

Area Separation Walls



Overview

When tested, as manufactured, in accordance with ASTM D 3273, DensGlass® Ultra Shaftliner™ panels scored a 10, the highest level of performance for mold resistance under the ASTM D 3273 test method.

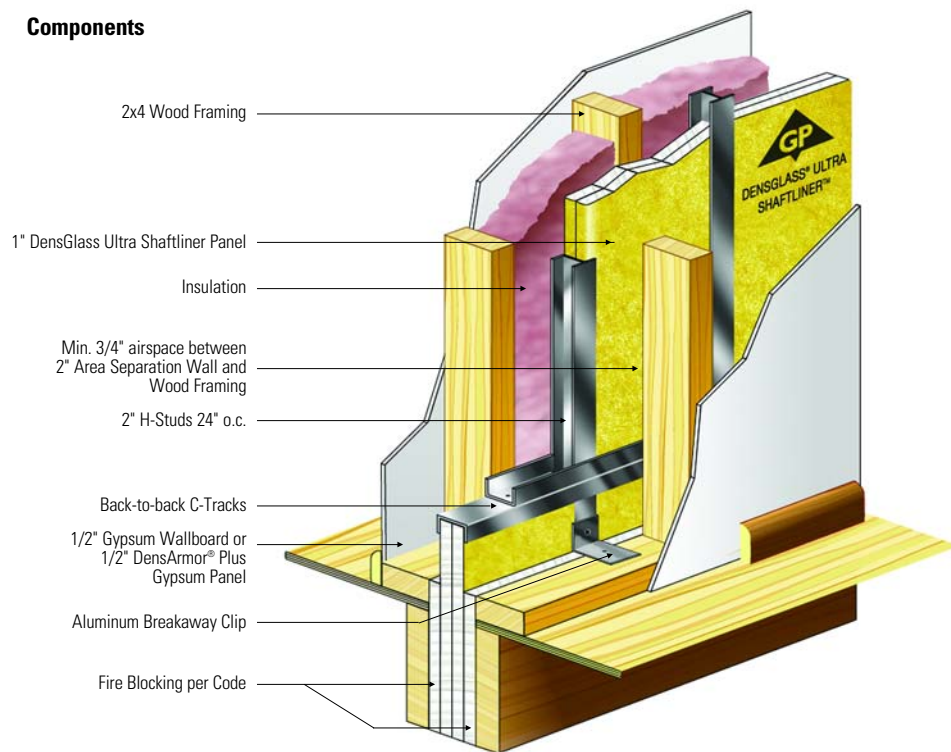
The score of 10, in the ASTM D 3273 test, indicates no mold growth in a 4-week controlled laboratory test. The mold resistance of any building product when used in actual job site conditions, may not produce the same results as were achieved in the controlled, laboratory setting. No material can be considered mold proof. When properly used with good design, handling and construction practices, DensGuard® products provide increased mold resistance compared to standard paper faced wallboard.

The G-P Gypsum area separation wall assembly is designed for use in multi-family, multi-story townhouses with a total height up to 50 feet. Because it is constructed using gypsum board, the assembly is easy to erect and secure, meets all building code requirements, and provides economical fire protection and sound control.

The area separation wall is constructed once the framing for one townhouse unit is complete and prior to the construction of the adjacent unit. The assembly is constructed at the foundation and continues either to the underside of the protected roof sheathing or through the roof to form a parapet. The assembly is linked to the adjacent framing with aluminum breakaway clips that allow for collapse of the fire-exposed unit without collapse of the solid area separation wall.

Because the assembly will be exposed to the elements during construction, G-P Gypsum offers increased protection to the owner, builder and architect with a paperless, moisture and mold resistant shaftliner panel – DensGlass® Ultra Shaftliner™.

Components



The G-P Gypsum area separation wall is constructed using 1-inch thick, 24-inch wide paperless DensGlass Ultra Shaftliner panels, 25 gauge steel H-studs, 25 gauge steel C-track and .062" aluminum breakaway clips. DensGlass Ultra Shaftliner panels consist of a moisture-resistant core surfaced with coated fiberglass mat facings. DensGlass Ultra Shaftliner panels are offered with a 6-month in-place exposure limited warranty and a 5-year limited warranty against delamination, deterioration and decay.

Fire Tested and Building Code Approved

The G-P Gypsum 2-hour fire-rated area separation wall assembly, constructed using DensGlass Ultra Shaftliner panels, is listed by Underwriters Laboratory (UL) and Warnock Hersey International (WHI/ITS) and meets the requirements of the 2003 International Building Code (IBC) Section 503.2 "Party Walls", and Section 705, "Fire Walls". The G-P Gypsum Area Separation Wall assembly is listed in the UL Fire Resistance Directory under UL Design U 373 and in the WHI Fire Resistance Directory under WHI 120-04. For copies of these listings, please contact G-P Gypsum Technical Services at 1-800-225-6119.

