Fire Barrier
Composite Sheet CS-195+

Installation Guide For
Telecommunications and Electrical Applications
2 hour fire-rated gypsum wallboard assembly (2 layers of gypsum). The same system can also be installed for 1 hour fire-rated wallboard assemblies (1 layer of gypsum).
This installation guide highlights requirements for 3M Fire Barrier Composite Sheet CS-195+ for firestopping cable assemblies typical in the telecommunications industry.

The information contained herein is based on Underwriters Laboratories Inc. published system requirements found in the current UL Fire Resistance Directory and engineering studies performed by UL referenced herein.

Written requirements for system construction are intended only to highlight important features of different systems or methods and are not intended to describe all the requirements.

Refer to current Underwriters Laboratories Inc., Fire Resistance Directory and referenced engineering studies for additional information and system details.

See page 16 on the back cover of this document for a Typical Bill of Materials based on the system shown to the left.
Detailed Step-by-Step Instructions
Based on W-L-4004

Figure 1: Single Cable Tray
2 hour fire-rated gypsum wallboard assembly with a single cable tray. Tray must be centered in opening and supported on each side of the wall. Studs must be located on each side of the opening.

Figure 2: Frame Opening
Add framing to top and bottom of opening. If metal studs are used, the top surface of the stud should be facing to the opening with the channel opening facing into the wall cavity.
Figure 3: Install Wrap Strip In Rails
Install pieces of 3M™ Fire Barrier FS-195+ Wrap/Strip to inside of cable tray rails. Position wrap/strip pieces so they are centered on the edge of the wall face on each side of the wall. Fill rails with wrap strip until flush will rail edge.

Figure 4: Apply Caulk or Putty
Apply 3M™ Fire Barrier CP 25WB+ caulk between cables and 2 inches (5 cm) wide across top of cables as a bedding for wrap/strip. 3M™ Fire Barrier Moldable Putty+ can be used as an alternate in some systems. When Moldable Putty+ is used, putty does not need to be installed between cables. Caulk or putty should be applied to top and bottom of cable tray on both sides of the wall.
Figure 5: Install Wrap/Strip Around Cables
Install pieces of 3M™ Fire Barrier FS-195+ Wrap/Strip over the top of caulk or putty. Fill low areas with short pieces or shape wrap/strip to follow contours of cable. Wrap/strip can be wrapped around cables in a continuous piece or it can be cut and tightly abutted to wrap/strip pieces in cable tray rails. Wrap/strip should be installed to both top and bottom of cable tray. Use filament tape similar to 3M™ Scotch Tape 898 to secure wrap/strip in place on bottom of cable tray.

Figure 6: Make a Template
Use cardboard, marking pencils and scissors to make a template for the size and shape needed for the composite sheet. A 2 inch (5 cm) minimum overlap onto the adjacent wall should be maintained. Plan the size of the first piece so only one piece requires contour cuts. The fewer pieces that need contours cuts the quicker the installation will be. Refer to figure 7 and 8 for more information.
**Figure 7: Cut Composite Sheet**
Use the cardboard template to mark the 3M™ Fire Barrier CS-195+ Composite Sheet. Mark the sheet metal side not the foil side that is printed with 3M logos and has chicken wire embedded under the foil. Cut two pieces from the template. Then cut two more pieces for the bottom of the opening. With proper planning many applications will only require one contour cut piece for each side the other can be measured and cut rectangular as shown above. Four pieces total will be needed, two for each side of the wall. Cut the composite sheet using an electric jig saw. Use a metal file to remove burs from the cut edges.
Figure 8: Fasten Composite Sheet to Wall.
Apply 3M Graphite Intumescence Seal (GIS) to the back side of the composite sheet (the side with the 3M logos). Position the GIS slightly away from the edge of the composite sheet. Fasten the composite sheet in place. Use sheet metal and sheet metal screws to cover the composite sheet seams.

Alternate anchoring methods for gypsum wall systems include threaded rod through the walls with wing nuts. Occasionally the composite sheet needs to be removed. An anchoring system that allows easy removal and re-installation decreases labor and prevents workers from having to install new composite sheet if a penetration has to be modified.
Figure 9: Apply Caulk or Putty
Apply 3M™ Fire Barrier CP 25WB+
Caulk or 3M™ Fire Barrier Moldable
Putty+ around cable tray to fill the
annular space between the edge of the
composite sheet and the wrap strip.
Also, cover the edges of the wrap strip
and fill any spaces between layer, rails
and other crack where smoke could
penetrate during a fire. If 3M™ GIS is
used as the smoke seal, no caulk or
putty is needed at the outer perimeter of
the composite sheet.

