

ICC-ES Evaluation Report

ESR-1366

Reissued July 2019

This report is subject to renewal July 2021.

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A Subsidiary of the International Code Council®

DIVISION: 09 00 00—FINISHES
Section: 09 29 00—Gypsum Board

REPORT HOLDER:

NATIONAL GYPSUM COMPANY

EVALUATION SUBJECT:

GOLD BOND® BRAND HIGH STRENGTH™ CEILING BOARD, AND GOLD BOND® BRAND HIGH STRENGTH LITE® GYPSUM BOARD

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2012, 2009 and 2006 *International Building Code*®
- 2012, 2009 and 2006 *International Residential Code*®
- 2013 *Abu Dhabi International Building Code (ADIBC)*†

†The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

Properties evaluated:

- Physical properties
- Surface-burning characteristics

2.0 USES

Gold Bond® BRAND High Strength™ Ceiling Board and Gold Bond® BRAND High Strength LITE® Gypsum Board are used as an interior gypsum ceiling board in buildings of all construction types under the IBC or buildings constructed under the IRC when installed in accordance with IBC Section 2508 and IRC Section R702.3. Either ceiling board may also be used as an alternative to 5/8-inch-thick (15.9 mm) gypsum board when installed parallel or perpendicular to 24-inch-on-center (610 mm) framing orientation as described in Sections 4.3 and 4.4 of this report.

3.0 DESCRIPTION

High Strength™ Ceiling Board and High Strength LITE® Gypsum Board have a sag-resistant gypsum core and are manufactured in a 1/2-inch (12.7 mm) thickness with tapered edges. They are available in a width of 4 feet (1220 mm) and lengths of 6 to 16 feet (1830 mm to 4880 mm), and have a wallboard backing paper and a wallboard paper face that wraps around the edges, overlapping the back face. The boards have a flame spread rating of 25 or less and a smoke developed rating of 450 or less, when tested in accordance with ASTM E84.

The gypsum ceiling boards are manufactured to meet the requirements of ASTM C1396 as specified in IBC Table 2506.2 and IRC Section R702.3.1 (the boards also comply with ASTM C36 and ASTM C1395, which were replaced by ASTM C1396), and have a Class A finish classification.

4.0 DESIGN AND INSTALLATION

4.1 General:

High Strength™ Ceiling Board and High Strength LITE® Gypsum Board must be installed in accordance with the manufacturer's published installation instructions, and this report. For use under the IBC, the ceiling board must be installed in accordance with ASTM C840. For use under the IRC, the ceiling board must be installed in accordance with IRC Sections R702.3.5 and R702.3.6. As an alternate to code-prescribed methods of installation, the boards may be factory-installed using a two-part polyurethane adhesive when installed in accordance with Section 4.3. All gypsum board joints must be taped and sealed with joint compound, in accordance with ASTM C840. When used with installed insulation, with or without water-based spray-texture ceiling finish, the weight of the unsupported insulation must not exceed 2.2 psf (105 N/m²). If blown-in cellulose insulation is placed in contact with the ceiling board, the insulation manufacturer's published installation instructions must be followed with regard to the addition of water to the insulation.

4.2 Vapor Barrier:

A vapor retarder must be installed where required in roof/ceiling systems, and the attic space must be ventilated in accordance with the applicable code. A vapor barrier must not be used between the ceiling board and wood framing in applications involving polyurethane adhesive attachment where the barrier might prevent the adhesive from properly adhering to the board.

4.3 Two-part Polyurethane Adhesive Attachment:

Installation using a two-part polyurethane adhesive is limited to factory applications for prefabricated wood frame buildings of Type V construction under the IBC, and to buildings built in accordance with the IRC. The adhesive must comply with the ICC-ES Acceptance Criteria for Two-part Polyurethane Adhesives Used to Attach Gypsum Board to Wood Framing (AC223) and must be recognized in a current ICC-ES evaluation report or documentation on the adhesives in accordance with AC223 shall be submitted to the Building Official for approval. The adhesive must be applied in accordance with the adhesive manufacturer's published installation instructions and the ICC-ES evaluation report.

High Strength™ Ceiling Board and High Strength LITE® Gypsum Board may be installed with the long edges of the gypsum board either perpendicular or parallel to wood framing members spaced at a maximum of 24 inches (610 mm) on center.

4.4 Fastener Attachment:

The High Strength™ Ceiling Board is applied to wood framing with the long dimension perpendicular to the framing members and attached with nails, screws, a combination of nails and screws, or a combination of adhesive complying with ASTM C557 and nails or screws.

