COMMSCOPE®

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Installation Instructions

# STANDARD DENSITY (SD) Shelf
# Sliding and Fixed Versions

## General

The **COMMSCOPE SD** 1U and 2U fiber optic combination shelves come equipped with a modular faceplate. The 1U unpopulated fixed shelf is similar, but does not include a faceplate (which must be purchased separately). All 4U shelves (fixed and sliding) have fixed faceplates. These shelves are intended for indoor use, but may be used outdoors in a suitable enclosure.

Ordering information is listed below:

| Material ID | Part No. | Description |
|---|---|---|
| 760231449 | SD-1U | 1U SD sliding shelf |
| 760231456 | SD-2U | 2U SD sliding shelf |
| 760231464 | SD-4U | 4U SD sliding shelf |
| 760231472 | SD-1U-FX | 1U SD fixed shelf |
| 760231480 | SD-2U-FX | 2U SD fixed shelf |
| 760231498 | SD-4U-FX | 4U SD fixed shelf |
| 760234738 | SD-1U-UP-FX | Unpopulated 1U shelf, fixed, w/o faceplate |

**SD 4U Fixed Shelf**

**SD 1U Sliding Shelf**

## How to Contact Us

- To find out more about **CommScope**® products, visit us on the web at http://www.commscope.com/
- For technical assistance, refer to the following URL:
  http://www.commscope.com/SupportCenter
- For information on CommScope patents, refer to:
  http://www.cs-pat.com

This product is covered by one or more of the following U.S. patents or their foreign equivalents: 5,923,807, 6,245,998.

## Tools Required

- Phillips-head screwdriver
- Isopropyl Alcohol (IPA)
- Lint-free cloth or tissues

## Available 1000 Type Panels / Modules (For Use with the 1U Unpopulated Fixed Shelf)

Contact your **COMMSCOPE** sales representative for the latest information on the wide variety of modules that are compatible with this product.

## Available Faceplates (for Use with Unpopulated 1U Fixed Shelf)

| Material ID | Part No. | Description |
|---|---|---|
| 760232421 | SD-1U-12SC-SPLX-EMT | Faceplate, 12 simplex SC |
| 760232439 | SD-1U-24SC-SPLX-EMT | Faceplate, 24 simplex SC |
| 760232447 | SD-1U-12SC-DPLX-EMT | Faceplate, 12 duplex SC |
| 760232470 | SD-1U-24SC-DPLX-EMT | Faceplate, 24 duplex SC |
| 760232488 | SD-1U-24LC-SPLX-EMT | Faceplate, 24 simplex LC |
| 760232496 | SD-1U-24LC-DPLX-EMT | Faceplate, 24 duplex LC |
| 760235426 | SD-1U-1000-EMT | Faceplate, 1000 style apertures |

**Note:** Adapters/modules/panels must be purchased separately, unless description includes "…equipped w/…"

## Available Accessories

| Material ID | Part No. | Description |
|---|---|---|
| 760039875 | G2-SRF | Liquid-tight cable fitting kit for small-diameter cables |
| 760039883 | G2-23BRKT | Frame mounting bracket kit for 23" frames and ETSI frames |
| 760185595 | Fiber Drum Kit | Includes 2 fiber drums and mounting hardware |
| 760058677 | RMB-6-1/2 | **InstaPATCH Plus** attachment bracket, rack mounted, six 1/2" fittings |
| 760058685 | RMB-6-3/8 | **InstaPATCH Plus** attachment bracket, rack mounted, six 3/8" fittings |
| 760058701 | RMB-5-3/4 | 3/4" Rack MTG bracket – 5X |
| 760147736 | PNL-BK-BLANK | 1000 Aperture Blank Panel |
| 760239082 | SD-HD-UD-UDS2U-DOOR-LOCK-KT | Lock kit for 2RU UDS, SD, HD and UD panels. Includes 1 lock and 1 key |
| 760122895 | BAF-1/2-NPT | Bracket for Armor Fitting, 1/2 NPT |
| 760122903 | BAF-3/4-NPT | Bracket for Armor Fitting, 3/4 NPT |
| 760122911 | BAF-1-NPT | Bracket for Armor Fitting, 1 NPT |
| 760122929 | BAF-1-1/4-NPT | Bracket for Armor Fitting, 1-1/4 NPT |
| 760122937 | BAF-1-1/2-NPT | Bracket for Armor Fitting, 1-1/2 NPT |
| FST-M-HS | FST-M-HS | Fiber Optic Splice Tray, 12 Splice Capacity |

## Parts List

Verify parts against the parts list below:

| Quantity | Description |
|---|---|
| 1 | Shelf assembly (fixed or sliding) |
| 4 | #12-24 x 1/2-inch screws for 19-inch (483mm) and 23-inch (584mm) rack mounting |
| 4 | M6 x 12 mm screws for ETSI rack mounting |
| 2 | Liquid-tight strain relief fittings (black) |
| 4 | Cable ties |
| 6 | Self-adhesive Cable mounts |
| 1 | Hook and loop kit |
| 2 | 3” fiber drums (UP shelf only) |
| 1 | 6” strip of double-sided tape (UP shelf only) |
| 1 | Instruction sheet |

