



**INSTALLATION INSTRUCTIONS**  
**1 1/2 HOUR UL CLASSIFIED**  
**CURTAIN TYPE (D)IBD2, (D)IBD2SS AND (D)IBDT FIRE DAMPERS**

**APPLICATION**

The fire damper models shown on this sheet are marked with a 1 1/2 hour fire damper label and are approved for use in fire walls or masonry floors with ratings of less than 3 hours. Fire Dampers require a field-or factory-installed sleeve. Select a sleeve of sufficient length to permit mounting angles attachment. Static and Dynamic dampers must be installed with leading edge of the closed blades within the wall or floor.

**STATIC FIRE DAMPERS – IBD models**

Not for use in Dynamic (fans on) Systems.

**MODEL IBD2 MAXIMUM SIZE**

Single Section

Vertical Installation – 48" w x 30" h or 33" w x 72" h (1219 x 762 or 838 x 1829) or 36" w x 36" h (914 x 914).

Horizontal Installation – 30" w x 45 1/2" h (762 x 1156) or 33" w x 38" h (838 x 965).

Multiple Section Assembly

Vertical Installation – 120" w x 72" h (3048 x 1829).

Horizontal Installation – 90" w x 91" h (2286 x 2311) or 114" w x 38" h (2896 x 965).

**MODEL IBD2SS MAXIMUM SIZE**

Single Section

Vertical Installation – 48" w x 30" h or 33" w x 72" h (1219 x 762 or 838 x 1829) or 36" w x 36" h (914 x 914).

Horizontal Installation – 30" w x 45 1/2" h (762 x 1156) or 33" w x 38" h (838 x 965).

Multiple Section Assembly

Vertical Installation – 99" w x 72" h (2515 x 1829).

Horizontal Installation – 90" w x 91" h (2286 x 2311) or 114" w x 38" h (2896 x 965).

**MODEL IBDT, IBDT1 and IBDT2 MAXIMUM SIZE**

Single Section

Vertical Installation – 40" w x 48" h (1016 x 1219).

Horizontal Installation – 36" w x 36" h (914 x 914).

**Notes:**

1. Dimensions shown in parentheses ( ) indicate millimeters.
2. All multiple section dampers are constructed of equal single section sizes no greater than the maximum single section sizes indicated above

**DYNAMIC FIRE DAMPERS**

Use in Dynamic (fans on) or Static (fans off) Systems

**MODEL DIBD2 MAXIMUM SIZE**

Single Section

Vertical Installation – 33" w x 36" h (838 x 914).

Horizontal Installation – 24" w x 24" h (610 x 610).

Multiple Section Assembly

Vertical Installation – 72" w x 48" h (1828 x 1219) or 48" w x 72" h (1219 x 1828) or 120" w x 24" h (3048 x 610).

**MODEL DIBD2X MAXIMUM SIZE**

Single Section

Vertical Installation – 18" w x 24" h (457 x 610).

Horizontal Installation – 18" w x 24" h (457 x 610) or 24" w x 18" h (610 x 457).

Multiple Section Assembly

Horizontal Installation – 36" w x 48" h (914 x 1219) or 48" w x 36" h (1219 x 914).

**MODEL DIBD2SS MAXIMUM SIZE**

Single Section

Vertical or Horizontal Installation – 24" w x 24" h (610 x 610).

Multiple Section Assembly

Vertical Installation – 72" w x 48" h (1828 x 1219) or 48" w x 72" h (1219 x 1828) or 90" w x 24" h (2286 x 610).

**MODEL DIBDT, DIBDT1 and DIBDT2 MAXIMUM SIZE**

Single Section

Vertical Installation – 24" w x 24" h (610 x 610).

**INSTALLATION SUPPLEMENTS**

Refer to the appropriate Ruskin installation instruction supplements for additional information or special requirements:

- Optional Sealant of Dampers in Fire Rated Wall or Floor Openings
- Transfer Openings and Duct Terminations
- Optional FireStop Material
- Extension of Fire and Combination Fire and Smoke Damper Sleeves
- Fire and Combination Fire/Smoke Dampers Installation in Concrete Floor with Steel Deck
- Drivemate No. 14880 Breakaway Connection
- Flanged System Breakaway Connections
- Mullions for Dampers in Oversized Concrete Wall Openings



California State Fire Marshal Listing No. 3225-245:005

## 1. Opening Clearance

The opening in the wall or floor shall be larger than the damper/sleeve assembly to permit installation or expansion. For two angle installations the opening shall be a minimum of 1/8" per foot (3 per 305) larger than the overall size of the damper/sleeve assembly. The maximum opening size shall not exceed 1/8" per foot (3 per 305) plus 2" (51), nor shall the opening be less than 1/4" (6) larger than the damper/sleeve assembly. For one angle installations, the opening shall be a minimum of 1/4" (6) to a maximum of 1" (25) larger than the overall size of the damper/sleeve assembly. The opening may be as much as 2" (51) larger than the damper/sleeve assembly if a 16ga (1.6) mounting angles is utilized.

