USG STRUCTURAL PANEL CONCRETE ROOF DECK

CONTACT INFORMATION

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

CUSTOMER SERVICE
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TECHNICAL SERVICE
800 USG.4YOU (874-4968)

SAMPLES, LITERATURE AND PRODUCT INFORMATION
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USG STRUCTURAL PANEL
RECOMMENDED TOOLS

USG Structural Panels are mechanically fastened to cold-formed steel joists, trusses or wood framing members. This document provides information regarding the recommended tools for proper installation of the panels, including recommended screws to attach the panels to the framing, as well as recommended tools for cutting the panels, creating penetrations, and attaching roof shingles.

To better secure and facilitate installation of USG Structural Panels to framing, USG recommends a variable-speed, high-torque drive with extension system. The use of ordinary high-speed, low torque drill guns are more likely to strip screw heads, thereby making it difficult to properly secure the panel to the steel framing. This may result in gapping between the panel and the supporting framing. Gaps formed by improper tightening of the fastener may result in the future settling of the panel onto the framing under normal floor loading, causing screw heads to rise up from the panel and protrude through underlayment and/or floor coverings.

USG recommends the following fasteners and fastening systems for the attachment of the screws listed above:

<table>
<thead>
<tr>
<th>Framing Type</th>
<th>Compatible Fasteners</th>
<th>Manufacturer &amp; Fastening Model No.</th>
<th>Bits</th>
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<tbody>
<tr>
<td>CFS¹</td>
<td>CGH8158LG</td>
<td>Grabber Construction Products</td>
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<td></td>
<td></td>
<td>7525XT</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hitachi Power Tools</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>W6V835D2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Makita</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6844 w. extension194500-1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CBSDJ0158S</td>
<td>Simpson Strong-Tie Company</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Quik Drive® PRO250 Subfloor System</td>
<td>BIT2SU</td>
</tr>
<tr>
<td>HRS²</td>
<td>CC12250LGRG</td>
<td>Grabber Construction Products</td>
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<tr>
<td></td>
<td>TBJI260S</td>
<td>Simpson Strong-Tie Company Inc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Quik Drive® PROHS60 or PROHS75</td>
<td>BIT3SU</td>
</tr>
<tr>
<td>SPF Lumber³</td>
<td>CB200L2M</td>
<td>Grabber Construction Products</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>7525XT</td>
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<tr>
<td></td>
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<td>Hitachi Power Tools</td>
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<td>6844 w. extension194500-1</td>
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<tr>
<td></td>
<td>WSNTLG2S</td>
<td>Simpson Strong-Tie Company Inc.</td>
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<tr>
<td></td>
<td></td>
<td>Quik Drive® PRO250 Subfloor System</td>
<td>BIT3SU</td>
</tr>
<tr>
<td></td>
<td>GL24AABF²</td>
<td>SENCO®</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SCN65XP</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1. Cold-formed steel shall comply with AISI-General, with a minimum 54 mils or .0538-inch base metal thickness (No.16 gauge) and a minimum C60 galvanized coating. (1/2 in. [13 mm] Min. Edge Distance)
2. HRS – Hot-Rolled Steel shall be 1/4 in. (6.5 mm); A36 Hot-Rolled Steel (3/4 in. [19 mm] Min. Edge Distance)
3. SPF Lumber – 5/8 in. (16 mm) Min. Edge Distance
4. Fastener pull-through capacities can be found in PER 13067
5. SENCO 8d ring shank nails are manufactured with a length of 2-3/8 in. (60 mm), head diameter of 0.266 in. (6.75 mm) and a shank diameter of 0.113 in. (2.87 mm). Equivalent 8d ring shank nails meeting these dimensional requirements may be utilized when approved by the engineer or designer of record.

General Notes: In accordance with PER-13067, 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.
A qualified architect or engineer should review and approve calculations, framing and fastener spacing for all projects. 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.

