



Joint Gaps at Gypsum Board Panels

Building Division Interpretations and Procedures

Code:	2015 IBC; 2018 IBC
Section:	703.3, 705.5, 2508.1, 2508.2, 2508.4/2508.5

Interior Applications

Section **703.3** of the International Building Code (IBC) provides a list of six methods by which the required fire resistance of an assembly is permitted to be established using the accepted criteria in ASTM E119 or UL 263.

Section **2508.1** of the IBC provides the installation requirements for gypsum board panels. Specifically, the IBC lists two standards listed in Table 2508.1: **GA-216** and **ASTM C840**.

While assemblies meeting the requirements of IBC 703.3 provide details of construction to achieve the required fire resistance, including the treatment of joints between gypsum board panels and fastener heads, the standards noted in IBC 2508.1 cover the minimum requirements for the methods of application and finishing of gypsum board panels, including any gaps created during the installation of the gypsum board panels at the time of construction.

The reader should not be confused with the requirements to have joints treated to achieve a fire resistance rating as required by the details of construction for a specific assembly and the intent of this policy, which is to fill gaps that are not in conformance with GA-216 and ASTM C840.

For example, Section 2508.4 of the 2015 IBC and Section 2508.5 of the 2018 IBC provide five exceptions where joint and fastener treatment need not be provided: (1) Where the gypsum board or the gypsum panel product is to receive a decorative finish such as wood paneling, battens, acoustical finishes or any similar application that would be equivalent to joint treatment, (2) on single-layer systems where joints occur over wood framing members¹, (3) square edge or tongue-and-groove edge gypsum board (V-edge), gypsum panel products, gypsum backing board or gypsum sheathing, (4) on multilayer systems where the joints of adjacent layers are offset², and (5) assemblies tested without joint treatment.

¹ If boards are installed perpendicular to the framing, the joints between gypsum board panels would need to be blocked.

² "Base layers in multi-layer systems are not required to have joints or fastener heads taped or covered with joint compound," per GA-600 and [UL's Guide Information Section for Fire-Resistance Ratings](#).

Therefore, although the joints and fastener heads are not required to be taped and covered with a joint compound in fire-resistance rated assemblies per the exceptions above, the City of Bellevue (COB) will require conformance in an approved manner by GA-216 and ASTM C840 for joint gaps as described in this policy as follows.

GA-216

- **4.6.6:** Gypsum panel products shall be abutted so as to be in contact with one another but not forced together. All cut edges and ends shall be smoothed as necessary to obtain neat fitting joints.
- **4.6.7:** When gaps occur at gypsum panel product joints, they shall be not greater than 1/4 inch and shall be prefilled with joint compound.
 - **4.6.7.1:** Gaps not greater than 1/8 inch shall be prefilled with either ready-mix or setting-type joint compound.
 - **4.6.7.2:** Gaps greater than 1/8 inch shall be prefilled with setting-type joint compound.
- **4.5.2:** Holes, such as those for pipes, fixtures, or other penetrations, shall either be scored on both the face and back before removal of the cut-out with a saw or cut out with a router or other special tool designed for this purpose.
- **4.5.3:** Where gypsum panel products meet projecting surfaces, the gypsum panel product shall be scribed and neatly cut.

ASTM C840

- **3.2.19.1:** Small gaps not greater than 1/4 inch are acceptable.
- **7.1.2:** Cut edges and ends of the gypsum board shall be smoothed to obtain neat joints when installed. Holes for pipes, fixtures, or other small openings shall be scored on the back and the face in outline before removal or cut out with a saw or special tool designed for this purpose. Where gypsum board meets projecting surfaces, it shall be scribed and cut neatly.
- **3.2.19** and **7.4:** Joints between boards shall be constructed with the gypsum board edges in moderate contact (i.e., the edges and ends are butted at joints but not forced together).
- **23.3.2:** Joint gaps not greater than 1/8 inch shall be prefilled with either ready-mix or setting type joint compound; joint gaps greater than 1/8 inch shall be prefilled with setting-type joint compound.

Interpretation and Policy for Interior Applications

In meeting the conformance requirements of GA-216 and ASTM C840, COB will allow contractors to select one of the four methods to ensure that the installation of gypsum board panels is compliant:

1. Install all gypsum boards with moderate contact (i.e., less than 1/8 inch)
2. If gaps are up to 1/8 inch, prefill gaps with:
 - a. Ready-mix compound, or
 - b. Setting-type joint compound, or
 - c. Firestopping material (e.g., firestopping materials include fire caulking used at joints and/or penetrations)
3. If gaps are between 1/8 inch and 1/4 inch, prefill gaps with:
 - a. Setting-type joint compound, or
 - b. Firestopping material (e.g., firestopping materials include fire caulking used at joints and/or penetrations)
4. If gaps are slightly over 1/4 inch:
 - a. Replace gypsum board to meet Item 1, or
 - b. Prefill with an approved fire-rated setting-type joint compound (e.g., USG Sheetrock Brand FireCode Compound, a.k.a. "pink mud")
 - c. Discuss with your building inspector for other alternative methods

IMPORTANT: Regardless of the application (i.e., interior, or exterior) all gaps must be prefilled before the inspection to avoid correction notices.

Exterior Applications

As stated under [Interior Applications](#), for Exterior Applications, Section 703.3 applies, but so do Sections 703.2.5 and 705.5. It is not uncommon for symmetric assemblies (i.e., rated for exposure to fire from both sides) to be specified for exterior walls. The basic assumption of IBC 705.5 is that fires begin at the interior and rated wall assemblies are not required from the exterior unless close to another structure (e.g., less than 10 feet). In other words, using the provisions of section 705.5 and Tables 601 and 602 results in requiring an hourly rating on the inside face of exterior walls, while no rating is required on the outside face of exterior walls.

As Section 705.5 of the IBC addresses exterior wall requirements, if the assembly specifies that joints and fastener heads as required to be taped and covered with a joint compound to achieve the fire-resistance, this will be enforced by the COB building inspector. Otherwise, a revision will be required to be submitted showing an asymmetric assembly (e.g., rated for exposure to fire from inside only).

For gypsum board products in exterior applications, the IBC states that “gypsum sheathing shall be installed on exterior surfaces in accordance with ASTM C1280.” Again, the reader should not be confused with the requirements to have joints treated to achieve a fire resistance rating as required by the details of construction for a specific assembly and the intent of this policy, which is to fill gaps that are not in conformance with **ASTMC C1280**.

ASTM C1280

- **8.1.2:** The cut edges and ends of gypsum panel products shall be trimmed to obtain neat fitting joints when installed.

Interpretation and Policy for Exterior Applications

In meeting the conformance requirements of ASTM C1280, COB will allow contractors to select one of the two methods to ensure that the installation of gypsum board panels is compliant:

1. Install all gypsum boards with neat fitting joints (i.e., gaps are tight fitting up to 1/4 inch)
2. If gaps are over 1/4 inch:
 - a. Replace gypsum board to meet Item 1, or
 - b. Prefill with an approved exterior-rated fire-rated setting-type joint compound, or firestopping material (e.g., firestopping materials include fire caulking used at joints and/or penetrations)³
 - c. Discuss with your building inspector for other alternative methods

IMPORTANT: Regardless of the application (i.e., interior, or exterior) all gaps must be prefilled before the inspection to avoid correction notices.

³ Use of materials for air barriers are not permitted to fill gaps unless such materials are specifically noted as part of the fire-resistance rating for that assembly.