

# *H-Stud Area Separation Wall System*



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**National**   
**Gypsum**®

# H-STUD AREA SEPARATION WALL SYSTEM



The fire-protection of gypsum-based Area Separation Walls is demonstrated in dramatic fashion by the results of this actual townhouse fire in which the two-hour fire-rated assembly performed as expected in protecting adjacent properties. Break-away feature allowed collapse of fire-side structural framing without pulling down the entire wall.

## DESCRIPTION

### SOLID TYPE AREA SEPARATION WALL

The H-Stud Area Separation Wall consists of 2" light-gauge steel H-Studs which secure two layers of 1" Fire-Shield Shaftliner or 1" Fire-Shield Shaftliner XP board between adjacent studs.

Shaftliner board is faced with green moisture-resistant paper and Shaftliner XP board is faced with purple moisture/mold/mildew-resistant paper on both sides for protection against weather during installation. Shaftliner panels have a beveled edge configuration allowing for simple installation into the H-Studs.

The H-Studs are secured at the foundation floor by the flanges of H-Stud Track. The same track is used back-to-back at intermediate floors to provide a splicing means so that the System can be erected one floor at a time. H-Stud Track is also used at the roof line or at the parapet and at wall ends.

For a fire-rated assembly without the need for battens, a minimum 3/4" air space shall be maintained between the H-Stud assembly and

any adjacent framing members. When a 3/4" air space cannot be maintained, the H-Stud and H-Stud Tracks are covered by screw-attached 6" wide battens fabricated from 1/2" Fire-Shield C Gypsum Board; or 1/2" Fire-Shield C Gypsum Board boards can be fastened to the H-Studs and joints\* covered with tape and joint compound to provide a finished wall. Mineral wool or glass fiber can be installed in adjacent cavity shaftwalls to provide higher STC ratings.

Steel H-Stud framing members are attached on each side to adjacent framing with breakaway, heat softenable aluminum ASW Clips.

\*Refer to UL Design U347.  
NOTE: ICC ES Inc. Legacy Report 90-26.01 requires a 1" minimum air space.

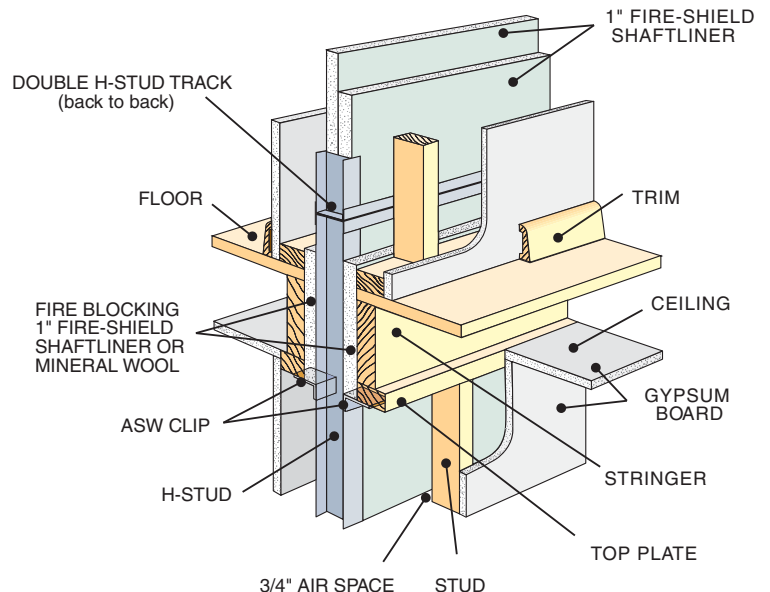
## TECHNICAL DATA

1. Area Separation Walls are nonload-bearing walls. They should not be used where exposed to constant dampness and/or water.

