



**PRIEST & ASSOCIATES
CONSULTING, LLC**

ENGINEERING EVALUATION

UTILITIES IN THE FLANKING WALLS OF AMERICAN GYPSUM'S UL V344 ME AREA SEPARATION FIREWALL

Project No. 11109

Prepared for:

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August 2, 2022

Abstract

Priest & Associates Consulting (PAC) has analyzed the American Gypsum Company (AGC) proprietary gypsum ME Area Separation Firewall (ASF) UL V344 design for use as a common wall in the separation of dwellings in townhouse or multi-family housing construction with utilities installed within the flanking walls of the assembly. PAC has concluded that unnecessary restrictions have been placed by IRC Section R302.2.2 on the V344 ME ASF system by prohibiting utilities in the adjacent flanking walls. Unlike typical "cavity wall" type common wall construction, services installed within the unrated "protected" wall framing of the ME ASF firewall/partywall system would not be expected to detract from the 2½-hour fire rating when tested per ASTM E119/UL263.

The conclusions reached by this evaluation are true and correct, within the bounds of sound engineering practice. All reasoning for our decisions is contained within this document.

Submitted by,



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360-957-0311

August 2, 2022

Reviewed and approved,



Deg Priest
President

August 2, 2022



INTRODUCTION

The purpose of this Engineering Evaluation (EEV) is to justify the placement of utilities (plumbing, electrical lines/conduit, mechanical equipment, ducts, or vents) in the flanking walls of the proprietary UL V344 AGC steel H-stud gypsum ME Area Separation Firewall (ME ASF) is not expected to detract from the listed 2½-hour fire resistance rating. This analysis addresses the conformity of the V344 design with the intent of the 2-hour townhouse fire separation requirement outlined in Section R302.2 of the 2021 International Residential Code (and earlier editions).

This document is intended to provide an expert opinion on the properties of the materials, products, or assemblies identified in this report as related to meeting a specific code or standard. Suitability to use is to be determined by the end-user.

BACKGROUND

IRC Section 302.2 provides for two options for walls separating adjacent townhouse units. Section R302.2.1 addresses a double 1-hour wall concept, and Section R302.2.2 addresses a common wall concept. Section R302.2.2 of the IRC prohibits the installation of utilities (including HVAC and plumbing components of various types) within common walls separating townhouses (see code language below). The V344 ASF is in the “common wall” category and treated the same as if it included stud cavities as found in standard framed wall construction. The IRC does not address the unique firewall characteristics of the V344 ME ASF design when compared to typical cavity-type wall construction and regulates the ME ASF system in the same manner as a common wall.

R302.2.2 Common Walls. *Common walls separating townhouses shall be assigned a fire-resistance rating in accordance with Item 1 or 2. The common wall shared by two townhouses shall be constructed without plumbing or mechanical equipment, ducts or vents in the cavity of the common wall. The wall shall be rated for fire exposure from both sides and shall extend to and be tight against exterior walls and the underside of the roof sheathing. Electrical installations shall be in accordance with Chapters 34 through 43. Penetrations of the membrane of common walls for electrical outlet boxes shall be in accordance with Section R302.4.*

- 1. Where a fire sprinkler system in accordance with Section P2904 is provided, the common wall shall be not less than a 1-hour fire-resistance-rated wall assembly tested in accordance with ASTM E 119 or UL 263.*
- 2. Where a fire sprinkler system in accordance with Section P2904 is not provided, the common wall shall be not less than a 2-hour fire-resistance-rated wall assembly tested in accordance with ASTM E119 or UL 263.*

It is understood that the reason for prohibiting utilities within the cavity of the common wall results from the potential for creating an interconnection between the adjacent dwelling units.

The common wall in R302.2.2 is a standard framed cavity wall system where plumbing, mechanical equipment, ducts, or vents are prohibited within the wall cavities. The V344 ME ASF is a solid system with four pieces of ½ in. M-Bloc Ekcel Type X GWB inserted within steel H-stud framing and connected via aluminum breakaway clips to adjacent flanking walls providing lateral support. We believe that unnecessary restrictions have been placed on the H-Stud ME ASF system by prohibiting utilities in the flanking walls on either side of the fire separation. It is the 2-inch-thick gypsum barrier that serves as the fire separation. Penetrations of the gypsum barrier are not allowed, and there is no interconnection of the flanking walls between unit dwellings. In



the V344 ME ASF system, the flanking “protected” walls do not become involved during testing per ASTM E119/UL263. This allows for the placement of utilities within the nonrated flanking walls.