## 2. Fasteners and Multiple Section Assembly

Use No. 10 (M5) bolts or screws, 3/16" (5) rivets, tack welds or spot welds as depicted in figures 3 and 4 and spaced as follows when joining individual dampers to make multiple section damper assemblies or when fastening damper to the sleeve:

Vertical Mount (In wall)	
Galvanized steel dampers	12" (305) spacing
Stainless steel dampers	6" (152) spacing
Horizontal Mount (In floor)	
All dampers	6" (152) spacing

Multiple section horizontal mount dampers require a 14 gage thick x 4 1/2" (2 x 114) wide steel reinforcing plate sandwiched between the damper frames with 1/2" (13) long welds staggered intermittently and spaced on maximum 6" (152) centers. The reinforcing plate must be the same material as the dampers. The length must be equal to the damper width of two or more adjoining damper sections. Reinforcing plates are not required for assemblies consisting of two dampers attached end-to-end or three dampers attached side-to-side as depicted in figure 5.

## 3. Damper Sleeve

Sleeve thickness must be equal to or thicker than the duct connected to it. Sleeve gage requirements are listed in the SMACNA Fire, Smoke and Radiation Damper Installation Guide for HVAC Systems and in NFPA90A. If a breakaway style duct/sleeve connection is not used, the sleeve shall be a minimum of 16 gage (1.6) for dampers up to 36" (914) wide by 24" (610) high and 14 gage (1.9) for dampers exceeding 36" (914) wide by 24" (610) high. Damper sleeve shall not extend more than 6" (152) beyond the fire wall or partition unless damper is equipped with a factory installed access door. Sleeve may extend up to 16" (406) beyond the fire wall or partition on sides equipped with a factory installed access door. Sleeve shall terminate at both sides of wall within dimensions shown.

## 4. Damper Orientation

Use "Air Flow" and "Mount with Arrow Up" labels on Dynamic DIBD and DIBDX models for proper damper orientation. For Static IBD models use only "Mount With Arrow Up" label on damper for proper damper orientation. Static and Dynamic dampers must be installed with leading edge of the closed blades within the wall or floor.

## 5. Mounting Angles

Mounting angles shall be a minimum of 1 1/2" x 1 1/2" x 20 gage steel (38 x 38 x 1.0). For openings in metal stud, wood stud walls or concrete/masonry walls and floors of sizes 90" x 49" or 49" x 90" (2286 x 1245 or 1245 x 2286) and less mounting angles are only required on one side of the wall or top side of the floor and must be attached to both the sleeve and the wall or floor. Mounting angles may be installed directly to the metal stud under the wall board on metal stud wall installations only. Larger openings require mounting angles on both sides of the partition and must be attached only to the sleeve. Mounting angles must overlap the partition a minimum of 1" (25). Do not weld or fasten angles together at corners of dampers. Ruskin fire dampers may be installed using Ruskin FAST angle for one angle installation or Ruskin PFMA for two angle installations.

### a. Mounting Angle Fasteners

Sleeve: #10 bolts or screws, 3/16" (5) steel rivets or 1/2" (13) long welds.

Masonry/Wall or Floor: #10 self-tapping concrete screws.

Wood/Steel Stud Wall: #10 screws

### b. Mounting Angle Fastener Spacing

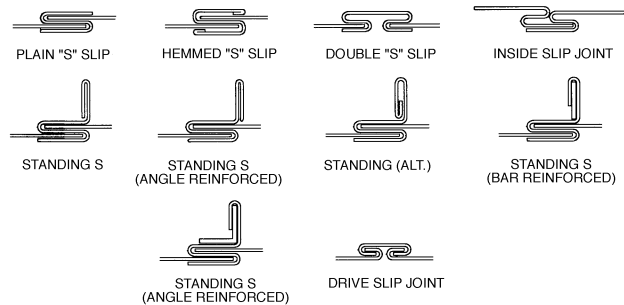
For one angle installations the sleeve fasteners shall be

spaced at 6" (152) o.c. and the wall or floor fasteners shall be spaced at 12" (305) o.c. with a minimum of 2 fasteners on each side, top and bottom. Screw fasteners used in metal stud must engage the metal stud a minimum of 1/2" (13). Screw fasteners used in wood stud must engage the wood stud a minimum of 3/4" (19). Screw fasteners used in masonry walls or floors must engage the wall a minimum of 1 1/2" (38). For two angle installations the fasteners shall be spaced at 8" (203) o.c.

