

## ISOTUF Cooling Tower Class A Fire Rated High Strength | IFW

Crane Composites manufactures high performance fiberglass reinforced plastic panels that are engineered specifically for use as casings and louvers for cooling towers.

**ISOTUF Class A Fire Rated High Strength (IFW)** cooling tower panels are for use where a Class A per ASTM E-84 fire rating is required.

Table One: Physical Properties

Property	16oz. / ft <sup>2</sup>	Test Method
Tensile Strength	28,000 psi	ASTM - D638
Tensile Modulus	1.4 x 10 <sup>6</sup> psi	ASTM - D638
Flexural Strength	38,000 psi	ASTM - D790
Flexural Modulus	1.0 x 10 <sup>6</sup> psi	ASTM - D790
Impact Strength (IZOD)	18.0 ft-lb/in notched	ASTM - D256
Barcol Hardness	45	ASTM - D2583
Coefficient of Linear Thermal Expansion	1.6 x 10 <sup>-5</sup> in/in/°F	ASTM - D696
Water Absorption	0.7% per 24 HRS at 77°F	ASTM - D570
Thermal Transmittance (U Value)	0.8 BTU/(hr-ft <sup>2</sup> -°F)	ASTM - C236
Thermal Conductivity (k)	1.2 BTU-in/(hr-ft <sup>2</sup> -°F)	ASTM - C177
Average Burn Rate	≤1.0 in/min	ASTM - D635
International Building Code Plastic Classification	CC1	ASTM - D635
Flame Spread	≤ 25	ASTM - E84
Smoke Development	≤ 450	ASTM - E84
Self Ignition Temperature	≥ 650 °F	ASTM - D1929
Flash Ignition Temperature	≥ 650 °F	ASTM - D1929

Table Two: Design Table

Product Description	Profile #	Standard Width	Standard Length	Product Code
4.2 x 1 1/16"	#008	42"	96" - 20'	008IFW
5.33 x 1 3/4"	#041	45"	96" - 20'	041IFW
7.2 x 1 1/2"	#455	39.25"	96" - 20'	455IFW

## TESTING:

Crane Composites panels meet or exceed applicable requirements of the following standards:

1. ASTM D3841, Standard Specification for Glass Fiber Reinforced Polyester Plastic Panels.
2. Code requirements of most state, county and municipal building departments.
3. Crane Composites is a recognized UL90 component manufacturer.

## SPECIFICATIONS:

These panels are manufactured by a continuous laminating process in lengths as required.

### Composition:

1. Reinforcement: random chopped fiberglass and woven roving.
2. Resin mix: modified polyester copolymer and pigments.

### Finished Panel Quality:

1. Panels shall have a wear side with a smooth or textured finish. Color shall be uniform throughout. The backside shall be smooth. Backside imperfections which do not affect functional properties are not cause for rejection.
2. Physical properties shall be as set forth in Table 1.
3. Product quality standards and tolerances for panel weight and thickness shall be as set forth in Crane Composites' Quality Control Procedures/Standards which are available on request.
4. Dimensions shall be as specified on purchase order, subject to the following tolerances:

Width:  $\pm 1/8"$  (3.2 mm)

Length:  $\pm 1/8"$  (3.2 mm) up to 12' (3.7 m)

Squareness: not more than  $1/8"$  (3.2 mm) out of square

Pitch (over-all):  $\pm 1/8"$

Rib Height:  $\pm 1/16"$

5. The nominal light transmission factor shall have a tolerance of  $\pm 5\%$  when tested in accordance to ASTM D1494.
6. Tolerance on the specified weight of panels shall be  $\pm 10\%$ , unless otherwise specified.

Panels will provide a clean, aesthetically-pleasing finished installation. However, by nature, fiberglass reinforced plastic paneling may occasionally have small areas that are aesthetically unacceptable for use. Panels should be inspected on-site prior to installation. If any portion of material does not provide an acceptable appearance, Crane Composites should be notified at once. Upon verification of unacceptability, that portion of material will be replaced by Crane Composites. Crane Composites' sole responsibility is for the replacement of defective materials but not for labor or other handling or installation expenses.

