

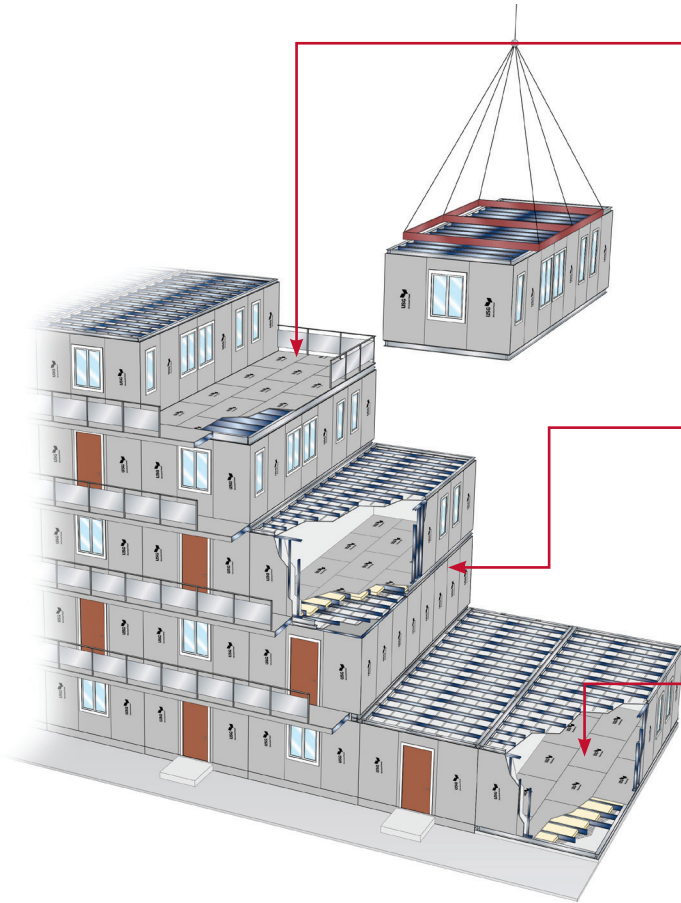
USG STRUCTURAL PANELS

SIMPLE 2-HOUR MODULAR NONCOMBUSTIBLE FIRE DESIGN UL® H501®

- Three Easy steps: lay, fasten, finish
- Completely dry application, no pouring, setting or curing.
- An alternative to poured concrete slabs for noncombustible permanent modular assemblies meeting latest active ASTM standard E136
- Nonrotting, mold-, moisture- and termite-resistant
- Higher productivity with less layers
- Fast installation/dimensionally stable

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, also known as USG Structo-Crete™, 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 latest active ASTM standard E136.



USG Structural Panel Concrete Roof Deck

- FM Approved
- Fewer steps to a finished roof
- Fire-tested: one- and two-hour UL fire-resistant roof/ceiling assemblies
- Great uplift capacity
- Membranes can adhere directly to the panels

Typical applications:

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

USG Structural Panel Concrete Subfloor (for wall applications)

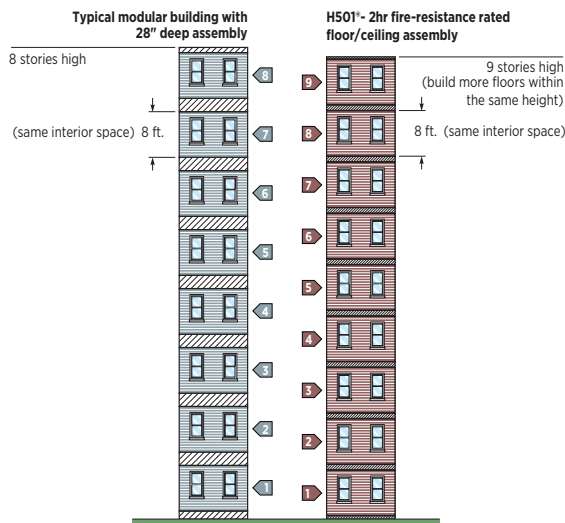
- Load-bearing capacities (axial and shear)
- Moisture-, mold- and termite-resistant
- Fire-tested: one-, two- and three-hour UL fire-resistant load-bearing wall systems
- Thinner profile and faster installation than other panelized or modular systems