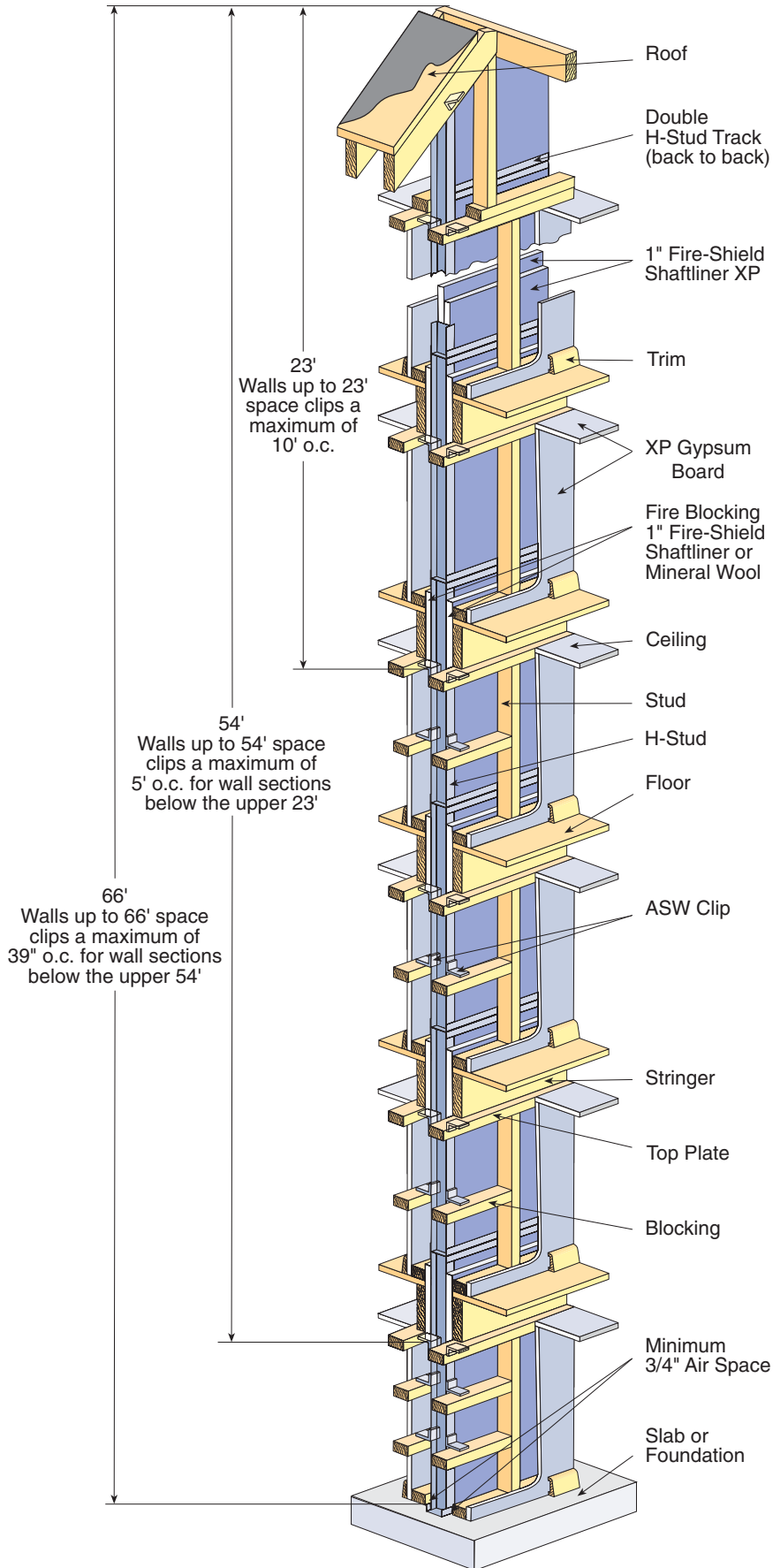
Steel framing and XP Gypsum Board products permit temporary exposure to inclement weather during construction, but the constructed Area Separation Wall should be protected from inclement weather as soon as possible. Materials supplied to the job site should be stored properly, supported off the ground and protected from inclement weather.

