

# 3M™ Fire Barrier Self-Locking Pillow

## Installation Guide



### General

1. Consult the individual UL system for required location of 3M™ Fire Barrier Moldable Putty+ within the opening.
2. Install 3M™ Fire Barrier Self-Locking Pillows with the 9 in. (228.6 mm) dimension projecting through the floor or wall and centered within the opening; make sure that the large surface (label side) is placed against the framed opening. The 3M logo should face the installer.
3. A small puncture of the 3M™ Fire Barrier Self-Locking Pillows encapsulation is allowable—this will allow air to more readily escape from the pillow when it is compressed.
  - 4a. Multiple pillows may be locked together by aligning hook and look closure strips. This can be done before or after pillows are installed into the opening.
  - 4b. Pillows are to be compressed a minimum of 33% within the opening. A single size of pillow or combination of small, medium and large pillows may be used to complete the correct firestop through-penetration installation. Pillows can be re-sized in the field by cutting lengthwise and re-taping.
5. Repeat the procedure until the penetration is completely full and the correct compression has been achieved.
6. Check for any openings between pillows, framing and penetrating items. Fill any visible openings with the required depth of 3M™ Fire Barrier Moldable Putty+. Consult individual UL systems for 3M™ Fire Barrier Moldable Putty+ depth requirements.
7. To remove the 3M™ Fire Barrier Self-Locking Pillows from the opening, first remove the putty. Gently pull pillow(s) out and place on a clean surface. After penetrants are routed through, or removed from, the opening, replace the pillow(s) making sure that the pillows are recompressed and that the ends of the pillows are aligned.
8. Repeat 3M™ Fire Barrier Moldable Putty+ installation in voids.

### Field Cutting Procedure



Cut length-wise using knife (preferably serrated)



Reseal using removed outer cover and/or 2-in. (50.8 mm) wide carton sealing/package tape.



Resealed 3M™ Fire Barrier Self-Locking Pillow ready for installation.

## Calculating 3M™ Fire Barrier Self-Locking Pillow Quantity Requirements

Measure the opening, in inches, and multiply the length by the width to get the total area. Then deduct the area of the penetrating item (e.g. rack & cables) to determine the total open area (annular space). This is the amount of area to be firestopped. Multiply the open area by a factor of 1.5 to determine the required area of uncompressed pillows. This helps ensure that, once installed, the 3M™ Fire Barrier Self-Locking Pillows are compressed a minimum of 33% within the opening.

**Estimate Table (Cross-sectional area of 3M™ Fire Barrier Self-Locking Pillows)**

Fire Barrier Pillow	Small	Medium	Large
Dimensions, in. (cm)	2 x 4 (5.1 x 10.2)	2 x 6 (5.1 x 15.2)	3 x 6 (7.6 x 15.2)
Nominal Uncompressed Area, in. <sup>2</sup> (cm <sup>2</sup> )	8 (51.6)	12 (77.4)	18 (116)
Area when compressed 33%, in. <sup>2</sup> (cm <sup>2</sup> )	5.3 (34.2)	8 (51.6)	12 (77.4)

## Calculating 3M™ Fire Barrier Self-Locking Pillow Quantity Requirements

**Example 1:** Gypsum wall opening measuring 12 in. x 24 in. (30.5 cm x 61 cm) with a cable rack & cables occupying 40% of the opening.

12 in. x 24 in. Opening = 288 in.<sup>2</sup> (1858 cm<sup>2</sup>)

Rack & Cable fill (40% of total opening area) = 115.2 in.<sup>2</sup> (743 cm<sup>2</sup>)

Total open to be firestopped = 288 - 115.2 = 172.8 in.<sup>2</sup> (1115 cm<sup>2</sup>)

Multiply free area by a factor of 1.5 to find the required are of uncompressed pillows: 172.8 in.<sup>2</sup> x 1.5 = 260 in.<sup>2</sup> (1673 cm<sup>2</sup>)

Therefore, 260 in.<sup>2</sup> (1673 cm<sup>2</sup>) of uncompressed pillows are required to achieve 33% compression in this opening.

If all small pillows: 260 in.<sup>2</sup> / 8 in.<sup>2</sup> per pillow = 33 pillows (rounded up from 32.5)

If all medium pillows: 260 in.<sup>2</sup> / 12 in.<sup>2</sup> per pillow = 22 pillows (rounded up from 21.6)

If all large pillows: 260 in.<sup>2</sup> / 18 in.<sup>2</sup> per pillow = 15 pillows (rounded up from 14.4)

**Example 2:** Minimum quantity of 3M™ Fire Barrier Self-Locking Pillows required to firestop a blank opening using one size of pillow to achieve minimum 33% compression.

Pillows per Opening Size (in.)					Pillows per Opening Size (cm)				
<b>Pillow size (in.)</b>	14 x 14	12 x 24	18 x 33	24 x 36	<b>Pillow size (cm)</b>	35.6 x 35.6	30.5 x 61.0	45.7 x 83.8	61.0 x 91.4
<b>Small (2 x 4)</b>	37	54	112	162	<b>Small (5.1 x 10.2)</b>	37	54	112	162
<b>Medium (2 x 6)</b>	25	36	75	108	<b>Medium (5.1 x 15.2)</b>	25	36	75	108
<b>Large (3 x 6)</b>	17	24	50	72	<b>Large (7.6 x 15.2)</b>	17	24	50	72

**Any combination of small, medium, or large pillows can be used to firestop an opening provided the minimum compression requirements are met.**

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