

CORNING

High Density Frame (HDF) Installation

P/N 003-355

Issue 5

related literature | Search www.corning.com/opcomm. Click on “Resources.”

1. General

This document describes the installation of the High Density Frame (HDF) manufactured by Corning Optical Communications (Figure 1).

2. Tools and Equipment

The following tools and equipment are recommended for a typical HDF installation.

- 1/2-in nut driver
- Phillips-head screwdriver
- Flat-blade screwdriver
- 15/16-in socket (to attach extension)
- Cable tie installation tool

3. Utility Rack Assembly

Step 1: Make sure everything you need for the installation is at the site before you begin.

Step 2: Remove the base cover from the base and save the screws (Figure 2).

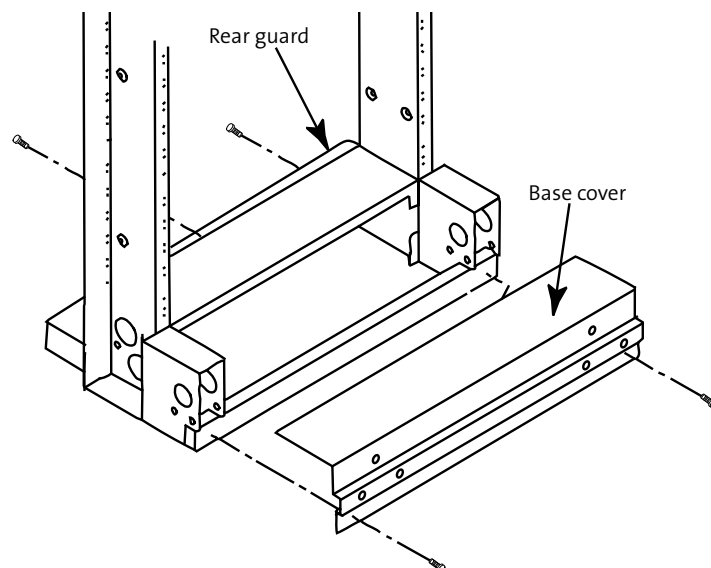


Figure 2

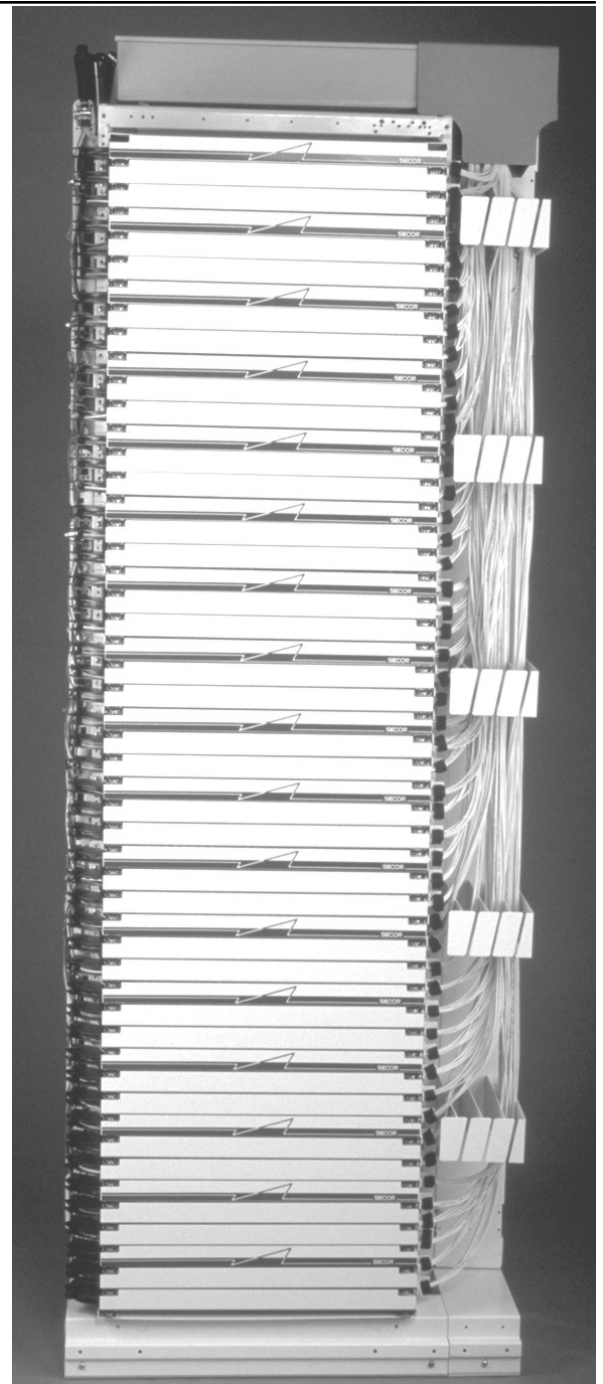


Figure 1

Step 3: Place the preassembled utility rack in the position it will occupy and mark the hole locations for drilling. See Figure 3 for hole locations.

