

ICC Design No. WPC-1560-01

ESL-1560

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Applicant: USG CORPORATION

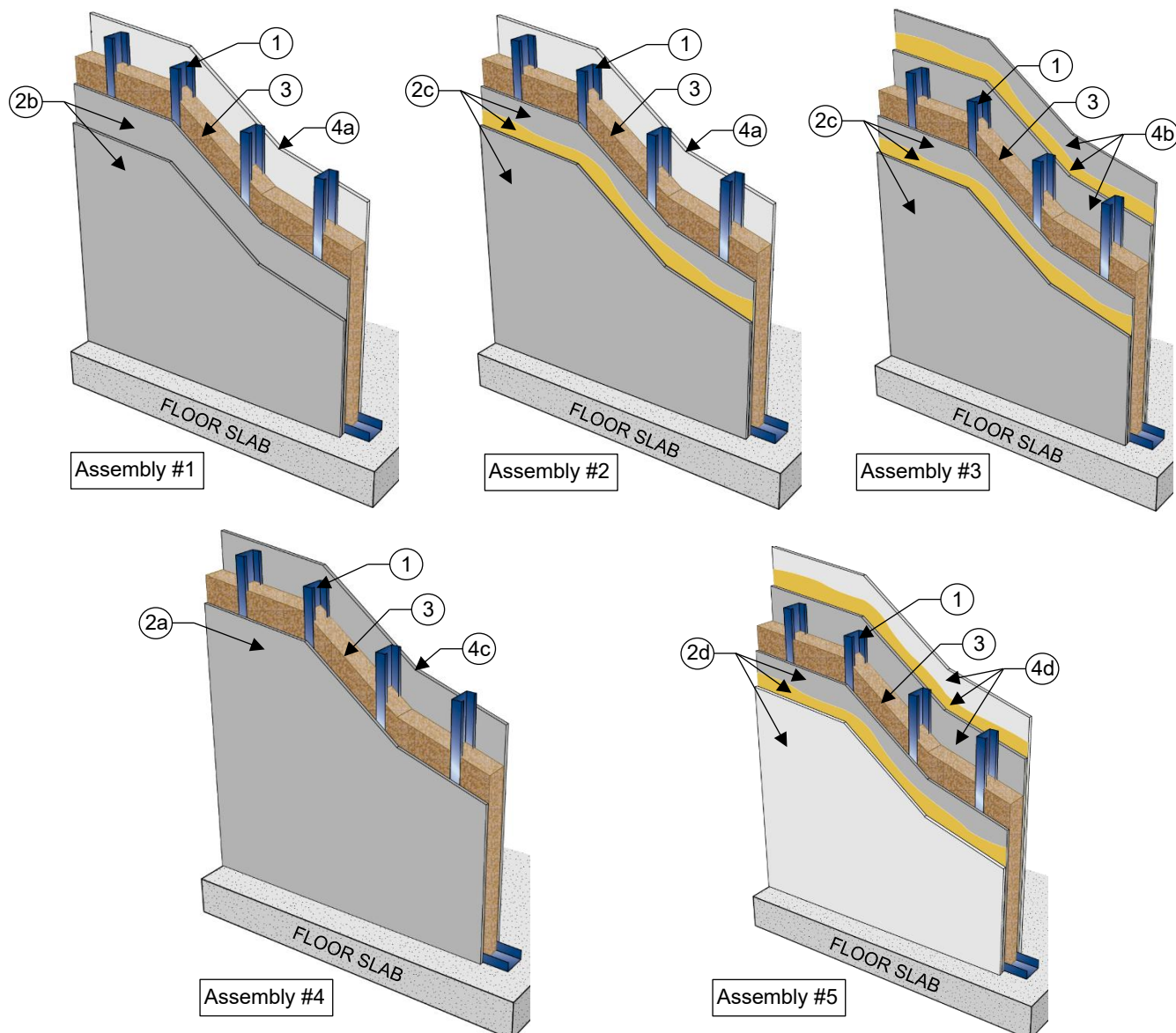
Product: USG 1/2-INCH STRUCTO-CRETE® BRAND STRUCTURAL PANELS

Standard: ASTM E90

**Acoustical
Performance**

Ratings: (See WPC-1560-01 Table 1)

WPC = Wood, Plastics and Composites



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**WPC-1560-01 TABLE 1 – ACOUSTICAL PERFORMANCE RATINGS FOR
USG 1/2-INCH STRUCTO-CRETE® BRAND STRUCTURAL PANELS**

