

USG STRUCTURAL PANELS

NEW ULTRA THIN TWO-HOUR MODULAR UL SYSTEM MODULAR APPLICATION

- Build in three easy steps: lay, fasten, finish
- No pouring, no setting, no curing
- A lightweight alternative to poured concrete slabs
- A complete dry application
- Moisture-, mold- and termite-resistant
- Higher productivity with less layers
- Noncombustible
- Nonrotting

A NEW WAY TO THINK ABOUT MODULAR CONSTRUCTION.

With USG Structural Panels, you can build faster, gain more interior space and meet the most stringent requirements for Permanent Modular Construction.

USG Structural Panels allow for the design flexibility and versatility of wood or cold-formed steel-framed structures, while providing the durability and long-lasting benefits of traditional, time-consuming systems. They are truly noncombustible when tested in accordance with ASTM E136-12.

USG Structural Panel Concrete Subfloor (for wall applications)

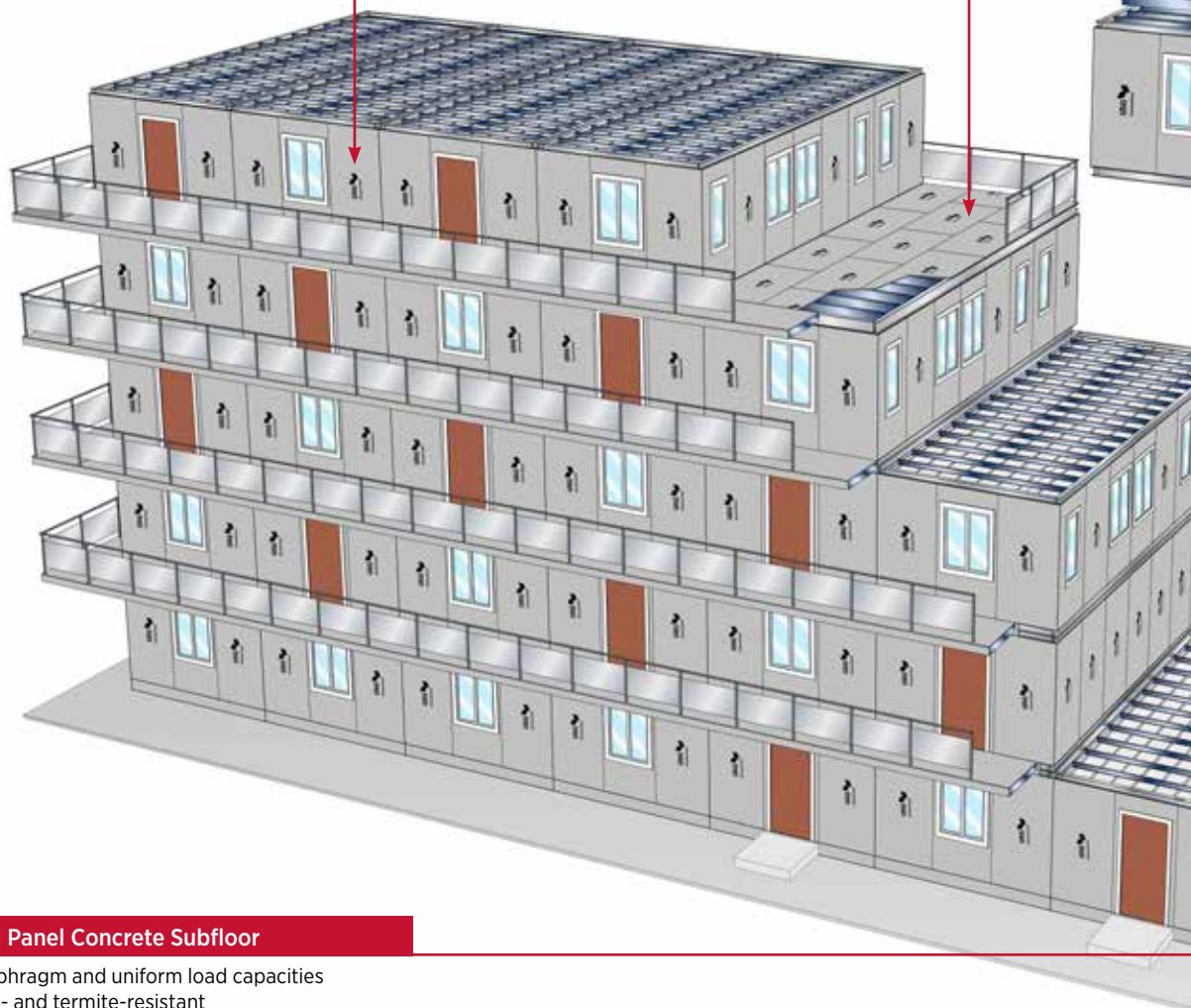
- Load-bearing capacities (axial and shear)
- Moisture-, mold- and termite-resistant
- Thinner profile and faster installation than other panelized systems