## 6. Duct/Sleeve Connections

### a. Break-away Duct/Sleeve Connections

Rectangular ducts must use one or more of the connections depicted: below:



A maximum of two #10 sheet metal screws on each side and the bottom, located in the center of the slip pocket and penetrating both sides of the slip pocket may be used. Connections using these slip joints on the top and bottom with flat drive slips up to 20" (508) long on the sides may also be used.

### b. Round and Oval Break-away Connections

Round and flat oval break-away connections must use either a 4" (102) wide drawband or #10 sheet metal screws spaced equally around the circumference of the duct as follows:

- Duct diameters 22" (559) and smaller – Maximum 3 screws.
- Duct diameters over 22" (559) and including 36" (914) – Maximum 5 screws.
- Duct diameters over 36" (914) and up to and including 191" (4851) total perimeter – Maximum 8 screws. For flat oval ducts, the diameter is considered the largest (major) dimension of the duct.

**Note:** When optional sealing of these joints is desired, the following sealants may be applied in accordance with the sealant manufacturer's instructions:

Design Polymeric – DP 1010

Precision – PA2084T

Hardcast, Inc. – Iron Grip 601

Eco Duct Seal 44-52

### c. Flanged Break-away Style Duct Sleeve Connections.

Flanged connection systems manufactured by Ductmate, Nexus or Ward are approved break-away connections when installed as shown on the Flanged System Breakaway Connections Supplement.

TDC and TDF roll-formed flanged connections using 3/8" (10) steel bolts and nuts, and metal cleats, as tested by SMACNA, are approved break-away connections when installed as shown on the Flanged System Breakaway Connections Supplement.

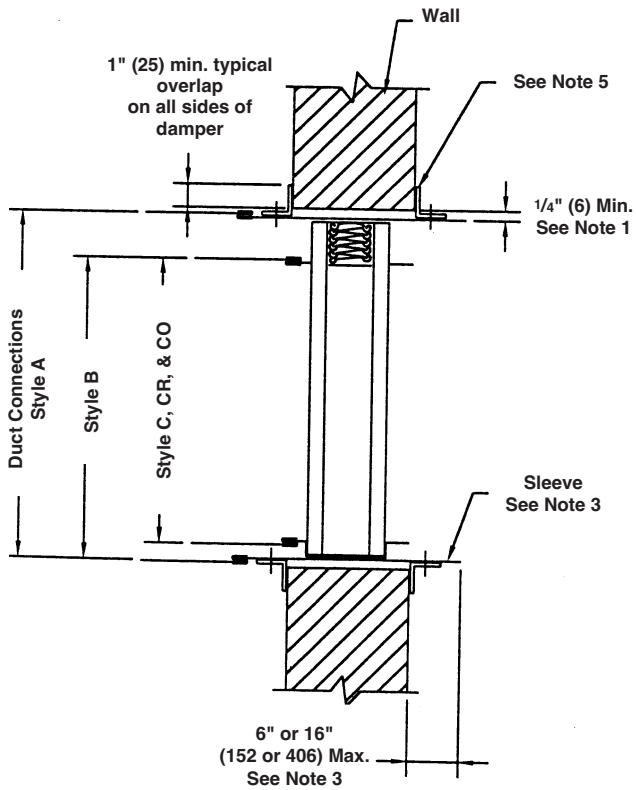
### d. Non-Break-away Duct/Sleeve Connections

If other duct sleeve connections are used, the sleeve shall be a minimum of 16 gage (1.6) for dampers up to 36" (914) wide x 24" (610) high and 14 gage (2.0) for dampers exceeding 36" (914) wide x 24" (610) high.