**Notes:**

- SPF Lumber – 5/8 in. (16 mm) Min. Edge Distance
- HRS – Hot-Rolled Steel shall be 1/4 in. (6.5 mm); A36 Hot-Rolled Steel (3/4 in. [19 mm] Min. Edge Distance)

**For penetrations**, USG recommends the use of a common circular metal 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 **PER-13067**, 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.

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**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 wet-blades or diamond-blades, as these will not efficiently cut the USG Structural Panel.

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**ADDITIONAL TOOLS**

- For penetrations for pipe and conduit installation.
- For electrical outlet openings and cut-outs.
- For floor anchorage.

**PRODUCT INFORMATION**

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

**DANGER**

Causes skin irritation. Causes serious eye damage. May cause an allergic skin reaction. 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 in eyes: rinse cautiously with water for several minutes. Remove contact lenses and continue rinsing. Immediately call a poison center/doctor.

If on skin: wash with plenty of water. Take off contaminated clothing and wash before reuse. Contaminated work clothing should not be allowed out of the workplace. If skin irritation or rash occurs, or otherwise exposed or concerned: get medical attention. Store locked up. Dispose of in accordance with local, state, and federal regulations. For more information call Product Safety: 800 807-8899 or see the SDS at usg.com.

**KEEP OUT OF REACH OF CHILDREN.**

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QUICK DRIVE is a trademark of Simpson Strong-Tie Company, Inc.
TOGGLER and SNAPTOGGLE are trademarks of Mechanical Plastics Corp.
RotoZip is a trademark of Robert Bosch Tool Corporation.

**CONTACT INFO**

<table>
<thead>
<tr>
<th>Departments</th>
<th>Name</th>
<th>Phone</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Jennifer Link</td>
<td>951.373.4994</td>
<td><a href="mailto:jlink@usg.com">jlink@usg.com</a></td>
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<td><a href="mailto:bbetz@usg.com">bbetz@usg.com</a></td>
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<td><a href="mailto:jramsthaler@usg.com">jramsthaler@usg.com</a></td>
</tr>
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</tr>
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</tr>
</tbody>
</table>

800 USG.4YOU
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MSRP based upon full truckload delivered to jobsite:
Roof Deck: $5.40/sf

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USG STRUCTURAL PANEL
CONCRETE ROOF DECK

A concrete roof deck that can be combined with other noncombustible materials to create 1- and 2-hour fire-rated roof-ceiling assemblies.

• The only cementitious structural panel approved by Factory Mutual (FM)—FM Approval Standard 4472
• Strong, durable concrete panel; great uplift ratings
• Dimensionally stable; panel will not buckle or warp like wood sheathing; no moisture issues like structural concrete
• Installs fast and easy with appropriate dust collection
• Meets the criteria of ASTM E136-16 for use in all types of noncombustible construction
• Made in the USA

USG Structural Panel Concrete Roof Deck is mechanically fastened to cold-formed steel joists, trusses or wood framing members; to create a structural substrate for ideal as low- and steep-slope roof systems, canopies and/or balconies. This roof system is designed to carry gravity and lateral loads. Roof membranes may be applied directly over USG Structural Panel Concrete Roof Decks. For retrofit or renovation projects, Concrete Roof Deck can also be installed on wood-joists, trusses or bar joists. See recommended fasteners within this submittal sheet.

USG Structural Panel Concrete Roof Decks can carry a total load, live and dead, of 150 psf (7.2 kPa) on cold-formed steel framing is spaced 48 in. (1,220 mm) o.c.

USG Structural Panel Concrete Roof Decks have a linear variation with change in moisture content of less than 0.10%. This means that the panels will not buckle or warp like wood sheathing.

Cutting USG Structural Panel Concrete Roof Decks require a carbide-tipped saw blade and a circular saw equipped with dust collection or suppression and control of airborne dust. Fastening is also conventional, using a screw gun and self-drilling No. 8-gauge screws. Because these panels are so durable, they may be installed in most weather conditions, including mild precipitation (rain or snow) and temperatures from 0°F to 125°F (-18°C to 52°C).

