

UL Solutions Evaluation Report

UL ER R3501-03

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ULSolutions Category Code: ULFP

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DIVISION: 09 00 00 - FINISHES
Sub-level 2: 09 20 00 – Plaster and Gypsum Board
Sub-level 3: 09 21 00 – Plaster and Gypsum Board Assemblies
Sub-level 4: 09 21 16 – Gypsum Board Assemblies

Sub-level 3: 09 29 00 – Gypsum Board
Sub-level 4: 09 29 82 – Gypsum Board Fireproofing

COMPANY:

National Gypsum Company
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1. SUBJECT:

Gold Bond® Fire-Shield® gypsum board product family with GridMarX® fastener pattern locations with both MaX 12™ and MaX 16™ optimized fastener systems.

GridMarX “X” fastener pattern locations are printed across the board facers. “MaX 12 and MaX 16” are printed on the board tapers.

Gold Bond® Fire-Shield® gypsum board family of products are identified and described in Table 1.

Table 1

UL PRODUCT DESIGNATION	TRADENAME	THICKNESS, inches
FSW	Gold Bond® Fire-Shield® Gypsum Board	5/8
FSW, FSW-3	Gold Bond® XP Fire-Shield® Gypsum Board	5/8
FSW-5	Gold Bond® XP® Hi-Impact® Gypsum Board	5/8
FSW-5	Gold Bond® XP® Hi-Abuse® Gypsum Board	5/8
FSW-6	Gold Bond® eXP® Interior Extreme® Gypsum Panel	5/8
FSLX	Gold Bond® Hi Strength Fire-Shield 60® Gypsum Board	5/8
SBWB	Gold Bond® SoundBreak XP Wall® Board	5/8

For the purposes of this report, the trade names and/or UL product designations shown above for any of the products may be used. Refer to Ills. 1 and 2 for details of fastening pattern.

2. SCOPE OF EVALUATION

- 2012, 2015, 2018, 2021 International Building Code (IBC)
- 2012, 2015, 2018, 2021 International Residential Code (IRC)

The products were evaluated for the following properties:

- Surface Burning Characteristics
- Physical Properties
- Noncombustibility
- Fire-resistance-rated construction

3. REFERENCED DOCUMENTS

- ANSI/UL 263 (ASTM E119), Fire Tests of Building Construction and Materials.
- ANSI/UL 723 (ASTM E84), Test for Surface Burning Characteristics of Building Materials.
- ASTM E136, Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C.
- ASTM C1396, Standard Specification for Gypsum Board.
- ASTM C1658, Standard Specification for Glass Mat Gypsum Panels
- ASTM C1766, Standard Specification for Factory-laminated Gypsum Panel Products.
- ICC-ES Acceptance Criteria for Quality Documentation (AC10).

4. USES

The Gold Bond® Fire-Shield® gypsum board family of products described under Table 1 are imprinted on the face side of the board with GridMarX® fastener guide marks, and are complemented by the MaX 12™ and MaX 16™ optimized fastener pattern systems.

4.1 MaX 12™

GridMarX “X” fastener guide marks and the MaX 12™ optimized fastener pattern is the 12 inch on center fastener pattern for single layer interior walls, and are intended for use where one hour fire-resistive, 24 inch OC, non-load bearing wall assemblies are required and when installed in accordance with the applicable section(s) of 2012, 2015, 2018 and 2021 IBC and/or in accordance with the fire-rated assemblies described in Section 6.2 of this report.

4.2 MaX 16™

GridMarX “X” fastener guide marks and the MaX 16™ optimized fastener pattern system is the 16 inches on center fastener pattern intended for use where 16 inch OC, non-load bearing interior stud wall assemblies are required and when installed in accordance with the applicable section(s) of 2012, 2015, 2018, and 2021 IBC and/or in accordance with the fire-rated assemblies described in Section 6.3 of this report.

5. PRODUCT DESCRIPTION

5.1 General:

The Gold Bond® Fire-Shield® gypsum board family of products consists of a fire-resistant Type X, non-combustible gypsum core faced with paper or glass mat on face, back, and long edges conforming to the physical property requirements of ASTM C1396, ASTM C1658, or C1766 in accordance with Section R702.3.1 of the 2021 IRC. GridMarX® installation guide marks, with MaX12™ and MaX 16™, are oriented in the machine direction and printed on the face paper of the board in each taper and at 16 inch, 24 inch, and 32 inch increments across the field of the board. These guide marks align with standard building dimensions and help to quickly identify spacing of framing members and fastener patterns.

