USG Structural Solutions

USG STRUCTURAL PANEL & FRAMECAD® SYSTEMS

A NEW LEVEL OF SYSTEM PERFORMANCE

USG Structural Panels are high-strength reinforced concrete panels for use in noncombustible construction. When installed on light gauge structural framing from FRAMECAD®, the system is lighter than pre-cast or poured concrete, and is a faster, easier and more efficient way to build noncombustible floors and roofs.

SUBFLOOR SYSTEMS

The USG Structural panel & FRAMECAD® floor system consists of: FRAMECAD® light-gauge steel trusses and USG Structural Panel Concrete Subfloor attached with screws, insulation in the truss cavity, and a layer of USG Sheetrock® Brand EcoSmart Panels Firecode® X Gypsum Panel suspended by a resilient channel or USG Drywall Suspension System. The result is a noncombustible, mold-, moisture-, termite-resistant and dimensionally stable floor assembly.

Build a lighter, faster floor system

ROOF SYSTEMS

The USG Structural Panel & FRAMECAD® roof system consists of the USG Structural Panel Concrete Roof Deck attached with screws, only, to FRAMECAD® Light-gauge steel trusses spaced up to 48” on center. The USG Structural Panel Concrete Roof Deck serves as the substrate for mechanically or adhered low-slope roof systems or as the noncombustible nail base for asphalt shingles, clay or concrete tiles in a steep slope roof application. The result is a noncombustible, mold-resistant, moisture-resistant, termite-resistant and dimensionally stable roof deck, with great design flexibility suitable for almost many roofing applications.

Build a lighter, faster roof system

STRUCTURAL PEFORMANCE

The USG Structural Panel and FRAMECAD® Truss system structural performance has great uniformly distributed load, floor shear diaphragm and concentrated load capacities, as well as an ever- expanding set of uplift-resistance systems tables. For the most up-to-date capacity load tables, see the Progressive Engineering Inc. Product Evaluation Report PER-13067 for Concrete Subfloor (see www.per13067.com), Product Evaluation Report PER-14076 for Concrete Roof Deck (see www.per14076.com), and for the latest roof uplift tables, see the Proressive Engieering inc. Assembly Evaluation Report AER-17108 for Roof Systems or for technical questions, email usgstructural@usg.com. **A qualified architect or engineer should review and approve calculations, framing and fastener spacing for all projects.**

USG
IT’S YOUR WORLD. BUILD IT.®

LOAD TABLES

The following table represents a sample of the load carrying capacity of USG Structural Panel supported by FRAMECAD® light gauge trusses. For the most up-to-date load tables, see the Progressive Engineering Inc. Product Evaluation Report PER-13067 for Concrete Subfloor (see www.per13067.com) and Product Evaluation Report PER-14076 for Concrete Roof Deck (see www.per14076.com), or 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 FOR USG STRUCTURAL PANEL ON FRAMECAD® TRUSSES					
Joist Spacing - inches (millimeters)	12″ (305 mm)	16″ (406 mm)	24″ (610 mm)	32″ (813mm)	48″ (1220 mm)
Capacity - psf (kPa)	1,320 psf (63.2 kPa)	744 psf (35.6 kPa)	330 psf (15.8 kPa)	240 psf (11.5 kPa)	150 psf (7.2 kPa)

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

Notes:
1. Ultimate Load Values have no safety factor included. Per ICC AC-318, a safety factor of 3 is to be used.
2. Two framing spans minimum per panel piece
3. Uniform Load Table for general reference only Progressive Engineering Inc. Product Evaluation Report PER-13067 & PER-14076

The following table represents a sample of the floor shear diaphragm load capacities of USG Structural Panel mechanically attached to FRAMECAD® Trusses. For the most up-to-date load tables, see the Progressive Engineering Inc. Product Evaluation Report PER-13067 for Concrete Subfloor (see www.per13067.com) and Product Evaluation Report PER-14076 for Concrete Roof Deck (see www.per14076.com). For technical questions, email usgstructural@usg.com. **A qualified architect or engineer should review and approve calculations, framing and fastener spacing for all projects.**

CANTELIEVER BEAM DIAPHRAGM LOADS3							
Truss Spacing	**Fastener Spacing Perimeter**	**Field**	**Blocking**	**Screw Pattern**	**Shear Strength**	**Slip Coefficient**	**Aspect Ratio**
24″ (609.6 mm)	6 inch (152.4mm)	12 inch (304.8mm)	No	B	487plf (7.1 kN/m)	0.518	2:1
	8 inch (203.2mm)	12 inch (304.8mm)			475 plf (6.9 kN/m)	0.511	
24″ (609.6 mm)	6 inch (152.4mm)	12 inch (304.8mm)	Yes[1]	C	1148 plf (19.8 kN/m)	0.354	2:1
48″ (1219.2 mm)	4 inch (101.6mm)	12 inch (304.8mm)	Yes[2]	D	1641 plf (23.9 kN/m)	0.426	4:1

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

Notes:
1. Blocking shall be 4″ (101.6mm) wide, 16 gauge (54 mil) or 0.0538 (1.438 mm) steel strap
2. Blocking shall be 4″ (101.6mm) wide, 16 gauge (54 mil) or 0.0538 (1.438mm) C track blocking
3. Refer to Progressive Engineering Inc. Product Evaluation Report PER-13067 & PER-14076 for the most up-to-date and complete load tables.

