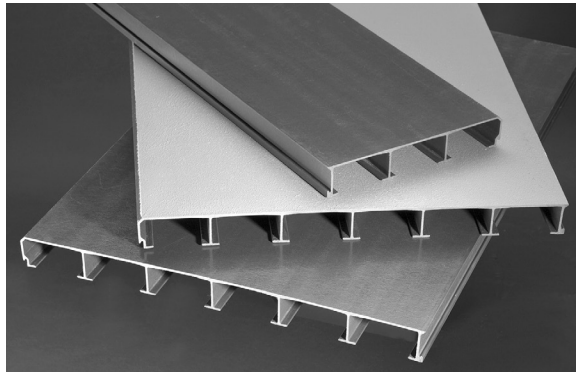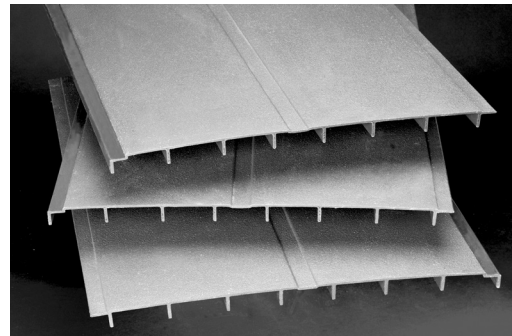# SECTION 16

FIBERGLASS FLOORING AND DECKING SYSTEMS

SAFPLANK®
FIBERGLASS PLANK SYSTEM

SAFDECK®
FIBERGLASS DECKING 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.

SAFPLANK® FIBERGLASS PLANK SYSTEM

INTRODUCTION

SAFPLANK® is a high strength plank system of fiberglass panels designed to interconnect for a continuous solid surface. **SAFPLANK®** is intended to replace wood, aluminum or steel planks in environments where corrosion or rotting creates costly maintenance problems or unsafe conditions. Non-conductive and non-sparking, **SAFPLANK®** provides safe walkways in electrical applications.

FEATURES

The **SAFPLANK®** fiberglass plank system is comprised of pultruded FRP panels. The system provides these features:

- Corrosion Resistant
- Strong
- Lightweight
- Easy to Install
- Easy to Maintain
- Non-Sparking
- Easily Transported
- Non-Conductive

SIZES

SAFPLANK® is available in 2" deep planks in both 12" and 24" widths to offer flexibility in design. All stock panels are gritted and are available in 20' and 24' lengths. Other lengths are available upon request. **SAFPLANK®** may be ordered with a smooth surface for non-pedestrian applications.

MATERIALS OF CONSTRUCTION

SAFPLANK® is a composite of fiberglass reinforcements (glass and mat) and a thermoset resin system. The panels are produced by the pultrusion process.

The standard resin system is a slate gray fire retardant polyester resin meeting the requirements of Class 1 rating of 25 or less per ASTM E-84 and the self-extinguishing requirements of ASTM D-635. The resin is UV inhibited and the composite includes a surface veil on all exposed surfaces for enhanced corrosion and UV protection. Other resins and colors are available upon request.

APPLICATIONS
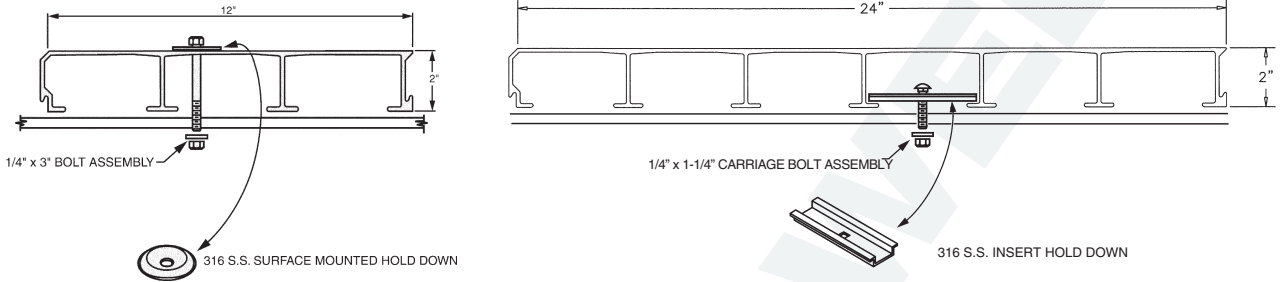
SAFPLANK® is designed to be used for flooring and covers. Typical applications include:

- Cooling Tower Decking
- Odor Control Covers
- Roofing Walkways
- Temporary Flooring
- Access Walkways
- Cellular Wall Panels

SAFPLANK®, when turned upside down, serves as an excellent stay-in-place concrete forming system in applications where corrosion and weight are construction concerns.