The gypsum board panels described in this report are recognized as Class A finish materials with a flame spread index of 25 or less and smoke-developed index of 450 or less, when tested in accordance with UL723 (ASTM E84) as set forth in Section 803.1.1 of the 2012 and 2015 IBC, Section 803.1.2 of the 2018 IBC and 2021 IBC. These boards, having a noncombustible core of gypsum complying with ASTM E136, are considered a noncombustible material, as described in Section 703.5.2 of the 2021 IBC.

6. INSTALLATION

6.1 General:

The manufacturers published installation instructions and this report must be strictly adhered to, and a copy of the instructions should be available on the jobsite during installation. UL fire resistance rated designs are found online through UL Solution’s Product iQ™.

6.2 UL fire-resistance-rated assemblies – MaX 12™:

The products described in this report have been evaluated as components in assemblies rated for fire resistance in accordance with Section 703.2 of the 2021 IBC. Refer to the UL Fire Resistance Certification information for File R3501 (CKNX) for applicable UL design coverage and details of the fire-resistance-rated assemblies covered by this report. Fire resistance ratings are only applicable when the assemblies are constructed in accordance with the published designs.

The products described in this report are for use in the following UL fire resistance designs with or without the imprinted 12 in. OC spacing pattern:

Product Designation	Thickness, in.	UL Design No.
FSW, FSW-3, FSW-5, FSW-6, SBWB	5/8	U420, U465, V417, V438, V450, V482, V483, V486, V488, W417, W421, W444.
FSLX	5/8	U420, U465, V438, V482, W417, W421, W444

6.2.1 One-Hour fire-resistance-rated, non-load bearing wall assembly – UL Design Nos. U465 and V438

Channel shaped runners measuring 3-5/8 in. deep (min.) and formed from 25 MSG galvanized steel (min.) are attached to floor and ceiling with steel fasteners spaced 24 in. O.C. max. Channel shaped steel studs formed from 25 MSG (min.) galvanized steel are cut 3/4 in. less than assembly height and spaced 24 in. OC (max.) are friction fit into the runners. Mineral wool or glass fiber may be optionally placed into the wall cavity, friction fit between studs and runners. Design U465 also allows optional sprayed fiber insulation in the wall cavity in lieu of mineral wool or glass fiber insulation. Types FSW, FSW-3, FSW-5, or FSW-6 gypsum panels applied vertically or horizontally with joints centered over studs. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered or backed by steel framing. Type SBWB applied vertically only. Type FSLX for use with minimum 3.5 in. thick glass fiber insulation placed into stud cavities. Gypsum panels fastened to framing with 1 in. long Type S steel screws spaced 12 in. OC along vertical edges and in the field. Screws spaced a max 12 in. along the top and bottom edges of the wall for both vertical and horizontal applications. Refer to the individual designs on UL’s Online Fire Resistance Designs for additional details.

6.2.2 One-Hour fire-resistance-rated, non-load bearing wall assembly – UL Design No. V488

Channel shaped runners measuring 2-1/2 in. deep (min.) and formed from 25 MSG galvanized steel (min.) are attached to floor and ceiling fasteners in two rows with steel fasteners spaced 24 in. O.C. max. Channel shaped steel studs formed from 25 MSG (min.) galvanized steel and cut 1/2 in. less than assembly height are spaced 24 in. OC (max.) and evenly staggered between the two rows of floor and ceiling runners. Studs are friction fit into the runners. Glass fiber insulation may be optionally placed into the wall cavity. Types FSW, FSW-3, FSW-5 or FSW-6 gypsum panels applied vertically or horizontally with joints centered over studs. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered or backed by steel framing. Type SBWB installed vertically only. Gypsum panels fastened to framing with 1 in. long Type S steel screws 12 in. OC along vertical edges and in the field. Screws spaced a max 12 in. along the top and bottom edges of the wall for both vertical and horizontal applications. Refer to the individual designs on UL’s Online Fire Resistance Designs for additional details.