REFERENCES

1. Gypsum Association Fire Resistance and Sound Control Design Manual, GA-600-2021
2. ASTM C1396, “Standard Specification for Gypsum Board”
3. Priest & Associates Consulting Engineering Evaluation 10879 “Utilities in Flanking Walls of Gypsum Area Separation Walls.” (<https://gypsum.org/download/14463/>)
4. Babrauskas, V., “Ignition of Wood: A Review of the State of the Art,” *Interflam 2001*, Interscience Communications Ltd. London (2001), pp. 71-88
5. ASTM D1929, “Standard Test Method of Determining Ignition Temperature of Plastics”

EVALUATION

The purpose of this evaluation is to justify the placement of utilities (plumbing, electrical lines/conduit, mechanical equipment, ducts, or vents) within the flanking walls of the proprietary UL V344 AGC ME ASF and the allowance for this assembly to meet the townhouse or multi-family fire separation requirements of IRC Section R302.2.2. This analysis uses the following considerations to support the justification:

1. A comparison of gypsum Area Separation Firewalls and “cavity-type” common wall construction,
2. A description of the design characteristics of UL V344
3. A comparison of gypsum ASWs and Cavity-type Common Wall construction,
4. ASTM E119/UL263 testing of ASWs, and
5. Expectations for the performance of combustible piping, conduit, or other flammable materials installed within the ASW flanking walls

General Discussion of Gypsum Area Separation Firewalls

Typical gypsum H-stud Area Separation Firewalls are described in Gypsum Association publication GA-620-2019 with various design listings published in Gypsum Association Fire Resistance Design Manual GA-600 (Ref. 1). These are assemblies of gypsum panels conforming to ASTM C1396 (Ref. 2) and steel studs designed for use as firewalls having a fire-resistance rating of a minimum of 2 hours. Various GA ASW assemblies and their corresponding fire-rated designs are nearly equivalent, except that different brands of proprietary gypsum shaftliner listed are used as the fire barrier in these assemblies. The justification for using these assemblies as a townhouse or multi-family housing common wall separation with utilities in the flanking walls has previously been provided in PAC EEV 10879 (Ref. 3).

The AGC V344 ME ASF system differs from the typical ASW systems listed above in the composition of the gypsum fire barrier. The V344 ME ASF uses four layers of ½ in. Type X GWB instead of 2 layers of 1-inch gypsum shaftliner. This approach has increased the fire resistance rating to 2½ hours.

The 2½-hour V344 and the 2-hour rated gypsum panel ASW systems are **Solid Type** party walls (firewalls) with nonrated independently framed wood or steel stud “protected wall” assemblies flanking each side of a 2-inch-thick gypsum fire barrier mounted within steel H-stud framing as shown in Figure 1. The ME ASF and traditional ASWs are non-loadbearing partitions connected with aluminum breakaway clips to the adjacent flanking walls providing lateral support. The



flanking walls are typically loadbearing and form the interior walls of the occupancy. When installed per the design listing, the 2-inch-thick gypsum ME ASF or ASW serves as a minimum 2-hour fire barrier that protects the wall on the unexposed side from temperatures exceeding the conditions of acceptance established by the E119 standard. The flanking walls do not form the fire separation. Gypsum H-stud ASWs and the AGC V344 ME ASF meet the definition for firewalls set forth in IBC (2021 and earlier editions) Sections 706.1.1 and 706.1.2:

706.1.1 Party walls. Any wall located on a lot line between adjacent buildings, which is used or adapted for joint service between the two buildings, shall be constructed as a fire wall in accordance with Section 706. Party walls shall be constructed without openings and shall create separate buildings.

706.2 Structural stability. Fire walls shall be designed and constructed to allow collapse of the structure on either side without collapse of the wall under fire conditions. Fire walls designed and constructed in accordance with NFPA 221 shall be deemed to comply with this section.