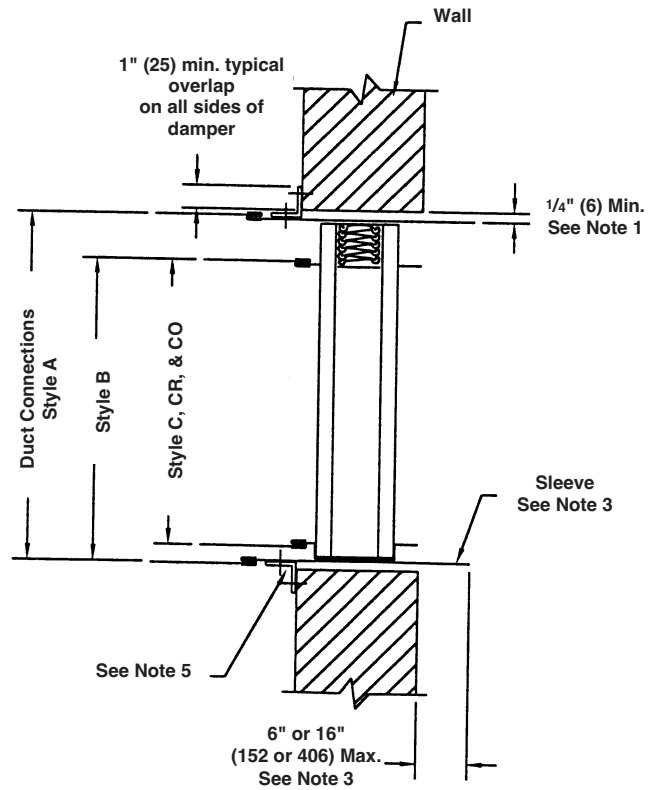
## 7. Installation and Maintenance

To ensure optimum operation and performance, the damper must be installed so it is square and free from racking. Each fire damper should be maintained and tested on a regular basis and in accordance with the latest editions of NFPA 90A and local codes. Care should be exercised to ensure that such tests are performed safely and do not cause system damage.