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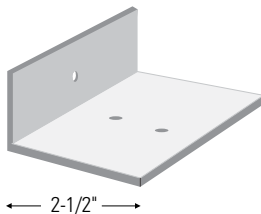
Installation Instructions

The G-P Gypsum area separation wall is constructed once the framing for one townhouse unit is complete and prior to the construction of the adjacent unit. The solid 2" area separation wall is constructed a minimum 3/4" away from the adjacent framing, which is typically constructed from wood. In many cases the area separation wall is positioned 1" away from the wall framing to accommodate the 1" DensGlass® Ultra Shaftliner™ panels used as fireblocking between the floor levels. The UL Design U373 area separation wall assembly was evaluated at a height up to 44' and the WHI/ITA 120-04 area separation wall assembly was evaluated at a height up to 50'.

Erecting the 2" Area Separation Wall

1. Position 2" C-Track a minimum 3/4" from the framed wall of the adjacent unit. Fasten C-Track to foundation with fasteners spaced a maximum of 24" o.c. When specified, apply a minimum 1/4" bead of acoustical sealant under the C-Track to maximize acoustical privacy. Run the C-Track to the end of the foundation. In the case of offset units, run the C-Track to the end of the offset unit.
2. Install H-Studs and 1" DensGlass Ultra Shaftliner panels to a maximum height of 2' above the first floor line. Install two 1" shaftliner panels vertically into the C-Track at one end of the wall. Install the H-Stud over the double beveled edges of the shaftliner panels and continue alternately until the wall has reached the opposite end of the foundation. Terminate the wall using a C-Track. The vertical C-Tracks at each end of the wall should be attached in the corners to the horizontal sections of C-Track using a 3/8" pan head screw.
3. Cap the first section of the area separation wall with a C-Track and attach to the vertical C-Track in the corners using a 3/8" pan head screw. An H Stud may also be used to cap the wall.
4. Breakaway clips span the minimum 3/4" airspace and provide a fusible link between the H-Studs and the adjacent wall framing. Attach the breakaway clips to the flange of the H-Stud using one 3/8" pan head screw and to the adjacent wood framing using one 1" drywall screw.

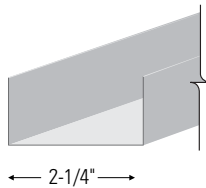
Aluminum Angle Clip



When the UL Design U373 area separation wall assembly is specified, the breakaway clips should be located vertically at each floor level (10'0" o.c.) and horizontally on every H-Stud (24" o.c.). When the total height of the area separation wall exceeds 20'0", breakaway clips shall be installed every 5'0" for the lower 20'0" and every 10'0" for the upper 24'0" of the wall assembly. Breakaway clips are installed on both sides of the area separation wall.

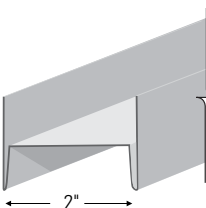
When the WHI/ITS Design WHI 120-04 area separation wall assembly is specified, the breakaway clips should be located vertically at each floor level (10'0" o.c.) and horizontally on every other H-stud (48" o.c.). When the total height of the area separation wall exceeds 20'0", breakaway clips shall be installed vertically every 8'0" maximum for the lower 20'0" and every 10'0" maximum for the upper 30'0" of the wall assembly.

C-Track, Cap, Edge or End Closure



5. Fireblocking is installed on both sides of the area separation wall at each floor level as defined in Section 717.2.1 of the 2003 IBC. (See details section). For approved fire-blocking materials, see Special Conditions, Item 9.
6. To continue the wall, install a C-Track over the C-Track used to cap the lower section, placed back to back and attached together with 3/8" pan head screws spaced 24" o.c. (See details section). This is not applicable if an H-Stud is used to link the sections of wall.
7. The support walls located adjacent to, and on each side of the solid 2" area separation wall, protect and maintain the required 3/4" air space. These support walls offer increased acoustical privacy and provide necessary aesthetics. They can be designed as load bearing. These walls can readily accommodate code compliant electrical and plumbing systems. These systems should not impede the required 3/4" air space. Apply acoustical sealant around penetrations for maximum acoustical privacy.
8. If a parapet is not specified, one layer of 5/8" Type X gypsum board, 5/8" DensArmor® Plus interior panels or 5/8" DensGlass Gold® exterior sheathing should be installed 4" on both sides of the area separation wall. (4' is required per building code). See Special Conditions, #11 for two code-compliant methods for installing a gypsum board roof underlayment.
9. Once the 2" area separation wall is erected, construction of the adjacent interior wall framing can begin. Breakaway clip and fire-blocking installation is identical for both sides of the 2" area separation wall.