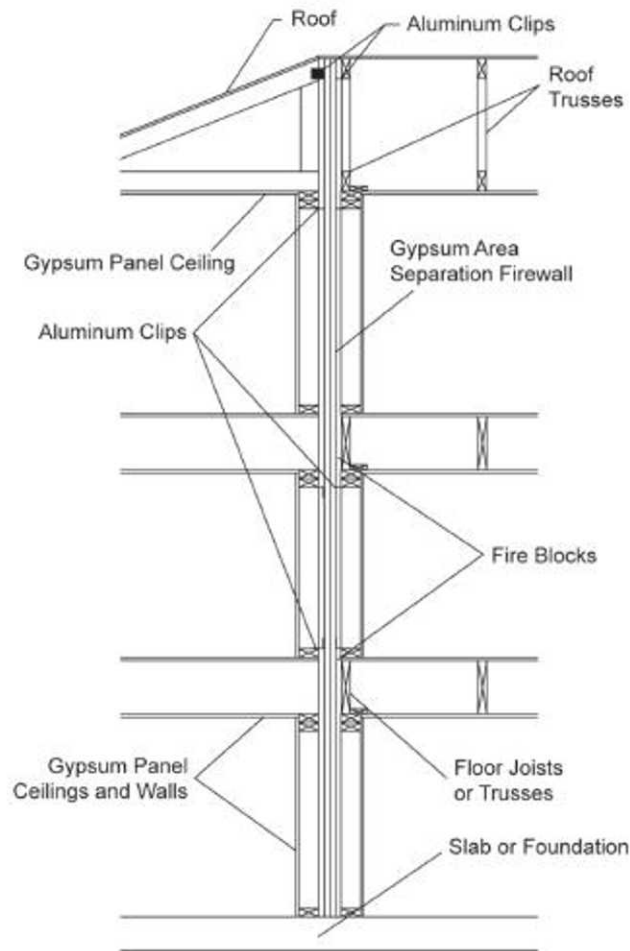


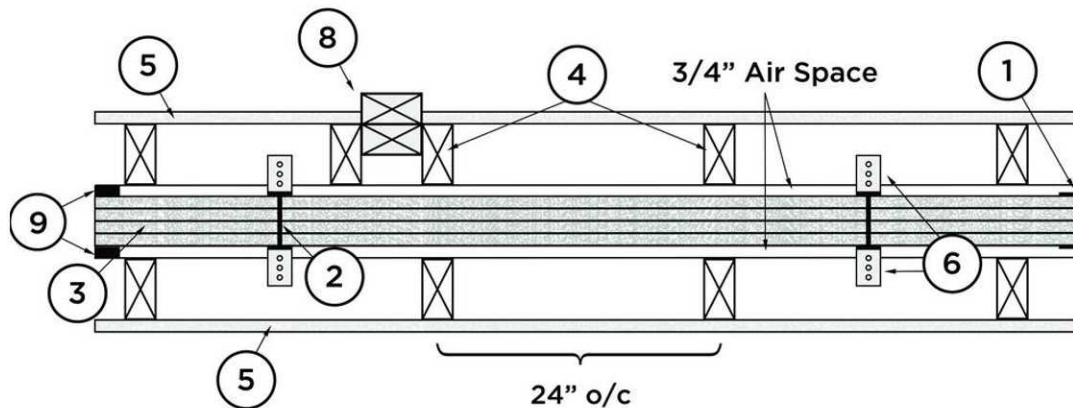
Figure 1. Typical Gypsum Area Separation Firewall Construction

Standard construction requires a minimum 3/4 in. air space separation between the protected wall and the gypsum H-Stud ASW fire barrier.



Aluminum angle clips, having a melting point of 1220 °F, are used to attach the H-Stud to both sides of adjacent framing members. When the fire wall is subjected to high temperatures, the clips on the fire side of the assembly act as fusible links which soften and break away, allowing distortion of the framing members on the fire side without jeopardizing the performance of the fire wall itself.

The AGC V344 design is shown in Figure 2. The UL V344 design listing is provided in the Appendix to this document.



1. **Steel track** – nom. 2 in. wide
2. **Steel Studs** – “H” shaped studs formed from No. 25 GA. steel, nom. 2 in. deep
3. **Gypsum Board** – Four layers 4 ft wide ½ in. M-Bloc® Ekcel® Type X gypsum wallboard panels
4. **Flanking Protected Wall Framing** – Wood or steel studs, spaced a maximum of 24 in. OC
5. **Flanking Wall Gypsum Board** – Nom. ½ in. “regular” (unclassified) GWB
6. **Aluminum Breakaway Clips**

Figure 2. UL V344 ASW System

“Cavity-type” Common Wall Construction

A typical fire-rated “cavity type” townhouse or multi-family housing construction consists of loadbearing wood or steel framing with GWB membrane protection on both sides, encasing the wall cavities and protecting the loadbearing stud framing, as shown in the example provided in Figure 3. The assembly can be either a single or double wall construction. The membrane protection must be sufficient to protect the framing from collapse during the fire exposure period and limit temperatures on the unexposed side from exceeding the temperature rise limits of the ASTM E119/UL263 test standard. As stated previously, the reason for prohibiting utilities within the cavity of this type of common wall can result in the potential for creating an interconnection between the adjacent dwelling units.



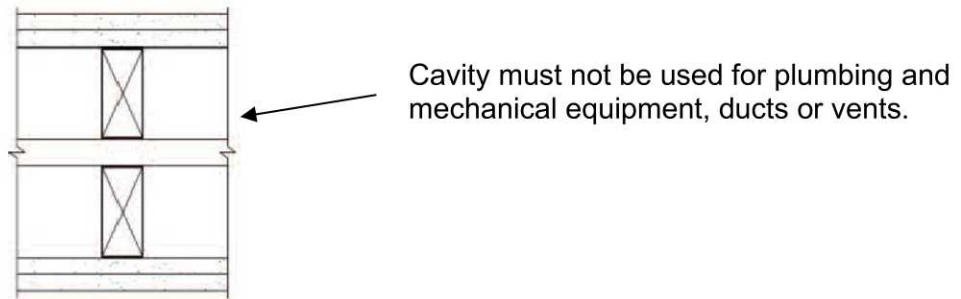


Figure 3
Typical 2-hour rated “cavity-type” common wall construction.

ASTM E119 Testing of Gypsum Area Separation Firewalls

A description of what happens in the ASTM E119/UL263 testing of a typical Area Separation Firewall assembly is necessary to understand the relationship between the ASW gypsum firewall barrier and the flanking protected wall on the non-fire side of the assembly.

