

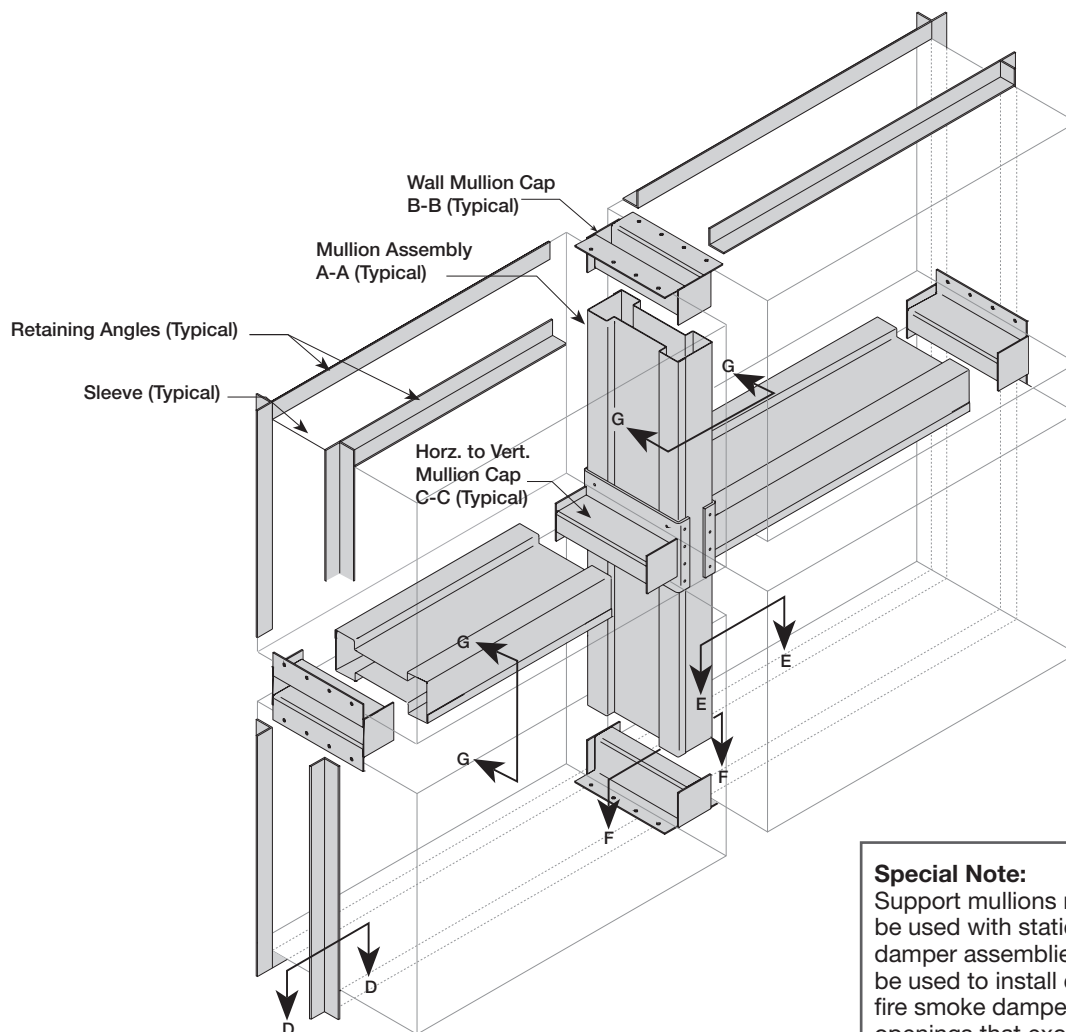
These installation instructions apply to the fabrication and construction of generic support mullions. Support mullions are necessary whenever static fire dampers are installed into a vertical opening that is larger than the largest UL rated size for that damper. The mullions allow construction of a fire barrier that is larger than the maximum available size.

The opening must not exceed 120 in. (3048 mm) high but, can be any width provided a vertical support mullion is used with a maximum of every 120 inches (3048 mm).

To properly use support mullions, they must be fabricated and installed according to the following instructions.

## Application

Generic steel mullions can be used to separate vertically mounted galvanized steel fire dampers in wall openings larger than the UL permitted multiple damper assembly size. Mullions can either be used vertically, horizontally, or both to split up a vertical wall opening requiring the use of a damper having a 1½ hour fire resistance rating. Maximum mullion span is 120 in. (3048 mm) plus expansion allowance when used either horizontally or vertically.