SAFPLANK® FIBERGLASS PLANK SYSTEM

Two hold-down connections are available for installing **SAFPLANK®**. Both hold-downs can be used with either 12" or 24" wide **SAFPLANK®**.

1/4" x 3" BOLT ASSEMBLY

316 S.S. SURFACE MOUNTED HOLD DOWN

1/4" x 1-1/4" CARRIAGE BOLT ASSEMBLY

316 S.S. INSERT HOLD DOWN

SAFPLANK® Load / Deflection Data (Right Side Up Position)

SPAN		12" SAFPLANK® I_{12} = 1.69 in.^{4}, wt = 2.6 lb/lin. ft. (gritted)						24" SAFPLANK® I_{24} = 3.10 in.^{4}, wt = 5.1 lb/lin. ft. (gritted)				
		50 (u=2394) (c= 730)	100 (u=4788) (c=1460)	200 (u=9576) (c=2920)	300 (u=14364) (c=4380)	500 (u=23990) (c=7300)	1000 (u=47888) (c=14600)	100 (u=4788) (c=1460)	200 (u=9576) (c=2920)	300 (u=14364) (c=4380)	500 (u=28990) (c=7300)	1000 (u=47888) (c=14600)
24" (610 mm)	Δu	.006	.011	.023	.034	.057	.113	.015	.030	.045	.075	.151
	Δu	(.152)	(.279)	(.584)	(.864)	(1.448)	(2.87)	(.381)	(.762)	(1.143)	(1.905)	(3.835)
	Δc	< .005	.009	.018	.027	.045	.091	.012	.024	.036	.060	.121
	Δc	(< .127)	(.229)	(.457)	(.686)	(1.143)	(2.311)	(.305)	(.610)	(.914)	(1.524)	(3.073)
36" (914 mm)	Δu	.022	.043	.087	.130	.217	—	.046	.092	.138	.231	—
	Δu	(.559)	(1.092)	(2.210)	(3.302)	(5.512)	—	(1.168)	(2.337)	(3.505)	(5.867)	—
	Δc	.012	.023	.046	.070	.116	.232	.024	.049	.074	.123	.246
	Δc	(.305)	(.584)	(1.168)	(1.778)	(2.946)	(5.893)	(.610)	(1.245)	(1.870)	(3.124)	(6.248)
48" (1219 mm)	Δu	.062	.123	.247	.370	—	—	.133	.265	.398	—	—
	Δu	(1.575)	(3.124)	(6.274)	(9.398)	—	—	(3.378)	(6.731)	(10.109)	—	—
	Δc	.025	.049	.099	.148	.247	.494	.053	.106	.159	.265	—
	Δc	(.635)	(1.245)	(2.515)	(3.759)	(6.274)	(12.548)	(1.346)	(2.692)	(4.039)	(6.731)	—
60" (1524 mm)	Δu	.140	.281	.562	—	—	—	.302	.605	—	—	—
	Δu	(3.556)	(7.137)	(14.275)	—	—	—	(7.671)	(15.367)	—	—	—
	Δc	.045	.090	.180	.270	.450	—	.097	.193	.290	.484	—
	Δc	(1.143)	(2.286)	(4.572)	(6.858)	(11.43)	—	(2.464)	(4.902)	(7.417)	(12.294)	—
72" (1829 mm)	Δu	.291	.583	—	—	—	—	.627	—	—	—	—
	Δu	(7.391)	(14.808)	—	—	—	—	(15.926)	—	—	—	—
	Δc	.078	.155	.311	.466	—	—	.167	.334	.501	—	—
	Δc	(1.981)	(3.937)	(7.899)	(11.836)	—	—	(4.242)	(8.611)	(12.725)	—	—

Maximum deflections shown are based on a deflection of approximately L/100

u = Uniform load in lbs/ft^2 (N/m^2). For example, a 100 lb. uniform load over 3 ft.^{2} is 300 lbs. of total load.

