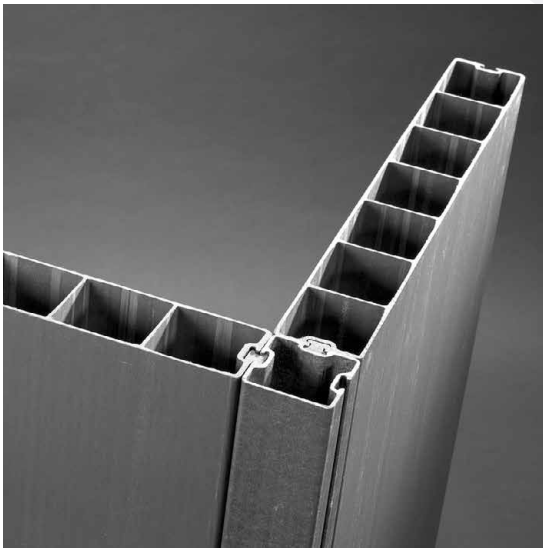


SECTION 15

COMPOSOLITE® FIBERGLASS BUILDING PANEL SYSTEM AND COMPOSOLITE® HD HEAVY DUTY BUILDING PANEL SYSTEM



Look for this blue line in the left margin of the Design Manual documents. This line shows you where the latest update has been made.

COMPOSOLITE® FIBERGLASS BUILDING PANEL SYSTEM

INTRODUCTION

COMPOSOLITE® is an patented advanced composite building panel system suitable for major load bearing structural applications. The modular construction system consists of a small number of interlocking fiber reinforced polymer (FRP) structural components produced by the pultrusion process. The main building panels are 3.15" thick and either 23.79" or 13.70" wide and feature a cellular construction. Through the use of toggles and/or hangers, panels can be connected to one another, to 3-way connectors, or to 45° connectors.

This uniquely designed system of interlocking components makes it possible to design fiberglass structures at significantly lower costs for a broad range of construction applications.

COMPOSOLITE® structures can be designed to be shipped flat to the job site.

FEATURES

The **COMPOSOLITE®** fiberglass building panel system is comprised of pultruded FRP components. The system provides these features:

- Corrosion Resistance
- Strong
- Interlocking Joints
- Light Weight
- Non-Conductive
- Easy to Install
- Easy to Maintain
- Cost Effective

SYSTEM DESIGN

COMPOSOLITE® is a system of five interlocking components manufactured of pultruded fiberglass reinforced polymer. The system combines manufacturing simplicity with an almost unlimited number of configurations.

The **COMPOSOLITE®** panel feature integral grooves into which a toggle is inserted during assembly. 3-way and 45° connectors allow the system components to turn corners and facilitate the joining of walls or sides. For added flexibility, the system also includes a hanger and an end cap.

Joints between panels and connectors are bonded during final assembly. Adhesive is applied along the length of the panel and connector. The toggle, to which adhesive is not applied, is then inserted as an assembly aid to mechanically secure the components and create even pressure along the length of the joint until the adhesive between the structural components cures.

MATERIALS OF CONSTRUCTION

Because the system is constructed of FRP, **COMPOSOLITE®** is particularly well-suited for outdoor use and/or corrosive environments.

Standard **COMPOSOLITE®** features a polyester fire retardant resin system in a slate gray color. The standard fire retardant resin meets the flame spread requirements of Class 1 rating of 25 or less per ASTM E-84 and the self-extinguishing requirements of ASTM D-635. The resin mixture is UV inhibited and the composite includes a surface veil on all exposed surfaces for enhanced corrosion and UV protection.

Other colors and resins, including polyester, vinyl ester, and manufactured to meet NSF-61 certification for hot and cold, are available upon request.

APPLICATIONS

COMPOSOLITE® panels are designed for major load bearing structural applications. Typical applications are:

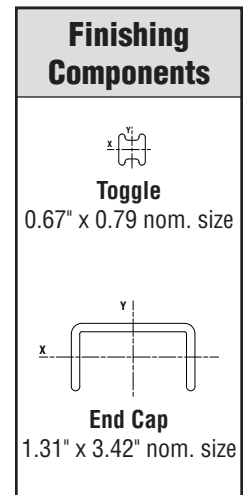
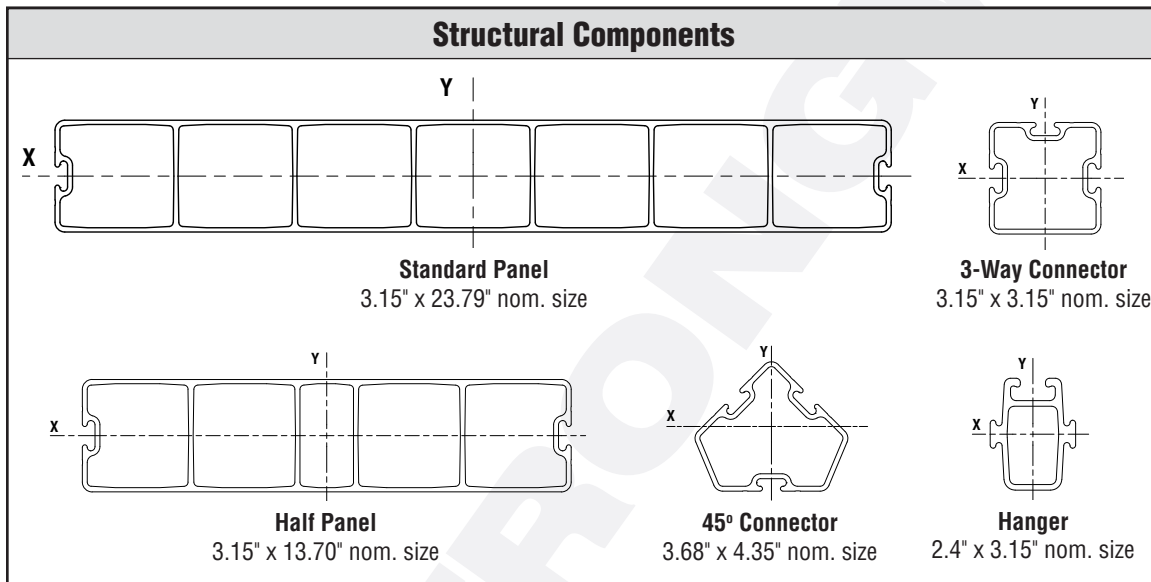
- Buildings
- Pedestrian Bridge Decks
- Platforms & Walkways
- Secondary Containment
- Bridge Enclosure Systems
- Tank Covers
- Cellular Enclosures
- Baffles

COMPOSOLITE® FIBERGLASS BUILDING PANEL SYSTEM COMPONENTS

Structural Component Mechanical Properties (minimum)

PROPERTIES	ASTM TEST METHOD	VALUE ksi
Flexural Strength, LW	D790	24.5
Flexural Strength, CW	D790	8.2
Flexural Modulus, LW	D790	885.0
Flexural Modulus, CW	D790	646.0
Tensile Strength, LW	D638	31.1
Tensile Modulus, LW	D638	2486.0
Short Beam Shear, LW	D2344	3.19

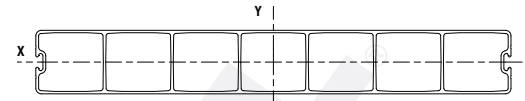
Note: All values are minimum ultimate properties from coupon tests.



Section Properties

SHAPE	WEIGHT LB/LIN. FT	I_x IN ⁴	S_x IN ³	r_x IN	I_y IN ⁴	S_y IN ³	r_y IN	A IN ²	Aw_x IN ²	Aw_y IN ²
Panel	7.22	16.39	10.41	1.31	510.28	21.45	7.28	9.62	3.13	6.49
Half Panel	5.10	9.93	6.31	1.26	114.08	16.66	4.27	6.27	2.49	3.78
3-Way Connector	1.65	2.58	1.57	1.13	2.71	1.72	1.16	2.02	-	-
45° Connector	1.75	2.78	1.30	1.16	3.26	1.50	1.25	2.07	-	-
Hanger	1.55	1.67	1.01	0.92	1.13	0.94	0.76	1.95	-	-
Toggle	0.31	0.01	0.04	0.19	0.02	0.05	0.21	0.41	-	-
End Cap	0.58	0.11	108.00	0.38	1.19	0.69	1.29	0.71	-	-

COMPOSOLITE® STANDARD PANEL LOAD TABLES



Uniform Load (Deflection in inches)

Standard Panel (3.15" x 23.79" nom. size)