**Special Note:**

Support mullions may only be used with static-rated fire damper assemblies; they cannot be used to install combination fire smoke dampers in wall openings that exceed the maximum UL approved size for the fire smoke damper model being installed.

## Wall Opening

Steel mullions are intended for use in concrete block or solid concrete wall.

Hollow concrete blocks are to be filled with concrete (minimum 3,500 psi) to permit proper mullion anchoring.

Wall thickness is to be 7 in. (178 mm) minimum, 12 in. (305 mm) maximum.

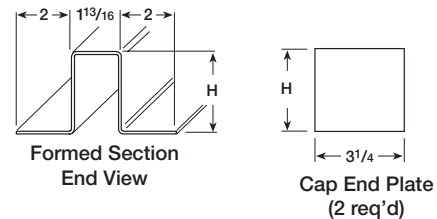
Support mullion assemblies consist of three basic parts:

the wall mullion cap, the horizontal to vertical mullion cap, and the mullion sections. Determine the quantity of each piece required to complete the installation.

## Fabrication of Wall Mullion Caps

Wall mullion caps must be constructed from 12 ga. (2.7 mm) steel with a minimum yield strength of 42,000 psi.

1. Fabricate the formed section as shown.
2. Shear the cap end plate to required dimensions.
3. Weld the cap end plates to the formed section with  $\frac{1}{8}$  in. (3 mm) fillet welds completely around the top edges of the formed section.
4. Drill and countersink 8 holes (4 on each side) for  $\frac{1}{4}$ -20 flat head machine screws.



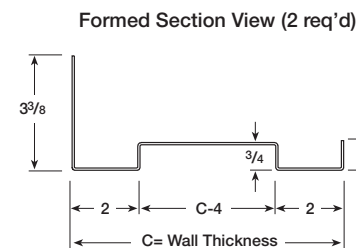
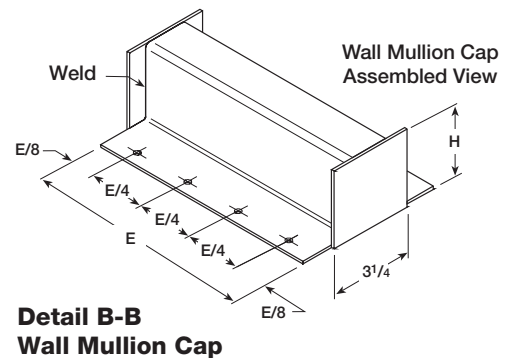
## Fabrication of Mullion Sections

Mullions must be constructed from 16 ga. (1.5 mm) steel with a minimum yield strength of 42,000 psi.

**Important:** The "D" dimension shown has been calculated to include the necessary clearances required for thermal expansion in the mullions. The values can be found using the wall opening dimensions and Table 1.

1. Form two identical pieces of mullion section as shown.
2. Connect the two mullion sections together. Use  $\frac{3}{16}$  in. (4.7 mm) steel blind rivets of  $\frac{3}{4}$  in. (19 mm) long intermittent welds 12 in. (305 mm) on center and a 6 in. (152 mm) maximum from both ends.

Both sides of the mullion piece should be fastened using the method described.



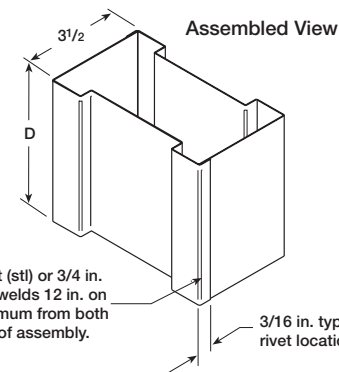
**Table 1**

Dimensional information shown in inches (mm)

Opening Width/ Height	D	H
12 (305)	11½ (292)	¾ (83)
24 (610)	23½ (597)	¾ (86)
36 (914)	33¾ (847)	¾ (89)
48 (1219)	47¼ (1200)	¾ (92)
60 (1524)	59⅞ (1501)	¾ (95)
72 (1829)	71 (1803)	¾ (98)
84 (2134)	82⅞ (2105)	4 (102)
96 (2438)	94¾ (2406)	4⅞ (105)
108 (2743)	106¾ (2711)	4 ¼ (108)
120 (3048)	118¾ (3016)	4⅞ (111)

E = Wall thickness -  $\frac{1}{2}$  in. (13 mm)

F = Wall thickness +  $\frac{1}{4}$  in. (6 mm)



$\frac{3}{16}$  in. blind rivet (stl) or  $\frac{3}{4}$  in. long intermittent welds 12 in. on center, 6 in. maximum from both ends, both sides of assembly.