USG Structural Panel Concrete Subfloor

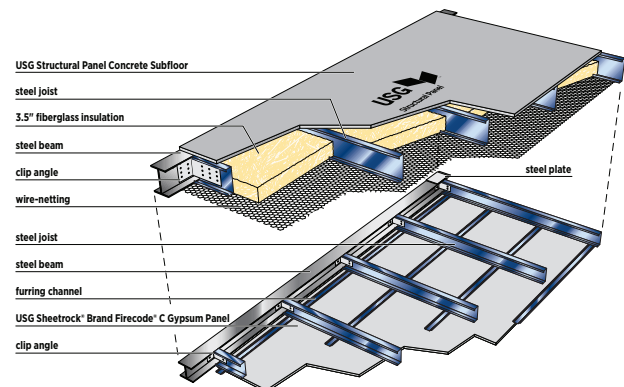
- Great shear diaphragm and uniform load capacities
- Moisture-, mold- and termite-resistant
- Factory-manufactured, quality-controlled structural subfloor
- Lightweight, no curing
- Fire-tested: two-hour UL fire-resistant floor/ceiling assembly (H501®)

An Ultra-Thin 2-hour fire-rated Assembly allows you to build more

UL® Design H501®



A total system thickness of 12-5/8" high allows for design flexibility, more floors for the same building height or taller interior ceiling space, without sacrificing floor/ceiling fire-resistance.



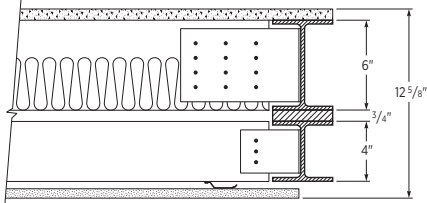
UL® Design H501®

As the thinnest UL® Certified Assembly for Modular Construction, **H501®** allows for taller interior spaces within a module; or building more floors when limited to a maximum building height