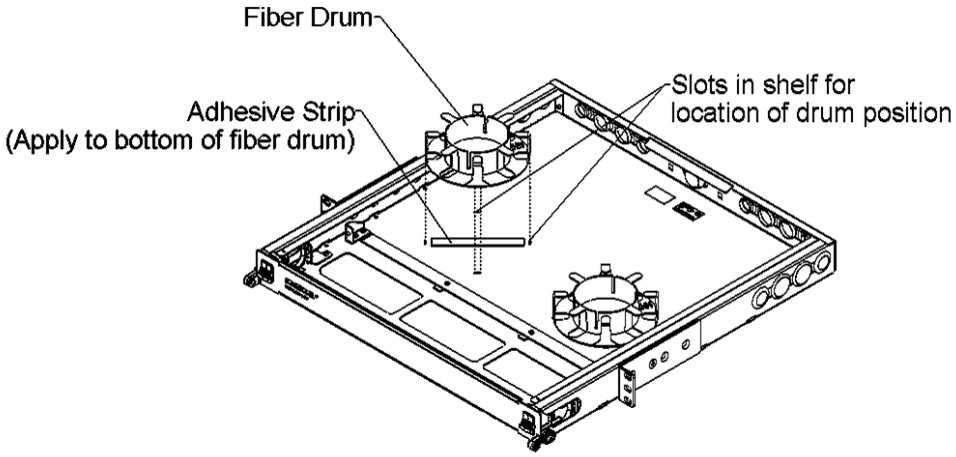
## Important Safety Cautions

- To reduce the risk of fire, electric shock, and injury to persons, read, understand, and adhere to the following instructions as well as any warnings marked on the product.
- Remote risk of electric shock. Never install the product in wet conditions or during lightning storms. Never touch uninsulated communication wires or terminals.
- Disconnected optical components may emit invisible optical radiation that can damage your eyes. Never look directly into an optical component that may have a laser coupled to it. Serious and permanent retinal damage is possible. If accidental exposure to laser radiation is suspected, consult a physician for an eye examination.
- Wearing safety glasses during installation of this shelf is recommended. Although standard safety glasses provide no protection from potential optical radiation, they offer protection from accidental airborne hardware and cleaning solvents.

## Precautions

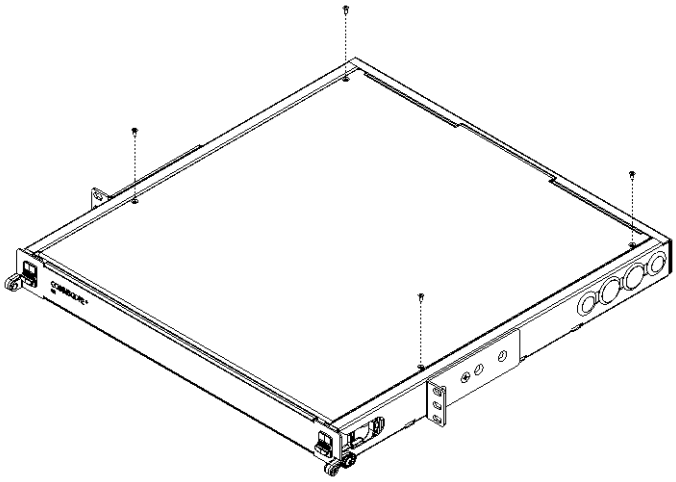
- Fiber optic trunk cable and jumper performance is sensitive to bending, pulling, and crushing. Minimum bend radius must be maintained during installation per the manufacturer’s specification. Appropriate pulling grips must be used during installation, and pulling forces shall not exceed manufacturer’s recommendations.
- All wiring that connects to this equipment must meet applicable local and national building codes and network wiring standards for communication cable.
- **IMPORTANT**: Dust covers are installed in the ports to protect the fibers connected to the back of the ports. Do not remove a dust cover from a port until you connect a patch cord to that port. If you remove a patch cord later, replace dust cover in the port.
- **Prior** to installation, clean the trunk cable and jumper connectors per the manufacturer’s recommendations.
- Isopropyl alcohol is flammable, and can cause eye irritation on contact. If eye contact occurs, flush with water for at least 15 minutes. In case of ingestion, consult a physician. Use only in well ventilated areas.
- Care should be taken not to compromise the stability of the rack by installation of this equipment.
- To be installed in restricted access areas only.

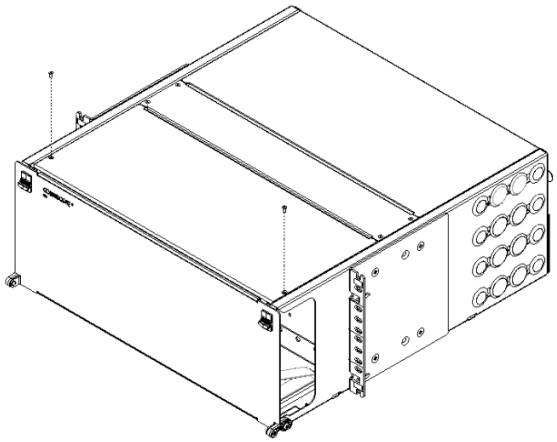
## Step 1 – Install Fiber Drums (for Unpopulated 1U Fixed Version of Shelf)



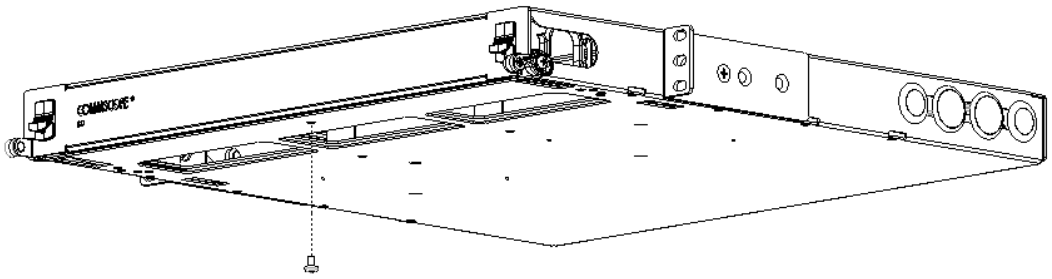

1. Wipe bottom surface of drums and floor of shelf with isopropyl alcohol (IPA) and a lint-free cloth or tissue to clean and degrease.
2. Peel off paper backing from one side of adhesive strip and apply to base of fiber drum.
3. Remove paper backing from remaining side of adhesive strip.
4. Locate pattern of four slots on floor of shelf. Orient outer spokes of fiber drum to align with these slots, lower drum and press firmly to create good adhesion.
   **Note:** Drum location and orientation is important to prevent interference between drums and adapters
5. Repeat items 1-4 for remaining drum, if desired.