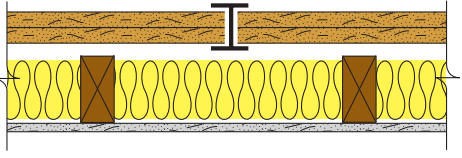
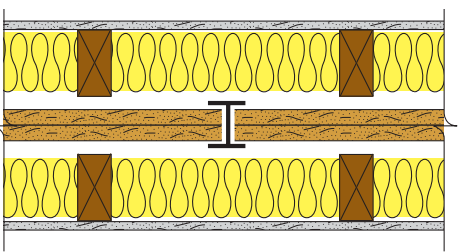
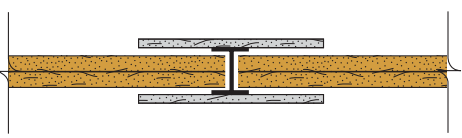
H-Stud, 25-Gauge



Special Conditions

1. When an H-Stud does not align with the adjacent wood framing, insert blocking between wood framing members and attach breakaway clip to blocking using one 1-1/4" drywall screw and to the H-Stud using one 3/8" pan head screw.
2. If gaps are present between back-to-back C-Tracks, caulk using appropriate fire caulking material.
3. When wall framing is spaced greater than 1" away from the solid 2" area separation wall, aluminum clips with longer legs are permitted. Contact clip manufacturer (Dietrich Industries, Marino Ware or Clark Steel Framing Systems) for modified clips.
4. The solid 2" G-P Gypsum area separation wall is non-load bearing. The adjacent framed wall can be designed as load bearing walls.
5. The wall located adjacent to the solid 2" area separation wall, a minimum of 3/4" away, can be constructed of wood or steel framing. When constructed using steel framing, use one 3/8" pan head screw to attach the aluminum breakaway clip.
6. The support walls located adjacent to, and on each side of the solid 2" area separation wall protect and maintain the required 3/4" airspace, offer increased acoustical privacy, and provide necessary aesthetics. These walls can be designed as load bearing and readily accommodate code compliant electrical and plumbing systems. These systems should not impede the required 3/4" air space. Apply acoustical sealant around penetrations for maximum acoustical privacy.
7. The required 3/4" air space can be eliminated if the H-Studs are covered on both faces with 6" wide, 1/2" DensArmor® Plus Fireguard C or ToughRock® Fireguard C gypsum board strips. The gypsum board strips are attached with 1" drywall screws spaced 12"o.c. to the steel H-Studs. This primarily occurs in accessible attic areas.
8. The required fireblocking between floor levels may consist of 2" nominal lumber or two thicknesses of 1" nominal lumber with broken lap joints or one thickness of 0.719" wood structural panel with joints backed by 0.719" wood structural panel or one thickness of 0.75" particleboard with joints backed by 0.75" particleboard. Gypsum board, including 1" DensGlass® Ultra Shaftliner™ and DensArmor® Plus, cement fiber board, batts or blankets of mineral wool or glass fiber or other approved materials installed in such a manner as to be securely retained in place shall be permitted as an acceptable fireblock. (Section 717.2.1, 2003 IBC)
9. At the intersection of the solid 2" area separation wall and the underside of the structural roof sheathing, cut liner panels at an angle to provide a tight fit to the structural sheathing. The 2" area separation wall is not required to be capped using a C-Stud. Where the shaftliner panels are not tight to the structural sheathing, apply an approved fireblocking material (see Special Conditions, #9) to both sides of the area separation wall.
10. There are two code-compliant methods for installing a gypsum board roof underlayment: the ledger strip method and the partial roof underlayment method. In the ledger strip method, one layer of 5/8" DensArmor Plus Fireguard gypsum board is placed 4' on both sides of the area separation wall. The gypsum board is cut to fit tight between the roof framing members. Nominal 2" x 2" wood ledger strips hold the gypsum board snug to the underside of the roof sheathing and flush with the top of the roof framing. The ledgers are attached to the roof framing and form a continuous strip. In the partial roof underlayment method, one layer of 5/8" DensArmor Plus Fireguard gypsum board is applied 4' on both sides of the area separation wall over the top of the roof framing prior to the installation of the structural roof sheathing. A 4'x 8' gypsum board is applied parallel to the roof framing so that the long edges are supported by the roof framing. The boards are attached to each framing members with at least two 1-3/8" drywall screws. Joints between gypsum panels should be tight. *(Note: Gypsum board is not a structural panel and should not be stepped or walked on. Caution must be taken when installing structural roof sheathing.)*
11. Penetrations through the solid 2" G-P Gypsum area separation wall should be protected in accordance with the 2003 IBC, Sections 705.9 and 712.
12. Size and protection of openings in the solid 2" G-P Gypsum area separation wall shall be in accordance with the 2003 IBC, Section 705.8. When the G-P Gypsum area separation wall is designed as a party wall ("Any wall located on a property line between adjacent buildings, which is used or adapted for joint service between the two buildings") as listed in the 2003 IBC, Section 503.2, "Party Walls" openings are not permitted.
13. The G-P Gypsum area separation wall assembly can be constructed with or without a parapet.
14. For specialized end-use areas, such as bathrooms, the adjacent framed walls can be covered with DensShield® Tile Backer in lieu of standard paper faced or glass mat faced interior gypsum board.