High Strength LITE® Gypsum Board may be installed either perpendicular or parallel to wood framing members spaced at a maximum of 24 inches on center (610 mm) using mechanical fasteners in accordance with ASTM C840, GA-216 (The Gypsum Association's Application and Finishing of Gypsum Panel Products) or IRC Table R702.3.5. This installation may support insulation and is finished with a water-based, spray texture finish.

To fasten either gypsum ceiling board to wood framing, nails must comply with ASTM C514 and screws must be Type S or Type W complying with ASTM C1002. Nails must be spaced 7 inches (178 mm) on center and screws must be spaced 12 inches (305 mm) on center. The ceiling boards may be double nailed, 2 inches (51 mm) apart, at 12 inches (305 mm) on center in the field and keeping the perimeter nailing to 7 inches (178 mm) on center. A combination of screws and nails is permitted, with nails along the perimeter and screws in the field of the board. The spacing between a nail and an adjacent screw must not exceed the spacing specified for screws.

When an adhesive complying with ASTM C557 is used in conjunction with fasteners, spacing of fasteners used to attach the ceiling board is permitted to be increased to 12 inches (305 mm) on center for nails and 16 inches (406 mm) on center for screws. A continuous bead of adhesive must be applied to the face of all ceiling framing members, in sufficient quantity to spread to an average width of 1 inch (25.4 mm) and thickness of 1/16 inch (1.6 mm) when the board is applied. Where the edges or ends of two pieces of the board occur on the same framing member, two continuous parallel beads of adhesive must be applied to the framing member.

The High Strength™ ceiling board is applied to metal framing with the long dimension perpendicular to the framing members and attached with screws spaced a maximum of 12 inches (305 mm) on center. High Strength LITE® Gypsum Board may be installed with the long dimension perpendicular or parallel to the framing members and attached with screws spaced a maximum of 12 inches (305 mm) on center. Screws must be Type S complying with ASTM C1002 for steel-framing members manufactured from steel up to 0.033 inch (0.84 mm) thick. Screws for steel thicknesses from 0.033 to 0.112 inch (0.84 to 2.84 mm) must comply with ASTM C954.

5.0 CONDITIONS OF USE

The High Strength™ Ceiling Board and High Strength LITE® Gypsum Board described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 Installation of the High Strength™ Ceiling Board and High Strength Lite™ Gypsum Board complies with the manufacturer's published installation instructions and this report. In the event of a conflict between this report and the manufacturer's published installation instructions, this report governs.
- 5.2 Where a vapor retarder is required, no vapor retarder is to be installed in locations using adhesive where it might prevent the adhesive from adhering to the ceiling board.
- 5.3 High Strength™ Ceiling Board and High Strength LITE® Gypsum Board must not be used in unusually moist environments such as gang showers.
- 5.4 Installation of the High Strength™ Ceiling Board or the High Strength LITE® Gypsum Board, using a two-part polyurethane adhesive is limited to prefabricated construction and single-ply applications for interior ceilings where wood members are spaced a maximum of 24 inches (610 mm) on center.
- 5.5 When attached to wood framing using a two-part polyurethane adhesive, the gypsum ceiling board must not be used, for compliance with IBC Section 2603.4, as a thermal barrier to separate foam plastic from the interior of the building.
- 5.6 Horizontal diaphragm applications with either ceiling board are outside the scope of this report.
- 5.7 Use of the gypsum board in fire-resistance-rated assemblies is outside the scope of this report.

6.0 EVIDENCE SUBMITTED:

Data in accordance with the ICC-ES Acceptance Criteria for 1/2-inch Sag-resistant Gypsum Ceiling Board Installed with Two-part Polyurethane Adhesive (AC417), dated November 2012.

7.0 IDENTIFICATION:

- 7.1 The Gold Bond® BRAND High Strength™ Ceiling Board and the Gold Bond® BRAND High Strength LITE® Gypsum Board described in this report are identified by the letters "HS" and "HSL," respectively, and a manufacturing code identifying the location and date of manufacture. The manufacturing plant code, date and time, and the evaluation report number (ESR-1366) are stamped on the back face, while the name of the product is printed on the front of the tapered edge. The paper tape on the ends of each bundle (two boards per bundle) includes the manufacturer's name (National Gypsum Company), city, state and zip code; along with the ASTM specification for the product (ASTM C1396) and the product name.
- 7.2 The report holder's contact information is the following:

NATIONAL GYPSUM COMPANY
2001 REXFORD ROAD
CHARLOTTE, NORTH CAROLINA 28211
(704) 551-5807
www.nationalgypsum.com