In determining the fire-resistance rating of Area Separation Firewalls, compliance with E119 temperature rise criteria is required for a minimum of 2 hours.

Gypsum ASWs and the V344 ME ASF are tested with the flanking wall construction positioned on the unexposed side of the assembly. The test is conducted with the bare gypsum barrier surface directly exposed to the furnace. Thermocouples measure temperatures at three locations on the unexposed side:

1. Directly over the unexposed surface of the gypsum panels;
2. On the inside face of studs forming the protected wall framing, 3/4 in. away from the unexposed face of the gypsum fire barrier (for determination of the “Finish Rating”); and,
3. On the unexposed (UE) face of the protected wall.

Temperature measurements at Locations 1 and 2 are for supplemental information only. The temperature measurement at Location 1 assesses the performance of the gypsum panels. Thermocouples at Location 2 provide a measure of the “membrane protection rating” (the determination of the thermal protection afforded to the framing members by the ASW panels, also referred to as the “Finish Rating”). The temperatures measured at Location 3 are used in the determination of the fire classification of the system.

An example of a typical test configuration is shown in Figure 4.

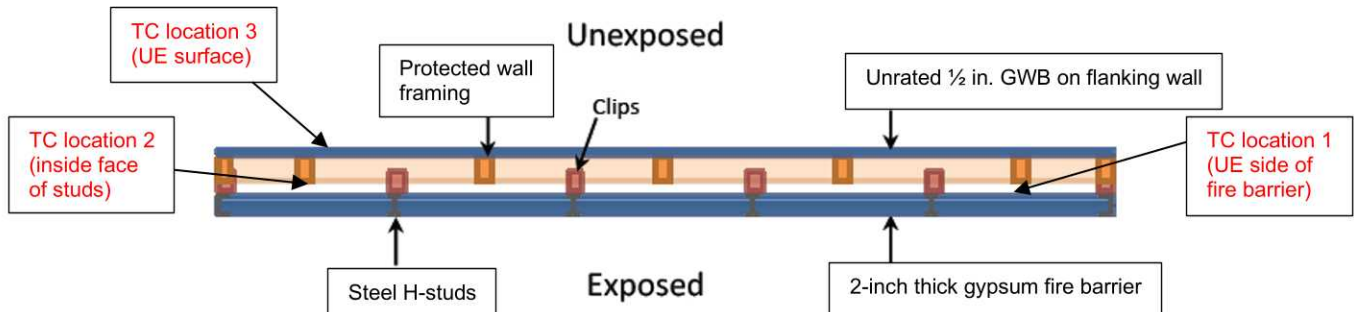


Figure 4



Successful testing of a typical 2-hour gypsum ASW (proprietary, held confidential) produced the following results:

1. Location 1 - gypsum panel unexposed surface temperature met temperature rise criteria at 2 hours, attaining an average temperature of 336 °F
2. Location 2 - exposed face of wood studs achieved a Finish Rating temperature of 270 °F at 2 hours
3. Location 3 - unexposed surface attained an average temperature of 174°F at 2 hours

The E119 Conditions of Acceptance are as follows:

1. The average temperature rise of any set of thermocouples shall not be more than 250 °F above the initial temperature, and
2. The temperature rise of any single thermocouple may not exceed 325 °F above its initial temperature

For this test, the starting temperature was 86 °F. Therefore, the limiting average temperature was 336 °F, and the maximum single point temperature was 411 °F. The E119 conditions of acceptance for temperature rise were met in all 3 cases.

From a fire-resistance perspective, ASWs generally require a minimum of $\frac{3}{4}$ in. air space to separate wood framing and other combustibles within the protected wall from the steel H-Stud framing members in the ASW. The H-Studs conduct heat from the exposed side of the assembly and can reach surface temperatures potentially high enough to ignite combustibles in direct contact with the hot surface of the stud. The specified minimum $\frac{3}{4}$ in. air space has been demonstrated to be sufficient to prevent this from occurring. If conditions dictate that provisions for the air space cannot be made, the various listed designs provide for the H-studs to be covered by $\frac{5}{8}$ in. type X gypsum board battens or 1 in. thick mineral wool batt.

In the ASW test discussed above, this air gap was sufficient to keep the exposed face of the wood stud flanking wall below the E119 temperature rise conditions for the duration of the test. The maximum temperature measured on the face of the studs located $\frac{3}{4}$ in. away from the non-fire side of the gypsum ASW fire barrier reached an average of 270 °F after 2 hours of fire exposure.

Utilities Within the Flanking Walls

The justification for allowing utilities including combustible polymeric piping, conduit, or other flammable materials within the flanking “protected” walls of a gypsum ASW is based on the fact that the solid ASW fulfills its role as a fire barrier and protects the wall on the unexposed side from excessive temperature rise. The prescribed air space in the ASW system is critical in this regard.