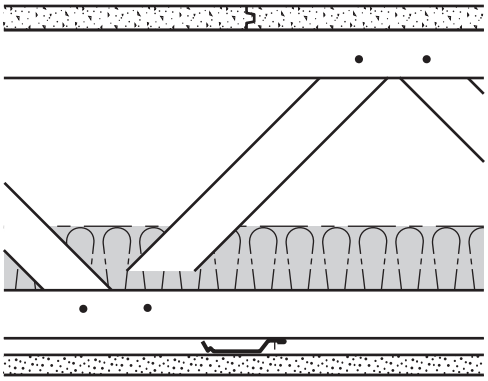
SYSTEM PERFORMANCE

DESCRIPTION	REFERENCE
Evaluation Reports	ICC ESR-1792; PER-13067b; PER-14076; AER-17108
Code Approvals	LARR #25682; FL#; NOA
UL 1-, 1.5-, 2-Hour Fire Resistance Designs	G556, G557, H515, P561, P562, P573

Notes:
(a) For the most up-to-date UL/ULC Designations, visit usg.com/structural
(b) For the most up-to-date Product Evaluation Report, visit PER13067.com

FIRE-RESISTANCE

The USG Structural Panel & FRAMECAD® System was subjected to fire-resistance tests for Floor/Ceiling and Roof/Ceiling assemblies in accordance with ASTM E119. Classified as a noncombustible system for floor/ceiling or roof/ceiling assemblies. The table below highlights two of these systems.



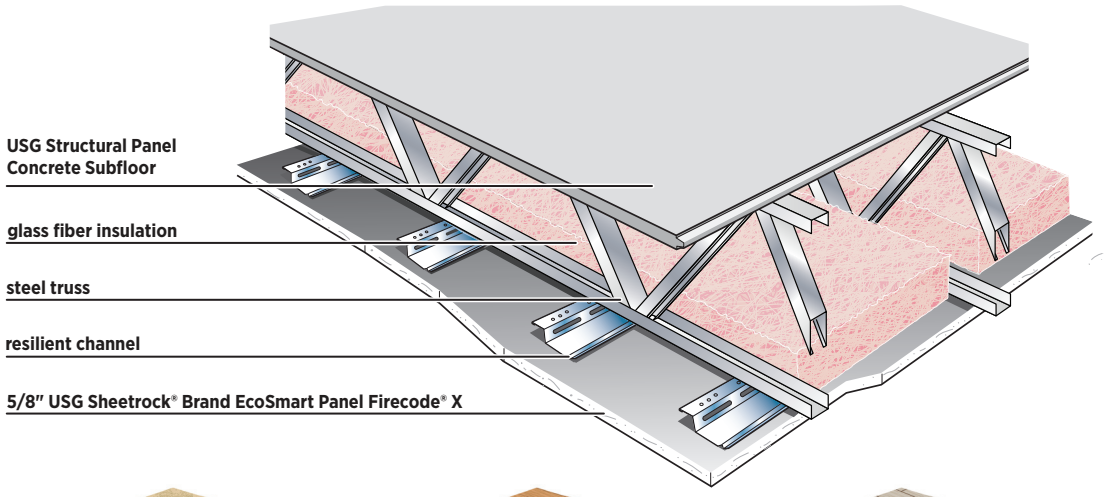
UL DESIGN H515

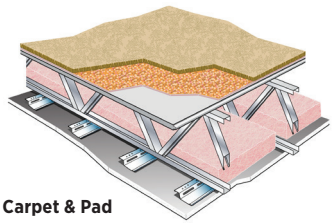
- 3/4″ **USG Structural Panels Concrete Subfloor** (No toping) or finish floor required to meet fire rating
- 12″ **FRAMECAD®** light gauge steel truss spaced at 24″ o.c.
- 3.5″ glass fiber insulation in the cavity
- 1/2″ resilient channel spaced 12″ o.c.
- 5/8″ Sheetrock® Brand EcoSmart Firecode® X gypsum panel

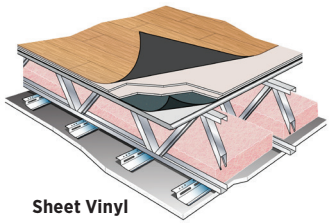
ACOUSTICAL PEFORMANCE

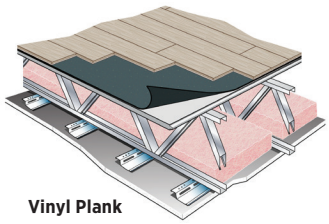
The USG Structural Panel & FRAMECAD System achieves above minimum requirements for sound attenuation as required by Section 1207 of the IBC. Sound Transmission Coefficient (STC) when tested in accordance to ASTM E90, and Impact Isolation Class (IIC) when tested in accordance with ASTM E492.