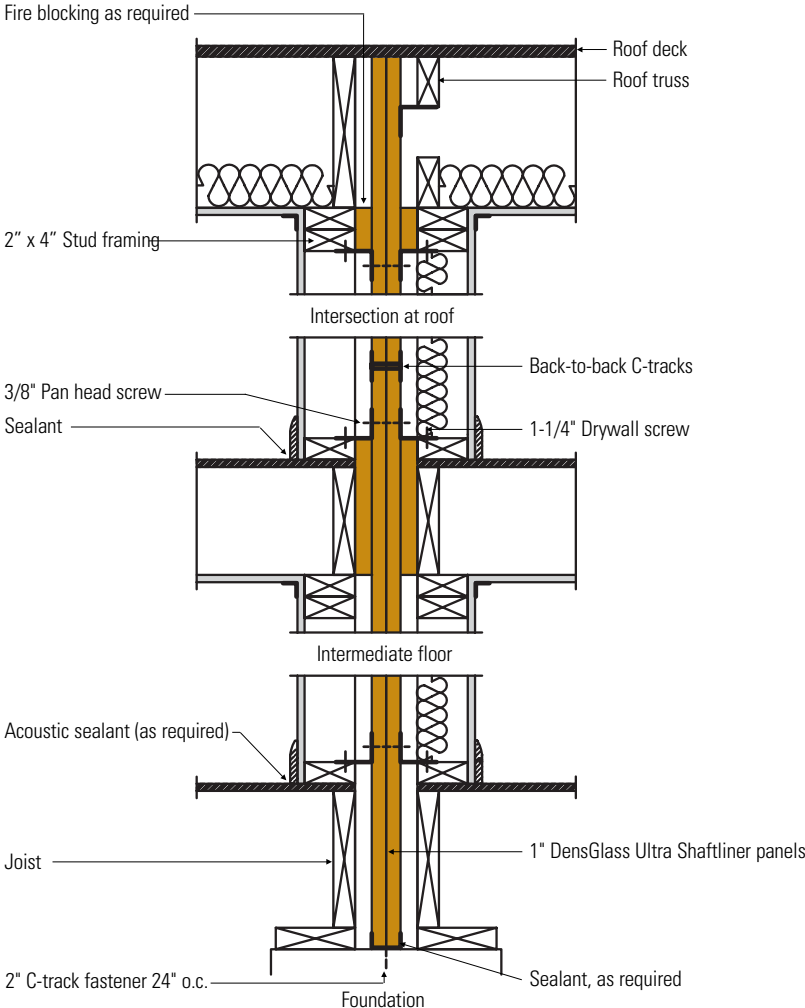
System Assemblies – 2-Hour Ratings

Construction Detail	Assembly Components	Acoustical Testing	
		STC	Reference
	<p>Two layers 1" DensGlass® Ultra Shaftliner™ inserted in H-Studs 24" o.c. Min. 3/4" air space between liner panels and adjacent framing.</p>		<p>UL DESIGN U373</p>
	<p>Sound Tested with 2" x 4" stud wall with 1/2" DensArmor® Plus gypsum board each side of assembly and 3-1/2" glass fiber in stud space both sides.</p> <p>Two layers 1" DensGlass Ultra Shaftliner inserted in H-Studs 24" o.c. Min. 3/4" air space on both sides must be maintained between liner panels and adjacent framing.</p>	<p>60-64</p>	<p>UL DESIGN U373 WHI 120-04 RAL TL89-383</p>
	<p>Part. Thickness: 3" Weight per Sq. Ft.: 9.5</p> <p>Two layers 1" DensGlass Ultra Shaftliner inserted in H-Studs 24" o.c. H-Studs covered using 6" wide or 1/2" DensArmor Plus Fireguard C Interior Panel or 1/2" ToughRock Fireguard C gypsum board.</p>	<p>38</p>	<p>WHI 495-0743</p>

Breakaway clip facings and height of wall differ between UL Design U373 and WHI 120-04.