2. The Area Separation Wall System may be built up to a maximum of 66' high.
3. Insulation in the Area Separation Wall must be protected from wetting and therefore shall not be installed until building is closed-in.
4. XP Gypsum Board or Gypsum Sheathing shall be used on faces of stud framing of Area Separation Walls which project beyond roof or side walls.

### TYPICAL FLOOR/CEILING JUNCTURE

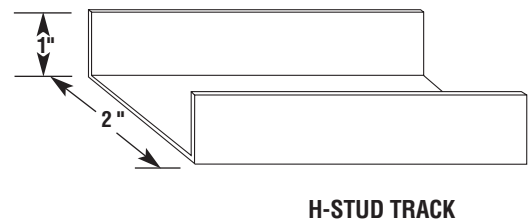
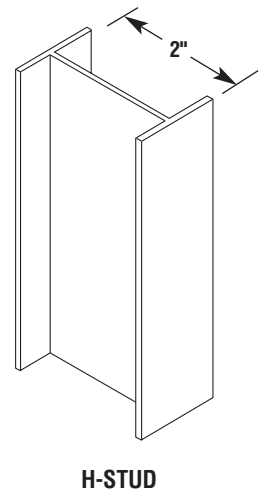
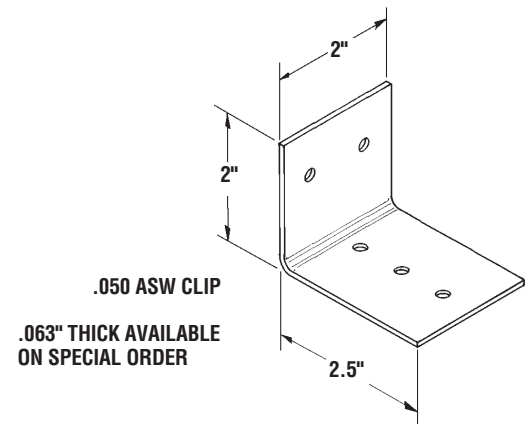


**AREA SEPARATION WALL LIMITING HEIGHTS**



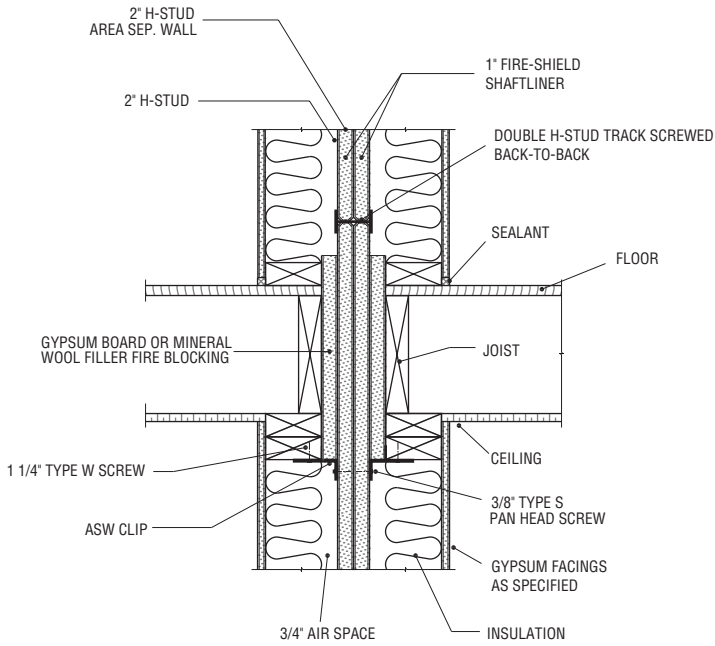
**AREA SEPARATION WALL CLIP**

The framing attachment ASW Clips are made from 0.050" aluminum alloy that softens at about 1000°F. They are formed in the shape of an angle and are available 2" wide with legs either 1" x 2", 1" x 2.5" or 2" x 2.5". Clips are attached to vertical steel H-Stud framing using one 3/8" Type S pan head screw and to adjacent framing with one 1 1/4" Type W screw.