6.3 UL fire-resistance-rated assemblies – MaX 16™:

The products described in this report have been evaluated as a component in assemblies rated for fire resistance in accordance with Section 703.2 of the 2012, 2015, 2018, and 2021 IBC. Refer to the UL Fire Resistance Certification information for File R3501 (CKNX) for applicable UL design coverage and details of the fire resistance-rated assemblies covered by this report. Fire resistance ratings are only applicable when the assemblies are constructed in accordance with the published designs. The products described in this report are for use in the following UL fire resistance designs:

Product Designation	Thickness, in.	UL Design No.
FSW, FSW-3, FSW-5, FSW-6, FSLX, SBWB	5/8	U465, V438, V488, W469
FSLX	5/8	U465, V438, W469

6.3.1 One-Hour fire-resistance-rated, non-load bearing wall assembly – UL Design Nos. U465 and V438

Assembly is identical to Sec. 6.2.1 except that the steel studs are spaced maximum 16 in. OC.

6.3.2 One-Hour fire-resistance-rated, non-load bearing wall assembly – UL Design No. V488

Assembly is identical to Sec. 6.2.2 except that the steel studs are spaced maximum 16 in. OC.

6.3.3 One or Two-Hour fire-resistance-rated, load bearing wall assembly – UL Design No. W469

Channel shaped runners fabricated from min 0.0329 in., bare metal thickness (No. 20 MSG) corrosion-protected steel attached to floor and ceiling assemblies with steel fasteners spaced not greater than 24 in. oc., corrosion protected steel studs, min 0.0329 in., bare metal thickness (No. 20 MSG), min 3-1/2 in. wide, cold formed, max. spacing 24 in. OC and attached to floor and ceiling runners with 1/2 in. long Type S-12 steel screws on both sides of the studs or by welded or bolted connections designed in accordance with AISI specifications. UL Classified glass fiber, mineral wool, or sprayed fiber insulation is placed in stud cavities. Types FSW, FSW-3, FSW-5 or FSW-6 gypsum panels applied vertically or horizontally with joints centered over studs. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered or backed by steel framing. Type SBWB installed vertically only. Type FSLX may only be used with nominal 3 inches mineral wool batt (1.7 pcf) placed into stud cavities. One layer of 5/8 in. thick gypsum board on each side of the assembly yields a 1-hour fire rating with 100% of the design load applied. Two layers of 5/8 in. thick gypsum board on each side of the assembly yields a 2-hour fire rating with 100% of the design load applied. Type FSLX may only be used for 1 hour fire rating. One-layer systems are fastened with 1 in. long Type S-12 steel screws spaced 16 in. OC along vertical edges and in the field. Two-layer systems are attached with 1 in. long Type S-12 steel screws spaced 16 in. OC for base layer; Second layer is attached with 1-5/8 in. long screws spaced 16 in. OC. Refer to UL Solution’s Product iQ™ for additional optional components.

7. CONDITIONS OF USE

The Gold Bond® Fire-Shield® gypsum board products described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in sections 4, 5 and 6 of this report, subject to the following conditions:

- 7.1 The products must be manufactured, identified, and installed in accordance with this report and published fire-resistance-rated assembly installation methods, the manufacturer’s published installation instructions, and the applicable code. If there is a conflict between the manufacturers published installation instructions and this report, this report governs.
- 7.2 Indicated stud spacing are maximum, and stud sizes (depths) and gauges are minimums for the partition construction set forth in this report.
- 7.3 See UL Solution’s Product iQ™ Certifications Search for products evaluated as a part of fire-resistance-rated assemblies in accordance with UL263, Gypsum Board (CKNX).
- 7.4 The Gold Bond® Fire-Shield® gypsum board family of products described in this report are manufactured by Gold Bond Building Products, LLC+, located at the manufacturing locations named below, under the UL LLC Classification and Follow-Up Service Program, which includes inspections in accordance with the quality elements of ICC-ES Acceptance Criteria for Quality Documentation, AC10.