Δu = Typical deflection under the uniform load in inches (mm)

c = Concentrated load in lbs/ft of width (N/m of width)

Δc = Typical deflection under concentrated load in inches (mm)

SAFPLANK® joints have been tested for 300 lbs concentrated point load applied over 4 in.^{2} area (See ASCE 7 - Minimum Design Loads for Buildings and other Structures). For 24" span, a 300 lbs concentrated load has a factor of safety (FS) of 6, for 36" FS of 4, and for 48" FS of 3. Spans should be limited to 48" for this type of loading.

Rev.0610

SAFPLANK® FIBERGLASS PLANK SYSTEM

SAFPLANK® Load / Deflection Data (Upside Down Position)

SPAN		12" SAFPLANK® I_{12} = 1.69 in.^{4}, wt = 2.6 lb/lin. ft. (gritted)						24" SAFPLANK® I_{24} = 3.10 in.^{4}, wt = 5.1 lb/lin.ft. (gritted)				
		50 (u=2394) (c= 730)	100 (u=4788) (c=1460)	200 (u=9576) (c=2920)	300 (u=14364) (c=4380)	500 (u=23990) (c=7300)	1000 (u=47888) (c=14600)	100 (u=4788) (c=1460)	200 (u=9576) (c=2920)	300 (u=14364) (c=4380)	500 (u=28990) (c=7300)	1000 (u=47888) (c=14600)
24"	Δu	.007	.014	.026	.040	.062	—	.017	.030	.054	.086	.161
(610 mm)	Δu	(.178)	(.356)	(.660)	(1.016)	(1.575)	—	(.432)	(.762)	(1.372)	(2.184)	(4.089)
	Δc	.006	.011	.023	.033	.053	.099	.014	.026	.039	.057	.138
	Δc	(.152)	(.279)	(.584)	(.838)	(1.346)	(2.515)	(.356)	(.660)	(.991)	(1.448)	(3.505)
36"	Δu	.024	.046	.089	.121	—	—	.051	.109	.161	.261	—
(914 mm)	Δu	(.610)	(1.168)	(2.261)	(3.073)	—	—	(1.295)	(2.769)	(4.089)	(6.629)	—
	Δc	.013	.026	.050	.074	.118	.233	.030	.055	.080	.130	.287
	Δc	(.330)	(.660)	(1.270)	(1.880)	(2.997)	(5.918)	(.762)	(1.397)	(2.032)	(3.302)	(7.292)
48"	Δu	.064	.120	.237	—	—	—	.130	.287	.414	—	—
(1219 mm)	Δu	(1.626)	(3.048)	(6.020)	—	—	—	(3.302)	(7.290)	(10.516)	—	—
	Δc	.029	.053	.102	.148	.239	.469	.055	.106	.157	.259	—
	Δc	(.737)	(1.346)	(2.591)	(3.759)	(6.071)	(11.913)	(1.397)	(2.692)	(3.988)	(6.579)	—
60"	Δu	.138	.266	—	—	—	—	.286	.634	—	—	—
(1524 mm)	Δu	(3.525)	(6.756)	—	—	—	—	(7.264)	(16.104)	—	—	—
	Δc	.047	.088	.175	.258	.426	—	.095	.186	.278	.457	—
	Δc	(1.194)	(2.235)	(4.445)	(6.553)	(10.820)	—	(2.413)	(4.724)	(7.061)	(11.608)	—
72"	Δu	.268	—	—	—	—	—	.622	—	—	—	—
(1829 mm)	Δu	(6.807)	—	—	—	—	—	(15.799)	—	—	—	—
	Δc	.079	.150	.289	.430	—	—	.150	.298	.442	.740	—
	Δc	(2.007)	(3.810)	(7.341)	(10.922)	—	—	(3.810)	(7.569)	(11.227)	(18.796)	—

Maximum deflections shown are based on a deflection of approximately L/100

u = Uniform load in lbs/ft^2 (N/m^2). For example, a 100 lb. uniform load over 3 ft^2 is 300 lbs. of total load.

Δu = Typical deflection under the uniform load in inches (mm)

c = Concentrated load in lbs/ft of width (N/m of width)

Δc = Typical deflection under concentrated load in inches (mm)

STRONGWELL.

