

ISOTUFF® HIGH STRENGTH

***IFW

PRODUCT

IsoTuff Cooling Tower Class A Fire Rated per ASTM E-84 High Strength (IFW) opaque Fiberglass Reinforced Plastic (FRP) panels use an Isophthalic Neopentyl Glycol (NPG) resin system with improved chemical and corrosion resistance. This resin is combined with woven roving and random chopped fiberglass to achieve high strength.

PURPOSE

IsoTuff Cooling Tower Class A Fire Rated High Strength panels are intended for use where a Class A fire rating per ASTM E-84 and improved chemical and corrosion resistance is required with additional strength.

DESIGN PROPERTIES

PRODUCT CODE	AVAILABLE SIZES	Weight	Type	COLOR	AVAILABLE SIZES
xxxIFW xxx = Profile Number	4.2" x 1.06" Rib	8.0 oz/ft ² 12.0 oz/ft ² 16.0 oz/ft ²	Opaque	Gray 675	42" x 96" - 20'
	5.33" x 1.75" V-Beam				45" x 96" - 20'
	7.2" x 1.5" Box Rib				39.25" x 96" - 20'

12,000 sq. ft. per product, weight and colors required to manufacture. Orders from different customers may be batched to obtain manufacturing minimums, however lead time may be affected.

TYPICAL PHYSICAL PROPERTIES

PROPERTY	IFW 8 oz./ft ²	IFW 12 oz./ft ²	IFW 16 oz./ft ²	TEST METH- OD
NOMINAL WEIGHT	0.50 lb/ft ² 2.44 kg/m ²	0.63 lb/ft ² 3.05 kg/m ²	1.0 lb/ft ² 4.88 kg/m ²	---
TENSILE STRENGTH	27 x 10 ³ psi 186 MPa	30 x 10 ³ psi 207 MPa	27 x 10 ³ psi 186 MPa	ASTM - D638
TENSILE MODULUS	1.6 x 10 ⁶ psi 11,032 MPa	1.5 x 10 ⁶ psi 10,342 Mpa	1.5 x 10 ⁶ psi 10,342 Mpa	ASTM - D638
FLEXURAL STRENGTH	25 x 10 ³ psi 172 MPa	32 x 10 ³ psi 221 MPa	35 x 10 ³ psi 241 MPa	ASTM - D790
FLEXURAL MODULUS	0.76 x 10 ⁶ psi 5240 MPa	0.70 x 10 ⁶ psi 4826 MPa	0.83 x 10 ⁶ psi 5723 MPa	ASTM - D790
BARCOL HARDNESS	40			ASTM - D2583
IZOD IMPACT	16 ft-lb/in 0.85 J/mm			ASTM - D256
COEFFICIENT OF LINEAR THERMAL EXPANSION	1.8 x 10 ⁻⁵ in/in/°F 32.4 μm/m/°C			ASTM - D696
ICC COMBUSTIBILITY CLASSIFICATION	CC1			ASTM - D635
EXTENT OF BURNING	≤ 1.0 in ≤ 25.4 mm			ASTM - D635
AVERAGE BURN RATE	---			ASTM - D635
ICC BURNING CLASSIFICATION	A			ASTM - E84
FLAME SPREAD	≤ 25			ASTM - E84
SMOKE DEVELOPED-IN-DEX	≤ 450			ASTM - E84
SELF IGNITION TEMPERATURE	≥ 650°F ≥ 343°C			ASTM - D1929





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

Crane Composites, Inc. (CCI) panels are manufactured by a continuous laminating process in lengths as required.

COMPOSITION

Reinforcement: Woven fiberglass.

Resin Mix: Polyester/styrene copolymer, inorganic fillers, and pigments.

FINISHED PANEL QUALITY

1. Panels shall have a wear side with a smooth or textured finish. Color shall be uniform throughout as specified. The backside shall be smooth. The backside surface may have some variations which do not affect functional properties and are not cause for rejection.
2. Physical properties shall be as set forth on Page 1.
3. 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: $\pm 1/8"$ (3.2 mm) in 48" (1.2 m) of width
4. 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.

CERTIFICATIONS

1. FRP does not support mold or mildew (per ASTM D3273 and ASTM D3274).
2. Meets minimum requirements of major model building codes for Class A interior wall and ceiling finishes of flame spread ≤ 25 , smoke developed ≤ 450 (per ASTM E-84).

FABRICATING RECOMMENDATIONS

NOTE: Protect your eyes with goggles; cover your nose and mouth with a filter mask; cover exposed skin when cutting CCI panels.

HAND FABRICATING: Drilling—High speed drill bit (60° cutting angle, with 12°-15° clearance) or hole saw.

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

PRODUCTION FABRICATING: Use carbide-tipped tools. Straight cuts can be sheared (90° cutting edge with 0.002" [0.05 mm] clearance) or sawed. For irregular cuts, use die punch or band saw.

SDS: Prior to working with our products, see our most current SDS at cranecomposites.com/sds.html

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

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.

FLAME SPREAD AND SMOKE DEVELOPMENT RATINGS

The numerical flame spread and smoke development ratings are not intended to reflect alleged hazards presented by Crane Composites products under actual fire conditions and this product has not been tested by Crane Composites except as set forth below. 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. We believe all information given is accurate, without guarantee. Since conditions of use are beyond our control, all risks are assumed by the user. Nothing herein shall be construed as a recommendation for uses which infringe on valid patents or as extending a license under valid patents. www.astm.org/Standards/E84.htm.