The placement of utilities within the wall cavities of typical “cavity-type” common walls could detract from the assembly's fire rating due to combustion within the wall spaces during the fire exposure or excessive heat transfer through metallic components to the unexposed side. It has been demonstrated in this evaluation that this cannot occur with the “solid” gypsum ASW (or AGC ASF) construction since there is no interconnection of the flanking walls between adjacent dwelling units. This perhaps forms part of the reasoning for prohibiting utilities in the common dwelling separation in Section 302.2.2.

The allowance for utilities within the flanking walls of an ASW is further supported by a discussion of the comparative ignition characteristics of wood and various polymeric materials that could be installed within the flanking wall construction.



Babrauskas (Ref. 3) has reviewed the ignition temperature of wood as measured during radiant heating or tube-furnace heating and determined that the minimum ignition temperature for wood was found to be 250 °C (482 °F).

Values for the ignition temperature of various plastics are included in ASTM D1929 “Standard Test Method of Determining Ignition Temperature of Plastics” (Ref. 4) and are shown in the table below. Data for the “Spontaneous Ignition Temperature (SIT)” are considered to reflect best the performance of polymeric materials on the non-fire side of the ASW since piloted (“flash”) ignition (ignition in the presence of a flame source) is not expected to occur.

TABLE 2 SIT (°C)

Material ID	Average	Repeatability Standard Deviation
	\bar{x}	s_r
Polymethylmethacrylate (PMMA)	450.0	0.0
High Density Polyethylene (HDPE)	370.0	0.0
Polyamide 11 (PA11)	423.3	5.8
Polycarbonate (PC)	550.0	0.0
Polypropylene (PP)	353.3	5.8
Polyvinylidene Fluoride (PVDF)	510.0	0.0

These data indicate that plastics require a temperature of 353 °C (667 °F) or higher for unpiloted ignition.

Comparing the ignition temperatures of wood and various polymeric materials demonstrates that the wood framing members of the flanking walls would be the most combustible component in an ASW assembly containing utilities. Therefore, the presence of plumbing or mechanical equipment, ducts, or vents within the cavities of the protected wall in a typical ASW or V344 ME ASF system would not be expected to detract from the fire-resistance rating for the townhouse dwelling separation when tested per ASTM E119 or UL263.

CONCLUSION

Priest & Associates Consulting has reviewed the differences between “cavity-type” common walls and AGC’s V344 ME Area Separation Firewall when used to separate dwellings in townhouse construction. Construction characteristics, the UL V344 listing, and fire test performance have been analyzed. PAC has concluded that unnecessary restrictions have been placed on the V344 ME ASF system by prohibiting utilities in the adjacent flanking walls. Unlike typical “cavity wall” type common wall construction, utilities installed within the unrated “protected” wall framing of the V344 design would not be expected to detract from the fire resistance rating when tested per ASTM E119/UL263. Therefore, it is the expert opinion of Priest & Associates Consulting that the V344 assembly with plumbing, mechanical equipment, ducts, or vents in the cavities of the flanking walls can meet the townhouse unit dwelling separation requirements set forth in IRC Section 302.2.

END OF REPORT



Appendix

Fire-resistance Ratings - ANSI/UL 263

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States

BXUV7 - Fire Resistance Ratings - CAN/UIC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States Design Criteria and Allowable Variances

See General Information for Fire Resistance Ratings - CAN/UIC-S101 Certified for Canada Design Criteria and Allowable Variances

Design No. V344

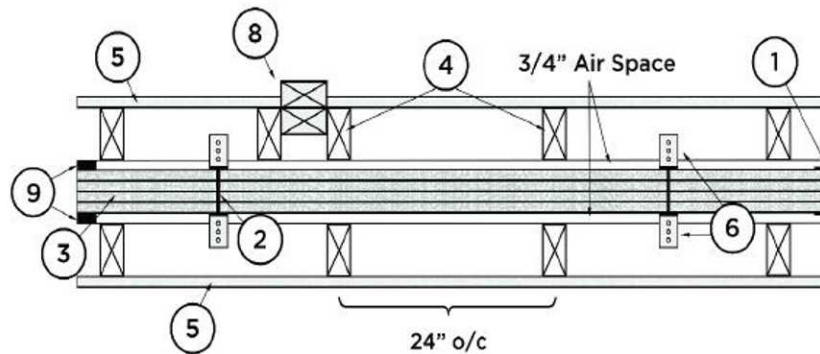
June 24, 2022

Nonbearing Wall Rating - 2-1/2 HR (Area Separation Firewall, See Items 1, 2 and 3)

Bearing or Nonbearing Wall Rating 2-1/2 Hr (Protected Wall, See Items 4 and 5)

Finish Rating - (120 or 150 min, see Items 5, 5A and 5B)

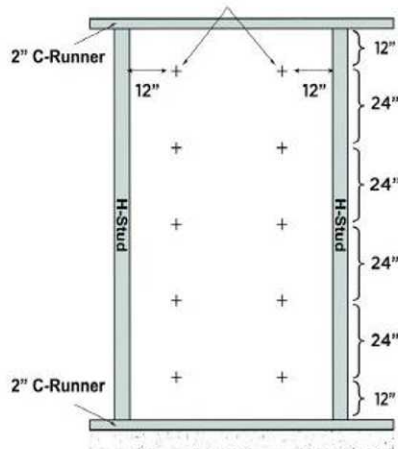
* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.