Manufacturing locations+:

Gibsonton, FL	Burlington, NJ	Baltimore, MD
Ft. Dodge, IA	Garden City, GA	Medicine Lodge, KS
Long Beach, CA	Mt. Holly, NC	National City, MI
Phoenix, AZ	Portsmouth, NH	Richmond, CA
Rotan, TX	Shippingport, PA	Shoals, IN
Waukegan, IL	Westwego, LA	Wilmington, NC

+ - Note: National Gypsum Company is the exclusive service provider for products manufactured by Gold Bond Building Products, LLC.

8. SUPPORTING EVIDENCE

- 8.1** Manufacturer's product literature and quality documentation.
- 8.2** UL Classification reports in accordance with UL263 (ASTM E119). See UL Product Certification Category for Gypsum Board (CKNX).
- 8.3** Reports in accordance with UL723 (ASTM E84).
- 8.4** Reports in accordance with ASTM C1396, C1658 and C1766.
- 8.5** Reports in accordance with ASTM E136.

9. IDENTIFICATION

The products described in this Evaluation Report are identified by a marking bearing the report holder's name (National Gypsum Company), the plant identification, the product designation, the UL Classification Mark, and the Evaluation Report number ER3501-03. The validity of the evaluation report is contingent upon this identification appearing on the product.

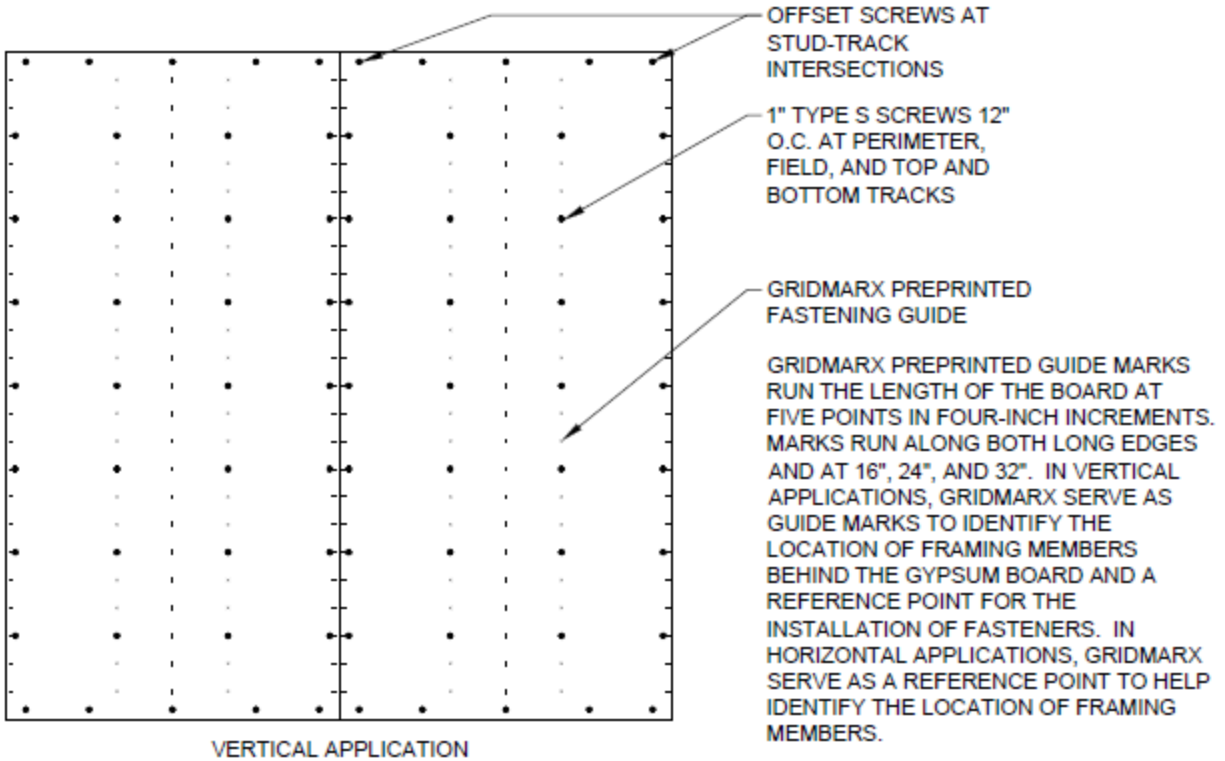
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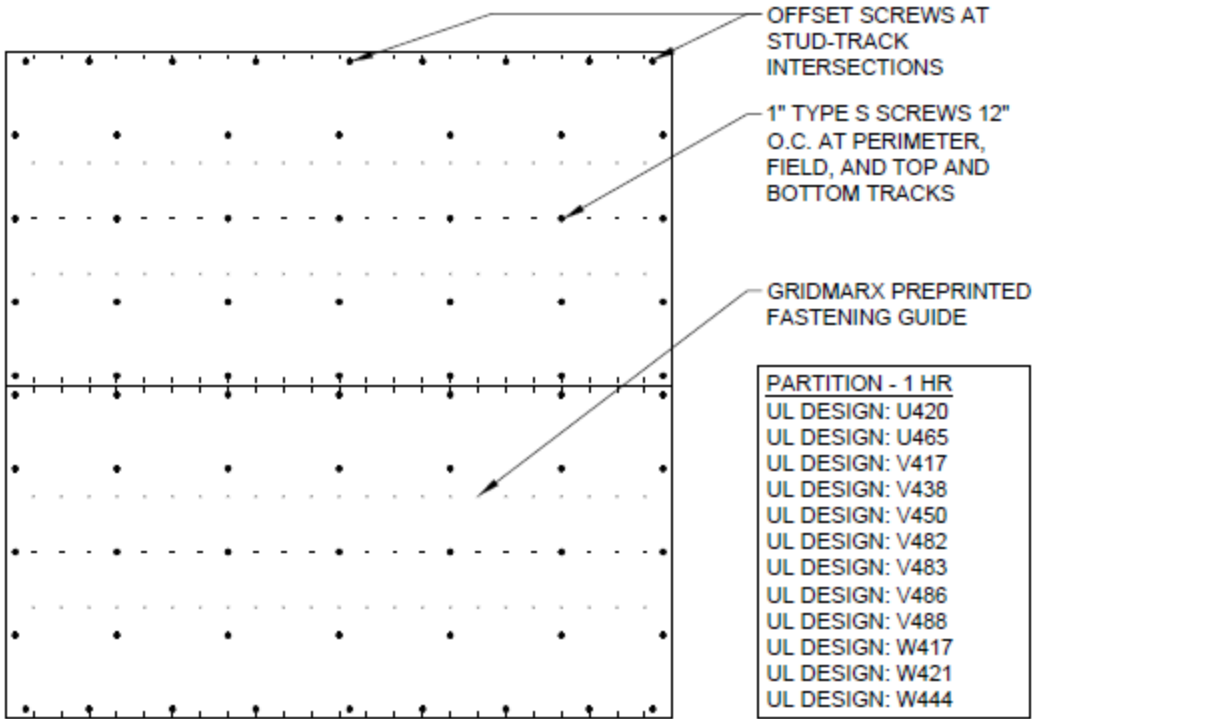
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ILLUSTRATION 1