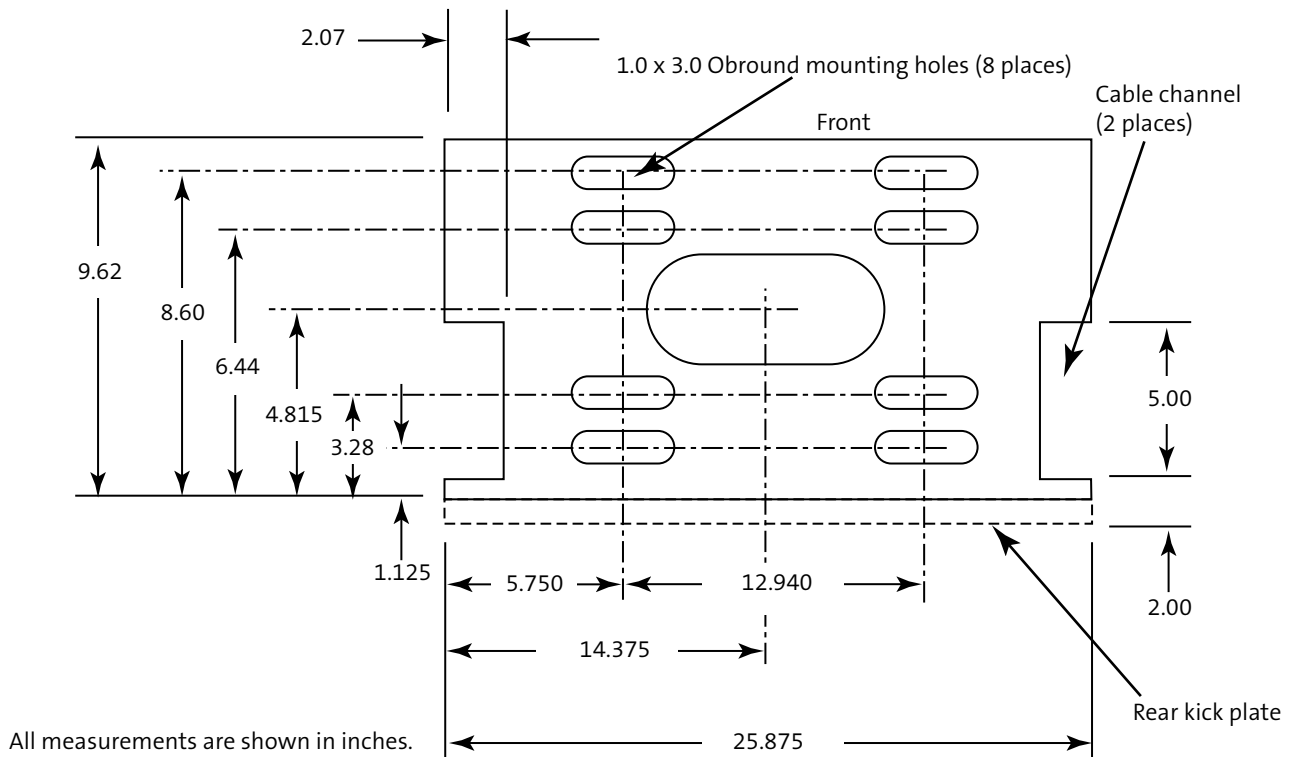


Figure 3

Step 4: Remove the frame from placement, drill floor for anchors, and insert anchors.

Step 5: Bolt the unit to the floor using anchors and assembly hardware specified for the type of floor.

Step 6: If you are installing more than one HDF (in tandem), install the interbay spacer (see next section) and attach the HDF utility racks together first. To attach the HDF utility racks together, locate the racks over the floor mounting holes, secure them to each other with nuts and bolts threaded through the bases, install the floor mounting bolts, and tighten.

Step 7: Attach the base cover to the rack assembly as illustrated in Figure 2.

4. Routing Guides

Step 1: Remove front cover from base filler and equipment rack base. Attach base filler to equipment rack base with 3/8-in hardware provided. Reattach covers (Figure 4).

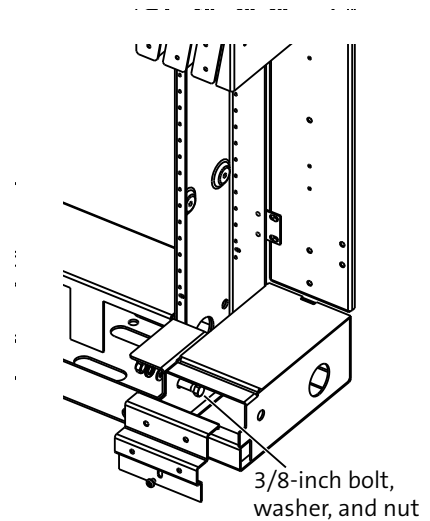


Figure 4

Step 2: To install the jumper guide backplate, first install the three mounting brackets to the back side of equipment rack upright using six 12-24x1/4-in screws. Position the jumper guide backplate and secure with remaining six 12-24x1/4-in screws.