## Step 2 – Remove Transit screws



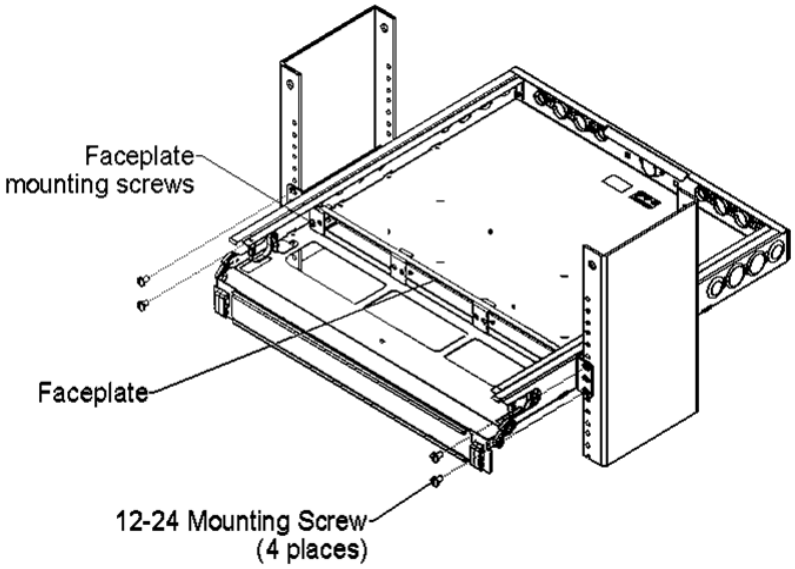


1. Remove transit screws from top panel (four on all 1U / 2U shelves and 2 on all 4U shelves.



2. Remove sliding tray transit screw (one underneath on all sliding shelves).

## Step 3 – Mount Shelf to Rack




1. Determine the rack size and desired mounting location.

- For 19-inch (483mm) rack – Mount shelf to rack using the pre-installed mounting brackets and four #12-24 x 1/2-inch screws (provided) as shown.
- For 23-inch (584mm) rack – Use G2-23BRKT accessory kit (available separately) and install two conversion brackets to pre-installed mounting brackets, using four #10-32 x 3/8-inch conversion screws included in accessory kit. Use one conversion bracket and two screws per side. Mount shelf to rack using four #12-24 x 1/2-inch screws (provided as part of basic shelf).
- For ETSI rack – Use G2-23BRKT accessory kit (available separately) and install one conversion bracket to either of the pre-installed mounting brackets, using two of four #10-32 x 3/8-inch conversion screws included in accessory kit. The shelf will not be centered when mounted in rack. Mount shelf to rack using four M6 x 12mm screws (provided as part of basic shelf).

**Note:** Tray locking screw must be removed from sliding shelves prior to installation.

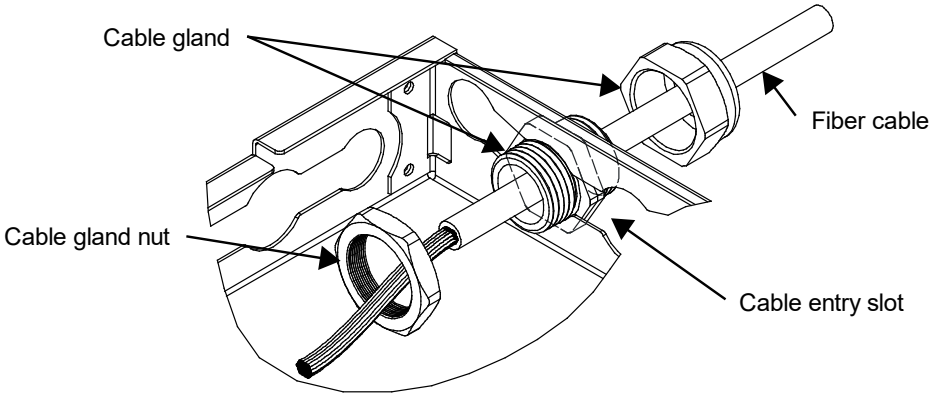
### Install Faceplate for Unpopulated Shelf Only

**Note:** For the standard 1U & 2U fixed and sliding shelves 1000 style faceplates are already attached to the shelves and no additional installation is necessary.

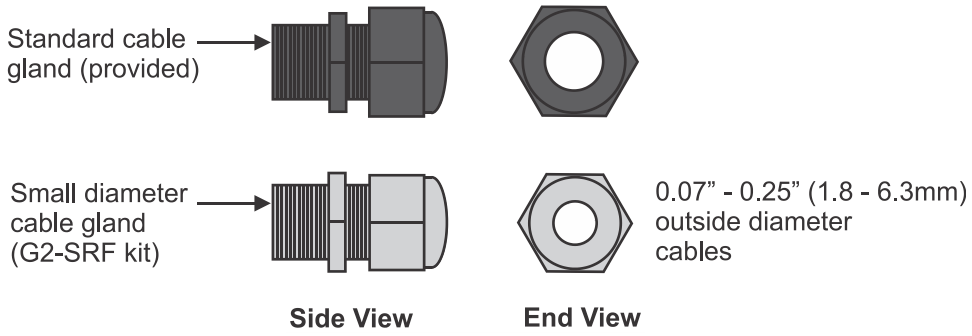
1. Insert appropriate faceplate as shown and secure faceplate to shelf using screws provided.
2. Install individual adapters into faceplate prior to fiber installation.

## Step 4 – Determine Method to Secure Fiber Cable to Shelf

**Note:** This shelf is designed for direct connection of fiber cables using cable glands inserted into cable entry slots provided. Another method for securing fiber cables is the use of optional rack mounted brackets, which is not covered here. See instruction sheet 860380781 for using rack mounted brackets.

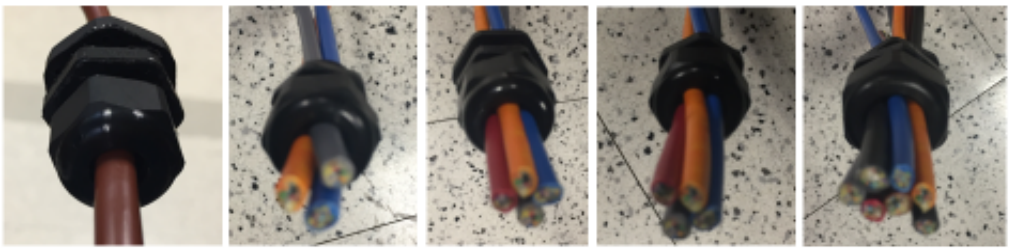



**Note:** For smaller diameter cables, the 600-SRF kit (ordered separately) provides two liquid-tight fittings with a smaller inside diameter. The smaller diameter fittings would be more appropriate for these cables.