Refer to roof system manufacturer’s written instructions, local code requirements and Factory Mutual Global (FMG) and/or Underwriters Laboratories (UL) requirements for proper installation techniques. For the attachment of shingles, USG recommends the use of electro-galvanized collated roofing nails installed by a professional grade pneumatic nailer with an air supply between 100 to 120 psi.

• UL Classified (Type USGSP) for noncombustibility in accordance with ASTM E136-16 (CAN/ULC-S114)
• UL Classified (Type USGSP) as to Surface Burning Characteristics in accordance with ASTM E84 (CAN/ULC-S102)—Flame Spread 0 and Smoke Developed 0
• Class A, in accordance with UL790 (CAN/ULC-S107); see the UL Building Materials Directory for more information

**Description Reference**

<table>
<thead>
<tr>
<th>Description</th>
<th>Reference</th>
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<tbody>
<tr>
<td>FM Approved</td>
<td>Complies with requirements of FM 4472</td>
</tr>
<tr>
<td>Meets FM Class 1</td>
<td>PER-14076</td>
</tr>
<tr>
<td>Code Report</td>
<td></td>
</tr>
<tr>
<td>Ultimate Uniform Load (a)</td>
<td>150 psf (7.2 kPa) @ 48&quot; (1,220 mm) o.c.; see table</td>
</tr>
<tr>
<td>Shear Diaphragm Ratings</td>
<td>1641 plf (23.9 kN/m)</td>
</tr>
<tr>
<td>UL 1-, 1.5-, 2-Hour Fire Resistance Designs</td>
<td>PS61, PS62, PS73</td>
</tr>
<tr>
<td>UL Roofing System, Uplift Resistance</td>
<td>TGIK.R25352</td>
</tr>
</tbody>
</table>

(a) On steel framing.
(b) Joists spaced 48" (1219.2 mm) o.c. and fasteners spaced 4" (102 mm) o.c. at the perimeter and 12" (305 mm) o.c. in field, fully blocked. See the Progressive Engineering Inc. Product Evaluation Report PER-14076.
USG Structural Panel Concrete Roof Decks should not be left in service without an appropriate roof or weather-resistive membrane covering.

To perform in the expected manner, USG Structural Panel Concrete Roof Decks must be installed according to USG specifications, using only the listed materials and components. For a complete set of specifications, email usgstructural@usg.com.

As with all types of construction, appropriate safety procedures must be followed to protect installers from personal injuries resulting from lifting incorrectly, falling, and eye, hand and lung irritation.

Care must be taken when placing pallets of USG Structural Panel Concrete Roof Decks on roof framing. A pallet of USG Structural Panel Concrete Roof Decks consists of 20 sheets of our 3/4 in. x 4 ft. x 8 ft. panels (19 mm x 1,220 mm x 2,440 mm) nominal (the T&G panels have an actual width of 47-3/4 in. [1,213 mm]), and weighs approximately 3,400 lb. (1,542 kg). Do not exceed limits when loading pallets or panels on open framing or completed roof assemblies. Store units next to structural walls where the joists meet the wall. See USG Structural Panel Concrete Roof Deck Field Installation Guideline (SCP43) for additional information.

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

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>16 ga. Cold-Formed Steel (1/2 in. [15 mm] Min. Edge Distance)</th>
<th>SPF Lumber (5/8 in. [16 mm] Min. Edge Distance)</th>
<th>1/4 in. (6.5 mm) A26 Hot-Rolled Steel (3/4 in. [19 mm] Min. Edge Distance)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Part #</td>
<td>Fastener Pull-Through&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Part #</td>
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<tr>
<td>Grabber Construction Products, Inc.</td>
<td>CGHB158LG</td>
<td>581 lb. (264 kg)</td>
<td>CB200L2M</td>
</tr>
<tr>
<td>Simpson Strong-Tie Company Inc.</td>
<td>CBSDQ158S</td>
<td>581 lb. (264 kg)</td>
<td>WSNTLG2S</td>
</tr>
<tr>
<td>SENCO&lt;sup&gt;2&lt;/sup&gt;</td>
<td>—</td>
<td>—</td>
<td>GL2AAABF&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Notes:
1. Fastener pull-through capacities are based upon the minimum average ultimate tested capacity for all tabulated fasteners.
2. SENCO 8d ring shank nails are manufactured with a length of 2-3/8 in. (60 mm), head diameter of 0.266 in. (6.75 mm), and a shank diameter of 0.113 in. (2.87 mm). 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 in. (13 mm).