Exposed to Fire from Either Side

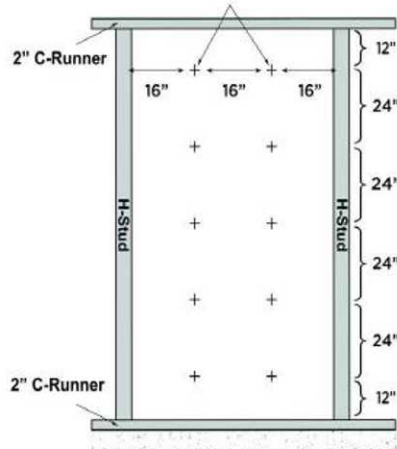
Side A

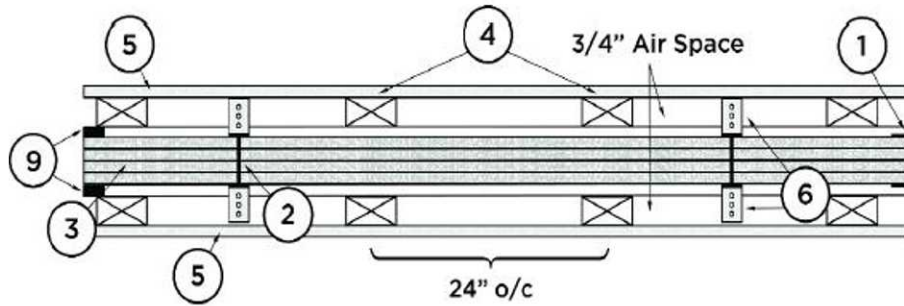
1-1/2" Type G Drywall Laminating Screws



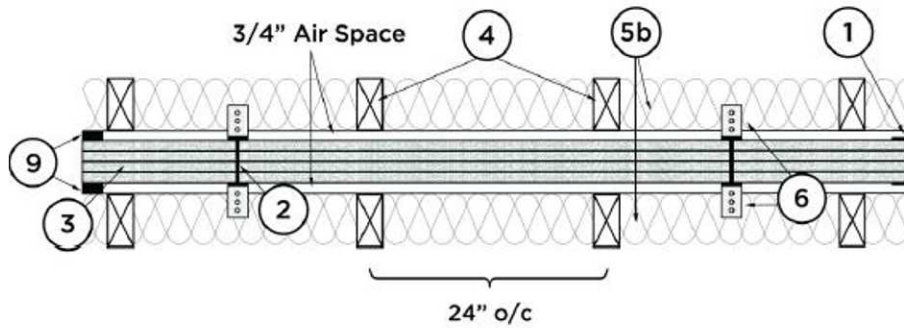
Side B

1-1/2" Type G Drywall Laminating Screw

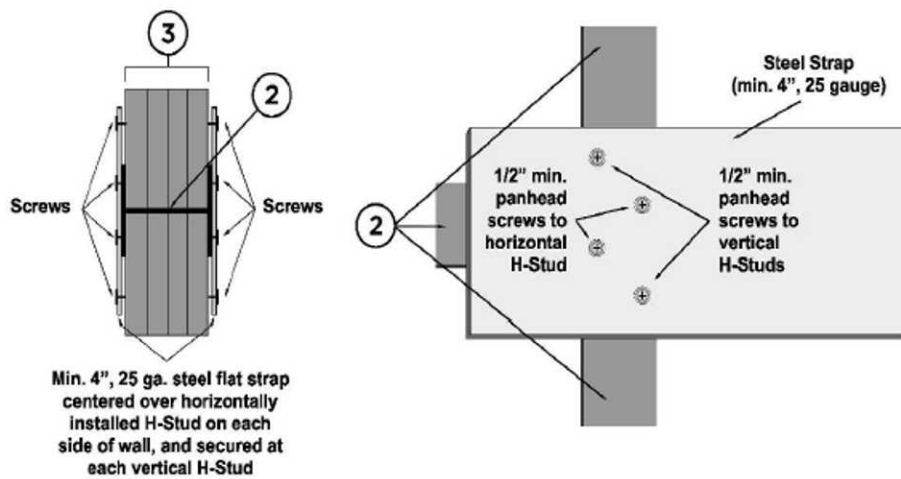




Exposed to Fire from Either Side



Exposed to Fire from Either Side



Alternate Installation



AREA SEPARATION FIREWALL — (Max Height – 66 ft.)

