

TYPICAL APPLICATIONS & DETAILS

These are samples, each project shall be evaluated and details created to meet the desired performance and characteristics of the project.

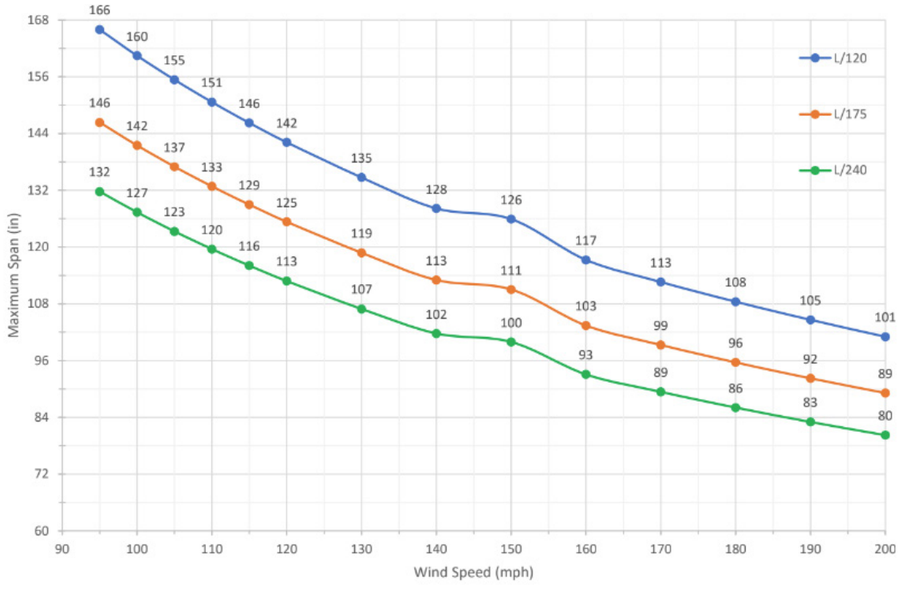
APPLICABLE STANDARDS & TESTING

Polycarbonate panles have been tested to the following specifications.

ATSM D638-03 - Tensile properties of plastic
ATSM E84-01 - Standard flame spread test
ATSM D635-98 - Standards for rate of burning
ATSM G154-04 - Standard practice for operating fluorescent light and UV exposure.
ATSM E313-00 - Practice for escalating yellowness/whiteness
ATSM E308-01 - Test method for computing colors of objects by using CIE system
ATSM E133-96 - Reflectance factor and color by spectrophotometer
ATSM D790-03 - Test method for flexural properties of unreinforced and reinforced plastics

Panels meet Class CC1 Flame Spread Requirements

Aluminum framing members and components have been



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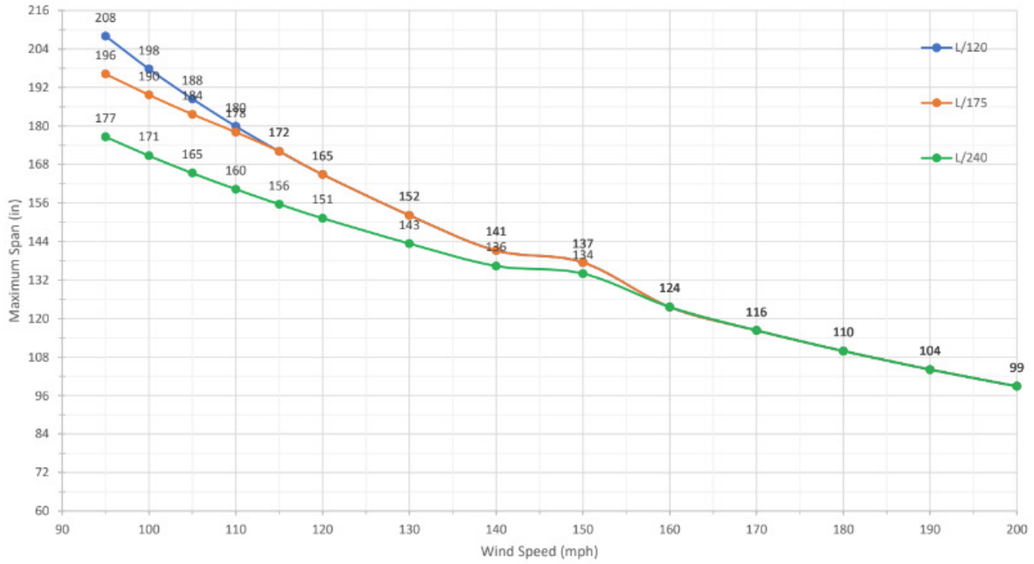

extruded to meet or surpass the following standards and tests.

ASTM B221 - Standard specification for aluminum extrusions
ASTM B209 - Standard specification for aluminum extrusion in mill finish
ASTM F593-01 -Standard specification for stainless steel screws
ASTM D471-01 - Standard test method for rubber properties.

ThermaLite Plus system will meet or exceed the following specifications.