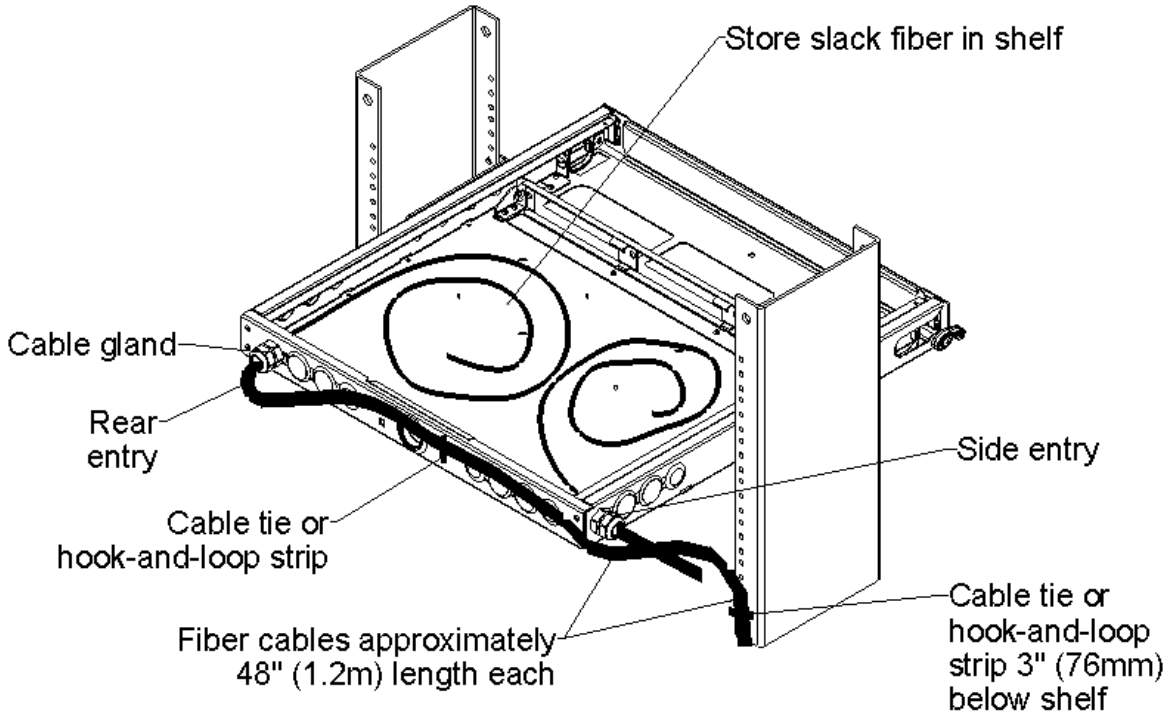
## Cable Gland Capacities

- 3/8" NPT Gland accepts a single 12f buffer tube
- ½" NPT Gland accepts up to three 12f buffer tubes
- ½"-E NPT Gland accepts up to four 12f buffer tubes
- PG-16 (metric) Gland accepts up to four 12f buffer tubes
- ¾" NPT Gland accepts up to seven 12f buffer tubes



3/8" Gland | ½" Gland | ½"-E Gland | PG-16 Gland | ¾" NPT Gland

## Step 5 – Route and Secure Fiber Cable

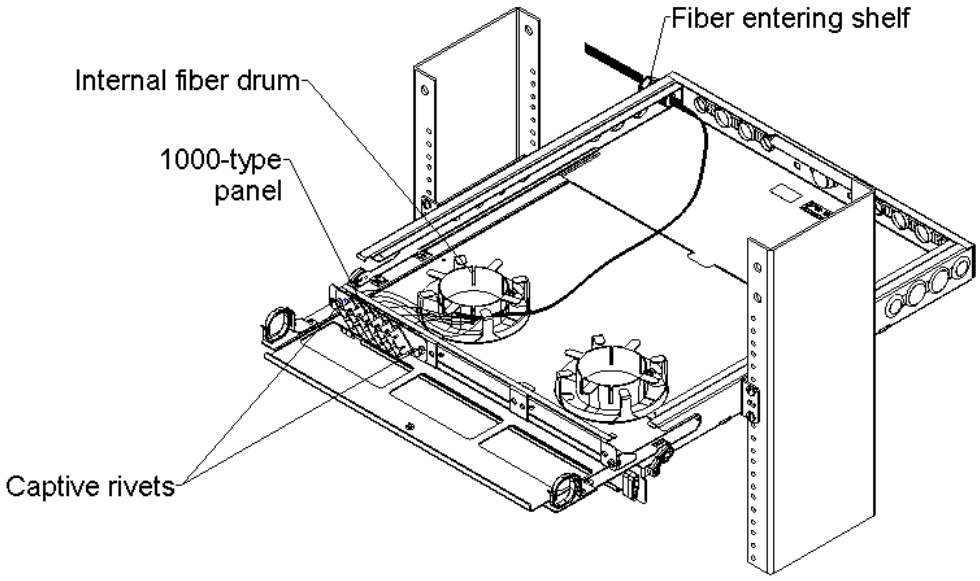



**Note:** These instructions cover only the cable gland method of securing fiber cables to the shelf.

1. Loosely secure fiber cable to equipment rack upright approximately 3 inches (76mm) above or below shelf, using cable tie or hook-and-loop strip. Leave approximately 48-inch (2.1m) length of cable to route into shelf.
2. Fiber cables may enter shelf from either right side, left side or rear apron. Carefully loop fiber cable to rear of shelf on either side and continue to feed cable over top of rear apron. Loosely secure cable to rear of shelf as shown above, using a cable tie or hook-and-loop strip.

3. Temporarily store slack fibers in shelf.
4. Remove plug from appropriate size opening in shelf to accommodate cable gland on fiber cable. Select an opening on rear apron or either right or left side that will be most advantageous for cable entry.
5. Completely loosen gland nut from cable gland.
6. Feed fibers and subunit tubes through opening in shelf and temporarily coil fibers loosely inside shelf.
7. Rotate gland nut as required to allow it to pass through opening and enter shelf.
   **Note:** It may be necessary to temporarily remove a plug from an adjacent opening to provide sufficient clearance for gland nut to be inserted through opening.
8. Insert threaded body of cable gland into opening and tighten gland nut onto threaded section to secure cable gland unit to shelf.

## Step 6a – Route Cable/Fibers Inside Shelf – Field Termination Only




**1000-Type Panel Application:**

1. Insert module into opening provided in faceplate, oriented so that adapters pass through opening first. Push in on two captive rivets until they lock into place.