USG Structural Panel Concrete Roof Deck

- Remove steps to a finished roof
- Great uplift strength
- Membranes can adhere directly to the panels

Typical applications:

- Low-slope or steep-slope roof
- Balconies
- Decorative soffits
- Canopies



USG Structural Panel Concrete Subfloor

- Great shear diaphragm and uniform load capacities
- Moisture-, mold- and termite-resistant
- Factory-manufactured, quality-controlled structural floor
- Lightweight, no curing

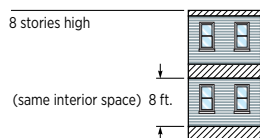


UL Design H501

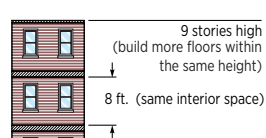
As the thinnest certified UL assembly for modular assembly, H501 allows for taller interior spaces—gaining more within your module or building more floors when limited to a maximum building height.

Building Height Advantage

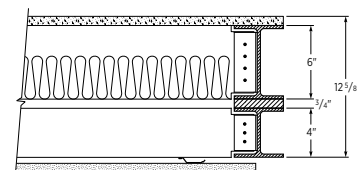
Typical modular building with 28" deep assembly



H501- 2-hour fire-resistance-rated floor/ceiling assembly



Thin Profile for Modular Assembly Detail



The Anatomy of H501

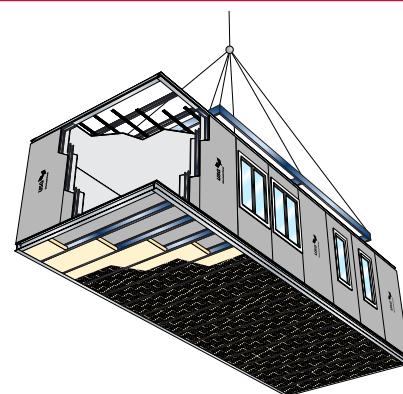
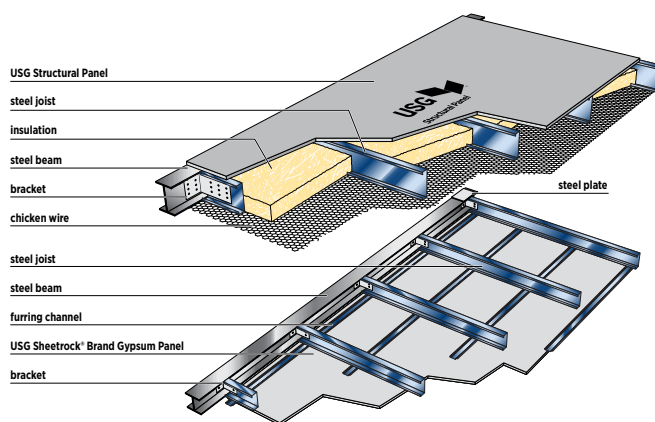
Floor section perimeter supported by minimum W6x9

- 3/4" USG Structural Panel Concrete Subfloor
- 6" deep steel C-joists, clip attached to perimeter members
- 3-1/2" deep insulation supported by wire frame to hold in place for transportation

Ceiling section perimeter supported by minimum W4x13

- 6" deep steel C-joists, clip attached to perimeter members
- 1/2" resilient channels spaced at 12" o.c.
- 5/8" USG Sheetrock® Brand Firecode® C Core Gypsum Panels

Layered Modular Assembly



TYPICAL APPLICATIONS

• Hotels	• Dorms
• Permanent Modules	• Extended Care Facilities
• Lofts	• Pods
• Classrooms	• Corporate Training Rooms
• Restaurants	• Emergency Pods

(1) Floor Finish: USG Structural Panel Concrete Subfloor must be designed to the suitable intended use. In some instances, uses such as high corrosive or hazardous environments must be designed accordingly. Follow the contract documents and the floor finish manufacturer's recommendations for the application of finished flooring. Note that most floor finishes will require an underlayment. Before the application of floor finish materials, ensure that all panels are properly fastened, with the fastener head driven flush or slightly below the surface of the panels.