ASTM E3331-00 Water penetration resistance
ASTM E283-04 Air infiltration
ASTM E330- Uniform load and structural test pressure

5. Installation

PREPARATORY WORK

All areas must be clean, dry, and structurally sound. All surrounding areas must be square, level, plumb, and prepared as described within the job specific shop drawings that will be provided. The wall blocking must be designed to resist the transferred loads from the glazing system.

STORAGE & HANDLING

Store all materials in a dry, safe space protected from inclement weather. DO NOT store panels in direct sunlight or high heat conditions. Supported, sloped stacking is recommended, but panels may be stacked up to 3' high on flat, even, supported surface. Do not removed packaging materials until ready to install the panels. Remove protective film after complete installation (pull film edges back during installation). Do not open boxes using sharp knives, box cutters, etc.

INSTALLATION

Install panels and system according to the job specific shop drawings. There shall be no cutting or drilling of the panels during installation. Panels should be installed with the fluted cells in a vertical position. The general sequence of installation is as follows:

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TRANSLUCENT WALL ASSEMBLIES 08 45 13

ThermaLite Plus Wall Systems

Charlotte-Monroe Hangar

1. Install flashing at the perimeter
2. Install base frame after caulking accordingly
3. Insert interior panels
4. Snap in gasketed TriLock™ receiver
5. Install top and bottom spacer
6. Snap in exterior polycarbonate into TriLock™
7. Attach perimeter pressure cap and cover
8. Be sure weepage holes and covers at the sill are clear of debris and not caulked over.

Final cleaning shall be done using a mild soap and lukewarm water. Harsh chemicals and solvents should never be used on polycarbonate. See the maintenance section for more information.

6. Availability & Costs

AVAILABILITY

ThermaLite Plus panels and systems are manufactured in Wichita, KS. They are available throughout the world on a per project basis. The product is designed, manufactured, packaged, shipped, and installed per project specifications. Most projects are sold and installed by Crystal Structures. For additional information, please contact the company directly.

COST

The product is competitively priced. The design and structural capabilities of the product allow many projects to reduce the related building costs in the area of steel, masonry, lighting and etc. Contact Crystal Structures for estimating and pricing.

7. Warranty

POLYCARBONATE

The polycarbonate panels are warranted by the manufacturer for 10 years against breakage and yellowing per ASTM ES13-00

RELATED COMPONENTS

Panels are warranted for 10 years against delaminating and surface finishes of the framing system. Installations are warranted for 5 years against leakage because of improper manufacturing or installation. Contact Crystal Structures for complete warranty information.

8. Maintenance

Polycarbonate panels should be cleaned using a mild soap and lukewarm water. Use only a soft cloth or clean sponge for cleaning tools. Do not scrub or scrape plastic with abrasive or sharp objects.

Many chemicals are harmful to the polycarbonate panels or the UV coatings. Read the cleaning instructions carefully before cleaning.

Panels and system should be inspected periodically to ensure that the weepage system is working properly. In regions that have high dust and other airborne impurities, we recommend regular cleaning schedules.

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9. Technical Services

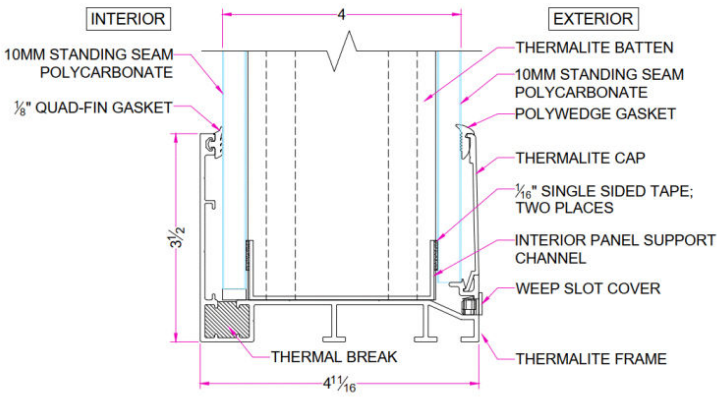
Complete technical and design assistance is available from the company.

10. Filing Systems

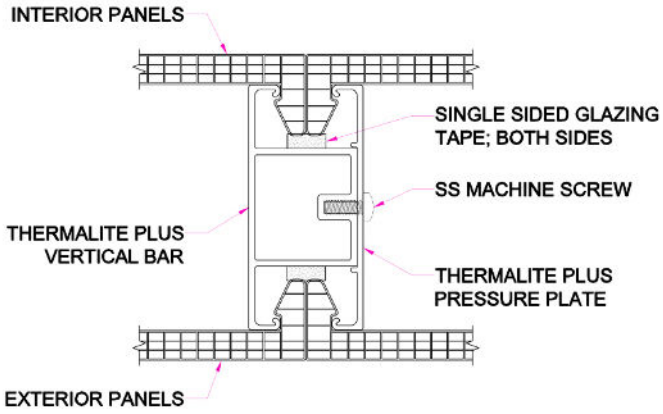
Sweets Source
Reed Construction Data/Smart Building Index
Construction Data/Smart Building Index
ARCAT

Reno County Correctional Facility

ThermaLite Plus Frame



ThermaLite Plus Receiver



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