   **Note:** On a 2U shelf, start on bottom row first.
2. After connectorization, route buffered fibers from cable toward front of tray.
3. Terminate connector end of pigtails into module adapter openings in standard sequence.
4. Spool excess fiber slack length around drum.
5. Repeat items 1-4 for all remaining locations.

**Note:** Any excess fiber that cannot be spooled on drums should be restrained to floor of shelf with hook-and-loop strips or blue painters tape. Sliding versions must have the tray latched in the extended position (as shown) to ensure that there is sufficient slack loop.

## Step 6b – Route Cable/Fibers Inside Shelf – Splice Cassettes

**G2 Module Application:**

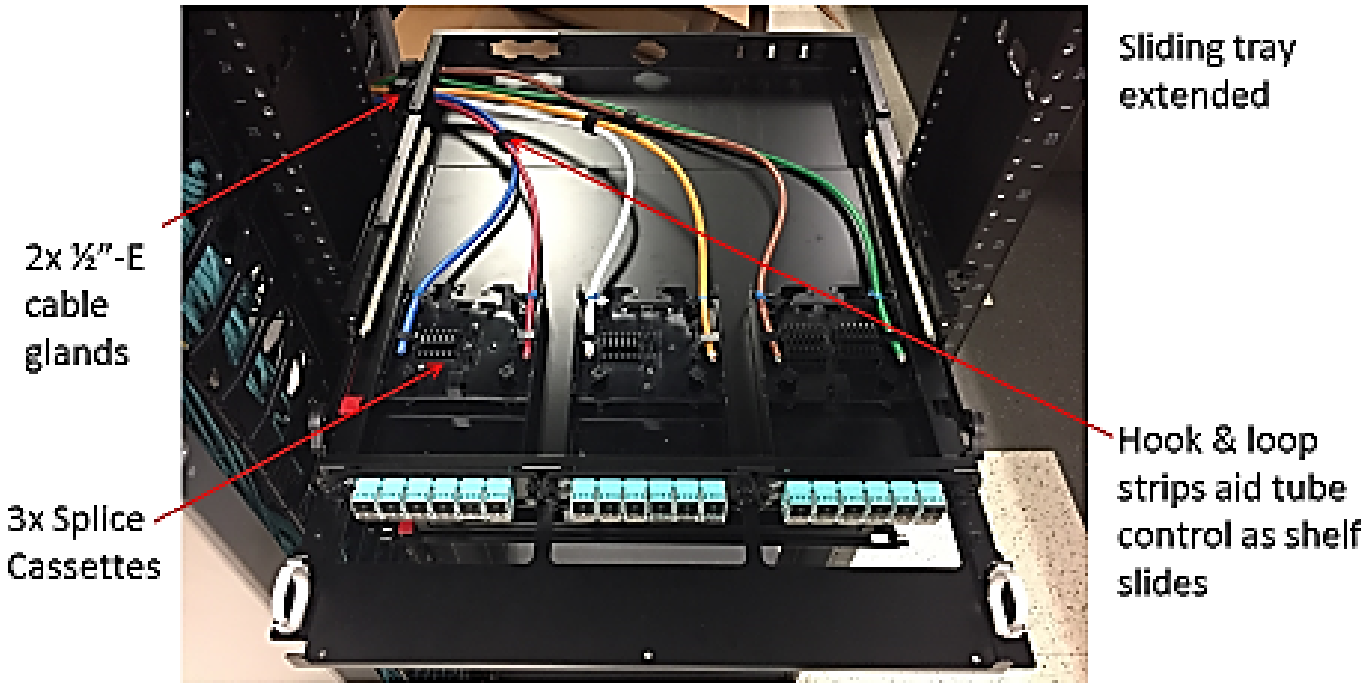
1. Insert module into opening provided in faceplate, oriented so that the rear passes through opening first. Push in on two captive rivets until they lock into place.

   **Note:** On a 2U shelf, start on the bottom row first.

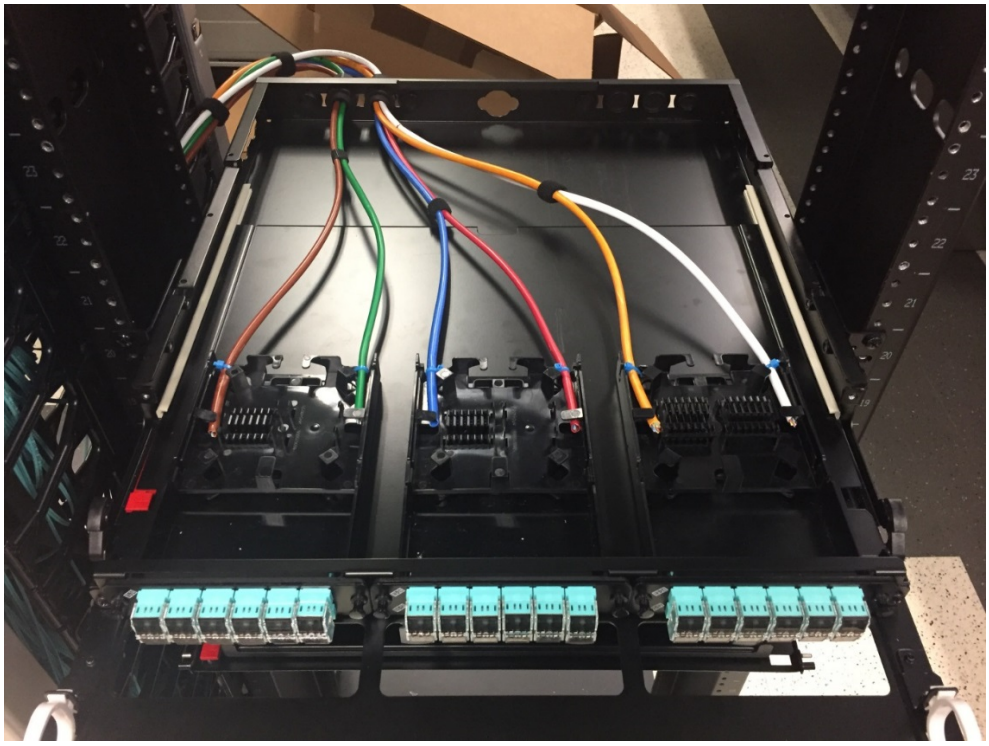
2. Route cables from rear of shelf to splice cassettes as shown in the figures below.
3. If rear cable entry is used on the 4U shelves, method A is preferred.
4. Splice fibers from cable to splice cassette as per instructions included with the splice cassettes.