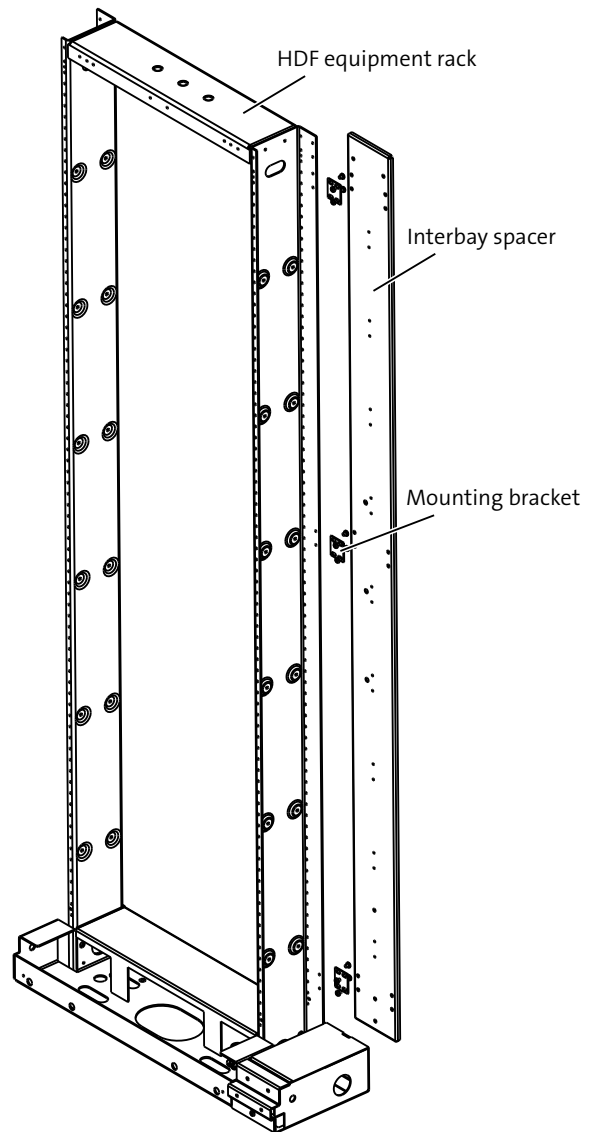


Figure 5

Step 3: Mount each jumper guide using two 12-24x1/4-in screws. The top jumper guide is mounted 5.5 in from the top of the equipment rack. Each successive jumper guide is mounted 13 in below previous guide.

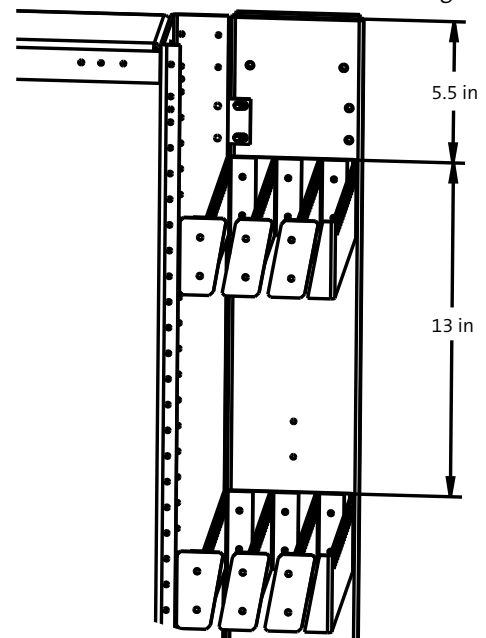


Figure 6

5. Endcap Installation

Endcaps are installed on the end of frame lineups to finish out the lineup and protect the exposed jumpers. The endcaps mount to the frame through the interbay spacer (Figure 9).

- Step 1:** Remove and save the screws holding the endcap cover to the endcap base and remove the cover from the base. Remove the package of hardware from the small compartment in the endcap cover.
- Step 2:** If an interbay spacer is already installed on the HDF frame, the spacer and its mounting brackets must first be removed from the frame. Remove the mounting brackets from the rear of the frame and then remove the brackets from the interbay spacer.
- Step 3:** Use the three large mounting brackets provided with the endcap. The smaller mounting brackets may be discarded. Attach the endcap mounting brackets to the backside of the frame using two 12-24x1/2-in screws per mounting bracket.
- Step 4:** Install the interbay spacer to the backside of the endcap mounting brackets using four 12-24x1/4-in screws per mounting bracket.
- Step 5:** Attach the endcap base to the endcap mounting brackets using two 12-24x1/4-in screws per mounting bracket.
- Step 6:** Attach bottom of endcap to base filler using 3/8-in bolt, washers, and nut provided.
- Step 7:** Reattach the endcap cover to the endcap base using the screws used in step 1.