General Notes: In accordance with PER-14076, 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.

The steel roof framing must be designed to meet the strength and deflection criteria specified in the contract documents. The attachment flange or bearing edge must be a minimum 1-5/8 in. (41 mm) wide with at least 3/4 in. (19 mm) of the panel bearing on the supporting flange. Metal framing must be a minimum 16 gauge (54 mils, or 0.0538 in. [1.36 mm]) and spaced no greater than 48 in. (1,220 mm) o.c. Follow the contract documents and the steel framing manufacturer’s recommendations for the proper installation and bracing of the framing.

Place sheathing materials (i.e. additional layer of USG Structural Panel or plywood) on the roof in high traffic areas to protect newly installed concrete roof decks. See USG Structural Panel Concrete Roof Deck Field Installation Guideline (SCP43) for additional information.

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. Wear safety glasses and a NIOSH-approved N95 dust mask when cutting this panel. Dispose of collected dust in a safe manner and in compliance with local, state and federal ordinances.
Install USG Structural Panel Concrete Roof Decks with the long edges perpendicular to the framing. Apply the panel with the print markings facing up toward the installer. Fasten each panel after it has been placed following the fastening schedule listed in the contract documents. Install panels in a running bond pattern so that end joints fall over the center of the framing members and are staggered by at least two supports from where the end joints fall in the adjacent rows. **Tongue and groove joints should be free of debris and fitted tightly without any gapping.** For all panels less than 24 in. (610 mm) wide, all edges must be supported by blocking. Blocking must be cold-formed from steel complying with AISI General, with a minimum 54 mils (0.0538 inch or 1.36 mm) base metal thickness (no. 16 gauge) and a minimum G60 galvanized coating. The attachment flange or bearing edge must be at least 1-5/8 in. (41 mm) wide and at least 3/4 in. (19 mm) of the panel must bear on the supporting flange or edge. See *USG Structural Panel Concrete Roof Deck Field Installation Guideline* (SCP43) for additional information.

Installed panels shall not be exposed to weather for more than 90 days. Care must be taken to avoid accumulation of snow and/or ice on installed panels. Brooms should be used for snow removal whenever possible. Excessive shoveling or scraping may damage installed panel surface. In the event of significant accumulations of snow and/or ice, use indirect heat from temporary space heaters to melt the affected areas. To prevent damage to USG Structural Panel Concrete Roof Decks, never expose the panels to direct flame for the purpose of snow removal and/or deicing efforts. At no time should salts, fertilizers or other chemicals be used on the panels for anti-icing and/or deicing purposes.

Follow the contract documents and the roof system manufacturer’s recommendations for the application of roof materials. Before the application of roof materials, ensure that all panels are properly fastened, with the fastener head driven flush or slightly below the surface of the panels.

**Sizes and Packaging:** 3/4 in. x 4 ft. x 8 ft. (19 mm x 1,220 mm x 2,440 mm) panels. Each panel weighs approximately 170 lb. (77 kg) and is intended to be handled by two people. USG Structural Panel Concrete Roof Decks are packaged in 20-piece units.

**Availability:** USG Structural Panel Concrete Roof Decks are sold through any USG distributor. Email usgstructural@usg.com for information on availability and a dealer in your area.

**Storage:** USG Structural Panel Concrete Roof Decks are shipped in 20-piece units. Panels should be stored in a horizontal position and uniformly supported. Panels must be covered when stored in unprotected areas.

Excessive moisture and freezing temperatures may result in panels sticking together within the units. Therefore, care should be taken to ensure units of USG Structural Panel Concrete Roof Decks are not exposed to excessive moisture, ice and snow. In the event that panels do become frozen together within a unit, the unit needs to be brought to a temperature above 32°F (0°C) to allow the ice to melt naturally. Never physically pry panels apart. Salt, fertilizer or other deicing agents should not be used at any time. Covering the units completely with tarps or similar coverings is an easy way to avoid panels freezing together.