   **Note:** fiber should be secured with hook-and-loop strips to aid control fiber control on sliding shelves.

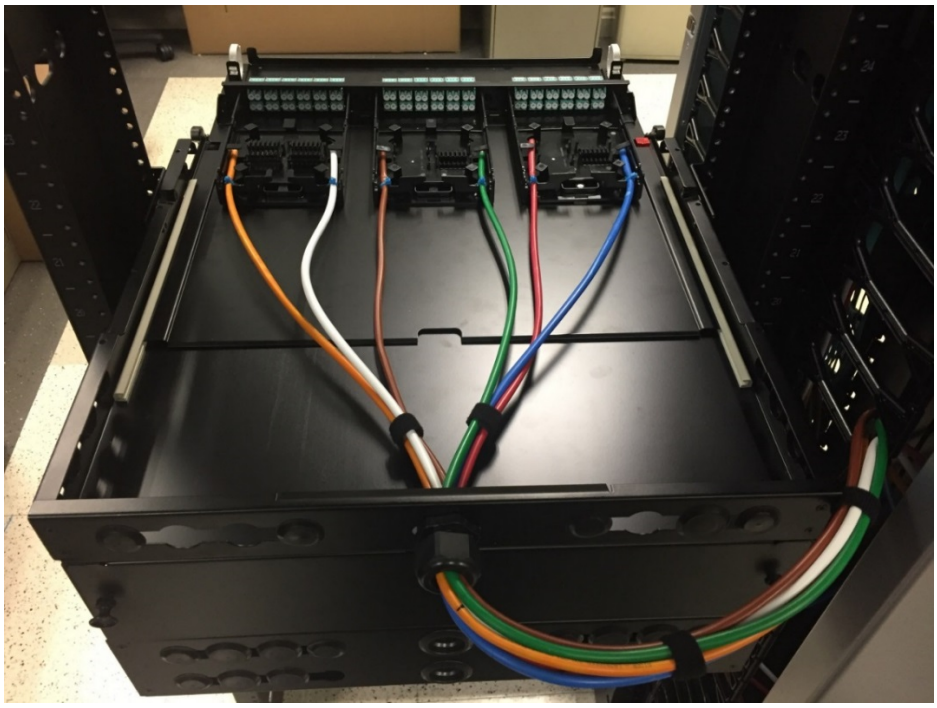
Figures below show 1U 2U shelves fully populated with separately orderable splice cassettes. Note that the 2U shelves should be configured the same as the 1U.