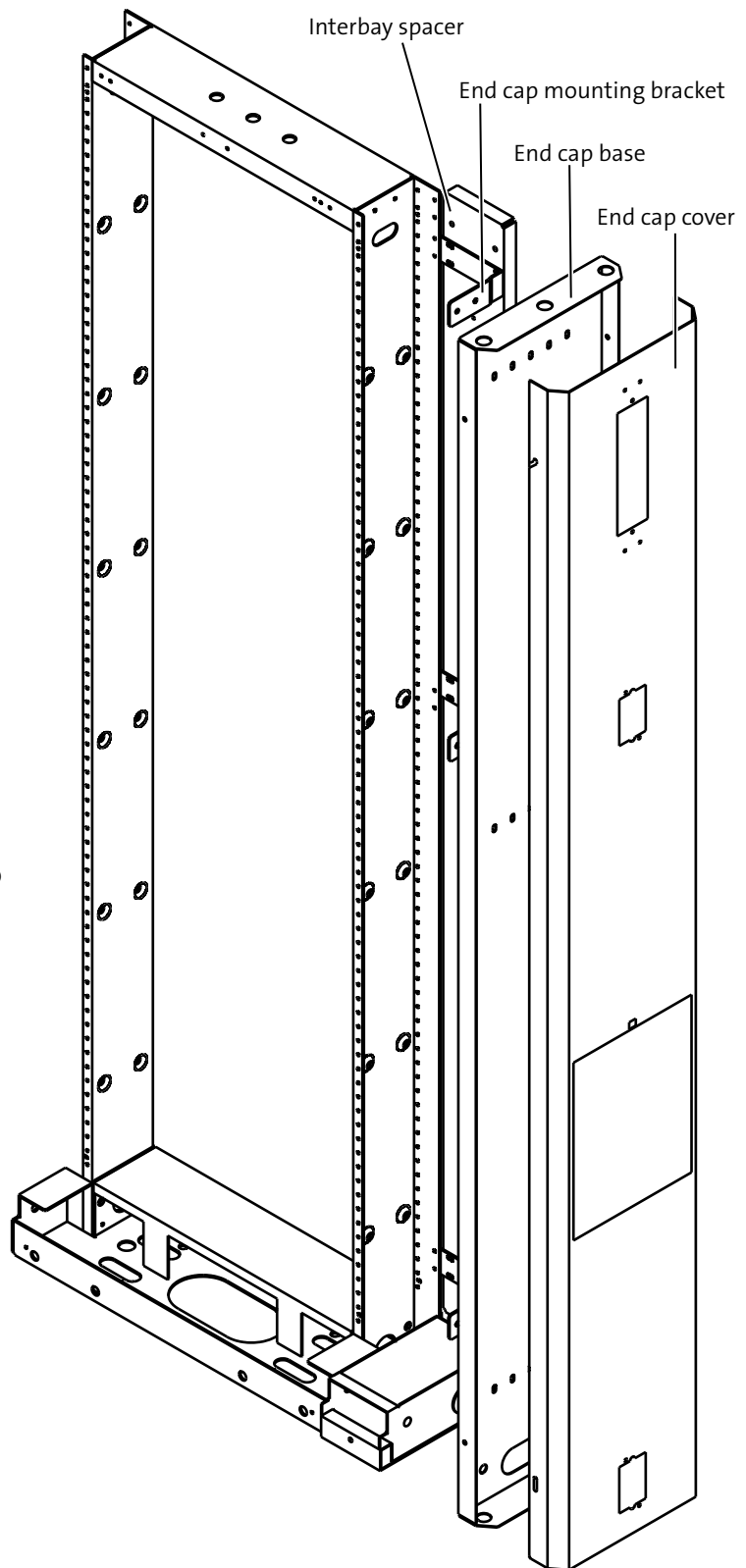


Figure 7

6. HDF Shelf Installation

Three HDF drawer assemblies are mounted into each HDF housing. Housings are shipped preassembled. If your installation calls for only one housing, install it with both top and bottom panels in place. If your installation calls for more than one housing, install them so that the top housing has only the top panel in place and the bottom housing has only the bottom panel in place. Housings in between should not have either top or bottom panels. Attach shelves to the utility rack on mounting brackets using the 12-24x3/8-in screws provided (Figure 8). Slide housing into position and secure with two screws on the right and one screw in a lower mounting slot on the left. Position the strain relief bracket on the left side so the top of the mounting bracket is flush with the top of the housing mounting bracket and secure with two more screws. See detail in Figure 8.