**Maintenance:** USG Structural Panel Concrete Roof Decks 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 USG Structural Panel Concrete Roof Decks that are secured following the fastening schedule prescribed in the original installation documents. The replacement panels must be a minimum of 24 in. (610 mm) wide and must span a minimum of two supports. See *USG Structural Panel Concrete Roof Deck Field Installation Guideline* (SCP43) for additional information.

<table>
<thead>
<tr>
<th>Property</th>
<th>Test Standard</th>
<th>Typical Values (Standard)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noncombustibility</td>
<td>ASTM E136-16 (unmodified) CAN/ULC-ST14</td>
<td>Passed</td>
</tr>
<tr>
<td>Surface-burning characteristics</td>
<td>ASTM E84 CAN/ULC-S102</td>
<td>0/0</td>
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<tr>
<td>(flame spread/smoke developed)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight at 3/4 in. (19 mm) thickness</td>
<td>ASTM D1037</td>
<td>5.3 lb./ft.² (26 kg/m²)</td>
</tr>
<tr>
<td>Densitya</td>
<td>ASTM C1185</td>
<td>75 lb./ft.² (1.201 kg/m²)</td>
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<tr>
<td>Mold resistance</td>
<td>ASTM D3273 ASTM G21</td>
<td>10 0</td>
</tr>
<tr>
<td>Termite resistance</td>
<td>AWPA Standard E1-13</td>
<td>9.8</td>
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<tr>
<td>Low VOC emissions</td>
<td>CDPH/EHLB/Standard Method V1.1-2010</td>
<td>Compliant</td>
</tr>
</tbody>
</table>
The following table represents the Load Capacity of USG Structural Panel Concrete Roof Decks. The uplift capacities in this table represent the attachment of the Concrete Roof Deck to the structural framing members. The values for a roofing system are obtained from the roofing system manufacturer’s testing and specific installation instructions. For the most up-to-date load tables, see the Progressive Engineering Inc. Product Evaluation Report PER-14076. 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 Load Capacity for USG Structural Panel Concrete Roof Deck

<table>
<thead>
<tr>
<th>Joist Spacing (inch)</th>
<th>Uniform Load - psf (kPa)</th>
<th>Uplift Capacity - psf (kPa)</th>
<th>Fastener spacing (edge/field)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8/12</td>
<td>8/8</td>
<td>6/6</td>
</tr>
<tr>
<td>12 inch (304.8 mm)</td>
<td>1,320 (63.2)</td>
<td>513 (24.6)</td>
<td>770 (36.9)</td>
</tr>
<tr>
<td>16 inch (406.4 mm)</td>
<td>744 (35.6)</td>
<td>385 (18.4)</td>
<td>557 (27.6)</td>
</tr>
<tr>
<td>24 inch (609.6 mm)</td>
<td>330 (15.8)</td>
<td>257 (12.3)</td>
<td>330 (15.8)</td>
</tr>
<tr>
<td>32 inch (812.8 mm)</td>
<td>240 (11.5)</td>
<td>192 (9.1)</td>
<td>240 (11.5)</td>
</tr>
<tr>
<td>48 inch (1,220 mm)</td>
<td>150 (7.2)</td>
<td>128 (6.1)</td>
<td>150 (7.2)</td>
</tr>
</tbody>
</table>

For SI: 1 inch = 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.  
(4) Blocking at all joints perpendicular to framing to be a minimum of 16 gauge (54 mils, or 0.0538 inch [1.37 mm]), 3-5/8 in. (92 mm) wide track. For sheathing installation where a single span condition exists, additional track blocking is required perpendicular to the framing located midway between the edges of the panel.

