



PLYCEM SX20/20™

CINEMA FLOOR SYSTEM

A fiber cement subfloor panel that can be combined with other non-combustible materials to create fire-rated cinema floor systems.

- > **Strong, durable fiber cement panel.**
- > **Dimensionally stable, factory sealed to reduce water absorption.**
- > **Panel will not buckle or warp like wood sheathing.**
- > **Installs like wood sheathing; circular saw for cutting, screws for fastening.**
- > **Meets the criteria of ASTM E136 as a noncombustible building material.**
- > **ASTM E84 test results: Zero flame spread; Zero smoke development.**

U.S. Architectural Products' Plycem SX20/20™ 20mm (3/4") subfloors can carry a total load (live & dead loads) of 268 psf when cold-formed steel framing is spaced not greater than 16" o.c. (405mm). All total loads based upon a safety factor of 2.5.

Plycem SX20/20™ subfloors have a maximum linear variation with change in moisture content of 0.014 in/ft in accordance with ASTM C1186 testing (from 30% to 90% relative humidity). This means the panels will not buckle or warp like wood sheathing. Do not gap Plycem SX20/20™ panels.

Cutting Plycem SX20/20™ subfloor panels requires a carbide-tipped saw blade and a circular saw equipped with dust collection or adequate ventilation to control airborne dust. Fastening is also conventional, using screw guns and self-drilling screws (No.8 gauge or greater).

Limitation

Plycem SX20/20™ subfloors should not be left in service without an appropriate finished floor covering such as ceramic tile, vinyl, wood, carpet or other approved materials. Without an underlayment, future removal of these floor covering may damage the structural subfloor. The only floor coverings that do not require an underlayment are residential carpet and pad. Do not gap the Plycem SX20/20™ subfloor panels.

As with all types of construction, appropriate safety procedures must be followed to protect installers from personal injury resulting from lifting incorrectly. Take precautions to protect eyes, skin, and lung irritation from cement board dust.

Care must be taken when placing pallets of Plycem SX20/20™ on the floor truss framing. A pallet of Plycem SX20/20™ subfloor (22 panels), 20mm (3/4") x 4' x 8' weighs approximately 3,600 lbs. Do not exceed floor limits when loading pallets or panels on open framing or completed floor assemblies. Store units next to structural walls where truss supports or joists meet the wall.

Floor Truss or Joist Framing

The steel floor framing must be designed to meet the strength and deflection criteria specified in the contract documents. The attachment or bearing edge must allow for at least 3/4" (19mm) of the panel bearing on the supporting flange. Metal framing must be a minimum of 18 gauge and spaced not greater than 16" (406mm) o.c.

Follow the steel framing manufacturer's recommendations for the proper installation and bracing of the trusses or joists framing.



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Recommended Fasteners

USAP recommends #8 diameter minimum corrosion resistant screws with self-countersinking heads and self-drilling 'Tek' points. The length of the fastener should be minimum 2x the panel thickness. Ensure all fastener heads are seated flush with panel surface. Maintain a minimum of 5/8" fastener distance from all butt joint panel edges and 2" from all T&G joint edges, not centered in corners. See installation guide for further fastener placement details. For attaching 20mm (3/4") Plycem SX20/20™ panels to steel framing (20-12 gauge):

- > Grabber Part No. HS8158JBWG2 (#8 x 1-5/8")
- > Hilti PWH SD Cement Board Screw, No. 00372760 (#8 x 1-5/8")
- > ITW Buildex S-12 'Rock On' No. 2159500 (#8 x 1-5/8")

Jobsite Traffic Protection

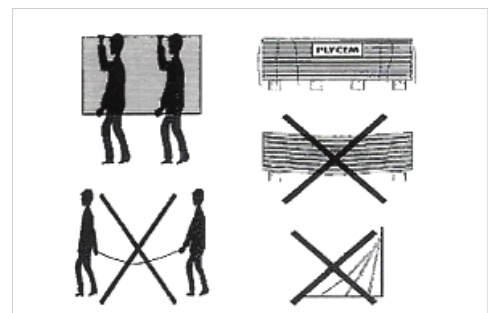
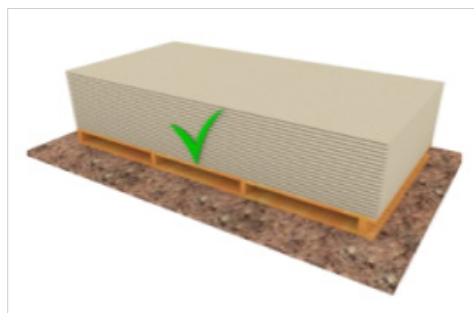
Place protective sheathing materials (i.e. plywood or additional layer of Plycem SX20/20™) on the floor in high traffic areas to protect newly installed subfloor panels.



Handling & Storage

Plycem SX20/20™ panels should be stored indoors or under protective cover from inclement weather. Store panels flat on level support not exceeding 32" on center. Never store panels on edges or upright. Stack full pallets no more the 4 units high. If temporarily stored outdoors, a weather protective covering must be secured over the pallets. Do not install wet or damaged panels.