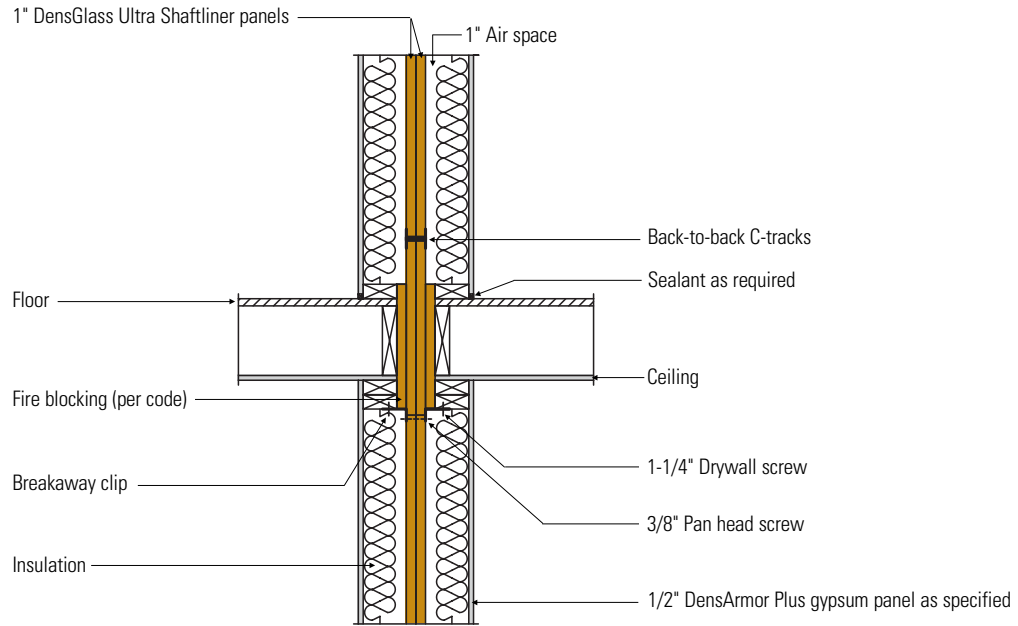
Details

Full Wall

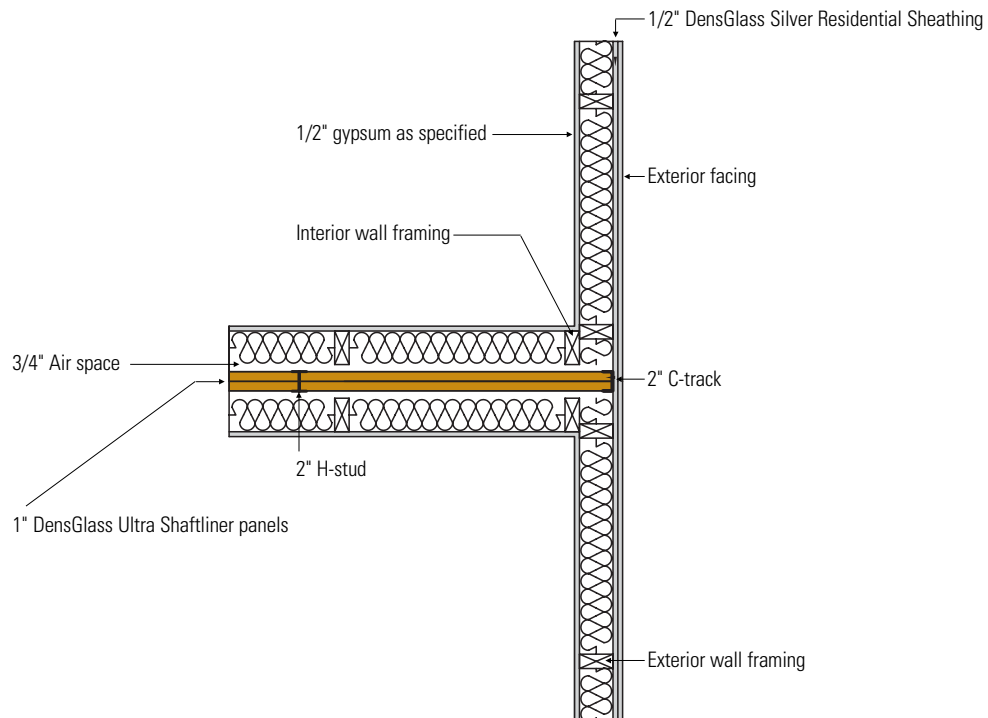


Details

Intermediate Floor

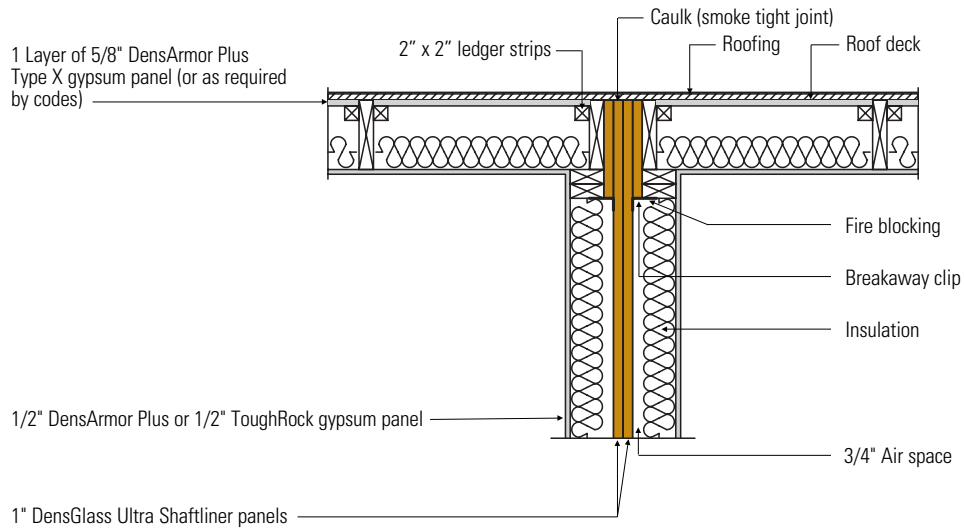


Exterior Wall

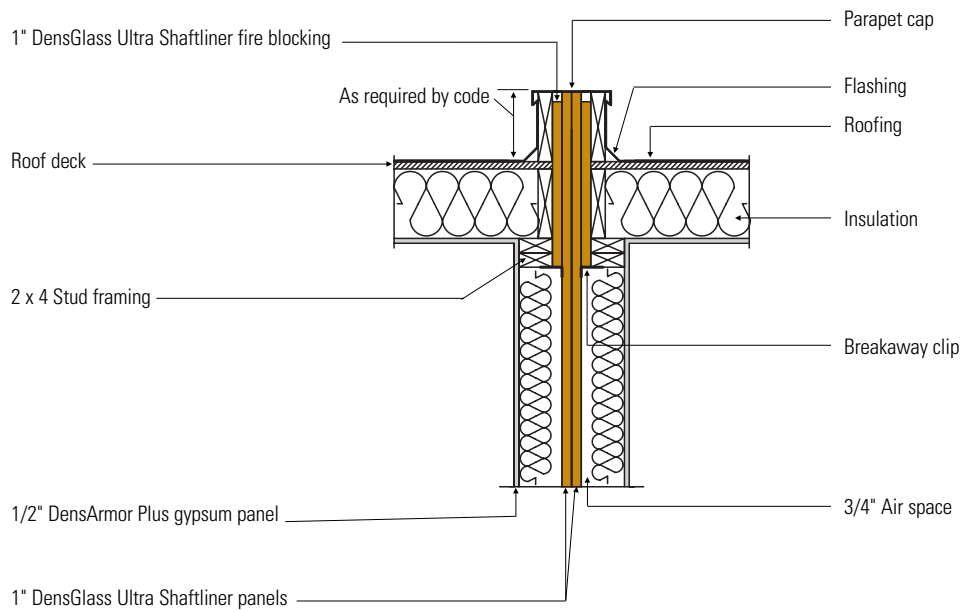


Details

Typical Roof Junction