$\frac{3}{16}$  in. typical rivet location

## Detail A-A

### Mullion Assembly

All dimensions shown are in inches.

# Fabrication of Horizontal to Vertical Mullion Caps

Horizontal to vertical mullion caps must be constructed from 12 ga. (2.7 mm) steel with a minimum yield strength of 42, 000 psi.

**Important:** The H, E, and F dimensions shown have been calculated to provide the correct performance. The values can be found by using the wall opening dimensions and Table 1.

1. Form the horizontal mullion channel as shown.
2. Drill 12-  $\frac{3}{16}$  in. (4.7 mm) diameter holes into the horizontal mullion channel using the dimensions shown.
3. Form the center channel as shown.

**Note:** If the center channel is to be made from two pieces, weld them together with an  $\frac{1}{8}$  in. (3 mm) fillet weld.

4. Shear the end plates to the dimensions required.
5. Weld the end plates to the center channel with  $\frac{1}{8}$  in. (3 mm) fillet welds completely around the top edges of the center section.

## Mullion Installation

Before the static fire dampers are installed into the wall the mullions must first be anchored into the wall. The fire dampers may then be installed into the mullion assembly.

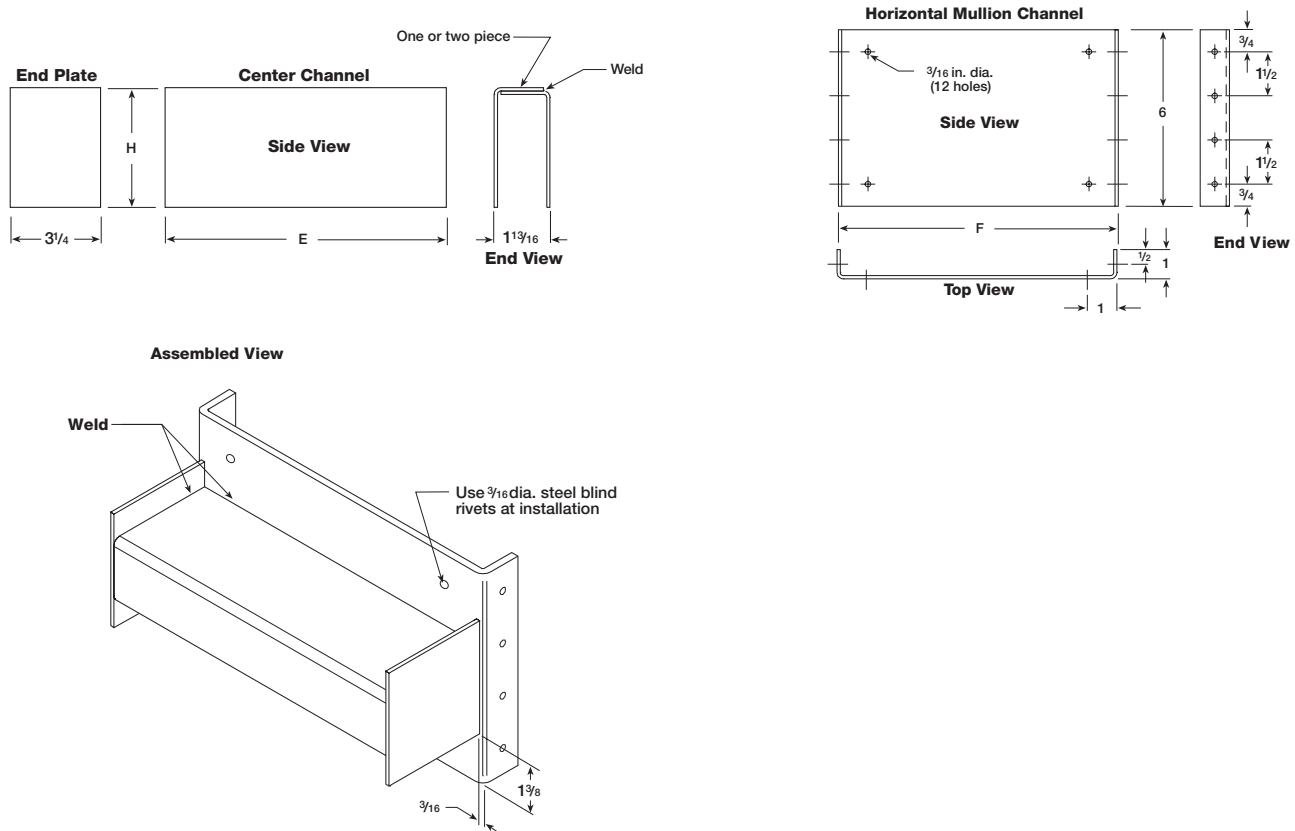
To correctly attach the mullions to the wall, follow these steps:

1. Anchor wall mullion caps to wall using  $\frac{1}{4}$ -20 x  $\frac{5}{16}$  in. long flat head steel bolts and  $\frac{3}{8}$  in. (9.5 mm) diameter by 1 in. (25 mm) long concrete expansion anchors (Hilti). If steel lintels are present, use two 1 in. (25 mm) long welds on each side of mullion caps.

**Note:** End caps must be inserted into the ends of the mullions before they are anchored to the wall.

2. Anchor horizontal mullion caps to vertical mullion caps with  $\frac{3}{16}$  in. (4.7 mm) diameter steel blind rivets in 12 places.

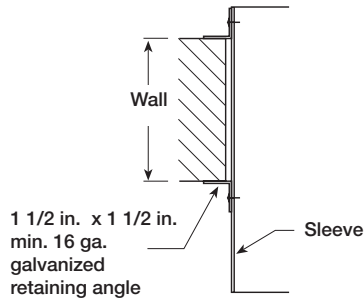
**Note:** Mullion caps must be inserted into the ends of the mullions before they are anchored to the vertical mullions or wall.



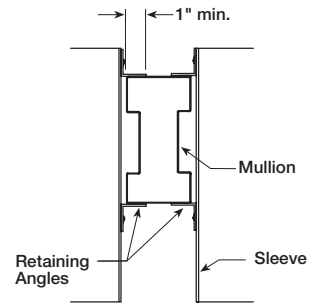
## Static Fire Damper Installation

Galvanized steel static fire dampers must be UL classified for 1½ hour fire resistance. They must be installed in galvanized steel sleeves and be retained by minimum 1½ in. x 1½ in. (38 mm x 38 mm), 16 ga. (1.5 mm) retaining angles on each side of the wall. Retaining angles must overlap mullions or wall by 1 in. (25 mm) minimum. Fasten to the sleeve using ¼ in. (6 mm) dia. bolts, ⅜ in. (4.7 mm) steel rivets, welding, or #10 sheet metal screws. All must be attached 6 in. (152 mm) on centers, 2 in. (51 mm) maximum from corners. Do not fasten retaining to the wall or mullions. Mullions must be free to float.

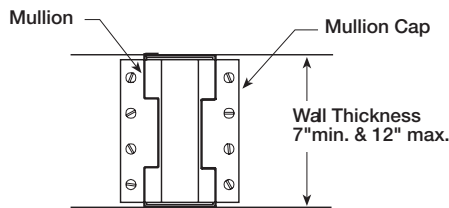
Total expansion clearance between sleeve and wall/mullion of ⅛ in. (3 mm) per foot of wall opening or mullion span should be allowed. Maximum clearance is 1¼ inches (31 mm).



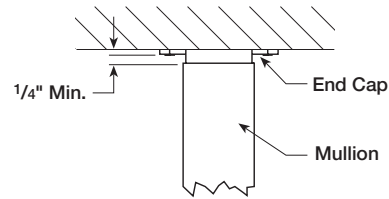
**Detail D-D**



**Detail E-E**



**Detail F-F**



**Detail G-G**

## Our Commitment

*As a result of our commitment to continuous improvement, Greenheck reserves the right to change specifications without notice.*

Product warranties can be found online at [Greenheck.com](http://Greenheck.com), either on the specific product page or in the literature section of the website at [Greenheck.com/Resources/Library/Literature](http://Greenheck.com/Resources/Library/Literature).