## FABRICATING RECOMMENDATIONS:

Note: Protect your eyes with goggles and cover your nose and mouth with a filter mask when cutting panels.

Hand fabrication: Drilling-high speed drill bit ( $60^\circ$  cutting angle, with  $12^\circ$ - $15^\circ$  clearance) or hole saw.

Cutting: Sheet metal shears or circular saw with reinforced carborundum or carbide-tipped blade.

Production fabrication: Use carbide-tipped tools. Straight cuts can be sheared ( $90^\circ$  cutting edge with 0.002" (0.05 mm) clearance) or sawed. For irregular cuts, use die punch or band saw.

## STORAGE RECOMMENDATIONS:

Store panels properly. While a single panel is engineered to withstand exposure to sunlight and the elements, a stack of panels will trap heat and moisture, causing internal clouding and/or yellowing in the panels. To avoid this irreversible effect, panels must be stored in a dry, shaded, well ventilated area. Skids should be elevated at one end by wood spacers. Failure to comply with recommended storage procedures will void the warranty on the panels.

## CAUTIONS AND SAFETY WARNINGS:

**DO NOT WALK ON PANELS.** Crane Composites panels are not intended to support the undistributed weight of workers. Roofing ladders or 1" x 12" planks, or equivalent means of protection must be used during any work on roofs. Provide fall protection in accordance with OSHA standard 29 CFR 1910 [see paragraph 1910.23(a)(4) AND (e)(8)]. Compliance with this regulation as well as any other local, state or federal safety requirements is the responsibility of the building owner, contractor and/or erector.

## MAINTENANCE:

To maintain good appearance and long life, daylighting systems frp panels, especially roof panels, should be hosed down or washed periodically. Cleaning removes the accumulation of dust and dirt, which can combine with sunlight and wind to attack exposed surfaces, both chemically and abrasively. Use non-corrosive cleaning compounds. Avoid the use of compounds containing ammonia or chlorine since they may cause panel discoloration. CLEANING should be done periodically, especially when there is a reduction in light transmission caused by accumulation of dirt on the panels. RESURFACING is required when panels show excessive amounts of dullness, discoloration and fiber exposure (blooming). All of these contribute to the reduction of light transmission. REFINISHER can restore the appearance of badly weathered panels and improved light transmission by as much as 50%. Use a fast-drying, air-curing formulation, which is resistant to weathering effects and moisture, such as Surfacing Lacquer, Product #837X1.F52 available from Sher-Fab. Follow manufacturer's directions carefully. CAUTION is advised since the refinisher is formulated with solvents, which are flammable. These solvents give the refinisher its quick drying characteristics. Work in a well-ventilated area, avoiding prolonged contact with the skin. Keep away from open flame, heat sources, and spark producing equipment. Follow instructions provided with refinisher. Failure to comply with the recommended maintenance instructions will void the panel warranty.

## FLAME SPREAD & SMOKE DEVELOPMENT RATINGS

The numerical flame spread and smoke development ratings are not intended to reflect hazards presented by Crane Composites products or any other material under actual fire conditions. These ratings are determined by small-scale tests conducted by Underwriters Laboratories and other independent testing facilities using the American Society for Testing and Materials E-84 test standard (commonly referred to as the "Tunnel Test"). CRANE COMPOSITES PROVIDES THESE RATINGS FOR MATERIAL COMPARISON PURPOSES ONLY. Like other organic building materials (e.g. wood), panels made of fiberglass reinforced plastic resins will burn. When ignited, frp may produce dense smoke very rapidly. All smoke is toxic. Fire safety requires proper design of facilities and fire suppression systems, as well as precautions during construction and occupancy. Local codes, insurance requirements and any special needs of the product user will determine the correct fire-rated interior finish and fire suppression system necessary for a specific installation. For additional information on ASTM E-84 Testing please visit [www.astm.org/Standards/E84.htm](http://www.astm.org/Standards/E84.htm)

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