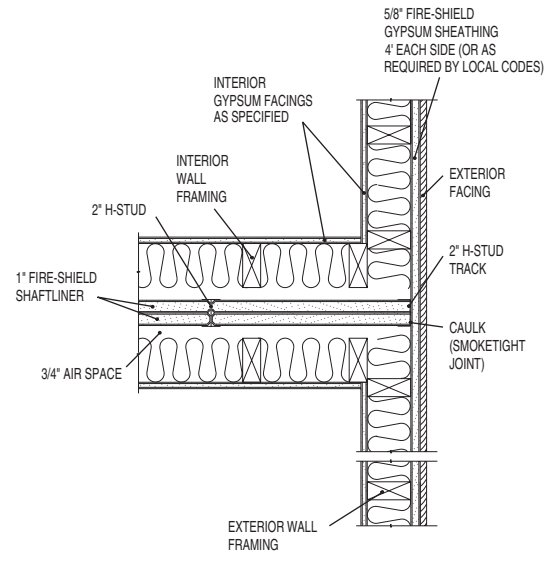
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**DETAILS**



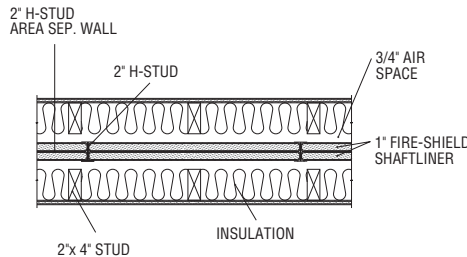
**INTERMEDIATE FLOOR INTERSECTION\***  
**LOCATION OF ASW CLIPS**

09265I  
Scale: 1" = 1'-0"



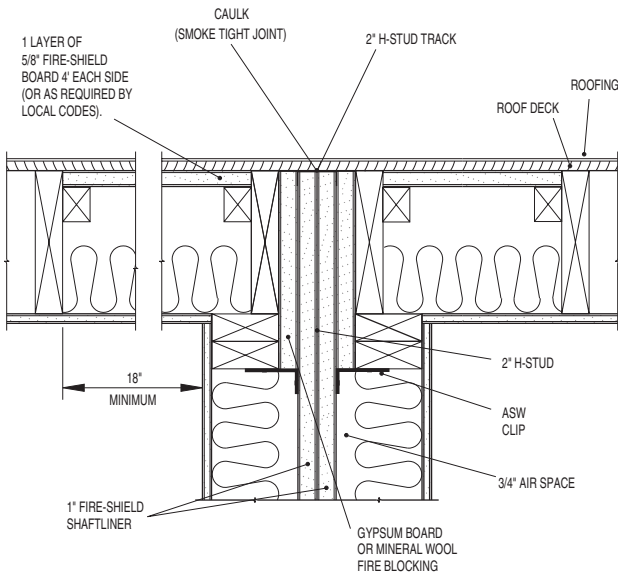
**EXTERIOR WALL INTERSECTION**

09265M  
Scale: 1" = 1'-0"



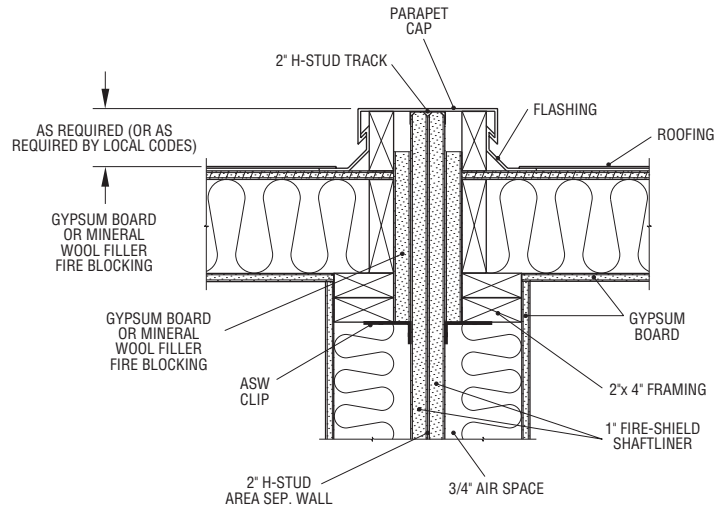
**TYPICAL WALL CROSS SECTION\***

09265G  
Scale: 1/2" = 1'-0"