1. **Perimeter and Intermediate Channels** — 2 in. wide channel shaped with 1 in. long legs formed from No. 25 MSG galv steel, secured with suitable fasteners spaced 24 in. OC.
2. **Steel Studs** — Framing members formed from No. 25 MSG galv steel having "H" - shaped flanged spaced 48 in. OC; overall depth 2 in. and flange width 1-3/8 in.
3. **Gypsum Board*** — Four pieces of 1/2 in. thick gypsum boards, supplied in nom 48 in. widths, full lengths. Vertical edges of panels friction fitted into "H" - shaped studs.

AMERICAN GYPSUM CO — Type EKCEL

PROTECTED WALL: (Bearing or Nonbearing Wall as indicated under Items 4 and 5. When Bearing, Load Restricted for Canadian Applications — See Guide [BXUV7](#).)

4. **Wood Studs** — Bearing or Nonbearing Wall. Nom 2 by 4 in. max spacing 24 in. OC. Studs oriented with 2 in. face parallel or perpendicular to gypsum board (Item No. 3). Studs cross-braced where necessary for clip attachment. Min 3/4 in. separation between wood framing and area separation firewall.

4A. **Steel Studs** — (As an alternate to Item 4, not shown) — For Bearing Wall - Corrosion protected steel studs, min No. 20 MSG (0.0329 in., min bare metal thickness) steel or min 3-1/2 in. wide, min No. 20 GSG (0.036 in. thick) galv steel or No. 20 MSG (0.033 in. thick) primed steel, cold formed, shall be designed in accordance with the current edition of the Specification for the Design of Cold-Formed Steel Structural Members by the American Iron and Steel Institute. All design details enhancing the structural integrity of the wall assembly, including the axial design load of the studs, shall be as specified by the steel stud designer and/or producer, and shall meet the requirements of all applicable local code agencies. The max stud spacing of wall assemblies shall not exceed 24 in. OC. Studs attached to floor and ceiling tracks with 1/2 in. long Type S-12 steel screws on both sides of studs or by welded or bolted connections designed in accordance with the AISI specifications. Top and bottom tracks shall consist of steel members, min No. 20 MSG (0.0329 in., min bare metal thickness) steel or min No. 20 GSG (0.036 in. thick) galv steel or No. 20 MSG

(0.033 in. thick) primed steel, that provide a sound structural connection between steel studs, and to adjacent assemblies such as a floor, ceiling, and/or other walls. Attached to floor and ceiling assemblies with steel fasteners spaced not greater than 24 in. O.C. Studs cross-braced with stud. Min 3/4 in. separation between steel framing and area separation wall.

4B. **Steel Studs** — (As an alternate to Items 4 and 4A) - For Nonbearing Wall - Channel shaped, fabricated from min 25 MSG corrosion-protected steel, min 3-1/2 in. wide, min 1-1/4 in. flanges and 1/4 in. return, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height. Top and bottom tracks shall be channel shaped, fabricated from min 25 MSG corrosion-protected steel, min width to accommodate stud size, with min 1 in. long legs, attached to floor and ceiling with fasteners 24 in. OC max. Studs cross-braced with stud framing at mid-height where necessary for clip attachment. Min 3/4 in. separation between steel framing and area separation wall.

4C. **Framing Members* — Steel Studs** — (As an alternate to Item 4, 4A, and 4B) - For Nonbearing Wall. Proprietary channel shaped studs, 3-5/8 in. wide spaced a max of 24 in. OC. Studs supplied with proprietary top and bottom tracks, min width to accommodate stud size, attached to floor and ceiling with fasteners 24 in. OC max. Studs to be cut 3/4 in less than the assembly height and installed with a 1/2 in. gap between the end of the stud and track at the bottom of the wall. Studs cross-braced with stud framing at mid-height where necessary for clip attachment. Min 3/4 in. separation between steel framing and area separation wall.

CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper25™

CLARKDIETRICH BUILDING SYSTEMS — CD ProTRAK

CRACO MFG INC — SmartStud25™

IMPERIAL MANUFACTURING GROUP - Viper25™

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper25™

STUDCO BUILDING SYSTEMS — CROCSTUD



5. **Gypsum Board** — Classified or Unclassified — Min 1/2 in thick, 4 ft wide, applied either horizontally or vertically. Gypsum board attached to wood studs with 1-1/4 in. long steel drywall nails spaced 8 in. OC or 1 in. long Type W coarse thread steel screws spaced 12 in. OC. Joints may or may not be covered with paper tape and joint compound. Nail or screw heads may or may not be covered with joint compound. When minimum board weight is less than 1.3 lbs/ft², Finish Rating is 120 min. When minimum board weight is 1.3 lbs/ft² or greater, Finish Rating is 150 min.

5A. **Plywood Sheathing or OSB** — (Not Shown) — As an alternate to Item 5, Min 1/2 in. thick plywood or OSB applied horizontally or vertically to wood or steel studs. Vertical joints located over studs. Horizontal joints shall be butted tight to form a closed joint. Fastened to studs with nails or screws of sufficient length, spaced 12 in. OC. Joints and fastener heads are not required to be treated. Finish Rating is 120 min. When used in addition to Item 5 Finish Rating is 150 minutes.

