# EVALUATION GUIDELINE FOR NONSTRUCTURAL GYPSUM BOARD SUPPORTS

**EG271**

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## PREFACE

Evaluation reports issued by ICC Evaluation Service, Inc. (ICC-ES), are based upon performance features of the International family of codes and other widely adopted code families, including the Uniform Codes, the BOCA National Codes, and the SBCCI Standard Codes. Section 104.11 of the *International Building Code*® reads as follows:

> The provisions of this code are not intended to prevent the installation of any materials or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been approved. An alternative material, design or method of construction shall be approved where the building official finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety.

Similar provisions are contained in the Uniform Codes, the National Codes, and the Standard Codes.

This document has been issued to provide all interested parties with guidelines for demonstrating compliance with performance features of the applicable code(s) referenced in the document. The guideline has been approved by the ICC-ES Evaluation Committee, and is effective on the date shown above. All reports issued or reissued on or after the effective date must comply with this guideline, while reports issued prior to this date may be in compliance with this guideline or with the previous edition. If the guideline is an updated version from the previous edition, a solid vertical line (▌) in the margin within the guideline indicates a technical change, addition, or deletion from the previous edition. A deletion indicator (➞) is provided in the margin where a paragraph has been deleted if the deletion involved a technical change. This guideline may be further revised as the need dictates.

ICC-ES may consider alternate guidelines, provided the report applicant submits valid data demonstrating that the alternate guidelines are at least equivalent to the guidelines set forth in this document, and otherwise demonstrate compliance with the performance features of the codes. Notwithstanding that a product, material, or type or method of construction meets the requirements of the guidelines set forth in this document, or that it can be demonstrated that valid alternate guidelines are equivalent to the guidelines in this document and otherwise demonstrate compliance with the performance features of the codes, ICC-ES retains the right to refuse to issue or renew an evaluation report, if the product, material, or type or method of construction is such that either unusual care with its installation or use must be exercised for satisfactory performance, or if malfunctioning is apt to cause unreasonable property damage or personal injury or sickness relative to the benefits to be achieved by the use of the product, material, or type or method of construction.

# EVALUATION GUIDELINE FOR NONSTRUCTURAL GYPSUM BOARD SUPPORTS

**(*NOTE: This evaluation guideline has been revised in its entirety.*)**

## 1.0 INTRODUCTION

**1.1 Purpose:** The purpose of this evaluation guideline is to establish requirements for rigid polyvinyl chloride (PVC) plastic foam, high-density polyethylene (HPDE) or galvanized steel gypsum board supports to be recognized in an ICC Evaluation Service, Inc. (ICC-ES), evaluation report under the 2003 *International Building Code*® (IBC), the 2003 *International Residential Code*® (IRC), the BOCA® *National Building Code*/1999 (BNBC), the 1999 *Standard Building Code*© (SBC) and the 1997 *Uniform Building Code*™ (UBC). Bases of recognition are IBC Section 104.11, IRC Section R104.11, BNBC Section 106.4, SBC Section 103.7 and UBC Section 104.2.8.

**1.2 Scope:** This evaluation guideline is applicable to rigid PVC plastic foam, high-density polyethylene (HDPE) or galvanized steel gypsum board supports used as alternatives to solid wood or metal framing for the attachment of the edges of gypsum board, which are located between framing members in interior wood or steel framed wall assemblies. The galvanized steel gypsum board supports are permitted in nonload-bearing and load-bearing wall assemblies in all types of construction permitted by the applicable code. The PVC and HDPE gypsum board supports are permitted in nonload-bearing wall assemblies in buildings of Type V (IBC, SBC and UBC), Type 5 (BNBC), structures constructed in accordance with the IRC, and other types of construction, when combustible interior nonload-bearing walls and partitions are allowed by the applicable code. Fire-resistance-rated wall assemblies incorporating the gypsum board supports shall meet the requirements of Section 3.5 of this evaluation guideline. The gypsum board supports ay be installed at gypsum board joints created at 90-degree or 120-degree corners with one side attached to the existing framing and the other side installed as a nailer for the attachment of the gypsum board. The gypsum board supports are not to be used in the construction of interior braced wall lines.