**TYPICAL ROOF JUNCTION DETAIL**

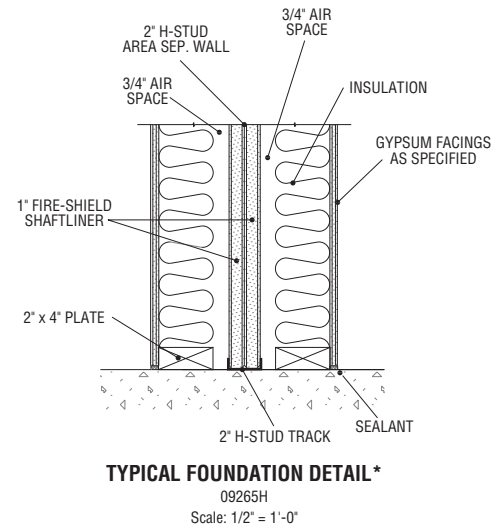
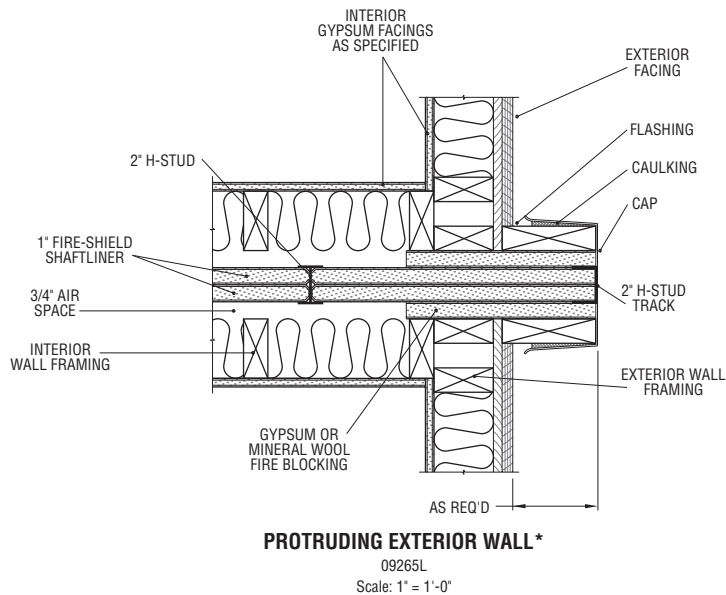
09265K  
Scale: 1" = 1'-0"



**TYPICAL ROOF PARAPET DETAIL**

09265J  
Scale: 1" = 1'-0"

\*When a 3/4" air space cannot be maintained between the H-Stud assembly and adjacent framing members, 1/2" Fire-Shield C Gypsum battens are required to cover H-Studs and H-Stud Track.



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## RECOMMENDATION

Order H-Studs and 1" Fire-Shield Shaftliner according to the following outline:

**Basement wall section** – length equal to distance from foundation floor to approximately 3" above floor line of first floor.

**Intermediate floors** – length equal to distance between floor lines.

**Topmost floor** – length to extend to top of parapet wall or to roof intersection, depending on detail.

## BASEMENT WALL INSTALLATION

1. Beginning at foundation floor, attach 2" H-Stud Track to concrete with power-driven fasteners spaced 24" o.c. Apply acoustical sealant along edges of track at floor line.
2. Install H-Stud Track on foundation walls where Area Separation Wall intersects, if applicable. Fasten with power-driven fasteners 24" o.c. Caulk edges as with floor track.
3. At intersection of foundation or exterior wall and Area Separation Wall begin erecting by inserting first layer of 1" Shaftliner into floor and wall track. Insert second layer back-to-back with first and seat into floor and wall track. Shaftliner and studs may