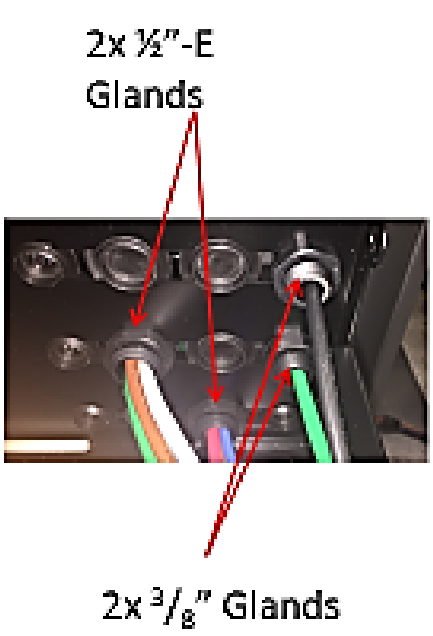

**1U shelf with side entry**

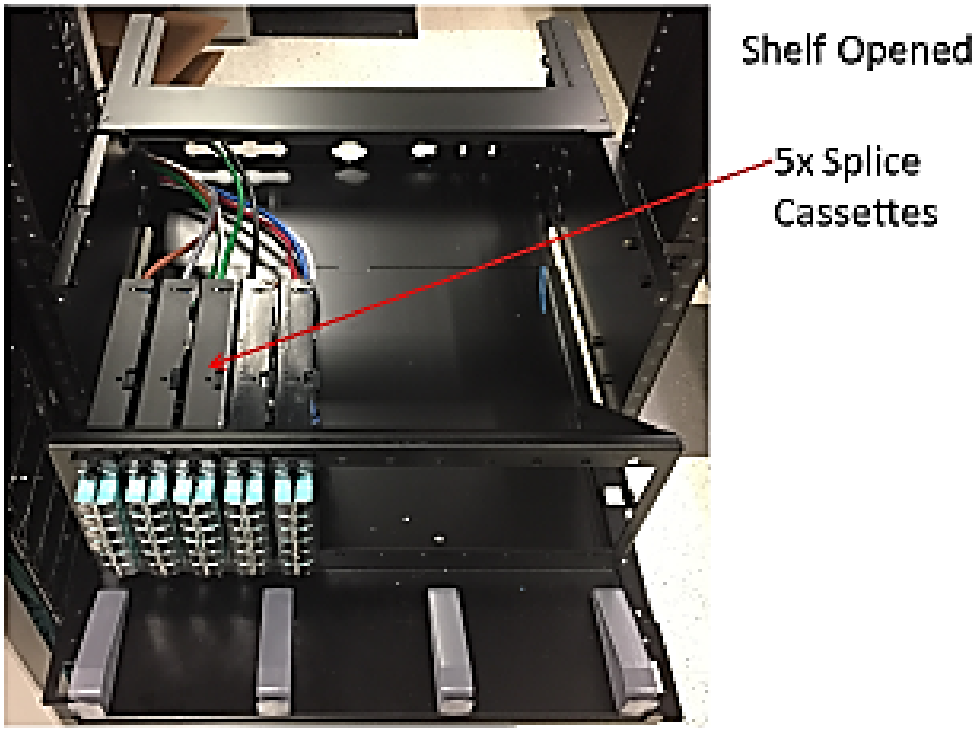


**1U shelf with rear entry**



**1U rear entry using single ¾” cable gland**



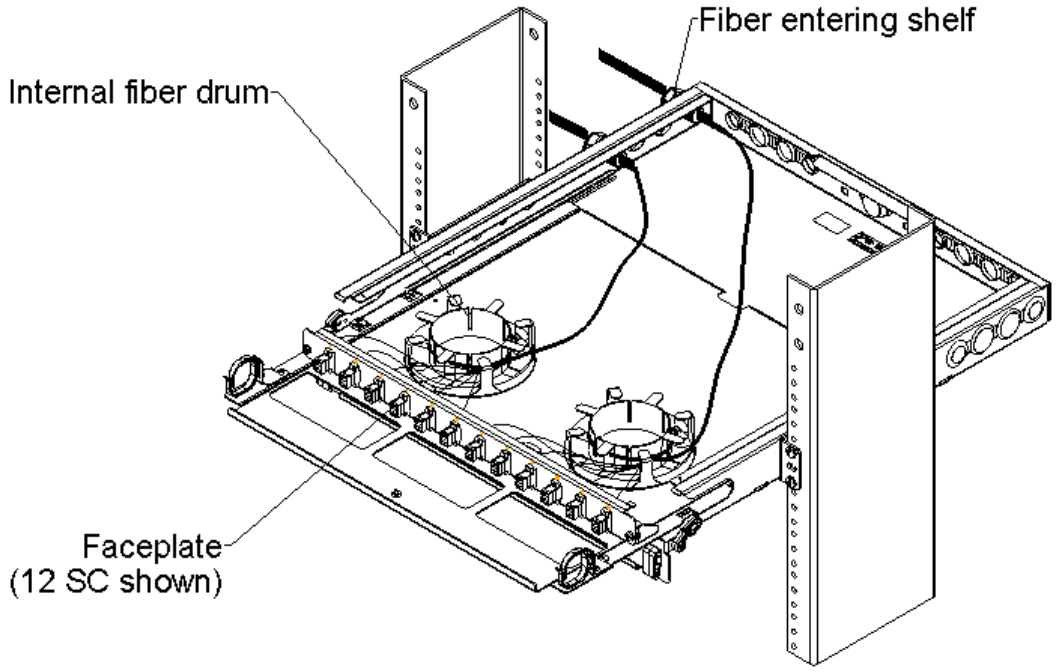




**4U side entry**

**4U rear entry – Method 1**

**4U rear entry – Method 2**

## Step 6c – Route Fiber/Cable Inside Unpopulated Shelf using Faceplates



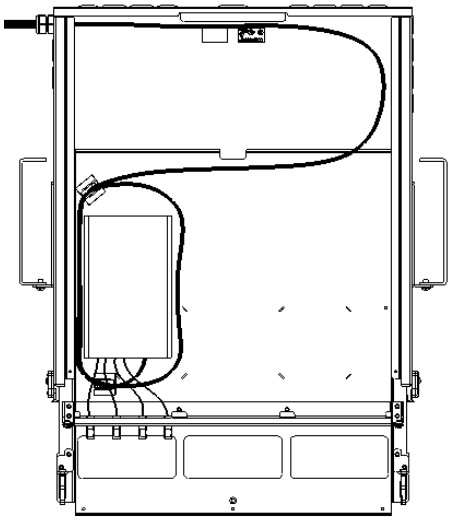

After installing fiber drums per Step 1 and faceplate per Step 2, install adapters into cutouts provided in faceplate.

**For Termination:**

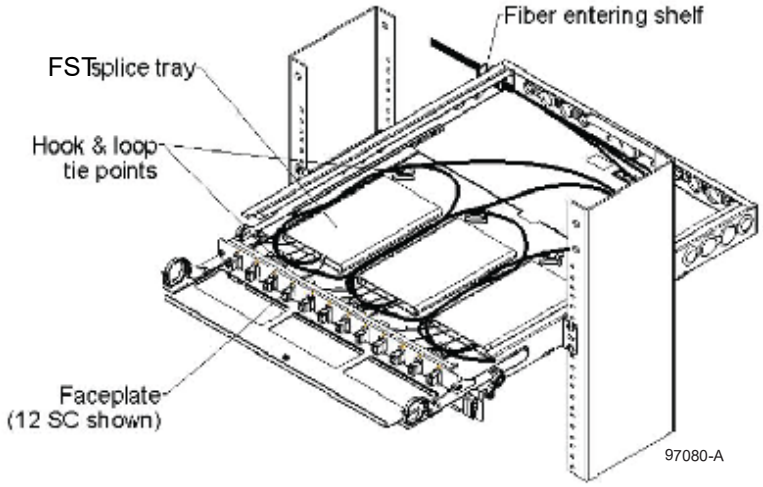
1. Insert module into opening provided in faceplate, oriented so that the adapters pass through opening first. Push in on two captive rivets until they lock into place.
2. Spool slack fiber around drum nearest targeted adapter, leaving sufficient length to mate connector to adapter.
3. Terminate connector into adapter in standard sequence.
4. Repeat items 1-3 for all remaining locations, transitioning slack to adjacent fiber drum as adapters are filled toward that drum.
5. Bundle and/or restrain groups of fibers as required with hook-and-loop strips or blue painters tape.

   **Note:** Any excess fiber that cannot be spooled on drums should be restrained to floor of shelf with hook-and-loop strips or blue painters tape. Sliding versions must have the tray latched in the extended position (as shown) to ensure that there is sufficient slack loop.

## Step 6d – Route Fiber/Cable Inside Shelf Using Optional FST Splice Trays



Single splice tray

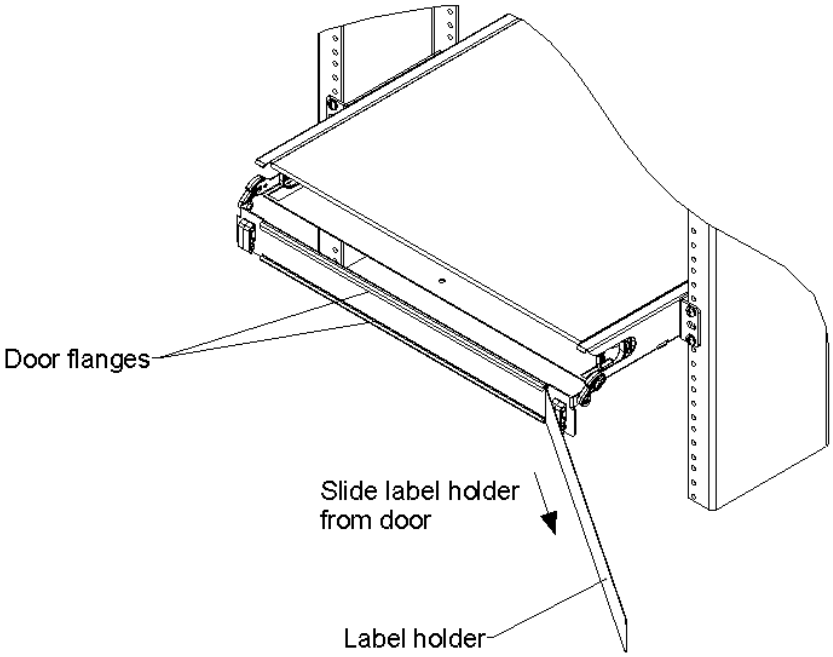



Fully populated

**Note**: FST splice tray kit is ordered separately from shelf. Refer to instructions enclosed with that kit for all details not covered here. Up to three splice trays may be installed per U height.

