

## GA-618-2020

### BUILDING AND INSPECTING SMOKE BARRIERS

**Introduction:** Life safety of building occupants is the primary purpose of building and fire codes throughout the United States and Canada. Although the focus is on fire-resistive assemblies, materials and construction techniques to protect people from the effects of fire, smoke, and its related components can be deadly. Effective smoke barriers in structures provide a margin of safety in addition to fire protection.

The most common routes for smoke migration in buildings are corridors and penetrations in walls, partitions, ceilings, or floors, such as door openings, vents, shafts, chutes, mechanical air-handling systems, expansion joints, and service penetrations (i.e., plumbing, telephone, and electrical lines.) Carefully constructed, correctly sealed, and properly maintained wall and ceiling systems built using gypsum panels serve as highly effective smoke barriers. The International Building Code (IBC) typically requires a one-hour fire-resistance rating for smoke barriers.

**Creating Smoke Barriers:** The following guidelines will improve the effectiveness of smoke barriers and increase the life-safety features of new and renovated buildings. Gypsum walls and partitions form an effective barrier to smoke movement.

- The gypsum membrane shall be continuous through all concealed spaces.
- Fire-resistance rated gypsum panel systems shall be installed per design requirements.
- Perimeters, intersections of dissimilar materials, and areas extending above ceilings shall be tightly sealed.
- Outlet boxes and other penetrations shall be located in separate framing cavities.
- Openings around penetrations shall be sealed.
- Transfer grilles, louvers, and similar openings shall not be placed in membranes that serve as smoke barriers unless the devices close automatically upon detection of smoke.
- All exposed joints, angles, and abutments in the system, including those above a suspended ceiling and at the floor, shall be finished to at least a Level 1 as described in the Gypsum Association's publication *GA-214 Recommended Levels of Finish for Gypsum Board, Glass Mat and Fiber-Reinforced Gypsum Panels*.
- The interface between the partitions and door jambs or sidelight frames shall be sealed.

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**NOTES:**

**GYPSUM ASSOCIATION MEMBER COMPANY LIST 2020**  
AMERICAN GYPSUM COMPANY LLC  
CERTAINTEED GYPSUM, INC. / CERTAINTEED GYPSUM CANADA, INC.  
CONTINENTAL BUILDING PRODUCTS OPERATING COMPANY, LLC  
GEORGIA-PACIFIC GYPSUM LLC  
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