- be set into position from the basement floor or fed down through the space provided in the wood framing from the floor above.
4. Making sure that both pieces of Shaftliner are seated all the way into the floor and wall tracks and that their edges are flush, insert an H-Stud into the floor track and engage the H-Stud legs over the long edges of the Shaftliner boards. Seat the H-Stud fully so the board edges contact the stud web.
5. Continue in this manner, erecting two thicknesses of Shaftliner, and installing the legs of the H-Stud over the Shaftliner edges until wall is completed. Again, make sure all studs and boards are tightly pushed together. Floor track may be screw fastened to H-Studs with 3/8" Type S pan head screws to assist with installation.
6. If the Area Separation Wall terminates at a foundation wall, the last two Shaftliner boards will have to be inserted from the floor above. Boards are pushed down into the channel formed by the previous H-Stud's legs and the legs of the wall track.
7. If the Area Separation Wall terminates at or past a framed wall, insert the last boards conventionally and cap the end of the Area Separation Wall with

2" H-Stud Track. Fasten H-Stud track flanges at all corners on both sides with 3/8" Type S pan head screws.

8. The top edge of the erected wall is then capped off by placing 2" H-Stud Track over studs and boards. Track may be screw fastened to H-Studs with 3/8" Type S pan head screws to assist with installation.
9. Attach studs to adjacent wood framing with ASW Clips. Secure the clips to the studs with one 3/8" Type S Pan Head Screw through the short leg of the clip. The ASW Clips may be attached directly to the steel studs or through the gypsum board batten face into the studs.
10. A minimum 3/4" air space shall be maintained between the H-Stud assembly and any adjacent framing members.\* When a 3/4" air space cannot be maintained, gypsum board batten strips are installed over H-Studs and H-Stud Track on both sides of the wall. 3" wide battens are installed over H-Stud Track at foundation and roof. 6" battens are screw-attached to H-Studs with 1" Type S screws spaced 12" o.c. screwed into alternate legs of H-Stud. Battens are cut from sheets of 1/2" Fire-Shield C Gypsum Board.

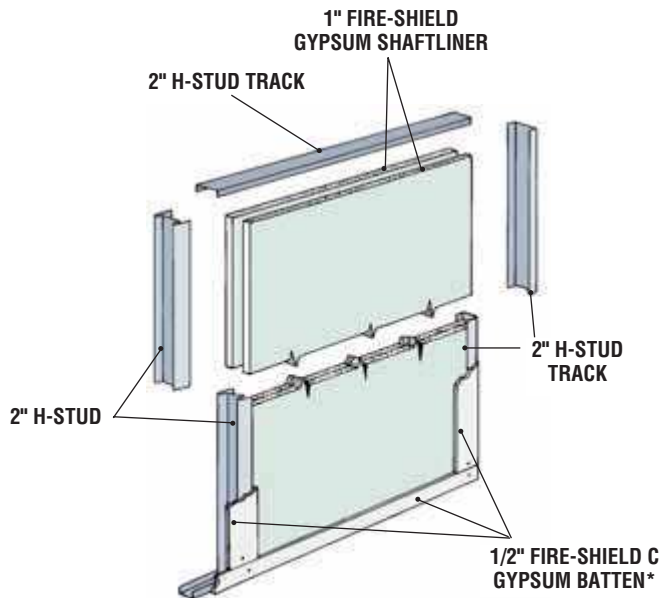
## INTERMEDIATE FLOORS AND ROOF INSTALLATION

1. Attach 2" H-Stud Track to the already installed capping track of the lower floor's wall. This back-to-back track installation allows the Area Separation Wall to be erected one floor at a time. Secure the two tracks together with two 3/8" Type S pan head Screws 24" o.c. Stagger back-to-back track joints a minimum of 12".
2. Erect Shaftliner and H-Studs in the same manner as for the basement wall, steps 4-10, except that starting and ending procedures vary depending on the exterior wall intersection detail. See drawing details.
3. At roof intersection the walls are capped-off with H-Stud track. Track may be fastened to H-Stud with 3/8" Type S pan head screws to assist with installation. H-Studs are fastened to wood framing with ASW Clips. The specific framing procedure varies according to roof junction drawing details.
4. Fire blocking must be provided at intermediate floors and roof locations as shown in drawing details. Mineral wool or gypsum board filler may be used.