**1.3 Referenced Codes and Standards:**

**1.3.1 Codes:**

**1.3.1.1** 2003 *International Building Code*® (IBC), International Code Council.

**1.3.1.2** 2003 *International Residential Code*® (IRC), International Code Council.

**1.3.1.3** BOCA® *National Building Code*/1999 (BNBC).

**1.3.1.4** 1999 *Standard Building Code*® (SBC).

**1.3.1.5** 1997 *Uniform Building Code*™ (UBC).

**1.3.2 Standards:**

**1.3.2.1** ASTM A 879-04, Standard Specification for Steel Sheet, Zinc Coated by the Electrolytic Process for Applications Requiring Designation of the Coating Mass on Each Surface.

**1.3.2.2** ASTM D 4216-03, Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) and Related PVC and Chlorinated Poly (CPVC) Building Products Components, ASTM International.

**1.3.2.3** ASTM D 1238-04c, Standard Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer, ASTM International.

**1.3.2.4** ASTM E 72-02, Standard Test Method of Conducting Strength Tests of Panels For Building Construction, ASTM International.

**1.3.2.5** ASTM E 84-01, Test Method for Surface Burning Characteristics of Building Materials, ASTM International.

**1.3.2.6** ASTM E119-00, Test Method for Fire Tests of Building Construction and Materials, ASTM International.

**1.3.2.7** SAE J403-NOV2001, Chemical Composition of SAE Carbon Steels, SAE International.

## 2.0 BASIC INFORMATION

**2.1 General:** The following information shall be submitted:

**2.1.1 Product Description:** Complete information concerning material specifications, thickness, size and the manufacturing process.

**2.1.2 Installation Instructions:** Installation details and limitations including fastening methods and materials.

**2.1.3 Packaging and Identification:** A description of the method of packaging and field identification of the product. Identification provisions shall include the evaluation report number and a unique identification number.

**2.1.4 Field Preparation:** A description of the methods of field-cutting, and application.

**2.2 Testing Laboratories:** Testing laboratories shall comply with Section 2.0 of the ICC-ES Acceptance Criteria for Test Reports (AC85) and Section 4.2 of the ICC-ES Rules of Procedure for Evaluation Reports.

**2.3 Test Reports:** Test reports shall comply with AC85. Test reports shall be in sufficient detail to identify specimen properties that affect performance as a gypsum board support. The testing agency shall verify and report specimen material, dimensions, weight, coating or any other physical properties of the product. The testing agency shall also report method of installation and provide a description of fasteners, including material, size, number and location.

**2.4 Product Sampling:** Sampling of the gypsum board supports for tests under this guideline shall comply with Section 3.2 of AC85.

## 3.0 TEST METHODS AND PERFORMANCE REQUIREMENTS

**3.1 Materials:**

**3.1.1** The materials used in the manufacture of the rigid PVC plastic foam gypsum board supports shall comply with the values given in Table 1 of ASTM D 4216 to establish the cell classification of the PVC. The material is expanded and extruded into straight, 90-degree and 120-degree profiles.

**3.1.2** In the absence of a product specification, the critical physical properties of the high-density polyethylene (HDPE) gypsum board supports in Section 1.3.2.3 of this

evaluation guideline shall be submitted. The quality control program shall verify continuing compliance with the stated properties. The material is molded into modified "T" profiles.

**3.1.3** The materials used in the manufacture of steel gypsum board supports shall be minimum No. 24 gage [0.024 inch thick (0.61 mm)], cold-formed C1010 steel conforming to SAE J403, galvanized in accordance with ASTM A 879. The material is formed into straight or channel-shaped profiles.

**3.2 Transverse Load:** A minimum of three samples of each configuration of assemblies incorporating the gypsum board supports shall be tested to n show transverse load resistance following the test method specified in Section 11 of ASTM E 72 (air bag method). The assemblies shall be installed in accordance with the manufacturer's published installation instructions and tested in both positive and negative directions. Minimum conditions of acceptance are that the assemblies shall resist a uniformly distributed load of 15 lb/ft$^2$ (73 kg/m$^2$). The wall assembly shall not exceed a deflection of L/120, while resisting a uniformly distributed load of 5 lb/ft$^2$ (24 kg/m$^2$) at the maximum span between framing members.