1. Using a lint-free wipe and isopropyl alcohol, clean area where splice tray is to be located.
2. Attach double side tape (provided) to bottom of splice tray. Peel off paper backing, position splice tray(s) and press down firmly. If permanent adhesion to the floor is not desirable, installer provided hook-and-loop may be used.
3. Route buffer tube(s) to tray, as shown above. Buffer tube slack shall be spooled inside perimeter of chassis and restrained with cable ties at tie-down points provided, as necessary.
4. Buffered fiber entering and exiting the splice tray should enter from the same end.
5. On 2U and 4U shelves splice trays may be installed stacked on top of each other.
6. Ensure that suitable slack is provided to allow tray on sliding versions to fully extend.

## Step 7 – Remove / Install Label Holder

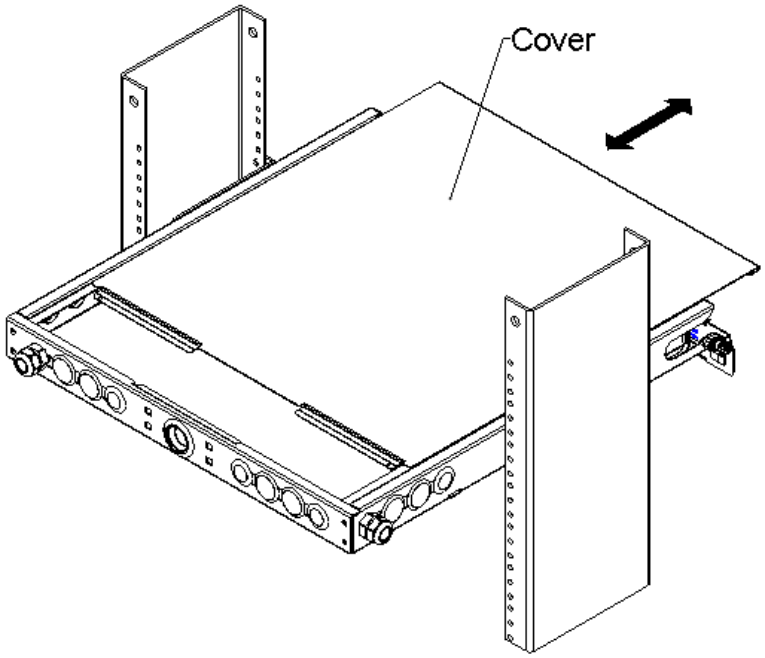



1. Open door to 180deg
2. Slide label holder from between door flanges
3. Attach port labelling and re-install label holder
4. Printable label templates are available on the **CommScope** website, which can be used along with available label stock to create finished port numbering labels.
5. To print a designation label , go to

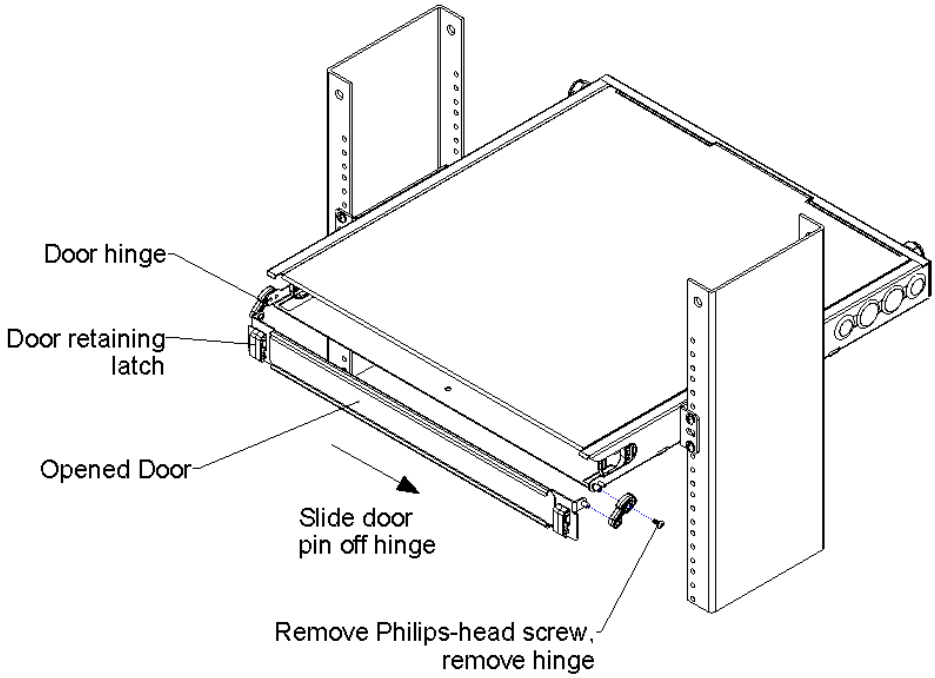
http://www.commscope.com/Resources/Labeling-Templates and scroll down to the **SD Density Fiber Shelf** and select the appropriate label template.

## Step 8 – Install Cover

1. Ensure that the front door is fully open.
2. From front of shelf, position cover on shelf side members and slide into place as shown.
3. Ensure that cover is pushed fully home before closing door.



## Step 9 – Remove / Install Door




1. Pull down on both retaining latches and pull door forward to open.
2. Open door 180 deg as shown.
3. Remove retaining screw securing the hinge on either side of door and remove the one hinge as shown. Then slide door towards the detached hinge to disengage the opposite side and remove door.

## Product Information and Patents

- For product information and technical support, visit us at: http://www.commscope.com/SupportCenter
- For information on product patents, visit us at:: http://www.commscope.com/ProductPatent/ProductPatent.aspx

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