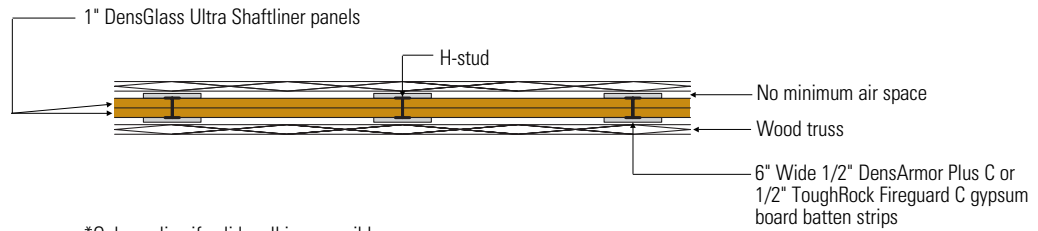


Typical Roof Parapet



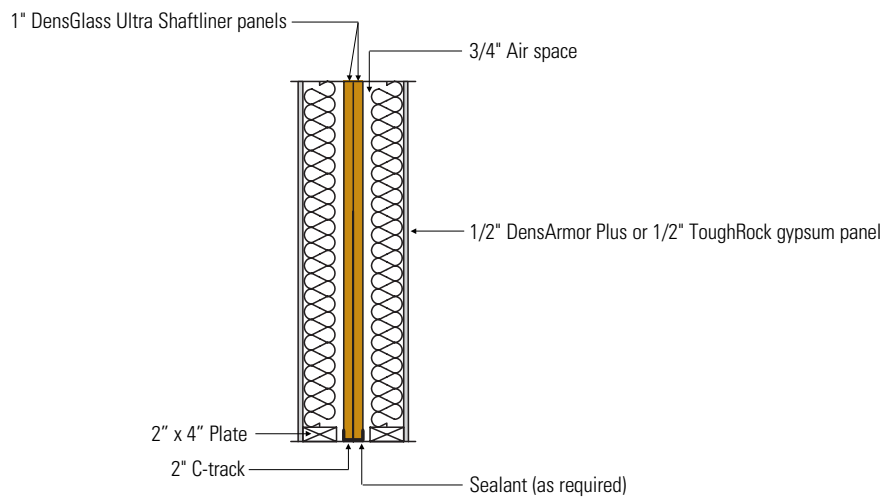
Details

Attic – Adjacent to Trusses*



*Only applies if solid wall is accessible.
If not accessible, the 1/2" Type C strips are not required.