(2) Storage, traffic and equipment might be limited based on the concentrated load limitation of USG Structural Panels. **A qualified architect or engineer should review and approve calculations, framing and fastener spacing for all projects.**

TEST DATA

Physical and Mechanical Properties	Test Standard	Approximate Values Standard (Metric)
Concentrated Load	ASTM E661	550 lbs. (2.45 kN) static 0.108" (2.7 mm) max. deflection @ 200 lbs. (0.89 kN)
Mold Resistance	ASTM D3273, ASTM G21	10, 0
Water Absorption ^a	ASTM C1185, Sec. 5.2.3.1	<15.0%
Noncombustibility	ASTM E136 -I2 (unmodified) CAN/ULC-S114	Passed Passed
Surface-Burning Characteristics (flame spread/smoke developed)	ASTM E84, CAN/ULC S102	0/0
Termite Resistance	AWPA Standard E1-13	10
Low VOC Emissions	CDPH/EHLB/Standard Method V1.1-2010 ^b	Compliant

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

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

SYSTEM PERFORMANCE

Description	Reference
UL Type Designation ^a	USGSP; Structo-Crete™
City Code Approvals Los Angeles	LARR #25682
Code Reports	PER-13067; PER-14067
UL 2-Hour Fire-Resistance Design	H501; G556; P561; P562; V465; V471

(a) For the most up-to-date UL/ULC Designations, visit usg.com/structural.

LOAD TABLE

The following table represents the load-carrying capacity of USG Structural Panel. For the most up-to-date load tables, see the *Progressive Engineering Inc. Product Evaluation Report* (PER-13067). For technical questions, email usgstructural@usg.com. **A qualified architect or engineer should review and approve calculations, framing and fastener spacing for all projects.**

Ultimate Uniform Load ¹ for USG Structural Panel Concrete Subfloor			
Joist Spacing ² - inches (millimeters)	12" (305 mm)	16" (406 mm)	24" (610 mm)
Uniform Load ³ - psf (kPa)	1,320 psf (63.2 kPa)	744 psf (35.6 kPa)	330 psf (15.8 kPa)

For SI: 1 in. = 25.4 mm, 1 psf = 47.88 Pa.

(1) **Ultimate Load Values have no safety factor included.**

(2) Three framing spans minimum per panel piece.

(3) Ultimate Uniform Load Table for general reference only. For complete load capacities, consult *Progressive Engineering Inc. Product Evaluation Report* (PER-13067).

STRUCTURAL FASTENERS

USG recommends the following fasteners for the installation of USG Structural Panels to structural framing:

Manufacturer	16 ga. Cold-Formed Steel (1/2" (13 mm) Min. Edge Distance)		SPF Lumber (5/8" (16 mm) Min. Edge Distance)		1/4" (6.5 mm) A36 Hot-Rolled Steel (3/4" (19 mm) Min. Edge Distance)	
	Part #	Fastener Pull-Through ¹	Part #	Fastener Pull-Through ¹	Part #	Fastener Pull-Through ¹
Grabber Construction Products, Inc.	CGH8158LG	581 lbs. (264 kg)	C8200L2M	581 lbs. (264 kg)	•	•
Simpson Strong-Tie Company Inc.	CBSDQ158S	581 lbs. (264 kg)	WSNTLG2S	581 lbs. (264 kg)	TBG1260S	581 lbs. (264 kg)
SENCO ²	•	•	GL24AABF ³	581 lbs. (264 kg)	•	•

(1) Fastener pull-through capacities are based upon the minimum average ultimate tested capacity for all tabulated fasteners. The engineer or designer of record shall apply an appropriate safety factor (ASD) or resistance factor (LRFD).

(2) SENCO 8d ring shank nails are manufactured with a length of 2-3/8", head diameter of 0.266", and a shank diameter of 0.113". Equivalent 8d ring shank nails meeting these dimensional requirements may be utilized when approved by the engineer or designer of record.

(3) Minimum edge distance for nails is 1/2".

General Notes: In accordance with **PER-13076**, the minimum screw pattern is 6 in. (153 mm) o.c. along the perimeter of the panels and 12 in. (305 mm) o.c. in the field of the panels. Do not use a larger size screw unless specified by the structural engineer. **A qualified architect or engineer should review and approve calculations, framing and fastener spacing for all projects.**

MSRP based upon full truckload delivered to jobsite:
Subfloor: \$4.50/sf
Roof Deck: \$5.40/sf

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PRODUCT INFORMATION

See usg.com/structural 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 SDS and literature before specification and installation.