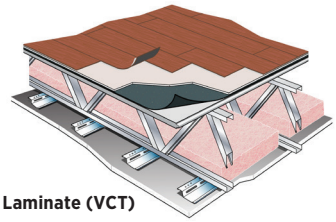
The following table represents the attainable sound rating and premium sound ratings for FRAMECAD® Trusses sheathed with USG Structural Panel Concrete Subfloors. For the most up-to-date acoustical information see your local USG Structural Sales Representative. For technical questions, email usgstructural@usg.com.

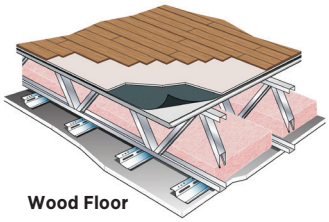


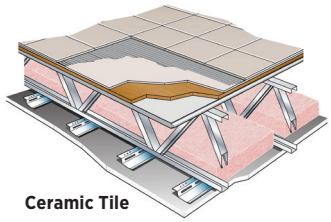

Carpet & Pad


Sheet Vinyl


Vinyl Plank


Laminate (VCT)


Wood Floor


Ceramic Tile

ACOUSTICAL RATINGS

2-Hour Rated System – H515	Sound Rating		Premium Sound Rating	
	STC	IIC	STC	IIC
Bare Floor	54	34	•	•
Carpet & Pad	55	58	57	68
Carpet ONLY	55	53	56	57
Sheet Vinyl	56	52	57	56
Padded Sheet Vinyl	57	56	57	57
LVT	56	51	58	57
Laminate (Pergo)	55	51	58	59
1/2" Wood Floor	57	54	58	56
Ceramic Tiles (12"x12")	57	52	59	56

Note:
The acoustical ratings are achieved via a combination of either sound mats, underlayments and/or a single or double layer of USG Sheetrock Gypsum panels as the assembly ceiling.

FASTENING SYSTEM

TOOLS & ACCESSORIES

To facilitate installation of USG Structural Panels to FRAMECAD® trusses, USG recommends the following tools to attach USG Structural Panel to FRAMECAD® light gauge steel trusses.

Trusses	Compatible Fasteners	Manufacturer & Fastening Model No.	Bits
FRAMECAD®	CGH8158LG	Grabber Construction Products 7525XT Hitachi W6vB3SD2 Makita 6844 w. extension 194500-1	T2178LN
	CBSDQ158S	SIMPSON Strong-Tie Co. Inc. QUIK DRIVE® PRO250 Subfloor System	BIT2SU

CUTTING SYSTEM

Cutting the USG Structural Panel requires a carbide-tipped saw blade and a circular saw equipped with dust collection or suppression to control airborne dust.

The dust collection systems can be:
- Festool Dust Extractor CT36 with HEPA filter
- Makita Model no. 5057KB – Circular Saw, with Dust Collector
- DEWALT DWE575DC Dust Collection Adapter for DWE575/DWE575SB
- DEWALT DWS520SK Track Saw with Dust Collection

Note:
Do not use ceramic or diamond-blades, as these will cause difficulties when cutting the USG Structural Panels.

ADDITIONAL TOOLS

For penetrations, USG recommends the use of a common circular wood-hole saw to make penetrations for pipe and conduit installation.

For electrical outlet openings and cut-outs, USG recommends the use of rotary tools, such as Rotozip with 1/8 (3.25 mm) carbide steel spiral saw zip bit.

For the attachment of shingles, USG recommends the use of electro-galvanized collated roofing nails delivered by a professional grade pneumatic nailer with an air supply between 100 to 120 psi.

For floor anchorage, USG recommends the use of Toggler® Brand SNAPTOGGLE® Toggle bolts or SFS Intec (part no TPR-L-6) for the attachment of anchors to USG Structural Panels. In accordance with the Progressive Engineering Inc. Product Evaluation Report PER-13067 for Concrete Subfloor (see www.per13067.com) and Product Evaluation Report PER-14076 for Concrete Roof Deck (see www.per14076.com), a qualified architect or engineer should review and approve withdrawal capacities, anchor type and spacing for all projects.

For personal protection, USG recommends wearing safety glasses and a NIOSH-Approved N95 dust mask when cutting the panel. Dispose of collected dust in a safe manner and in compliance with local, state and federal laws and regulations. The contractor, installer, or other professionals who are responsible for the job site and familiar with its conditions shall be responsible for compliance with applicable health and safety laws.

CONTACT INFO

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Sales - West	Jennifer Link	951 373-4994	jlink@usg.com

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

SCP78-USA-ENG/10-18

Manufactured by or for
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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.

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