Typical Foundation



Architectural Specifications

Part 1 – General

1.0 Description of Work

The type of work specified herein includes, but is not limited to, area separation wall systems.

1.1 Quality Assurance

Fire-Resistance Ratings: Provide fire resistance rated assemblies identical to those indicated by reference to UL (Underwriters Laboratory) or WHI (Warnock Hersey International) numbers or in listings of other agencies acceptable to authorities having jurisdiction. For fire safety information, visit www.gp.com/gypsum/firesafety.

1.2 Qualifications

All area separation wall shaftliner and gypsum board and joint treatment materials shall be manufactured or provided by G-P Gypsum Corporation. The steel framing components and aluminum breakaway clips shall be provided by a steel manufacturer authorized by G-P Gypsum Corporation unless otherwise indicated. All materials shall be installed in accordance with printed installation instructions as required by the testing agency.

System must be constructed to meet any applicable code requirements.

1.3 Submittals

Product Data: Submit G-P Gypsum's descriptive literature for each area separation wall component indicating materials, dimensions, finishes and other data required to show compliance with the specifications.

1.4 Delivery, Storage and Handling

Deliver materials in original packages, containers or bundles bearing G-P Gypsum's brand name and identification.

Store materials flat, inside, under cover. Keep materials dry and protect from weather and damage from construction operations and other causes.

Handle area separation wall components to minimize damage to edges, ends or surfaces. Protect metal accessories, framing and trim from bending and damage.

1.5 Project Conditions

Environmental Requirements: Comply with the requirements of gypsum board application standards and recommendations of G-P Gypsum for environmental conditions before, during and after application of DensGlass® Ultra Shaftliner™ and ToughRock® or DensArmor® Plus gypsum board.

ToughRock setting compounds should be used for all bedding and topping coats for cold weather or slow drying conditions. Easy sanding versions available.

Part 2 – Products

2.0 Materials

A. Metal Framing:

1. Steel H-Studs, minimum 25-gauge, galvanized, and conforming to ASTM C 645. Lengths as required.
2. C-Track, minimum 25-gauge, galvanized, in 10' lengths.
3. Aluminum breakaway clips, 2" x 2-1/2" x 0.063".

B. Gypsum Board:

1. Shaftliner: 1" DensGlass Ultra Shaftliner, Type X conforming to ASTM C 442 and ASTM C 1396. 24" wide with double beveled edges. Lengths as required.
2. Gypsum board: 1/2" ToughRock Fireguard C or 5/8" ToughRock Fireguard gypsum board; 1/2" DensArmor Plus Fireguard C or 5/8" DensArmor Plus Fireguard conforming to relevant sections of ASTM C 1396. For fire safety information, visit www.gp.com/gypsum/firesafety.

C. Fasteners: For 25-gauge framing, Type S screws.

D. Miscellaneous Materials: Acoustical sealant.

Part 3 – Execution 3.0 General

Follow G-P Gypsum recommendations for installation of metal framing and gypsum board for area separation walls.

3.1 Installation

Foundation: Position 2" C-Track at floor and attach securely to foundation at ends and 24" o.c. Caulk under runner at foundation with min. 1/4" bead of acoustical sealant when specified to reduce noise transmission.

First Floor: Install H-Studs and insert DensGlass Ultra Shaftliner panels. Attach two thicknesses of 1" DensGlass Ultra Shaftliner panels vertically in C-Track with long edges in H-Stud. Continue installing H-Studs and shaftliner alternately until wall is complete. Attach horizontal C-Track to top of shaftliner panels, fastening flanges of C-Track at all corners on both sides of shaftliner with 3/8" drill point screws.

Intermediate Floors: Attach C-Track to C-Track cap on wall below, staggering end joints at least 12". Fasten C-Tracks together using double 3/8" screws at ends and 24" o.c. Fasten H-Studs to adjacent framing with aluminum breakaway clips. Attach breakaway clips to H-stud with one 3/8" drill point screw and to adjacent wood framing with 1-1/4" drywall screw. Install fire blocking between solid wall system and adjacent framing at floor lines, bottom of truss line and any other locations according to code requirements. When the UL Design U373 area separation wall assembly is specified, the breakaway clips should be located vertically at each floor level (10'0" o.c.) and horizontally on every H-Stud (24" o.c.). When the total height of the area separation wall exceeds 20'0", breakaway clips shall be installed every 5'0" maximum for the lower 20'0" and every 10'0" maximum for the upper 24'0" of the wall assembly. Breakaway clips are installed on both sides of the area separation wall. When the WHI/ITS Design SHI 120-04 area separation wall assembly is specified, the breakaway clips should be located vertically at each floor level (10'0" o.c.) and horizontally on every other H-stud (48" o.c.). When the total height of the area separation wall exceeds 20'0", breakaway clips shall be installed vertically every 8'0" maximum for the lower 20'0" and every 10'0" maximum for the upper 30'0" of the wall assembly.