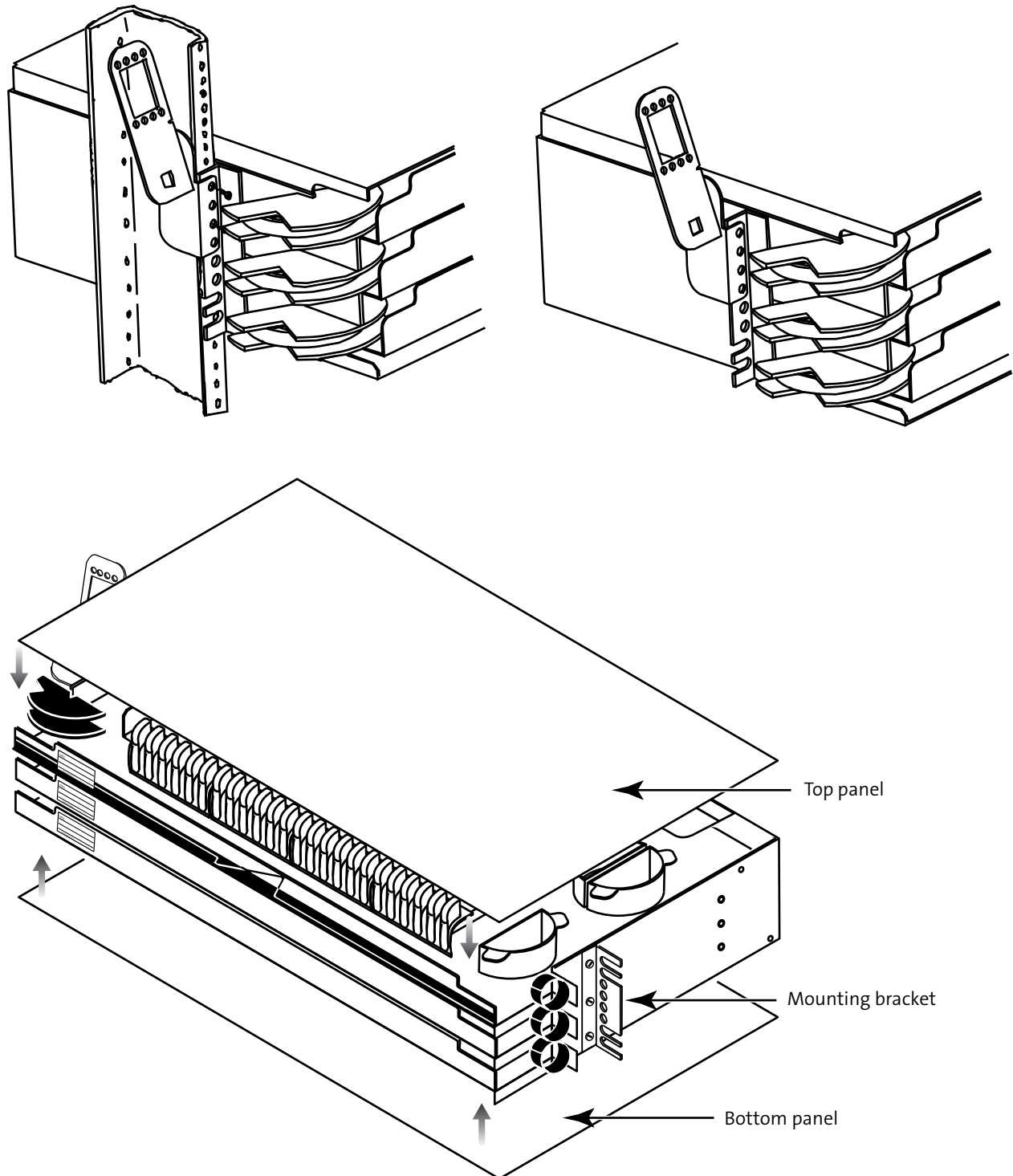
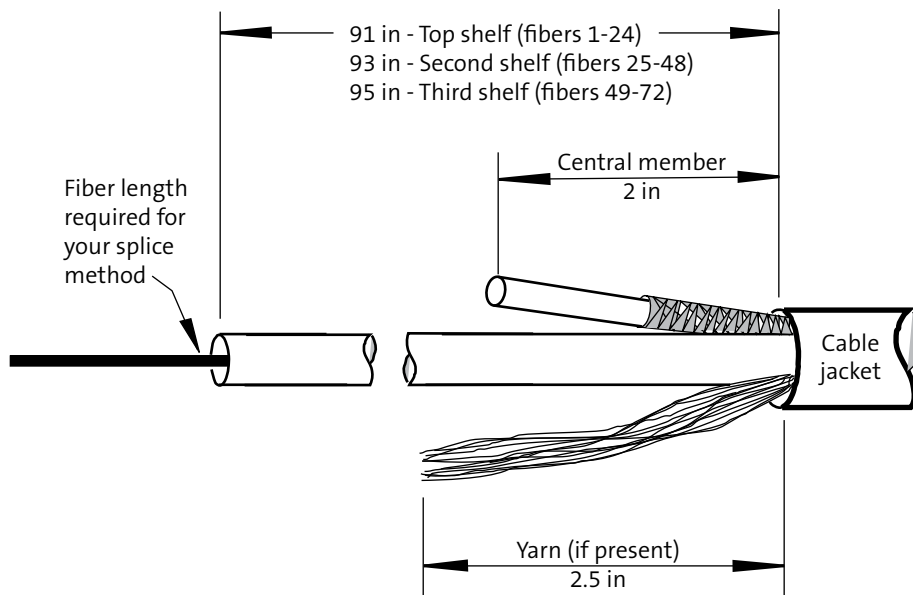


Figure 8

7. Cable Installation for Pigtail Splicing



Pigtail Lengths - HDF (end of sheath to tip of connector)		
Fiber Number	Color	Length in inches
1	Blue	4.25
2	Orange	4.25
3	Green	4.5
4	Brown	5
5	Slate	5.75
6	White	6.5
7	Red	7
8	Black	7.5
9	Yellow	8
10	Violet	8.5
11	Pink	9
12	Aqua	9.5
13	Blue	6.5
14	Orange	7
15	Green	8
16	Brown	8.5
17	Slate	9
18	White	9.5
19	Red	10
20	Black	10.5
21	Yellow	11
22	Violet	12
23	Pink	13.5
24	Aqua	14

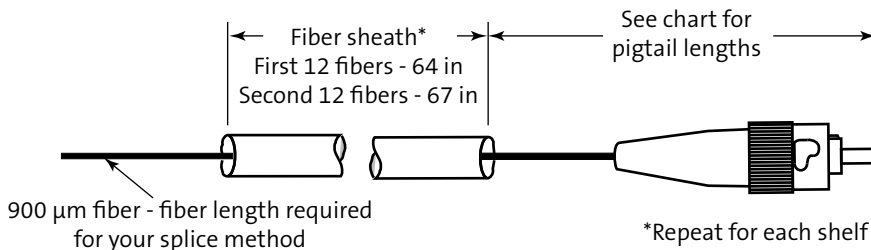


Figure 9

Step 1: Strip cables to the lengths illustrated in Figure 9.