\*Refer to UL Design U347.  
NOTE: ICC Es, Inc. Legacy Report 90-26.01 requires a 1" minimum air space.

## INTERIOR FACINGS

1. 2" H-Stud Area Separation Wall can be finished in a variety of ways depending on wall installation. For load-bearing applications, wood stud walls meeting required codes must be erected flanking the Area Separation Wall. Stud walls are then finished in whatever method is specified. For nonload-bearing applications, finished wall may be of any type meeting local codes including exposed Shaftliner and battens where appearance is not critical.



**BASIC COMPONENTS OF 2" H-STUD AREA SEPARATION WALL (ASW CLIPS NOT SHOWN)**

- \* Battens not required when minimum 3/4" air space is maintained between H-stud wall and adjacent wood framing.

## SPECIFICATIONS

### SECTION 09 21 16.33

#### AREA SEPARATION WALL

THE FOLLOWING PARAGRAPHS ARE FOR INSERTION INTO SECTIONS OF GENERIC SPECIFICATIONS OR GENERIC/PROPRIETARY SPECIFICATIONS COVERING GYPSUM BOARD PRODUCTS FOR AREA SEPARATION WALLS. THE NATIONAL GYPSUM COMPANY PRODUCT NAME FOLLOWS THE GENERIC DESCRIPTION IN PARENTHESES.

#### PART 1 GENERAL

##### 1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM):
  1. C 1396, Specification for Gypsum Board.

#### PART 2 PRODUCTS

##### 2.02 MATERIALS

- A. Gypsum Board:
  1. Fire-Resistant Gypsum Shaftliner Board: A gypsum core shaftwall board with additives to enhance fire resistance of the core and surfaced with water repellent paper on front, back, and long edges and complying with ASTM C 1396, Type X (Gold Bond BRAND Fire-Shield Shaftliner).
    - a. Thickness: 1"
    - b. Width: 2'
    - c. Length: 7' through 14'
    - d. Edges: Beveled

2. Fire-Resistant Mold-Resistant Gypsum Shaftliner Board: A gypsum core shaftwall board with additives to enhance fire resistance of the core and surfaced with a moisture/mold/mildew resistant paper on front, back, and long edges; and complying with ASTM C 1396, Type X (Gold Bond BRAND Fire-Shield Shaftliner XP).
  - a. Thickness: 1"
  - b. Width: 2'
  - c. Length: 7' through 14'
  - d. Edges: Beveled
  - e. Mold and Mildew Resistance: Panel score of 10, when tested in accordance with ASTM D 3273
3. Fire-Resistant Gypsum Board: A gypsum core wall board with additives to enhance fire resistance of the core and surfaced with paper on front, back, and long edges and complying with ASTM C 1396, Type X (Gold Bond BRAND Fire-Shield C Gypsum Board).
  - a. Thickness: 1/2"
  - b. Width: 4'
  - c. Length: 6' through 16'
  - d. Edges: Square, Tapered, or Beveled Taper (Sta-Smooth Edge)
4. Fire-Resistant Mold-Resistant Gypsum Board: A gypsum core wall panel with additives to enhance fire resistance and the water resistance of the core; surfaced with a moisture/mold/mildew resistant paper on front, back, and long edges and complying with ASTM C 1396, type X (Gold Bond BRAND XP Fire-Shield C Gypsum Board).
  - a. Thickness: 1/2"
  - b. Width: 4'
  - c. Length: 8' 10' or 12'
  - d. Edges: Square or Tapered
  - e. Mold and Mildew Resistance: Panel score of 10, when tested in accordance with ASTM D 3273

## PART 3 EXECUTION

### 3.01 INSTALLATION

- A. General: In accordance with the manufacturer's recommendations, National Gypsum Company "Gypsum Construction Guide."