Figure 10: Alternate Perimeter
Smoke Seal
If 3M™ GIS was not used on the back
side of the composite sheet before
fastening it to the wall, apply caulk or
putty at the composite sheet perimeter
as a smoke seal.
Concrete Floor Systems
C-AJ-4003 with Single Cable Tray and Multiple Cable Tray

Figure 11: Single Cable Tray Option
C-AJ-4003

Figure 12: Double Cable Tray Option
C-AJ-4003
Concrete Floor Systems
F-B-3004 Cable Penetration With Curb Retrofit

Concrete Wall Systems

Figure 13: Cable Penetration with Curb Retrofit

Figure 14: Concrete Wall Application
Figure 15: Multiple Cable Bundles Through Concrete

Figure 16: Cut away detail view of above drawing
Corner Applications

Figure 17: Bending composite sheet around a corner

Figure 18: Detail view of above
Composite Sheet Seaming Details

**Figure 19: Butt seam**

- Butt the 3M CS-195+ composite sheet seams and apply a 1/4" (6 mm) min. bead of CP 25WB+ caulk or 3M moldable putty+ prior to installation.
- Self-tapping screws with 1-1/4" (32 mm) fender washers spaced 3" (76 mm) max. o.c. - each side of seam.

**Figure 20: Supported seam**

- Apply a 1/4" (6 mm) min. bead of 3M CP 25WB+ caulk or 3M moldable putty+ under the 3M CS-195+ composite sheet seam.
- 12 gauge min. unistrut or equivalent for supported seam. 3M CS-195+ composite sheet is not designed to be load bearing.
- Self-tapping screws with 1-1/4" (32 mm) fender washers spaced 3" (76 mm) max. o.c. - each side of seam.

**Figure 21: Flange seam**

- Bend a 2" (50 mm) lip of each 3M CS-195+ composite sheet. Butt together and bolt completely through both sheets.
- Apply a 1/4" (6 mm) min. bead of 3M CP 25WB+ caulk or 3M moldable putty+ or a strip of 3M GIS under the 3M CS-195+ composite sheet seam.
- 3M fire barrier CS-195+ composite sheet.

**Figure 22: Overlap seam onto composite sheet**

- Apply a 1/4" (6 mm) min. bead of 3M CP 25WB+ caulk, 3M moldable putty+ or a strip of 3M GIS under the 3M CS-195+ composite sheet seam.
- Self-tapping screws with 1-1/4" (32 mm) fender washers spaced 3" (76 mm) max. o.c.
Figure 23: Overlap seam onto concrete top

Figure 24: Overlap seam onto concrete bottom

Figure 25: Overlap seam onto gypsum wall
Product Ordering Information

Typical Bill of Materials
Below is a list of 3M Firestopping Products, other materials and tools needed to install 3M™ Fire Barrier CS-195+ Composite Sheet systems.

All products are not used in every system. For example either 3M™ Fire Barrier CP 25WB+ Caulk or 3M™ Fire Barrier Moldable Putty+ will be used in particular system but not both. 3M™ Fire Barrier FS-195+ Wrap/Strip is used in all systems. 3M™ Scotch™ Filament Tape 898 is only used to temporarily secure wrap strip to the bottom of cable trays before composite sheet is installed.

Material Sold by 3M
1. 3M™ Fire Barrier CS-195+ Composite Sheet
2. 3M™ Fire Barrier FS-195+ Wrap/Strip
3. 3M™ Fire Barrier CP 25WB+ Caulk
4. 3M™ Fire Barrier Moldable Putty+ Stix (MPS-2+)
5. 3M™ Graphite Intumescent Seal (GIS)
6. Scotch™ Filament Tape 898

Material Not Sold by 3M
1. Sheet metal
2. #10 sheet metal screws
3. 1/4-20 by 1 inch H.H. cap screws
4. 1-1/4 inch fender washers
5. Masonry or drywall anchors
6. Threaded rod and wings nuts (alternate to item 5)
7. Cardboard

Tools Needed
1. C-Clamp, 6 inch (15 cm)
2. Contour Gage
3. Scissors
4. Electric Drill with 3/8 inch (9 mm) bit
5. Electric nibbler
6. Metal file
7. Perforating punch, 7/16 inch (11 mm)
8. Rachet box wrench, 9/16 inch (14 mm)
9. Electric jig saw
10. Safety Glasses
11. Work Gloves

Warranty and Limited Remedy. This product will be free from defects in materials and manufacture for a period of ninety (90) days from date of purchase. 3M MAKES NO OTHER WARRANTIES INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for a user's method of application. If this 3M product is proved to be defective within the warranty period stated above, your exclusive remedy and 3M's sole obligation shall be, at 3M's option, to replace or repair the 3M product or refund the purchase price of the 3M product.

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Specified Construction Products Department
3M Center 225-45-08
St. Paul, MN 55144-1000
(800) 328-1687