



**USG STRUCTO-CRETE®**  
**STRUCTURAL CONCRETE PANEL**  
**A NEW WAY TO BUILD FLOORS**



## A NEW LEVEL OF PERFORMANCE

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### LIGHTWEIGHT

USG Structo-Crete® structural concrete panels provide the strength of wood sheathing, but are truly noncombustible. USG Structo-Crete structural concrete panel is to cold-formed steel, what plywood is to wood framing. Each  $\frac{3}{4}$  in. thick, 4 ft. wide and 8 ft. long panel weighs approximately 170 lbs. (approximately 5.3 psf). When fastened to metal framing, this lightweight assembly can significantly reduce design loads (when compared to similar buildings with concrete floors), thus reducing overall building costs. When combined with cold-formed light steel framing, the lower weight of each floor may offer an opportunity to reduce the size of the structural members by up to 10% and the seismic design forces by as much as 20%.

### FAST INSTALLATION

USG Structo-Crete structural concrete panels install like wood sheathing. They can be cut easily with a circular saw\* and fastened using self-drilling screws and a screw gun. The panels can be installed in most weather conditions (as job safety procedures permit) and immediately exposed to rain or snow. In addition, there is no need for an underlayment before adding residential carpet and pad or engineered wood.

**Note** \*Cut panels to size with a circular saw equipped with carbide-tipped blade and a dry dust collection device or a water-dispensing device that limits the amount of airborne dust. Dust can contain silica. Wear safety glasses and a NIOSH-approved N95 dust mask when cutting this panel.

### EXCELLENT FIRE PERFORMANCE

USG Structo-Crete structural concrete panels meet the criteria in ASTM E136-12 for use in noncombustible Type I and Type II construction. One- and two-hour UL-listed fire-resistant designs for floor/ceiling assemblies meeting ASTM E119 criteria are available with these panels.

### SOUND PERFORMANCE

An assembly that includes USG Structo-Crete structural concrete panels applied over steel framing, covered with carpet and pad, and a single-layer drywall ceiling attached to resilient channels below the framing, can achieve a sound performance rating of 56 STC and 65 IIC. Additional acoustically rated systems for various floor and ceiling finishes are available.

### MOLD-RESISTANT

USG Structo-Crete structural concrete panels are resistant to mold growth. Independent tests by a certified laboratory confirmed no mold growth, recording a rating of 0 (zero) as tested per ASTM G21 and a rating of 10 as tested per ASTM D3273.

### DIMENSIONALLY STABLE

This fiberglass-reinforced cementitious panel will not swell or delaminate (less than 0.10%) in the presence of moisture. Tongue-and-groove joints should be fitted tightly without any gapping. Panels will not buckle or warp, even under changing temperature and moisture conditions.

### GREENER BUILDING

Green building can create environmental, economic, health and community benefits. USG Structo-Crete structural concrete panels are formaldehyde-free and resistant to mold and termites.

USG Structo-Crete® structural concrete panels are high-strength reinforced concrete panels for use in noncombustible construction. Lighter than pre-cast or poured concrete, USG Structo-Crete structural concrete panels install like wood sheathing and provide a new, easier and more efficient way to build floors.

The USG Structo-Crete floor system consists of steel joists, trusses or framing members and USG Structo-Crete structural concrete panels applied with mechanical fasteners. The result is a dimensionally stable floor assembly with superior fire performance.