GridMarX® / MaX™ 12 Fastening Pattern



VERTICAL APPLICATION

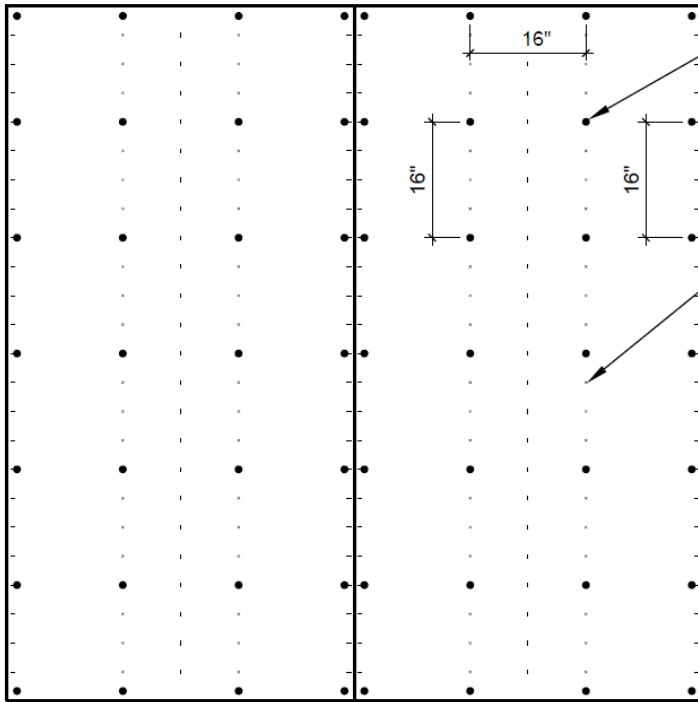


HORIZONTAL APPLICATION

- | |
|--|
| <p><u>PARTITION - 1 HR</u>
 UL DESIGN: U420
 UL DESIGN: U465
 UL DESIGN: V417
 UL DESIGN: V438
 UL DESIGN: V450
 UL DESIGN: V482
 UL DESIGN: V483
 UL DESIGN: V486
 UL DESIGN: V488
 UL DESIGN: W417
 UL DESIGN: W421
 UL DESIGN: W444</p> |
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ILLUSTRATION 2

GridMarX / MaX 16 Fastening Pattern

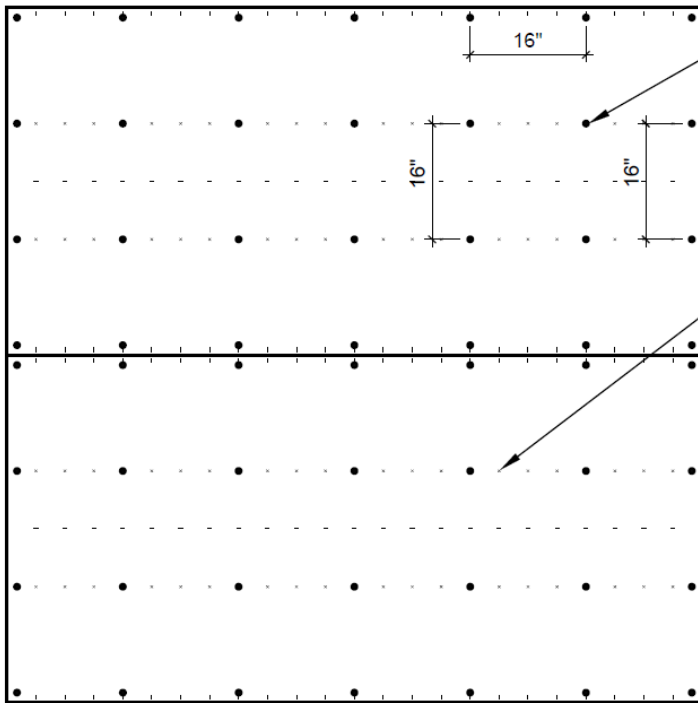


VERTICAL APPLICATION

1" TYPE S SCREWS 16" O.C. AT PERIMETER, FIELD, AND TOP AND BOTTOM TRACKS WHEN STUDS ARE SPACED 16" O.C.

GRIDMARX PREPRINTED FASTENING GUIDE

GRIDMARX PREPRINTED GUIDE MARKS RUN THE LENGTH OF THE BOARD AT FIVE POINTS IN FOUR-INCH INCREMENTS. MARKS RUN ALONG BOTH LONG EDGES AND AT 16", 24", AND 32". IN VERTICAL APPLICATIONS, GRIDMARX SERVE AS GUIDE MARKS TO IDENTIFY THE LOCATION OF FRAMING MEMBERS BEHIND THE GYPSUM BOARD AND A REFERENCE POINT FOR THE INSTALLATION OF FASTENERS. IN HORIZONTAL APPLICATIONS, GRIDMARX SERVE AS A REFERENCE POINT TO HELP IDENTIFY THE LOCATION OF FRAMING MEMBERS.



HORIZONTAL APPLICATION

1" TYPE S SCREWS 16" O.C. AT PERIMETER, FIELD, AND TOP AND BOTTOM TRACKS WHEN STUDS ARE SPACED 16" O.C.

GRIDMARX PREPRINTED FASTENING GUIDE

PARTITION - 1 HR
 UL DESIGN: V438
 UL DESIGN: V488
 UL DESIGN: W469
 UL DESIGN: U465

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