



1/2" USG STRUCTO-CRETE® BRAND STRUCTURAL PANELS AS WALL SHEATHING

1/2" USG STRUCTO-CRETE® Brand Structural Panels are a heavy-duty alternative to gypsum, fire rated timber (FRT) and OSB sheathing that provides higher strength and long-term durability. 1/2" STRUCTO-CRETE® Panels are the solution to many common design issues, including fire-ratings, non-combustibility, shear/load, acoustics, and high impact resistance – all with a single panel. These 1/2" STRUCTO-CRETE® Panel features are not limited to the commercial midrise market but allow for the design and build of strong and safe low-rise and single unit residential buildings.

- **UL Certified Non-Combustible:** Due to the extremely low organic material composition, STRUCTO-CRETE® Panels are naturally non-combustible as well as mold and mildew resistant. (1- & 2-hour fire rated).
- **Resilient Design:** 1/2" STRUCTO-CRETE® Panels will remain dimensionally stable in the most extreme conditions, such as shear from high wind activity, flooding, wind-driven rain, and wildfires.
- **Wind Load and Shear Capacity:** Up to 4x stronger wind load capacity than gypsum sheathing and better shear capacity than OSB. Can replace cold-formed steel cross bracing.
- **High Density = High STC:** At 74.6 lbs./ft³ per panel STRUCTO-CRETE® Panels provide superior STC ratings (50-70) that are not only narrower but can achieve a higher maximum height than traditional gypsum sheathing.
- **High Impact Resistance:** 1/2" STRUCTO-CRETE® Panels were developed with the same formula as the 3/4" subfloor panels. That same durability and toughness can now be utilized in high-traffic hallways and corridors to provide outstanding protection from abuse.
- **Complies with ASTM C1185** (*Standard Test Methods for Sampling and Testing Non-Asbestos Fiber-Cement Flat Sheet, Roofing and Siding Shingles, and Clapboards*) and ASTM C1177, *Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing*.

DESCRIPTION

1/2" STRUCTO-CRETE® Panels are glass fiber reinforced cementitious panels that are 1/2" thick by 4' x 8' with square ends and edges and mechanically fastened to cold-formed steel or wood studs using corrosion resistant fasteners. Panels can be installed on one or both sides of the stud and in multiple layers for high acoustic and high fire ratings.

INTENDED FOR

- Improving fire safety and increasing egress time for occupants.
 - Type I, II and III construction such as low, mid, high-rise buildings, data centers, hospitals, senior living, and schools to meet safety standards and code compliance.
 - 1- & 2-hour wall fire ratings.
- Protecting homes/buildings in regions susceptible to high winds, hurricanes, flooding, and wildfires.
 - Single family, multi-family, mid-rise, senior living, schools, and hospitality.
- Attaining high STC ratings as a load bearing wall and reducing noise transmission, enhancing privacy and comfort without the use of staggered studs or resilient channels.
 - Schools, hospitals, dormitories, hospitality, senior living, symphony halls, movie theaters and multi-family buildings, especially in applications where hardware, furniture, or equipment (hospitals) needs to be hung from the wall.
- High Impact Resistance – Level 3 impact rating achieved after 330 lbs. impact force was applied to samples without failure.
 - Schools, hospitals, hospitality, senior living, airport passages and industrial access ways.

LIMITATIONS

- 1/2" STRUCTO-CRETE® Panels are not suitable as a nailing or screw base. To adjoin components to the panels, pre-drill hole and install toggle bolts, peel rivets, or use fasteners through the panel and into supporting framing.
- Mechanical attachment of exterior claddings must be made directly to the framing.
- The support framing must be designed to meet the relevant code mandated designed strength, deflection, and serviceability criteria.

INSTALLATION

½" STRUCTO-CRETE® Panels are cut to size with a circular saw equipped with a standard carbide-tipped framing blade and a dry dust collection device or a water spray suppression system that controls the amount of airborne dust. Wear safety glasses and a NIOSH-approved N95 dust mask when cutting. Dispose of collected dust in a safe manner and in compliance with local, state, and federal ordinances.

- Framing spaced a maximum of 24 in (610 mm) o.c. Framing type, size, and thickness as well as the fastener spacing shall be designated by the Design Professional of Record. Details and requirements pertaining to framing and application limitations shall be controlled by the weather-resistive barrier requirements, cladding, structural or fire-resistance-rated system, and must be approved by the architect, structural engineer, or design professional of record.
- A modified pan head or similar low-profile fastener shall be used to secure framing members together where panels will be installed. Hex head style fasteners shall not be used.
- Where resistance to racking, lateral shear and/or transverse wind load is required, hang panels vertically with the 8 ft length parallel to primary framing direction, print side out. If the wall is greater than 8 ft, install horizontal blocking above the base panel before adding an additional panel above and ensure that both panels are screwed on all edges and fully blocked.
- Joints must be clean and free of debris with edges and ends butted tightly together.
- Fasten panels with Grabber CGH8158LG. Where the panel is designed as a shearwall, the system design capacities shall be obtained from published USG literature, engineering evaluations, test reports and/or code reports as mandated by local codes.
- For any published fire rated design, the system must be constructed in exact accordance with the published design. Alterations to the published fire-rated design may have an adverse effect on the rating.
- Use best practices for sound control installation to ensure optimal installed acoustical performance.