Step 2: Attach outside plant cables to the left side of the utility rack with cable ties.

Step 3: Install a sheath retention clamp on the cable as illustrated in Figure 10.

- Take a section of clamp material and wrap it around the cable to determine the length needed for one full wrap.
- Use side cutters to cut the clamp material so that it ends up one section shorter than the measured length
- Plast the cut length of clamp material 1.25 cm (0.5 in) from the end of the cable sheath. Install a hose clamp over it, covering as many of the small holes in the clamp material as possible. Hand-tighten with a slotted screwdriver or a 5/16-in nut driver.

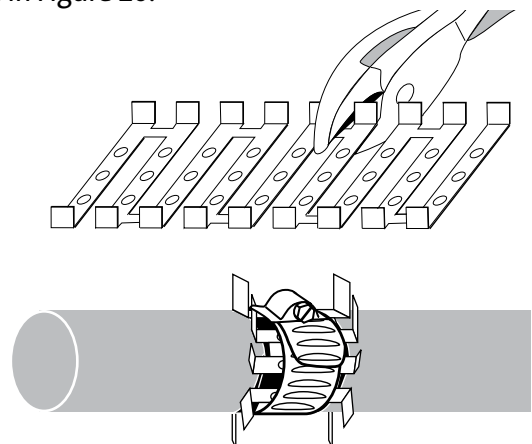


Figure 10

Step 4: Determine if a shim is required to secure the central member during strain-relief (Figure 11).

- The purpose of the central member clamp is to ensure that small central members are secured adequately when used with the central member clamp.
- Measure the central member (after it is stripped) by inserting it into the hole in the shim. If the central member fits into the hole, the shim is necessary to secure the central member. If the central member does not fit into the hole, discard the shim.

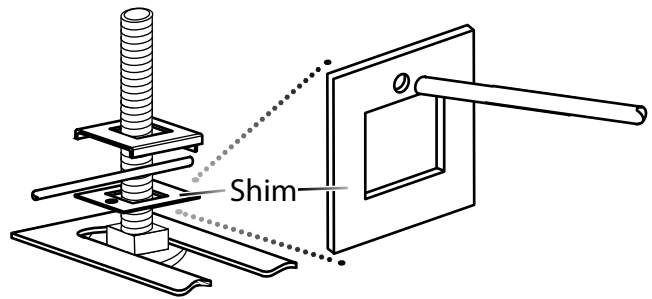


Figure 11

Step 5: If cable is armored, ground metallic cable sheath using a ground clamp (Figure 12). This clamp is generally installed below the sheath retention clamp on the strain-relief bracket. Be sure to ground the clamp to the HDF ground wire and the HDF ground wire to an earth ground with a No. 6 AWG copper conductor.

Step 6: Strain-relieve cables to strain relief brackets on the side of each shelf assembly as shown in Figure 13.

Step 7: Ground cable with metallic central member directly to the strain-relief bracket on the side of the drawer assembly (Figure 13).