Roof: Cut DensGlass Ultra Shaftliner panels and H-Studs to follow roof pitch. Fasten H-Studs to framing with an aluminum breakaway clip.

Fiberglass Insulation: Friction-fit fiber glass blanket insulation within cavities.

Interior Finish: Apply gypsum board as specified to wood studs with screws or nails in conventional manner.

3.2 Accessories

Joint System: Finish all face layer joints and internal angles of wood stud wall with ToughRock joint treatment applied according to manufacturer's directions. Spot exposed fasteners on face layers and finish corner bead, control joints and trim as required.

Metal Trim: Where partition or ceiling terminates against masonry or other dissimilar material, apply metal trim over drywall edge.

Control Joints: Gap gypsum board behind joint and back with double framing. Attach control joint on both flanges along entire length of joint.

3.3 Limitations

Unsupported wall height between floors should not exceed 12 feet. May be used in buildings up to four stories. The UL Design U373 area separation wall assembly was evaluated at a height up to 44' and the WHI/ITS 120-04 area separation wall assembly was evaluated at a height up to 50'.

Service cutouts or through penetrations shall be installed and protected in accordance with the building code.

Do not install insulation in the system until the building has been properly closed in.

The specifier or user should determine prior to installation that the local building and fire code authority permits the installation of gypsum area separation walls and that the insuring group will not penalize the owner.

Provide for deflection of live-loaded floor assemblies by using relief joints or floating trim.

DensGlass Gold® Exterior Sheathing is a patented, unique paperless sheathing panel engineered with a moisture-resistant treated core surfaced with glass mat facings and a gold-colored, bond-enhancing primer coating. DensGlass Gold sheathing was created to withstand normal weather and moisture exposure for up to 6 months. DensGlass Gold sheathing can be used in exterior insulated finish systems. DensGlass Gold sheathing resists the growth of mold when tested, as manufactured, per ASTM D 3273.

DensShield® Tile Backer is a patented, premium performance tile substrate. Its unique properties have provided a wealth of labor saving benefits while offering ultimate moisture protection for professional tile installations on interior floors, walls, ceilings and countertops. Its heat-cured gray acrylic coating serves as a built-in vapor barrier that protects both the tile installation and the wall cavity behind it.

DensDeck® Roof Board is a patented, nonstructural, glass-mat faced noncombustible, water-resistant treated gypsum core panel. It is approved by all leading roofing systems manufacturers for use in commercial roof assemblies and has received the highest performance rating for fire, wind uplift, strength and moisture resistance.

DensDeck Prime® Roof Board is a premium roof board that combines all the features of standard DensDeck roof board with an enhanced surface treatment. The nonstructural roof board is engineered with a proprietary, non-asphaltic coating to enhance bonding in commercial single-ply and built-up roofing systems.

DensGlass® Ultra Shaftliner™ features a patented, coated glass mat. Independent tests confirm that DensGlass Ultra Shaftliner, with its patented glass mat design, resists the growth of mold when tested, as manufactured, per ASTM D 3273.

DensDeck DuraGuard™ Roof Board has all the properties of DensDeck roof board. It has a low perm, integrated, durable coating that enhances bond strength of the membrane system without requiring field priming. Features a moisture-resistant, treated core and a coated glass mat on back side.

DensGlass Silver™ Residential Sheathing was designed with innovative Dens Technology™ and incorporates the proven glass mat DensGuard® Technology. A moisture-resistant core meets requirements of ASTM C 1177 and applicable sections of ASTM C 79.

DensArmor® Plus Wallboard Panel is an interior panel with a moisture-resistant, noncombustible gypsum core using coated glass mat facings on both front and back of the board. The glass mat facing finishes like paper faced wallboard. DensArmor Plus wallboard resists the growth of mold when tested, as manufactured, per ASTM D 3273 providing unparalleled protection from problems caused by moisture intrusion.

Updates and Current Information: www.gpgypsum.com

Sales Information and Order Placement:

USA

Midwest: 1.800.876.4746
South: 1.800.327.2344
Northeast: 1.800.947.4497
West: 1.800.824.7503

CANADA 1.800.387.6823
Quebec: 1.800.361.0486

Technical Hotline:

1-800-225-6119 (M-F, 8-6 EST)

Literature Requests:

1-800-BUILD GP

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