### SUBMITTAL APPROVALS

<table>
<thead>
<tr>
<th>Job Name</th>
<th>Contractor</th>
<th>Date</th>
</tr>
</thead>
</table>

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

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

MSRP based upon full truckload delivered to jobsite:  
Roof Deck: $5.40/sf  
SCP35-USA-ENG/rev. 10-18  
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Printed in USA
USG STRUCTURAL PANEL
CONCRETE ROOF DECK
PANEL FASTENING

- Proper fall restraint equipment required.
- Use only #8 screw with 1-5/8” (41 mm) joist flange.
- Apply screws with a stand-up gun to reduce fatigue.
- Follow fastening schedule in contract documents.

Note: *Fastener schedule is to be specified by designer of record.

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>16 ga. Cold-Formed Steel (1/2 in. [13 mm] Min. Edge Distance)</th>
<th>SPF Lumber (5/8 in. [16 mm] Min. Edge Distance)</th>
<th>1/4 in. (6.5 mm) A36 Hot-Rolled Steel (3/4 in. [19 mm] Min. Edge Distance)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grabber Construction Products, Inc.</td>
<td>CG8H8158LG 581 lb. (264 kg)</td>
<td>C8200L2M 581 lb. (264 kg)</td>
<td>CC12250LRG 581 lb. (264 kg)</td>
</tr>
<tr>
<td>Simpson Strong-Tie Company Inc.</td>
<td>CBSDQ158S 581 lb. (264 kg)</td>
<td>WSNTLG2S 581 lb. (264 kg)</td>
<td>TBG1260S 581 lb. (264 kg)</td>
</tr>
<tr>
<td>SENCO²</td>
<td>—</td>
<td>GL24AABF³ 581 lb. (264 kg)</td>
<td>—</td>
</tr>
</tbody>
</table>

Notes:
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 in. (60 mm), head diameter of 0.266 in (6.75 mm), and a shank diameter of 0.113 in. (2.87 mm). 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 in. (13 mm).

General Notes: In accordance with PER-14076, 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.
**USG STRUCTURAL PANEL**  
**CONCRETE ROOF DECK**  
**FASTENING THE PANEL**  

*Note:* Fastener schedule is to be specified by designer of record.

When connecting the tongue and groove, the tongue from the loose panel should be engaged into the groove of the already affixed panel.

**To ensure proper panel application, be sure to:**

1. Lay board down.
2. Engage tongue and groove (T&G).
3. Fasten one corner.
4. Fan out over the panel.
• Always lay panels perpendicular to supporting joists.
USG STRUCTURAL PANEL
CONCRETE ROOF DECK
PANEL LAYOUT:
TWO-SPAN CONDITION

Two spans minimum
24" wide or larger

T&G always perpendicular to joists

CORRECT

INCORRECT

See Panel Blocking—Page 12
USG STRUCTURAL PANEL
CONCRETE ROOF DECK
PANEL BLOCKING

• Block edges that are less than 24" (610 mm) wide.
• Field welding to cold-formed framing members must be performed by certified welder and approved by structural engineer of record.
• If screws are used, do not use hex head screws, as they will raise the panel.

Note:
*Panel Blocking must be specified by designer of record.
**Panels must bear at least 3/4" (19 mm) over joist flange.
USG STRUCTURAL PANEL
CONCRETE ROOF DECK
PANEL PENETRATION

Unreinforced Penetrations
• Unreinforced penetrations are limited to a maximum dimension of 6” (153 mm) and do not require supplemental framing or engineer analysis.
• Unreinforced penetrations are generally small openings through decks to accommodate lightly loaded plumbing/electrical runs.

Reinforced Penetrations
• An opening with a dimension greater than 6” (153 mm) requires reinforcement at the perimeter of the opening.
• The framing at reinforced penetrations, as a minimum, must have an equal profile and capacity as the adjacent primary framing (joists) members.
• The maximum penetration dimension is not limited to a single opening, but also includes group effect of multiple, closely spaced openings.
USG STRUCTURAL PANEL
CONCRETE ROOF DECK

PANEL LAYOUT:
OVER FLUTED DECK

- The concrete roof deck on fluted deck is always considered an underlayment.
- The concrete roof deck is not considered a structural component.
- There is no composite action between fluted deck and the concrete roof deck.