## A lighter, faster floor system

### TEST DATA

Physical and Mechanical Properties	Test Standard	Approximate Values Standard (Metric)
Moment capacity (3/4" thick panel)	ASTM C1185, 5.5	1585 lb-in/ft (588 N-m/m)
Bending stiffness (3/4" thick panel)	ASTM C1185, 5.5	315,000 lb-in <sup>2</sup> /ft (3kN-m <sup>2</sup> /m)
Concentrated load	ASTM E661	550 lbs (2.45 kN) static 0.108" (2.7 mm) max. deflection @ 200 lbs (0.89 kN)
Fastener lateral resistance <sup>a</sup>	ASTM D1761,S.10.2	> 210 lbf (0.93 kN) dry > 160 lbf (0.71 kN) wet
Density <sup>b</sup>	ASTM C1185	85 lb/ft <sup>3</sup> (1362 kg/m <sup>3</sup> )
Weight at 3/4" thickness	ASTM D1037	5.3 lbs/ft <sup>2</sup> (23 kg/m <sup>2</sup> )
pH value	ASTM D1293	10.5
Linear variation with change in moisture (25% to 90% relative humidity)	ASTM C1185, S.8	<0.10 %
Thickness swell	ASTM D1037, B	max. 3.0 %
Freeze / thaw resistance	ASTM C1185	Passed (50 cycles)
Mold resistance	ASTM D3273 ASTM G21	10 0
Water absorption <sup>c</sup>	ASTM C1185, 5.2.3.1	<15.0 %
Noncombustibility	ASTM E136 (-04) CAN/ULC-S114	Passed unmodified Passed
Surface-burning characteristics (flame spread/smoke developed)	ASTM E84 CAN/ULC-S102	0/0
Long-term durability	ASTM C1185, S.13	min. 75% retention of physical properties
Water durability	ASTM C1185, S.5	min. 70% retention of physical properties

(a) Fastener lateral resistance measured with #8, 1-5/8" Hi-Low screw.

(b) Density measured at equilibrium conditioning per Section 5.2.3.1., 28 days after manufacturing.

(c) Absorption measured from equilibrium conditioning followed by immersion in water for 48 hours.

### SYSTEM PERFORMANCE

Description	Reference
Code Reports	ICC ESR-1792; PER-13067
City Code Approvals	Los Angeles: LARR # 25682
Allowable Uniform Load <sup>a</sup> (total DL and LL)	110 psf @ 24" o.c.; 245 psf @ 16" o.c.
Shear Diaphragm Ratings	>450 plf <sup>b</sup>
UL 1-, 1.5-, 2-Hour Fire Resistance Designs <sup>d</sup>	G535, G536, G556, G557, G558, G562, G588, L521, L541, L550, L569, L570, M502, M506, M515, M521
ULC 1-, 1.5-, 2-Hour Fire Resistance Designs <sup>d</sup>	I526, I527, I528, I529, M520, M521
UL 2-, 3-Hour Load-Bearing Walls <sup>d</sup>	V465, V471
UL Roofing Systems, Uplift Resistance <sup>d</sup>	TGIK.R25352
UL/ULC Metal and Plastic Through-Penetration Firestop Systems <sup>d</sup>	F-E-1023, F-E-1032, F-E-2045, SP1105, SP1106
Acoustical Ratings	>65 IIC <sup>c</sup> >56 STC <sup>c</sup>

(a) On steel framing.

(b) Joists spaced 24" o.c. and fasteners spaced 6" at the perimeter and 12" o.c. in field, unblocked.

(c) Carpet and pad over USG Structo-Crete panels attached to cold-formed steel framing with a ceiling consisting of resilient channels spaced 12" o.c., 3-1/2" of fiberglass insulation in the joist cavity and a single layer of 5/8" Type C gypsum panel.

(d) For the most up-to-date UL/ULC Designations, contact USG.

**TECHNICAL SERVICE**  
888 STR.UCTO

**WEB SITE**  
structo-crete.com  
usgdesignstudio.com

**SAMPLES/LITERATURE**  
structocrete@usg.com

Manufactured by  
United States Gypsum Company  
550 West Adams Street  
Chicago, IL 60661

**PRODUCT INFORMATION**  
See usg.com for the most up-to-date product information.

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**SAFETY FIRST!**  
Follow good safety/industrial hygiene practices during installation. Wear appropriate personal protective equipment. Read MSDS and literature before specification and installation.