GENERAL NOTES

½" STRUCTO-CRETE® Panels shall be installed per manufacturer's recommendations using Grabber CGH8158LG fasteners. Improper installation will not allow the panels to perform as intended. Panel layout should be designed to minimize cutting. Panels are to be butted tightly together; no gapping is required. Glue is not recommended.

Appropriate safety procedures must be followed to protect installers from personal injuries resulting from improper lifting of materials, falling, and eye, hand, and lung irritation from dust. Refer to [OSHA Respirable Crystalline Silica Standard for Construction - Rule 29 CFR 1926.1153](#) and applicable federal, state, county, and local regulations for more information.

Care must be taken when placing pallets of ½" STRUCTO-CRETE® Panels during project staging. A pallet of 30 sheets of 1/2 in x 4 ft x 8 ft (13 mm x 1,220 mm x 2,440 mm) STRUCTO-CRETE® Panels weighs approximately 3,400 lb. (1,542 kg). Do not place heavy materials or pallets of the panels on surfaces with ½" STRUCTO-CRETE® Panels already installed. Leave pallets banded until panels are ready to be installed. Place full pallet of ½" STRUCTO-CRETE® Panels or other heavy material on top of un-banded unit(s) to be left overnight or for extended period to minimize the potential for panel warp.

WEATHER EXPOSURE

Installed ½" STRUCTO-CRETE® Panels shall not be exposed to weather for more than 12 months. Note, the glass-mat surface of the panel must be facing outward to the elements.

These panels resist normal weather conditions but are not intended for constant exposure to water. Protect panels from immersion in water and the eroding effects of cascading, pooling, and/or ponding water.

Avoid conditions during construction that result in excessive moisture load in the building. High moisture can cause condensation in the unfinished exterior walls during periods of cold weather. Forced air heaters, wet masonry, poured concrete and finishing materials introduce large volumes of water vapor into the building as they cure or dry. Use ventilation and mechanical dehumidification to reduce moisture levels to below the dew point temperature of the exterior air. Any damage resulting from insufficient interior moisture management during construction is not the responsibility of USG.

PRODUCT DATA

Sizes and Packaging: 1/2 in. x 4 ft. x 8 ft. (12 mm x 1,220 mm x 2,440 mm) STRUCTO-CRETE® Panels are packaged in 30-piece pallets that each weigh approximately 3,140 lbs. (1,424 kg) and 14 pallets ship via each flat-bed truckload (13 pallets in Canada).

Product Code:

Item Number	Product
103147	1/2" STRUCTO-CRETE® Brand Structural Panel – 1/2 in x 4 ft x 8 ft (13 mm x 1,220 mm x 2,440 mm)

Availability: STRUCTO-CRETE® Panels are sold through a distributor that carries USG products. Email usgstructural@usg.com or search USG Where to Buy for dealers in your area.

Handling: 1/2" STRUCTO-CRETE® Panels weigh approximately 103 lbs. (47 kg) and are intended to be handled by two people. Do not exceed the destination's load capacity when placing full pallets or individual panels on vehicles, trailers, or during storage. Use forklifts which are adequate to carry the pallet load and with a minimum rating of 5,000 lbs. (2,268 kg) and 96 in (2,440 mm) width. Leave a minimum 2 in (50.8 mm) gap between pallet and forklift backrest to avoid damage to the edges of the panels. Damaged tongue and groove joints may degrade panel performance.

Storage: STRUCTO-CRETE® Panels shall be stored above ground in a dry in a ventilated space. Stack pallets a maximum of 4 high with a minimum of 4 in (102 mm) clear space around the perimeter of the pallet(s).

Jobsite: Pallets are to be stored flat on a stable surface capable of supporting the weight. Stock individual panels flat on risers a maximum 4 ft (1,220 mm) o.c. with end supports within 12 in (305 mm) of panel ends. Individual panels must never be stored in an upright position, on their edges leaning against a wall or other vertical support.

Panels must be covered when stored in unprotected areas to avoid damage and to avoid panels freezing together. If a unit is frozen whereby sheets are stuck together, the unit needs to be brought to a temperature above 32 °F (0 °C) to allow the ice to melt naturally. Salt, fertilizer, other de-icing agents, or direct artificial heat should not be used at any time.

Leave pallets banded until panels are ready to be installed.

Maintenance: STRUCTO-CRETE® Panels do not require any regular maintenance except to remove standing water and repair damage from abuse. Any cracked or broken panels should be replaced with sound STRUCTO-CRETE® Panels that are secured following the fastening schedule prescribed in the original installation documents.

Repairs: Previously installed STRUCTO-CRETE® Panels with holes up to 6 in. and some broken tongue and groove joints may be repaired using the recommendations located in *USG STRUCTO-CRETE® Brand Structural Panels Repair Manual (SCP356565)*.