**3.3 Racking Load (Optional):** In order to qualify for the details noted in Section 3.3.1 of this evaluation guideline, there must be submission of reports on load tests of assemblies incorporating the gypsum board supports described in this evaluation guideline, along with code-complying construction. Tests shall be conducted in accordance with Section 14 of ASTM E 72 and meet the criteria specified in Section 3.3.2 of this evaluation guideline. The assemblies shall be constructed in accordance with the manufacturer's published installation instructions.

**3.3.1** Assemblies incorporating gypsum board supports conforming to Section 3.1.3 (channel-shaped profiles) of this evaluation guideline used in corner applications, may be recognized as equivalent to conventional blocked and unblocked gypsum board sheathed walls, and assigned the allowable shear values given in IBC Table 2306.4.5, IRC Table 702.3.5, BNBC Table 2502.1, SBC Table 2506 or UBC Table 25-I, provided the nail spacing and thickness of the gypsum board is consistent with that noted in the applicable table for the shear values assigned.

**3.3.2** A minimum of two assemblies shall be tested for each variation in installation details. Variations include: gypsum board thickness [$^1/_2$ inch (12.7 mm) and/or $^5/_8$ inch (15.9 mm)]; gypsum nailing requirements [7 inches (178 mm) and/or 4 inches (102 mm) on center]; and spacing of the gypsum board supports and spacing of the wall studs [16 inches (406 mm) or 24 inches (610 mm) on center]. Eight-foot-by-eight-foot (2438 by 2438 mm) assemblies shall be tested.

**3.3.3 Conditions of Acceptance:**

**3.3.3.1** The lowest of the two ultimate test loads reduced to pounds per foot (N/m) divided by 2.8 shall be equal to or greater than the comparable shear values noted in IBC Table 2306.4.5.

**3.3.3.2** The deflection at the load determined in Section 3.3.3.1 of this guideline shall not exceed $^1/_8$ inch (3.2 mm).

**3.3.4** The evaluation report shall include a complete description of the assemblies, including all components and installation requirements; and shall also indicate that the applicable footnotes, noted in the tables described in Section 3.3.1 of this guideline, apply to the assemblies constructed with the gypsum board supports.

**3.4 Surface Burning Characteristics:** The materials from which the gypsum board supports are manufactured shall demonstrate a flame spread index of not more than 25, when testing is in accordance with ASTM E 84.

**Exception:** Gypsum board supports conforming to Section 3.1.3 of this evaluation guide.

**3.5 Fire-resistance-rated Assemblies:** Assemblies incorporating the gypsum board supports may be recognized as fire-resistance-rated assemblies, provided the assemblies meet the test requirements specified in ASTM E 119. The evaluation report shall include a complete description of the assemblies, including all components and installation requirements.

## 4.0 QUALITY CONTROL

**4.1** A quality control manual complying with the ICC-ES Acceptance Criteria for Quality Control Manuals (AC10) shall be submitted.

**4.2** Third-party follow-up inspections are not required under this evaluation guide.

## 5.0 REPORT RECOGNITION

**5.1** The evaluation report shall include a complete description of the wall assemblies, including all components and installation requirements, and shall also indicate that the applicable footnotes noted in the tables described in Section 3.3.1 of the guideline, apply to the wall assemblies constructed with the gypsum board supports.

**5.2** The evaluation report shall note that the limitations noted in IBC Section 1617.6 and Footnote 1 of UBC Table 25-I apply.

**5.3** Wall construction not specifically mentioned in the evaluation report shall conform to IBC Section 2306.4.5 and UBC Section 2513, as applicable.

**5.4** The evaluation report shall note the types of construction permitted with the wall assemblies containing the gypsum board supports and the submitted testing in accordance with Section 3.5 of the guideline.■