			ASSEMBLY #				
			1	2	3	4	5
			STC/OITC Rating				
Component	Item #	Component Details	50/33	53/33	60/43	47/31	56/36
Wall Framing	1	Nominal 3 5/8-inch deep, 20 gauge (33 mils) thick, steel studs spaced 24 inches on center.	X	X	X	X	X
First Side Sheathing (Source Side)	2a	(1) Layer of 1/2-inch USG STRUCTO-CRETE® Structural Brand Panels				X	
	2b	(2) Layers of 1/2-inch USG STRUCTO-CRETE® Structural Brand Panels	X				
	2c	(2) Layers of 1/2-inch USG STRUCTO-CRETE® Structural Brand Panels. Construction adhesive applied between layers		X	X		
	2d	(1) Layer of 1/2-inch USG STRUCTO-CRETE® Structural Brand Panels (Base Layer) and (1) Layer of 5/8-inch USG Sheetrock® Brand Firecode® X (UL Type ULIX) (Face Later). Construction adhesive applied between layers					X
Cavity Insulation	3	Nominal 3 1/2-inch thick, R-13 glass fiber insulation is friction fit into each stud cavity.	X	X	X	X	X
Second Side Sheathing (Receiving Side)	4a	(1) Layer of 5/8-inch UL Type ULIX™ Gypsum Panels	X	X			
	4b	(2) Layers of 1/2-inch USG STRUCTO-CRETE® Structural Brand Panels. Construction adhesive applied between layers			X		
	4c	(1) Layer of 1/2-inch USG STRUCTO-CRETE® Structural Brand Panels				X	
	4d	(1) Layer of 1/2-inch USG STRUCTO-CRETE® Structural Brand Panels (Base Layer) and (1) Layer of 5/8-inch USG Sheetrock® Brand Firecode® X (UL Type ULIX) (Face Later). Construction adhesive applied between layers					X

For **SI**: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pcf (lbs./ft³) = 16.01 kg/m³.

Footnotes:

See Components of Construction for assembly component details.

COMPONENTS OF CONSTRUCTION:

ITEM NO.	COMPONENTS	MATERIALS
1	Wall Framing—	Nominal 3 5/8-inch (92.1 mm) deep, 1 3/4-inch (44.5 mm) wide, 20 gauge (33 mils) thick, corrosion-protected or galvanized steel channel-shaped studs, spaced 24 inches (609.6 mm) on center. Studs are secured to top and bottom track members (nominal 3 5/8-inch (92 mm) deep, 1 inch (25.4 mm) wide, 20 gauge (33 mils) thick) with Type S12 wafer head stud screws.
2	First Side Sheathing (Source Side)— Use A, B, C or D	<p>A — One layer of 1/2-inch (12.7 mm) thick USG STRUCTO-CRETE® Structural Brand Panels must be installed vertically and secured to the framing members and steel strapping with 1 5/8-inch (41.3 mm) long bugle head winged cement board screws spaced 12-inches (304.8 mm) on center along the perimeter and in the field of the panels. Nominal 4 inch (104.8 mm) wide, 0.032-inch (0.8 mm) thick steel strapping must be installed as horizontal seam backing for the sheathing on the Source Side of the wall assembly. The strapping must span between stud members and be secured using two Type S12 wafer head stud screws at each stud location. All panel joints must be treated with a minimum level 2 finish consisting of nominal 2-inch (50.8 mm) wide paper tape and two layers of USG joint compound. All fastener heads must be covered with two layers of joint compound.</p> <p>B — Two layers of 1/2-inch (12.7 mm) USG STRUCTO-CRETE® Structural Brand Panels. Base layer panels must be installed vertically and secured to the framing members and steel strapping with 1 5/8-inch (41.3 mm) long wafer head winged cement board screws spaced 24-inches (609.6 mm) on center horizontally, 12-inches (304.8 mm) on center vertically, and 12-inches (304.8 mm) on center along the perimeter of the panels. Face layer panels must be installed vertically and secured through the base layer to framing members and steel strapping with 1 5/8-inch (41.3 mm) long wafer head winged cement board screws spaced 24-inches (609.6 mm) on center along the perimeter and in the field of the panels. Face layer vertical seams must be staggered from the base layer vertical seams. Nominal 4 1/8-inch (101.6 mm) wide, 0.028-inch (0.7 mm) thick steel strapping must be installed as horizontal seam backing for the sheathing on the Source Side of the wall assembly. The strapping must span between stud members and be secured using two Type S12 wafer head stud screws at each stud location. All panel joints must be treated with a minimum level 2 finish consisting of nominal 2-inch (50.8 mm) wide paper tape and two layers of USG joint compound. All fastener heads must be covered with two layers of joint compound.</p> <p>C — Two layers of 1/2-inch (12.7 mm) USG STRUCTO-CRETE® Structural Brand Panels. Base layer panels must be installed vertically and secured to framing members and steel strapping with 1 5/8-inch (41.3 mm) long wafer head winged cement board screws spaced 24-inches (609.6 mm) on center horizontally, 12-inches (304.8 mm) on center vertically, and 12-inches (304.8 mm) on center along the perimeter of the panels. Taylor Versatile Premium Pressure Sensitive Adhesive must be applied between layers using a 1/16-inch (1.59 mm) V-notch trowel in accordance with the adhesive manufacturer's published application instructions. Face layer panels must be installed vertically and secured through the base layer to the framing members and steel strapping with 1 5/8-inch (41.3 mm) long wafer head winged cement board screws spaced 24-inches (609.6 mm) on center along the perimeter and in the field of the panels. Face layer vertical seams must be staggered from the base layer vertical seams. Nominal 4 1/8-inch (101.6 mm) wide, 0.028-inch (0.7 mm) thick steel strapping must be installed as horizontal seam backing for the sheathing on the Source Side of the wall assembly. The strapping must span between stud members and be secured using two Type S12 wafer head stud screws at each stud location. All panel joints must be treated with a minimum level 2 finish consisting of nominal 2-inch (50.8 mm) wide paper tape and two layers of USG joint compound. All fastener heads must be covered with two layers of joint compound.</p> <p>D — One layer of 1/2-inch (12.7 mm) USG STRUCTO-CRETE® Structural Brand Panels as the base layer and one layer of 5/8-inch (15.9 mm) USG Sheetrock® Brand Firecode® X (UL Type ULIX) as the face layer. Base layer panels must be installed vertically and secured to framing members and steel strapping with 1 5/8-inch (41.3 mm) long wafer head winged cement board screws spaced 12-inches (304.8 mm) on center along the perimeter and in the field of the panels. Taylor Versatile Premium Pressure Sensitive Adhesive must be applied between layers using a 1/16-inch (1.59 mm) V-notch trowel in accordance with the adhesive manufacturer's published application instructions. Face layer panels must be installed vertically and secured through the base layer to the framing members and steel strapping with 1 5/8-inch (41.3 mm) long Type S bugle head drywall screws spaced 12-inches (304.8 mm) on center along the perimeter and in the field of the panels. Face layer vertical seams must be staggered from the base layer vertical seams. Nominal 4 inch (104.8 mm) wide, 0.032-inch (0.8 mm) thick steel strapping must be installed as horizontal seam backing for the sheathing on the Source Side of the wall assembly. The strapping spans between stud members and is secured using two Type S12 wafer head stud screws at each stud location. All panel joints must be treated with a minimum level 2 finish consisting of nominal 2-inch (50.8 mm) wide paper tape and two layers of USG joint compound. All fastener heads must be covered with two layers of joint compound.</p>
3	Cavity Insulation—	Nominal 3 1/2-inch (88.9 mm) thick, R-13 glass fiber insulation is friction fit into each stud cavity.
4	Second Side Sheathing (Receiving Side)— Use A, B, C, or D	<p>A — One layer of 5/8-inch (15.9 mm) UL Type ULIX Gypsum Panels must be installed vertically and secured to the framing members with 1 1/4-inch (31.8 mm) long Type S bugle head drywall screws spaced 8-inches (203.2 mm) on center along the perimeter and 12-inches (304.8 mm) on center in the field of the panels. All panel joints must be treated with a minimum level 2 finish consisting of nominal 2-inch (50.8 mm) wide paper tape and two layers of USG joint compound. All fastener heads must be covered with two layers of joint compound.</p> <p>B — Two layers of 1/2-inch (12.7 mm) USG STRUCTO-CRETE® Structural Brand Panels. Base layer panels must be installed vertically and secured to the framing members and steel strapping with 1 5/8-inch (41.3 mm) long wafer head winged cement board screws spaced 24-inches (609.6 mm) on center horizontally, 12-inches (304.8 mm) on center vertically, and 12-inches (304.8 mm) on center along the perimeter of the panels. Taylor Versatile Premium Pressure Sensitive Adhesive must be applied between layers using a 1/16-inch (1.59 mm) V-notch trowel in accordance with the adhesive manufacturer's published application instructions. Face layer panels must be installed vertically and secured through the base layer to the framing members and steel strapping with 1 5/8-inch (41.3 mm) long Type S bugle head drywall screws spaced 12-inches (304.8 mm) on center along the perimeter and in the field of the panels. Face layer vertical seams must be staggered from the base layer vertical seams. Nominal 4 inch (104.8 mm) wide, 0.032-inch (0.8 mm) thick steel strapping must be installed as horizontal seam backing for the sheathing on the Source Side of the wall assembly. The strapping spans between stud members and is secured using two Type S12 wafer head stud screws at each stud location. All panel joints must be treated with a minimum level 2 finish consisting of nominal 2-inch (50.8 mm) wide paper tape and two layers of USG joint compound. All fastener heads must be covered with two layers of joint compound.</p>

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