When hand carrying single panels, they must be carried on edge with the 4 ft. panel dimension vertical. Excessive moisture and freezing temperatures may result in panels sticking together within the crates. Care should be taken to ensure crates of Plycem SX20/20™ are not exposed to excessive moisture, ice, and snow. In the event the panels do become frozen together within a crate, the crate should be brought to a temperature above 32 degrees F to allow the ice to melt naturally. Salt, fertilizer, or other de-icing agents should not be used at any time. Covering the crate completely with tarps or similar coverings can avoid panels freezing together.



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Installation

Install panels in a running bond pattern with long dimension across supports and short dimensions bearing on flanges of supports so that end joints fall over the center of the framing member flanges and are staggered by at least two supports from the end joints in the adjacent rows. For all panels less than 24" wide, all edges must be supported by blocking. Blocking must be galvanized cold-formed steel, 18 gauge minimum. The attachment flange or bearing edge must allow for at least 3/4" of the panel to bear on the supporting flange. Install insulation in joist cavities as necessary or required. Stagger panel joints layout on framing. Use ARDEX K60 (or equal) joint leveling compound for fixing minor pock marks or uneven joints.



Building Code Approvals

- > International Building Code® 2009, 2012, 2015
- > International Residential Code® 2009, 2012, 2015
- > UL & ULC classified for use in fire-rated construction
- > UL & ULC tested against ASTM E84 & ASTM E136
- > New York City Department of Buildings, Materials and Equipment Acceptance Division (MEA)

Load Tables

Uniformly distributed loads (PSF) allowable on Plycem SX20/20™ Panels. Plycem SX20/20™ Boards in dry condition. Long dimension of Plycem SX20/20™ Panels across supports.

Panel Thickness	Load Governed By:	SPAN: Center-to-center of supports		
		12"	16"	24"
20mm (3/4")	I/360 Limit Between Supports - Live Loads	342	144	42
	I/240 Limit Between Supports - Live + Dead Loads	513	216	64
	Maximum Allowable Load Disregarding Deflection	478	268	119
25mm (1")	I/360 Limit Between Supports - Live Loads	577	243	72
	I/240 Limit Between Supports - Live + dead Loads	865	365	108
	Maximum Allowable Load Disregarding Deflection	760	427	190

Live load calculations based upon a minimum of three equal and continuous spans using a safety factor of 2.5. Moisture content of Plycem SX20/20™ panels is assumed to be 8% by weight (+/- 3%) as shipped from the factories - this is considered 'dry condition'.

Technical tables and specifications are provided as a general guideline only. No table can be sufficiently comprehensive to cover all details of a specific project. We recommend that all installations be designed and reviewed by a qualified architect or engineer.



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Physical / Mechanical Properties

Thermal conductivity k (1/2")	BTU - in/ hr - ft ² - °F	1.44	ASTM C1288
Coefficient of linear thermal expansion (1/2")	m/ °F	3.7 x 10 ⁻⁶	ASTM C1288
Density	Per cu. Ft.	65	ASTM C1288
Moisture content	%	5.4	ASTM C1288
Moisture movement (30% to 90% RH)	in/ft (MD)	0.015	ASTM C1288
	in/ft (CD)	0.012	
PH value	PH	9.8	N/A *
Formaldehyde, asbestos & silica content	%	0	N/A *
Frost resistance	%	96	ASTM C1186
Termite resistance	% mean weight loss	<1 (Rating 10)	AWPA E1-15
Mold resistance	% growth	0	ASTM G21
Fastener holding	lbf	Ave. Lateral = 396	AC 367
		Ave. Pull-Thru = 848	
		Ave. Withdrawal = 212	
Diaphragm Shear Strength	plf	25 mm > 800	ASTM E455
Shear Bond Strength	Psi	Dry Set = 57	ASTM C1288
		Latex = 69	
		Organic = 67	
Compressive Strength	Psi	3,860	ASTM C1288
Concentrated Static Impact Load	lbs	>400	AC 367
Uniform Load	psf	25 mm > 100	AC 367
		Deflection < L / 360	
Non-Combustible		Non-combustible per full ASTM E136	ASTM E136
Flame spread / smoke development		Zero / Zero	ASTM E 84
Fire Resistant Assemblies		1 & 2 hour floor / ceiling assemblies	ASTM E119
UL / ULC		UL & ULC classified for use in fire-rated construction	UL 723, Test for Surface Burning Characteristics of Building Materials
			UL 790, Test Methods for Fire Tests of Roof Coverings
			UL 263, Fire Tests of Building Construction and Materials

Product Data

Sizes and Packaging

- > ¾" (20mm) thickness x 4' x 8' packaged 22 panels per crate / Weight = 5 lbs. ft²
- > ¾" (20mm) thickness x 4' x 10' packaged 18 panels per crate / Weight = 5 lbs. ft²
- > 1" (25mm) thickness x 4' x 8' packaged 18 panels per crate / Weight = 6.25 lbs. ft²
- > 1" (25mm) thickness x 4' x 10' packaged 14 panels per crate / Weight = 6.25 lbs. ft²



PLYCEM SX20/20™ CINEMA FLOOR SYSTEM

Availability

Stocking warehouses:

- > Newark, NJ
- > Suffolk, VA
- > Garden City, GA
- > Miami, FL
- > Pasadena, TX
- > Rancho Dominguez, CA
- > Fife, WA

Submittal Approvals

Project Name:

Location:

Contractor / Architect:

Date:



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