SAFDECK® FIBERGLASS DECKING SYSTEM

INTRODUCTION

SAFDECK® is a system of 24" wide fiberglass panels designed to overlap for a continuous solid surface. **SAFDECK®** is intended to replace wood, aluminum or steel decking in environments where corrosion or rotting creates costly maintenance problems or unsafe conditions. Nonconductive and non-sparking, **SAFDECK®** provides safe walkways in electrical applications.

FEATURES

The **SAFDECK®** fiberglass decking system is comprised of pultruded FRP panels. The system provides these features:

- Corrosion Resistant
- Strong
- Lightweight
- Easy to Install

- Easy to Maintain
- Non-Sparking
- Easily Transported
- Non-Conductive

SIZES

SAFDECK® is available in 1-1/8" deep planks in 24" widths. The decking system is designed to be a one-for-one replacement for plywood and has a 60-pound per square foot rating at 3-foot spans with less than L/180 deflection.

All panels are gritted and are available in 20' and 24' lengths. Other lengths are available upon request. **SAFDECK®** may be ordered with a smooth surface for non-pedestrian applications.

MATERIALS OF CONSTRUCTION

SAFDECK® is a high strength, one-piece, overlapping panel system. Manufactured of pultruded fiberglass reinforced polymer (FRP), **SAFDECK®** is particularly well suited to corrosive environments.

The standard resin system is a slate gray fire retardant polyester resin meeting the requirements of Class 1 rating of 25 or less per ASTM E-84 and the self-extinguishing requirements of ASTM D-635. The resin is UV inhibited and the composite includes a surface veil on all exposed surfaces for enhanced corrosion and UV protection. Other resins and colors are available upon request.

APPLICATIONS

SAFDECK® is designed to be used for flooring and covers. Typical applications include:

- Cooling Tower Decking
- Odor Control Covers
- Roofing Walkways

- Temporary Flooring
- Wind Walls
- Cellular Wall Panels

Rev.0610

SAFDECK® FIBERGLASS DECKING SYSTEM
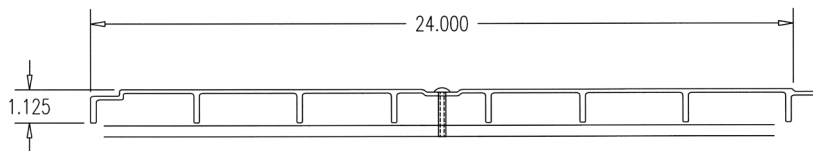
SAFDECK® Load / Deflection Data

SINGLE SPAN LENGTH (l)		24" SAFDECK® l = 0.4399 in.⁴ Wt = 4.1 lb./lin. ft. (gritted)						
		25 (u=1197) (c=365)	50 (u=2394) (c=730)	60 (u=2873) (c=876)	75 (u=3591) (c=1095)	100 (u=4788) (c=1460)	200 (u=9576) (c=2920)	300 (u=14364) (c=4380)
24" (610 mm)	Δu Δu	.015 (.38)	.030 (.76)	.036 (.91)	.044 (1.12)	.059 (1.50)	.119 (3.02)	.179 (4.55)
	Δc Δc	.012 (.30)	.023 (.58)	.029 (.74)	.036 (.91)	.048 (1.22)	.096 (2.44)	.143 (3.63)
36" (914 mm)	Δu Δu	.063 (1.60)	.126 (3.20)	.151 (3.84)	.189 (4.80)	.252 (6.40)	— —	— —
	Δc Δc	.032 (.81)	.064 (1.63)	.081 (2.06)	.101 (2.57)	.134 (3.40)	.269 (6.83)	— —
48" (1219 mm)	Δu Δu	.215 (5.46)	.430 (10.92)	— —	— —	— —	— —	— —
	Δc Δc	.073 (1.85)	.147 (3.73)	.206 (5.23)	.257 (6.53)	.343 (8.71)	— —	— —

Maximum deflections shown are based on a deflection of approximately L/100. To calculate the maximum deflection for a simply supported continuous beam spanning two equal lengths with the uniform or concentrated load on one span only, multiply the above deflections by 0.71.

  u = Uniform load in lbs/ft² (N/m²). For example, a 100 lb. uniform load over 3 ft.² is 300 lbs. of total load.
Δu = Typical deflection under the uniform load in inches (mm)
  c = Concentrated load in lbs/ft of width (N/m of width)
Δc = Typical deflection under concentrated load in inches (mm)