T&G always perpendicular to flutes
USG STRUCTURAL PANEL
CONCRETE ROOF DECK
PANEL LAYOUT: 48” O.C. JOISTS

Detail A
Mid-Span Blocking for Single Span Condition

Detail B
Min. 16ga. 3 5/8” Track at All Panel Edges

Detail A
Detail B
USG STRUCTURAL PANEL
CONCRETE ROOF DECK
PANEL CUTTING

- Use a dust vacuum.
- Wear appropriate respiratory protection.
- Wear safety glasses.
- Wear gloves.
- Proper fall restraint equipment required.
- Review the Safety Data Sheet (SDS) for use of proper Personal Protective Equipment (PPE).
USG STRUCTURAL PANEL
CONCRETE ROOF DECK
EQUIPMENT LOADING

Typical Construction Equipment*

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drywall Carts</td>
<td>10 Sheets of 5/8&quot; x 4' x 12' (16 mm x 1,220 mm x 3,660 mm) Gypsum Panels max. 1,200 lb. (544 kg)</td>
</tr>
<tr>
<td></td>
<td>7 Sheets of 3/4&quot; x 4' x 8' (19 mm x 1,220 mm x 2,440 mm) USG Structural Panels max. 1,200 lb. (544 kg)</td>
</tr>
<tr>
<td>Rolling Trash Carts</td>
<td>1,000 lb. max. (453 kg)</td>
</tr>
<tr>
<td>Rolling Scaffolds</td>
<td>750 lb. max. (340 kg)</td>
</tr>
</tbody>
</table>

Note: Secure the cart. *Loads applicable to 24” (610 mm) o.c. maximum framing spacing.

See Panel Protection—Page 18
To protect installed panels during construction:
- Place load spreader planks perpendicular to joists for fixed scaffolding.
- Place additional USG Structural Panels or plywood on the floor in high-traffic construction pathways for rolling gang boxes, two-wheel mason carts and trash boxes.
- Avoid rolling carts near protector panel edges.
- **Do not use a pallet jack on the roof deck.**
- Consult with designer of record for load limits and proper support for all construction loads.
- Proper fall restraint equipment required.
- High traffic areas must be protected, consider supporting T&G in corridors.
- If T&G is damaged, it must be fixed.
USG STRUCTURAL PANEL
CONCRETE ROOF DECK
PALLET PLACEMENT*

Note: *Loading must be verified by a structural engineer.

CORRECT
Over Load-Bearing Wall

INCORRECT
Load Needs Support
USG STRUCTURAL PANEL
CONCRETE ROOF DECK
PROPER PALLET STORAGE

- Ensure unit covers are secure.
- Use plastic edge shovel for snow removal.
- Freezing may result in panels sticking together.
- Allow panels to thaw naturally if frozen.
- Only use sand when iced over. Do not use salt, fertilizer or ice melt.
PRODUCT INFORMATION
See usg.com for the most up-to-date product information.

CUSTOMER SERVICE
800 USG.4YOU (874-4968)

EMAIL
usgstructural@usg.com

WEBSITE
usg.com/structural

MANUFACTURED BY
United States Gypsum Company
550 West Adams Street
Chicago, IL 60661

MSRP BASED UPON FULL TRUCKLOAD DELIVERED TO JOBSITE:
ROOF DECK: $5.40/SF

DANGER
Causes skin irritation. Causes serious eye damage. May cause an allergic skin reaction. 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 and wear a NIOSH/MSHA approved respirator. Wear protective gloves/protective clothing/eye protection. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses and continue rinsing. Immediately call a poison center/doctor. If on skin: Wash with plenty of water. Take off contaminated clothing and wash before reuse. Contaminated work clothing should not be allowed out of the workplace. If skin irritation or rash occurs, or otherwise exposed or concerned. Get medical attention. Store locked up. 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.

NOTICE
We shall not be liable for incidental and consequential damages, directly or indirectly sustained, nor for any loss caused by applications of these goods not in accordance with current printed instructions 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 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.