ICC-ES Evaluation Report

ESR-1366

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This report is subject to re-examination in one year.

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

REPORT HOLDER:

NATIONAL GYPSUM COMPANY
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EVALUATION SUBJECT:

GOLD BOND® BRAND HIGH STRENGTH™ CEILING BOARD

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2009 *International Building Code*® (2009 IBC)
- 2009 *International Residential Code*® (2009 IRC)
- 2006 *International Building Code*® (2006 IBC)
- 2006 *International Residential Code*® (2006 IRC)

Properties evaluated:

- Physical properties
- Surface-burning characteristics

2.0 USES

Gold Bond® BRAND High Strength™ Ceiling Board is used as an interior gypsum ceiling board in buildings of Type V construction under the IBC or buildings constructed under the IRC when installed in accordance with IBC Section 2508 and IRC Section R702.3. The ceiling board may also be used as an alternative to $^{5}/_{8}$-inch-thick (15.9 mm) gypsum board when factory-installed with the long dimension parallel to 24-inch-on-center (610 mm) wood ceiling framing, and attached using two-part polyurethane adhesive in nonfire-resistance-rated floor-ceiling or roof-ceiling assemblies.

3.0 DESCRIPTION

High Strength™ Ceiling Board has a sag-resistant gypsum core and is manufactured in a $^{1}/_{2}$-inch (12.7 mm) thickness with tapered edges. It is available in a width of 4 feet (1220 mm) and lengths of 6 to 16 feet (1830 mm to 4880 mm), and has 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 E 84. The gypsum ceiling board is manufactured to meet the requirements of ASTM C 1396 as specified in IBC Table 2506.2 and IRC Section R702.3.1 (the board also complies with ASTM C 36 and ASTM C 1395, which were replaced by ASTM C 1396), and has a Class A finish classification.

4.0 DESIGN AND INSTALLATION

4.1 General:

High Strength™ Ceiling 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 C 840. 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 board 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 C 840.

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 prefabricated building construction using Foamseal F-2100 Adhesive in accordance with ICC-ES report ESR-1028, with an average continuous adhesive bead width of $^{7}/_{8}$ inch (22.2 mm). High Strength™ Ceiling 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. The adhesive must be applied in accordance with the adhesive manufacturer's published installation instructions and ICC-ES evaluation report. When use is with moist-installed insulation, with or without water-based spray-texture ceiling finish, the weight of the overlaid unsupported insulation must not exceed 2.2 psf (105 N/m^2). If blown-in cellulosic 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.

4.4 Fastener Attachment:

The 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 C 557 and nails or screws. To fasten gypsum ceiling board to wood framing, nails must comply with ASTM C 514 and screws must be Type S or Type W complying with ASTM C 1002. Nails must be spaced 7 inches (178 mm) on center and screws must be spaced 12 inches (305 mm) on center. The ceiling board 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 C 557 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 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. Screws must be Type S complying with ASTM C 1002 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 C 954.

5.0 CONDITIONS OF USE

The High Strength™ Ceiling Board described in this report complies with, or is a suitable alternative 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 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 The ceiling board must not be used in unusually moist environments such as gang showers.

5.4 Installation of the ceiling 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 the ceiling board are 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 February 2010.

7.0 IDENTIFICATION:

The Gold Bond® Brand High Strength™ Ceiling Board described in this report is identified by the letters "HS" and a manufacturing code identifying the location and date of manufacture. The manufacturing code and the name of the product (HS Ceiling Board) are stamped on the back face, along the edge of each board. The paper tape on the ends of each bundle (two boards per bundle) includes the manufacturer's name (National Gypsum Company) and address, the ASTM specification for the product (ASTM C 1396), the product name, and the evaluation report number (ESR-1366).