LOAD in PSF

SPAN	40	50	60	80	100	125	150	200	250	300	500	$E_s I$ 10 ⁶ lbf-in ²	L/100 Limits
4'	0.01	0.01	0.02	0.02	0.03	0.04	0.04	0.06	0.07	0.09	0.15	38.5	0.48
5'	0.03	0.03	0.04	0.05	0.07	0.08	0.10	0.14	0.17	0.20	0.34	41.4	0.60
6'	0.05	0.07	0.08	0.11	0.14	0.17	0.20	0.27	0.34	0.41	0.68	42.7	0.72
7'	0.09	0.11	0.13	0.18	0.22	0.28	0.34	0.45	0.56	0.67		48.2	0.84
8'	0.15	0.19	0.23	0.30	0.38	0.47	0.57	0.76	0.95			48.6	0.96
9'	0.24	0.29	0.35	0.47	0.59	0.74	0.88					50.2	1.08
10'	0.35	0.43	0.52	0.69	0.87	1.09						51.8	1.20
11'	0.50	0.63	0.75	1.01	1.26							52.4	1.32
12'	0.70	0.87	1.05	1.40								53.5	1.44
13'	0.95	1.18	1.42									54.4	1.56
14'	1.26	1.58										54.7	1.68
15'	1.65											55.1	1.80

NOTE: The stiffness ($E_s I$) values are based on full-scale deflection testing. NOTE: Calculated deflection values end when deflection exceeds L/100.

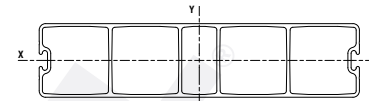
Concentrated Load (Deflection in inches)

LOAD in LB per FOOT of WIDTH

SPAN	100	150	200	300	400	500	700	1000	$E_s I$ 10 ⁶ lbf-in ²	L/100 Limits
4'	0.01	0.02	0.02	0.04	0.05	0.06	0.08	0.12	38.5	0.48
5'	0.02	0.03	0.04	0.07	0.09	0.11	0.15	0.22	41.4	0.60
6'	0.04	0.05	0.07	0.11	0.15	0.18	0.25	0.36	42.7	0.72
7'	0.05	0.08	0.10	0.15	0.20	0.26	0.36	0.51	48.2	0.84
8'	0.08	0.11	0.15	0.23	0.30	0.38	0.53	0.76	48.6	0.96
9'	0.10	0.16	0.21	0.31	0.42	0.52	0.73	1.05	50.2	1.08
10'	0.14	0.21	0.28	0.42	0.56	0.69	0.97		51.8	1.20
11'	0.18	0.27	0.37	0.55	0.73	0.91	1.28		52.4	1.32
12'	0.23	0.35	0.47	0.70	0.93	1.16			53.5	1.44
13'	0.29	0.44	0.58	0.87	1.16	1.45			54.4	1.56
14'	0.36	0.54	0.72	1.08	1.44				54.7	1.68
15'	0.44	0.66	0.88	1.32	1.76				55.1	1.80
16'	0.53	0.80	1.06	1.60					55.4	1.92
17'	0.64	0.96	1.27	1.91					55.5	2.04
18'	0.76	1.13	1.51						55.6	2.16
19'	0.88	1.32	1.76						56.0	2.28
20'	1.02	1.53	2.04						56.4	2.40

NOTE: The stiffness ($E_s I$) values are based on full-scale deflection testing. NOTE: Calculated deflection values end when deflection exceeds L/100, or 20-ft max span.

COMPOSOLITE® HALF PANEL LOAD TABLES



Uniform Load (Deflection in inches)

Half Panel
3.15" x 13.70" nom. size

LOAD in PSF

SPAN	40	50	60	80	100	125	150	200	250	300	500	$E_s I$ 10 ⁶ lbf-in ²	L/100 Limits
4'	0.02	0.02	0.02	0.03	0.04	0.05	0.06	0.08	0.09	0.11	0.19	17.5	0.48
5'	0.04	0.05	0.06	0.07	0.09	0.11	0.14	0.18	0.23	0.28	0.46	17.5	0.60
6'	0.08	0.10	0.11	0.15	0.19	0.24	0.29	0.38	0.48	0.57		17.5	0.72
7'	0.14	0.18	0.21	0.28	0.35	0.44	0.53	0.71				17.5	0.84
8'	0.14	0.18	0.21	0.28	0.35	0.44	0.53	0.70	0.88			30.0	0.96
9'	0.22	0.28	0.34	0.45	0.56	0.70	0.84					30.0	1.08
10'	0.34	0.43	0.51	0.69	0.86	1.07						30.0	1.20
11'	0.50	0.63	0.75	1.00	1.25							30.0	1.32
12'	0.71	0.89	1.07	1.42								30.0	1.44
13'	0.98	1.22	1.47									30.0	1.56

NOTE: The stiffness ($E_s I$) values are based on full-scale deflection testing. NOTE: Calculated deflection values end when deflection exceeds L/100.