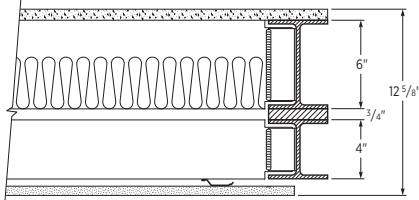
Multiple Attachment Details

*Clip angles can be screw-attached or welded connections

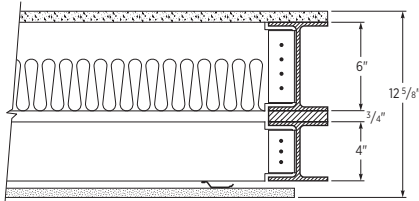
OPTION 1 - EXTENDED CLIP ANGLE



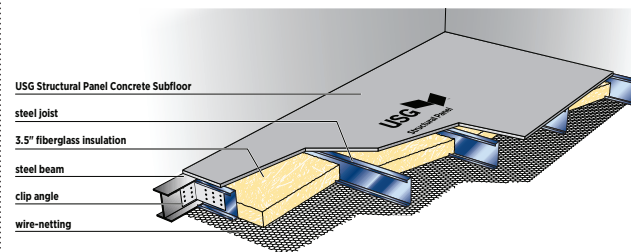
OPTION 2 - WELDED CLIP ANGLE



OPTION 3 - WEB TO WEB CLIP ANGLE

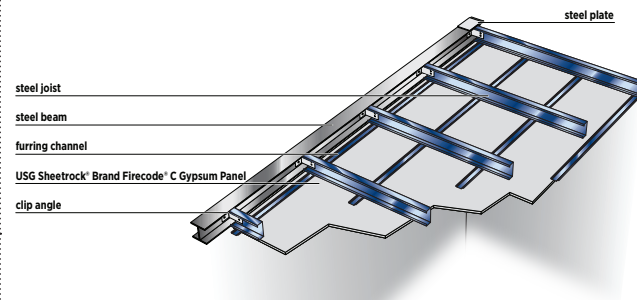


2-Hour Modular Assembly Description



Floor Segment Perimeter supported by minimum W6x9

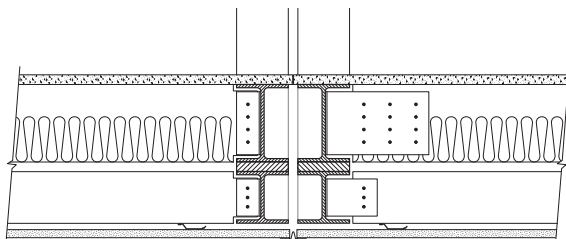
- 3/4" USG Structural Panel Concrete Subfloor
- 6" Steel C-Joists, clip attached to perimeter frame.
- 3-1/2" deep Insulation held in place by wire-netting



Ceiling Segment Perimeter supported by minimum W4x13

- 4" Steel C-joists, clip attached to perimeter frame
- 1/2" Resilient Channel or equivalent
- 5/8" USG Sheetrock® Brand Firecode® C Gypsum Panels

Additional Advantages



- **Unrestrained assembly** allows for larger open spaces
- **Insulation under floor section only**, allows for the spacing of Resilient Channels at maximum of 16" on center
- **H501® has no mandatory floor covering or underlayment**, giving the designer flexibility, without compromising on the fire-resistance-rating
- **Ceiling segment loaded** allows for mechanical, electrical, HVAC and suppression services

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.

(3) A qualified engineer should review and approve all lift designs and transport arrangements so that the structural integrity of the modules is not compromised during loading, transport and unloading.

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	Test Result Values (Metric)
Concentrated Load	ASTM E661	804 lb (3.58kN) static 0.066" (1.7mm) max. deflection @ 200 lb. (0.89 kN)
Mold Resistance	ASTM D3273, ASTM G21	10, <1
Water Absorption ^a	ASTM C1185, Sec. 5.2.3.1	<9%
Noncombustibility	ASTM E136 (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	9.8
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-14076
UL® 2-Hour Fire-Resistance Design	H501* ; G556; P561; P562; V465; V471

(a) For the most up-to-date UL®/ULC Designations, visit www.USGStructuralUL.com

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)	1566 psf (75 kPa)	879 psf (42.1 kPa)	390 psf (18.7 kPa)

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

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

(2) Two 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

Reference [USG Structural Panel Recommended Fasteners \(SCP95\)](#) for current fastener information. Visit www.usgscp95.com.

General Note: In accordance with [PER-13067](#) for Subfloor and [PER-14076](#) for Roof Deck, 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

SCP31-USA-ENG/rev. 2-20
© 2020 USG Corporation and/or its affiliates.
All rights reserved.
Printed in USA

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

800 USG.4YOU (874-4968)
usg.com/structural
usgstructural@usg.com

PRODUCT INFORMATION

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

TRADEMARKS

The trademarks USG, FIRECODE, H501, SHEETROCK, STRUCTO-CRETE, IT'S YOUR WORLD. BUILD IT., the USG logo, the design elements and colors, and related marks are trademarks of USG Corporation or its affiliates. UL is a trademark of UL LLC.

NOTICE

We shall not be liable for incidental or consequential damages, directly or indirectly sustained, nor for any loss caused by application of these goods not in accordance with current printed instruction or for other than the intended use. Our liability is expressly limited to replacement of defective goods. Any claim shall be deemed waived unless made in writing to us within thirty (30) days from date it was or reasonably should have been discovered.

SAFETY FIRST!

Follow good safety/industrial hygiene practices during installation. Wear appropriate personal protective equipment. Read SDS and literature before specification and installation.

USG
IT'S YOUR WORLD. BUILD IT.®