5B **Batts and Blankets*** — As an alternate to Item 5. Glass fiber or mineral wool insulation, min. 3-1/2 in. thick, placed to completely fill the wood or steel stud cavities. See Batts and Blankets (BKNV) category in the Building Materials Directory and Batts and Blankets (BZJZ) category in the Fire Resistance Directory for name of Classified Companies. Finish Rating is 120 min. When used in addition to Item 5 Finish Rating is 150 minutes.

5C. **Loose Fill Material*** — (Optional) — To be used in addition to Items 5, 5A or 5B. Any loose fill material bearing the UL Classification Marking for Surface Burning Characteristics, placed to completely or partially fill the enclosed stud cavity and air space in accordance with the application instructions supplied with the product.

5D. **Fiber, Sprayed*** — (Optional) —To be used in addition to Items 5, 5A or 5B. The spray applied cellulose fiber is applied with water to completely or partially fill the enclosed stud cavity and air space in accordance with the application instructions supplied with the product with a nominal dry density of 2.7 lb/ft³. Alternate Application Method: The fiber is applied without water or adhesive at a nominal dry density of 3.5 lb/ft³, in accordance with the application instructions supplied with the product.

U S GREENFIBER L L C — SANCTUARY, FRM, INS735, NS745 and INS750LD for use with wet or dry application. INSS15LD, INS541LD, INSS10LD, INS765LD and INS773LD are to be used for dry application only.

6. **Attachment Clips** — Aluminum angle, min. 0.063 in. thick, min 2 in. wide with min 2 in. and 2-1/4 in. legs or min. 0.050 in. thick, min. 2 in. wide with min 2 in. and 2-1/2 in. legs. Clips secured with min. No. 8, 3/4 in. long panhead sharp screws to "H" studs and wood framing through holes provided in clip.

23 ft. Height Limitation	Clip placement (Item 6) for separation firewalls up to 23 ft. high Start at roof line and space clips a max of 10 ft. OC vertically between wood or steel framing and "H" studs.
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44 ft. Height Limitation	Clip placement (Item 6) for separation firewalls up to 44 ft high. For the upper 24 ft. of the wall system, space the clips 10 ft. OC, and then 5 ft. OC for the remainder of the wall below.
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66 ft. Height Limitation	Clip placement (Item 6) for separation firewalls up to 66 ft high: For the upper 24 ft. of the wall system, space the clips 10 ft. OC. On the next 20 ft. below space the clips 5 ft. OC, and then 40 in. OC for the remainder of the wall.
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7. **Laminating Screws** — Gypsum boards (Item 3) are secured to each other with 1-1/2 in. long Type G laminating screws from both sides of wall in between the H studs. On both sides of the wall rows spaced 24 in. OC with a maximum dimension of 12 in. from the top and bottom C-channels of the assembly. On one side of the wall each row contains 2 screws located 12 in. from each face of the H-studs. On the other side of the wall each row contains 2 screws located 16 in. from each face of the H-studs. Refer to Illustration.

8. **Non-Bearing Wall Partition Intersection** — (Optional) — For wood framing — Two nominal 2 by 4 in. stud or nominal 2 by 6 in. stud nailed together with two 3in. long 10d nails spaced a max. 16 in. OC. vertically and fastened to one side of the minimum 2 by 4 in. stud with 3 in. long 10d nails spaced a max 16 in. OC. vertically. Intersection between partition wood studs to be flush with the 2 by 4 in. studs. The wall partition wood studs are to be framed with a second 2 by 4 in. wood stud fastened with 3 in. long 10d nails spaced a max. 16 in. OC. vertically. Maximum one non-bearing wall partition intersection per stud cavity. Non-bearing wall partition stud depth shall be at a minimum equal to the depth of the wall.

9. **Caulking and Sealants*** — (Optional - Intended for use as an air barrier - Not evaluated as fire blocking) - A bead of sealant applied around the partition perimeter in the 3/4 in. air space between wood framing (Item 4) and gypsum board panels (Item 3) to create an air barrier.

DUPONT DE NEMOURS, INC. — Great Stuff Gaps & Cracks, Great Stuff Pro Gaps & Cracks, Great Stuff Pro Window & Door

ICP ADHESIVES & SEALANTS INC — Handi-Foam Fireblock, Handi-Foam Fireblock West, and Fast Foam Fireblock



Alternate Installation

When "H" studs, Item 2 are installed horizontally to cap the Area Separation Firewall in lieu of Item 1, construct as follows. (A) As shown in the Alternate Installation detail, secure a min. 4 inch wide steel flat strap, fabricated from minimum 25 gauge galvanized steel, on each side of the horizontally installed "H" stud. (B) Ensure flat strap is centered over the horizontal "H" stud, and attached with four 1/2 in. min long panhead screws on each side of the Area Separation Firewall. (C) Two screws are used to secure flat strap to vertical "H" stud, above and below the horizontal "H" stud as shown in detail (D) Two screws are also inserted to secure flat strap to the horizontal "H" stud, in alternating pattern.

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2022-06-24