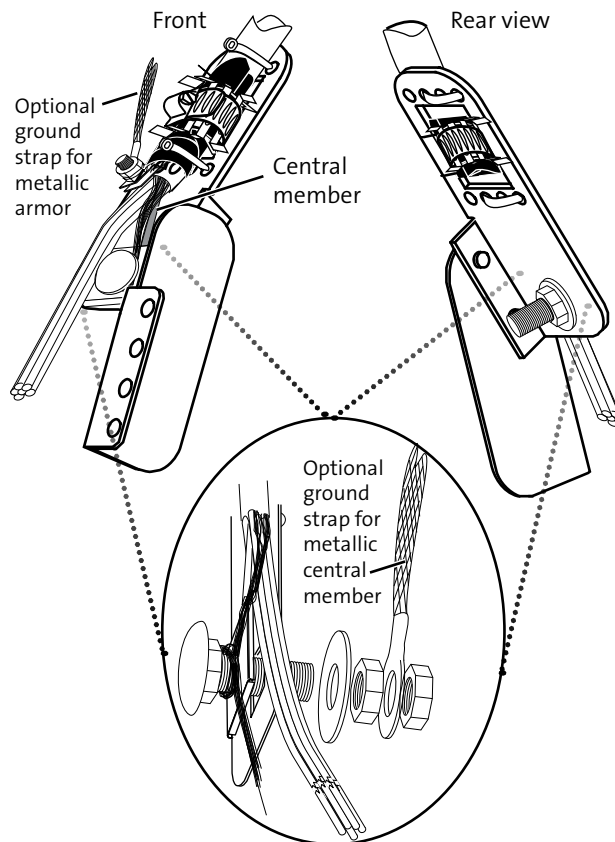


Figure 13

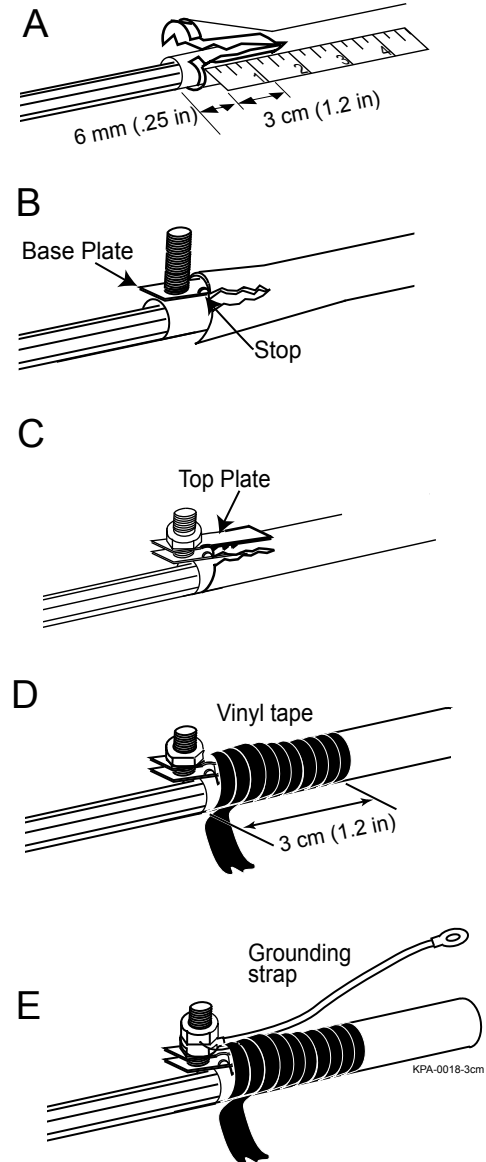


Figure 12

8. Buffer Tube Routing

- Step 1:** The connector shelf is held in place on five studs (Figure 14). Pry up the connector shelf to access the fiber guides. Once buffer tubes have been routed, replace the shelf.
- Step 2:** Bring cable into the HDF drawer and route around fiber guides as illustrated in Figure 14. It is important that the drawer be pulled fully forward before routing the buffer tubes.
- Step 3:** After the buffer tubes are routed around the spools, secure them with the provided 4-in cable tie to the cable tie anchor. It may be necessary to wrap 1 in of vinyl tape around buffer tubes at tie wrap point to ensure a good grip.

