

An Area Separation Wall

FOR ALL SEASONS

Gypsum board system helps Philadelphia-area home builder maintain tight construction schedule even during tough winter months.

BY ROBERT H. BROWN



A construction worker pushes a gypsum board area separation wall liner panel into position at Chalfont Greene, a townhome development north of Philadelphia.

As a leading residential home builder in the Philadelphia area, the Barness Organization works year-round to meet the growing demand for new housing. Our latest construction project, Chalfont Greene, includes 84 townhomes and five single-family homes that range in price from \$240,000 to more than \$300,000. With so much at stake, we can't afford to make mistakes, particularly weather-related scheduling mistakes. Consequently, we use only materials that can be installed in any season. Working in the dead of winter dictates that our townhome projects include area separation walls that can be installed when outside temperatures fall below freezing. We can best meet this demand with gypsum board area separation walls.

Gypsum board area separation walls satisfy our local building code and insurance requirements. Moreover, carpenters and framers quickly learn to install them properly and efficiently. Our current crew of framers had never installed gypsum board separation walls before they worked for Barness, but in less than two hours they learned the entire installation process. Using framers to install the area separation walls eliminates an entire trade, thus avoiding potential scheduling and coordination problems.

When erecting gypsum board area separation walls, we typically use 1-inch-thick gypsum liner panels that are 24 inches wide and 12- or 14-foot long, metal framing members

consisting of two-inch-wide H-studs and U-shaped track, and breakaway L-shaped aluminum clips. Our framers erect the area separation wall systems vertically one floor at a time. They secure two layers of gypsum liner panel at the foundation by inserting the panels into two-inch-wide tracks. The panels are held in place by H-studs and are erected sequentially along the track. Each completed section of wall is then capped with an inverted piece of track. Once the adjacent framing is erected, the framers install new track on top of the completed panels and repeat the process.

The gypsum board area separation wall system is attached to the adjacent structure with L-shape aluminum breakaway clips that provide lateral support for the wall. The clips soften and break away when the temperature exceeds 1100°F. In the event of a fire, this allows the adjacent structure on one side of the system to collapse while the fire-resistant wall system remains standing, thereby sparing the adjacent living space on the other side from significant damage.

Local code requires that the gypsum liner panel system is disconnected from adjacent combustible framing. This requirement is met by setting the adjacent wood framing members $\frac{3}{4}$ -inch to one inch from the liner panels. If this space requirement cannot be met, the faces of the H-studs are covered with 6-inch-wide gypsum board bat-

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ten strips, full sheets of gypsum board, or mineral fiber insulation.

Similarly, the code requires the space between the area separation wall and the adjacent floor joists to be fireblocked to prevent fire from spreading between floors. To achieve this we insert continuous pieces of one-inch gypsum board liner panels, mineral fiber insulation, or other code-approved material into the gap between the wall assembly and the adjacent floor joists. The fireblocking material is then attached to the adjacent construction.

ADVANTAGES OF GYPSUM BOARD SYSTEMS

We work with both solid and cavity-type area separation wall systems. Each weighs far less than comparable walls made of masonry or concrete. Consequently, we don't need costly footers or foundation modifications; we can erect the wall systems directly onto a poured concrete slab.

We also like the fact that gypsum board area separation walls accommodate electrical and plumbing systems without additional framing or furring. Once the plumbing and electrical work is complete, the framed walls that parallel the liner panel system are finished with gypsum board with the rest of the interior. Our drywall crew installs and finishes the visible portion of the area separation wall using techniques that are identical to those used in the rest of the townhome.

SOUND CONTROL REQUIREMENTS OF AREA SEPARATION WALLS

The model codes typically require walls separating townhome units to maintain a minimum Sound Transmission Class (STC) rating of 45 to 50 to diminish noise between units. To achieve these ratings, all system components must be installed as designed; any deviation from the recommended design could significantly reduce the sound damping ability of the area separation wall.

Additionally, all wall areas must be free of gaps or voids through which sound could travel. To ensure the wall system is airtight, our drywall applicators fully caulk the gypsum board face layers, the outside edges of all membrane cutouts, and all penetrations.

As a builder, nothing is more important than the safety of our home buyers. So we make sure that the building materials we use can effectively resist or contain a fire. About 12 to 15 years ago, we encountered a local township that had no history of working with gypsum board area separation walls; thus, town officials were skeptical of the ability of the systems to perform as designed, so we decided to show town officials how well they worked. We constructed an 8- by 16-foot building and divided it in half with an eight-foot-high gypsum board area separation wall. Under the watchful eye of the local fire department, we set the test facility on fire. The gypsum board area separation wall system performed well beyond expectation, and we were able to sell the project to town authorities as planned. Although it wasn't a completely scientific test, it convinced local fire officials that gypsum board area separation wall systems work as designed. We still believe that today.

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A framer at Chalfont Greene fastens a breakaway clip to the steel framing of a gypsum board area separation wall panel (top photo) while a co-worker secures horizontal tracks that will hold in place two layers of gypsum liner panel.

Robert Brown is Executive Vice President of the BARNES Organization, a leading home builder in Southeastern Pennsylvania and Southern New Jersey. The firm has completed more than 60 communities since its founding in 1925.