**VERTICAL INSTALLATION**



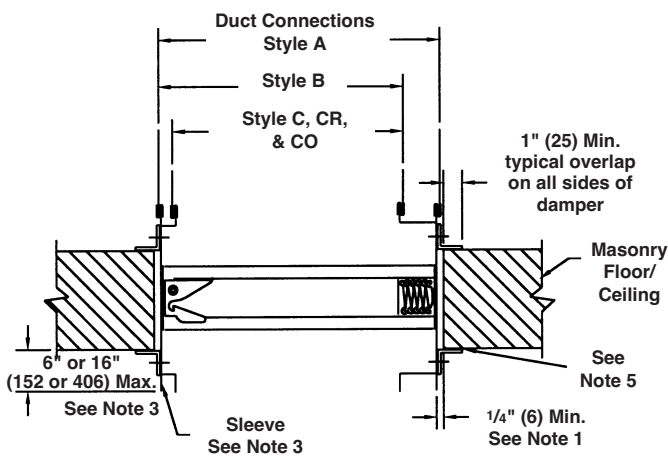
**TWO ANGLE INSTALLATION**



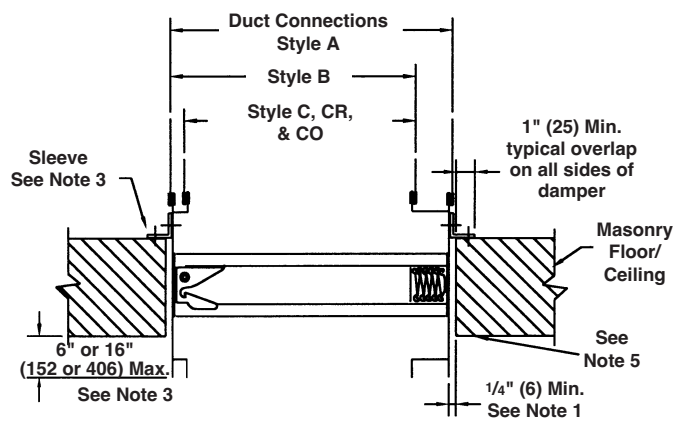
**ONE ANGLE INSTALLATION**

**FIGURE 1**

**HORIZONTAL INSTALLATION**



**TWO ANGLE INSTALLATION**



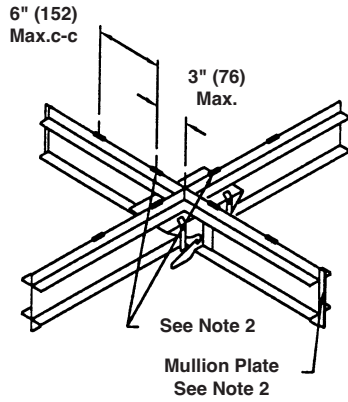
**ONE ANGLE INSTALLATION**

**FIGURE 2**

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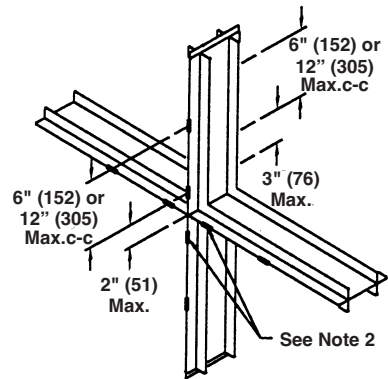
**FASTENER SPACING**

**HORIZONTAL INSTALLATION**



**FIGURE 3**

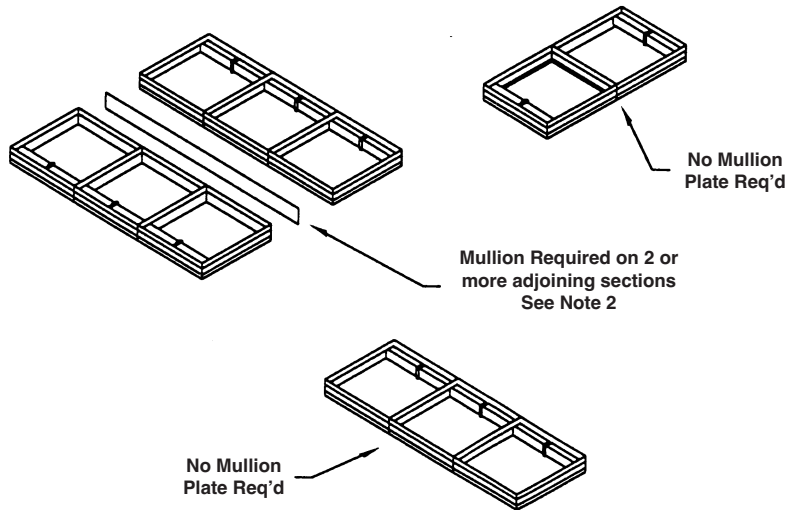
**VERTICAL INSTALLATION**



**FIGURE 4**

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**REINFORCING PLATE**



**FIGURE 5**

## RECOMMENDED FRAMING FOR OPENINGS IN WOOD AND METAL STUD WALLS

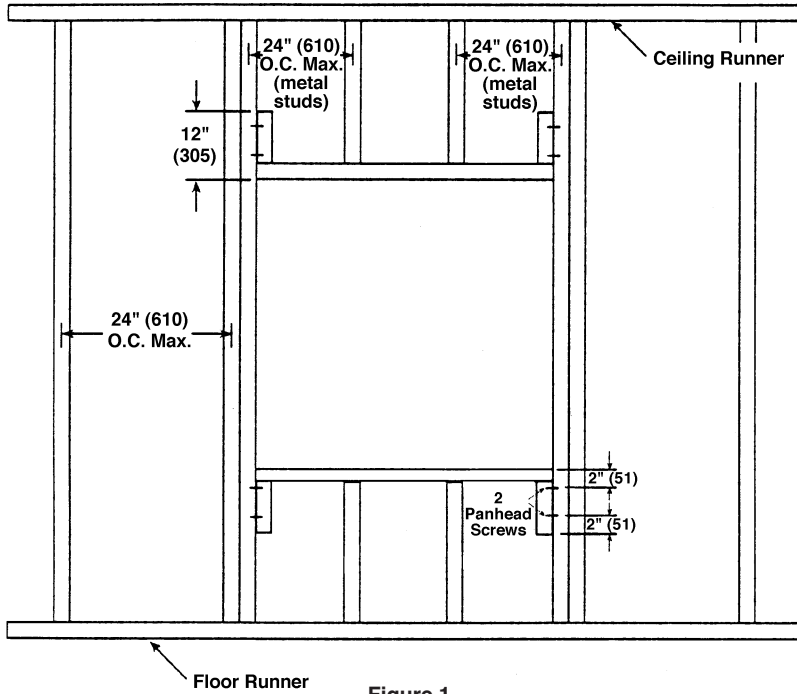


Figure 1

### INSTRUCTIONS

1. Frame wall openings as shown in figure 1 or 2.
2. Double vertical studs are not required for openings 36" w x 36" h (914 x 914) or smaller.
3. All construction and fasteners must meet the requirements of the appropriate wall design and/or local codes.
4. Consult the authority having jurisdiction for other acceptable framing methods.