Concentrated Load (Deflection in inches)

LOAD in LB per WIDTH of PANEL

SPAN	100	150	200	300	400	500	700	1000	1500	2000	$E_s I$ 10 ⁶ lbf-in ²	L/100 Limits
4'	0.01	0.02	0.03	0.04	0.05	0.07	0.09	0.13	0.20	0.26	17.5	0.48
5'	0.03	0.04	0.05	0.08	0.10	0.13	0.18	0.26	0.39	0.51	17.5	0.60
6'	0.04	0.07	0.09	0.13	0.18	0.22	0.31	0.44	0.67		17.5	0.72
7'	0.07	0.11	0.14	0.21	0.28	0.35	0.49	0.71			17.5	0.84
8'	0.06	0.09	0.12	0.18	0.25	0.31	0.43	0.61	0.92		30.0	0.96
9'	0.09	0.13	0.17	0.26	0.35	0.44	0.61	0.87			30.0	1.08
10'	0.12	0.18	0.24	0.36	0.48	0.60	0.84	1.20			30.0	1.20
11'	0.16	0.24	0.32	0.48	0.64	0.80	1.12				30.0	1.32
12'	0.21	0.31	0.41	0.62	0.83	1.04					30.0	1.44
13'	0.26	0.40	0.53	0.79	1.05	1.32					30.0	1.56
14'	0.33	0.49	0.66	0.99	1.32	1.65					30.0	1.68
15'	0.41	0.61	0.81	1.22							30.0	1.80
16'	0.49	0.74	0.98	1.47							30.0	1.92
17'	0.59	0.88	1.18	1.77							30.0	2.04
18'	0.70	1.05	1.40	2.10							30.0	2.16
19'	0.82	1.23	1.65								30.0	2.28
20'	1.92	2.88									30.0	2.40

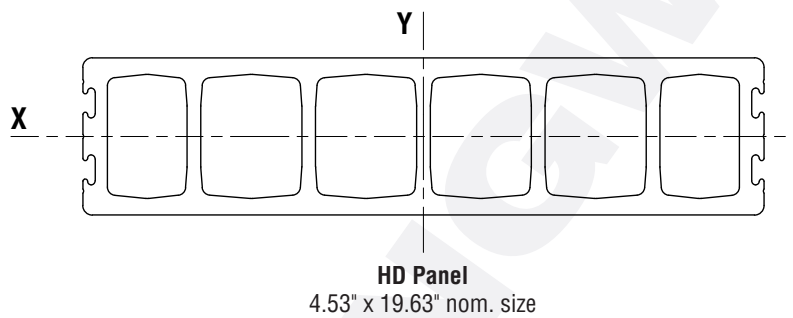
NOTE: The stiffness ($E_s I$) values are based on full-scale deflection testing. NOTE: Calculated deflection values end when deflection exceeds L/100, or 20-ft max span.

COMPOSOLITE® HD HEAVY DUTY BUILDING PANEL SYSTEM

INTRODUCTION

COMPOSOLITE® HD is a heavy duty advanced composite building panel system suitable for major load bearing structural applications. The modular construction system consists of a small number of interlocking fiber reinforced polymer (FRP) structural components produced by the pultrusion process. The main panel is 4.5" thick x 19.625" wide nominal size and features a cellular construction. Panels can be connected to one another through the use of the same toggles used in the standard **COMPOSOLITE®** system.

Like standard **COMPOSOLITE®** panels, **COMPOSOLITE® HD** makes it possible to design fiberglass structures at significantly lower costs for a broad range of construction applications. **COMPOSOLITE® HD** structures can be designed to be shipped flat to the job site.



Section Properties

WEIGHT	26.17 lb/lin. ft
I_x	95.80 in ⁴
S_x	42.32 in ³
r_x	1.72 in
I_y	1172.49 in ⁴
S_y	119.48 in ³
r_y	6.03 in
A	32.24 in ²
Aw_x	9.49 in ²
Aw_y	22.74 in ²