SYSTEM PERFORMANCE
TEST DATA

Physical and Mechanical Properties	Test Standard (AC 318 – Min/Max Values)	Test Values Standard (Metric)
Fastener lateral resistance ^A	ASTM D1761, Sec. 10.2 (dry >210 lbf, wet >160 lbf)	312 lbf (1.39 kN) dry 236 lbf (1.05 kN) wet
Density ^B	ASTM C1185	78.6 lb/ft ³ (1,259 kg/m ³)
Weight at 1/2 in. (13 mm) thickness	ASTM D1037	3.5 lb/ft ² (17 kg/m ²)
pH value	ASTM D1293	10.71
Permeance	ASTM E96	.094 dry 2.84 wet
Linear variation with change in moisture (25% to 90% relative humidity)	ASTM C1185, Sec. 8 (<0.10%)	Panel Core <0.10%
Thickness swell	ASTM D1037, B (≤3.0%)	0%
Freeze / thaw resistance	ASTM C1185 (>75%)	100% properties retention
Mold resistance	ASTM D3273 (10)	10 (No Growth)
Water absorption ^C	ASTM C1185, Sec. 5.2.3.1 (<15%)	9.0%
Noncombustibility	ASTM E136 CAN/ULC-S114	Passed Passed
Total Organic Carbon ^E	ASTM E136	<1%
Surface-burning characteristics (flame spread/smoke developed)	ASTM E84 (0/0) CAN/ULC-S102 (0/0)	0/0 0/0
Long-term durability	ASTM C1185, Sec. 13 (>75%)	100% properties retention
Water durability	ASTM C1185, Sec. 5 (>70%)	83% properties retention
Termite resistance	AWPA Standard E1-13	No Damage
Low VOC emissions	CDPH/EHLB/Standard Method v1.2-2017 ^D	Compliant

(A) Fastener lateral resistance measured with #8, 1-5/8 in (41 mm) 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.

(D) Reference Standard: California Department of Public Health CDPH/EHLB/Standard Method Version 1.1, 2010 (Emission testing method for CA Specification 01350).

(E) *Per section X1.5.1.1 Commentary of ASTM E136, any building materials exceeding 3% combustible portion in noncombustible material is very likely to fail noncombustibility test.*

PANEL LOADING CAPACITIES

NOMINAL RACKING SHEAR WALL CAPACITY

Stud Thickness	Test Standard	Stud Spacing (in.)	Fastener Size	Nominal Load (plf)	
				up to	
14 ga. (68 mil.)	ASTM E72	24	#8	up to	4,675
16 ga. (54 mil.)	ASTM E72	24	#8	up to	2,698
18 ga. (43 mil.)	ASTM E72	24	#8	up to	1,720
20 ga. (33 mil.)	ASTM E564	24	#8	up to	1,850

Note Shear wall capacities vary based upon stud thickness and stud spacing, fastener size, fastener spacing around the perimeter and in the field of each panel, the distance of the fastener from the edge of the panel, size of the shear wall chord and stiffness, and strength of the shear wall framing. Please consult ICC Report ESL-1560 for more details.

NEGATIVE ULTIMATE UNIFORM LOAD DEVELOPED FROM WIND, PSF (see note)

Fastener Spacing	1-Span Condition			2-Span Condition			3-Span Condition			4-Span Condition		
	Framing Spacing			Framing Spacing			Framing Spacing			Framing Spacing		
	12" oc	16" oc	24" oc	12" oc	16" oc	24" oc	12" oc	16" oc	24" oc	12" oc	16" oc	24" oc
4" to 12" oc	633	356	158	633	356	158	792	445	198	739	416	185

Note Uniform loads published here are based on bending load capacity of the panels. For capacity limits based on the additional limitations of deflection, as well as the capacity limits based on head pull-through, please contact USG.

Made in the USA with domestic and imported ingredients.

PRODUCT INFORMATION

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

DANGER

Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage. May cause respiratory irritation. May cause cancer by inhalation of respirable crystalline silica. Do not handle until all safety precautions have been read and understood. Avoid breathing dust. Use only in a well-ventilated area, wear a NIOSH/MSHA-approved respirator. Wear protective gloves/protective clothing/eye protection. If swallowed, inhaled, or skin irritation occurs get medical attention. If on skin: Wash with plenty of water. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses and continue rinsing. Wash contaminated clothing before reuse. Dispose of in accordance with local, state, and federal regulations. For more information call Product Safety: 800-507-8899 or see the SDS at usg.com.

KEEP OUT OF REACH OF CHILDREN.

TRADEMARKS

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SAFETY FIRST!

Follow good safety/industrial hygiene practices during installation. Wear appropriate personal protection equipment. Read applicable SDSs and literature before specification and installation.

SUBMITTAL APPROVALS

Job Name	
Contractor	Date

800 USG.4YOU
800 (874-4968)
usg.com/structocrete

Manufactured by
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Chicago, IL 60661

SCP379733-USA-ENG/1-25
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