### NOTE

The Metal Stud Construction and Wood Stud Construction figures at the bottom of the page depict mounting angles installed on both sides of the partition. A single angle may be sufficient. Refer to the instructions for single angle installation requirements.

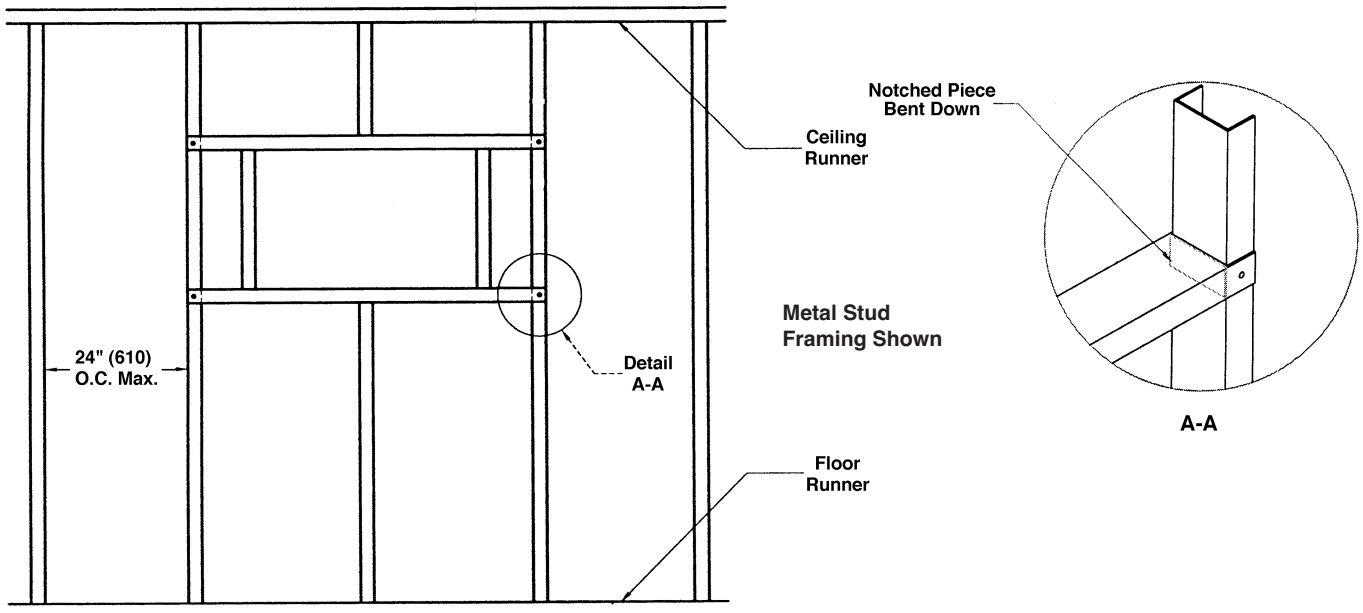
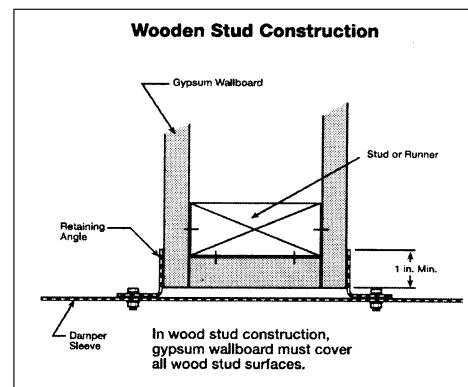
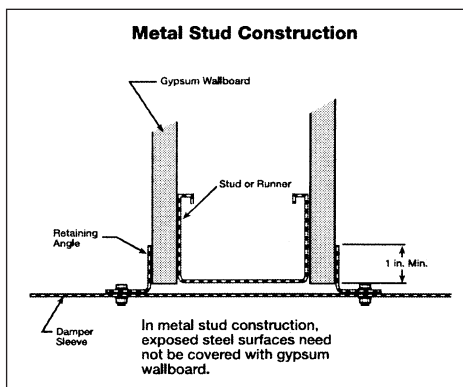


Figure 2





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