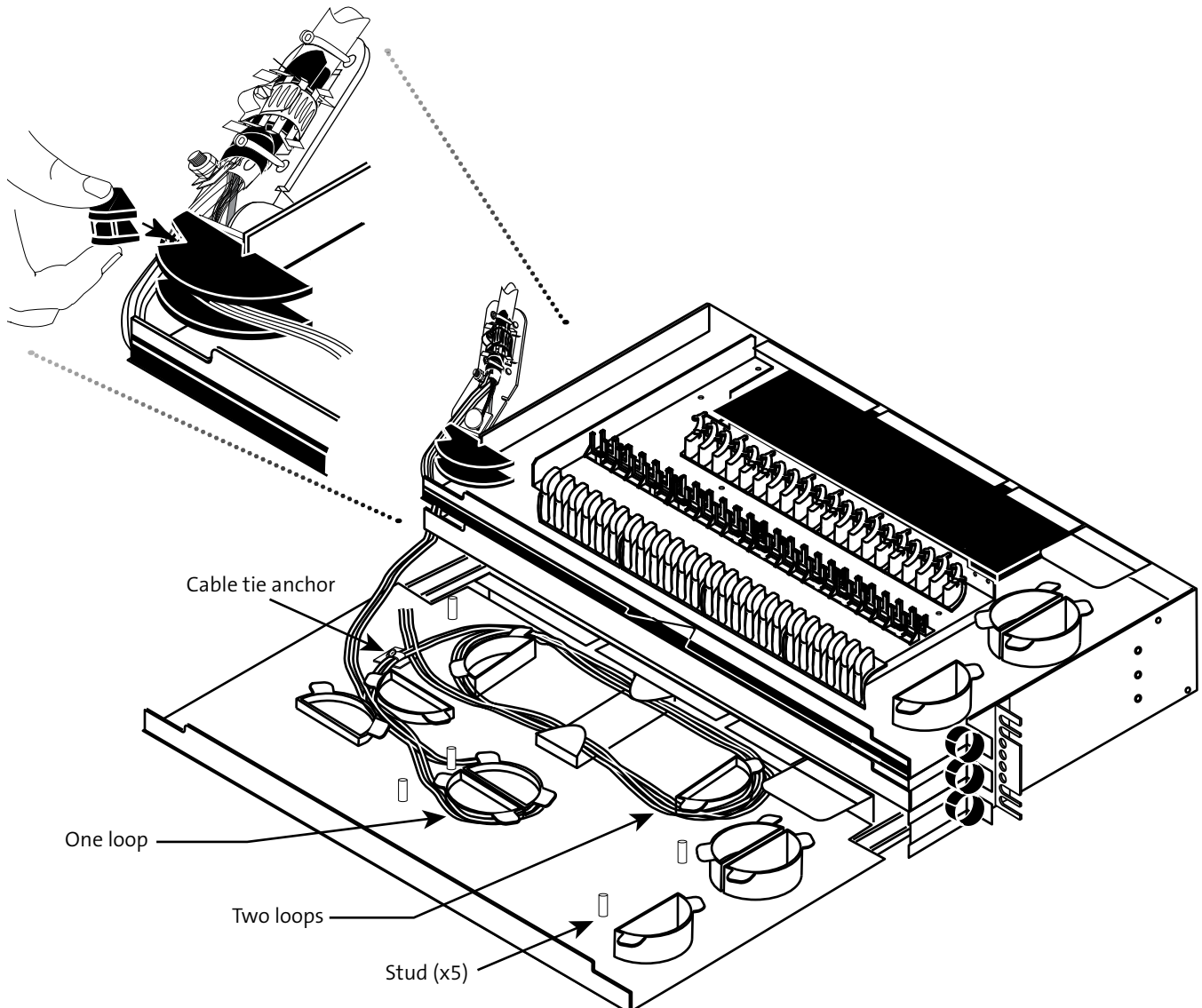


Figure 14

9. Connector Sleeves

- Step 1:** Connector sleeves are installed in slides on the connector support panel. Raise the connector to access it for connector installation (Figure 19).
- Step 2:** Connector sleeve adapters are available to fit the SC, ST-compatible, FC, and angled polish connector sleeves. See Figure 19 for installation of each sleeve type.

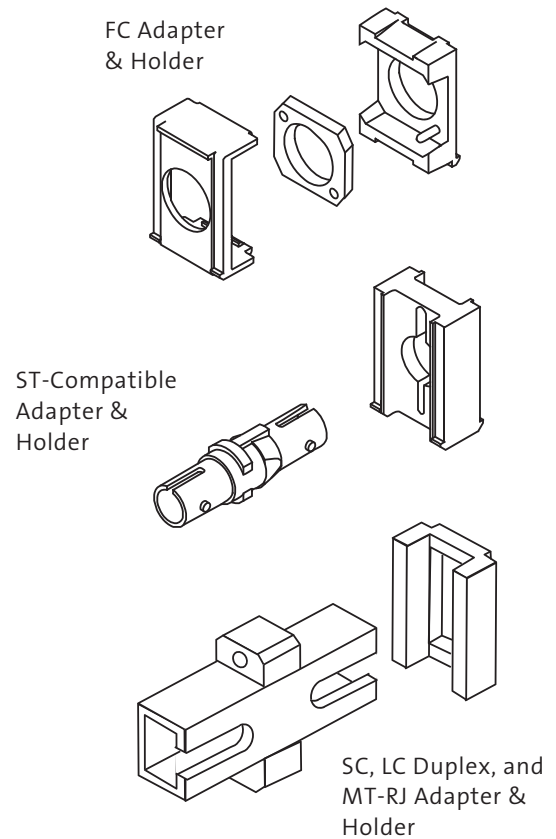
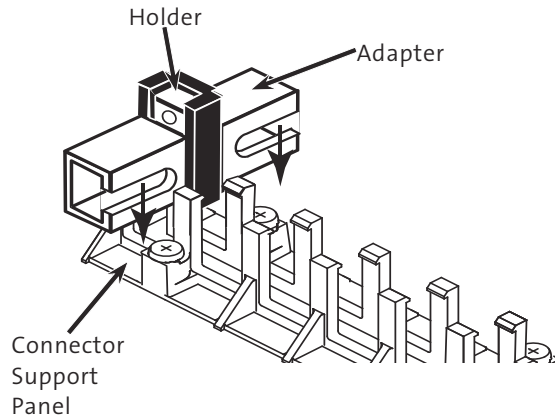


Figure 15

10. Pigtail Installation

- Step 1:** Pigtails are fiber optic cables with connectors only at one end. Install the connectors into the sleeves in the connector shelf and route pigtails through the fiber guides behind the sleeves (Figure 21).
- Step 2:** Splice the unterminated ends of pigtails to the buffered fibers in the splice tray located behind the removable shelf per directions in Section 11..

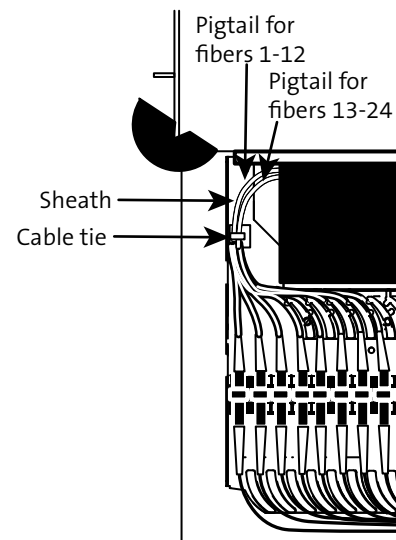


Figure 16

11. Splicing

- Step 1:** Bring both pigtails and buffered fibers to a convenient splicing area - one pair at a time (Figure 17). Strain-relieve buffer tubes and pigtails into the splice tray as described in instructions packaged with the splice tray you are using.
- Step 2:** Splice the fibers as described in instructions for the splicing method you are using. As you complete a splice, record the location on a record label.
- Step 3:** Coil fiber slack into the splice tray and snap the tray cover into place.
- Step 4:** Once splicing is complete, coil slack onto the plastic guides and slide the completed tray into the tray holder.

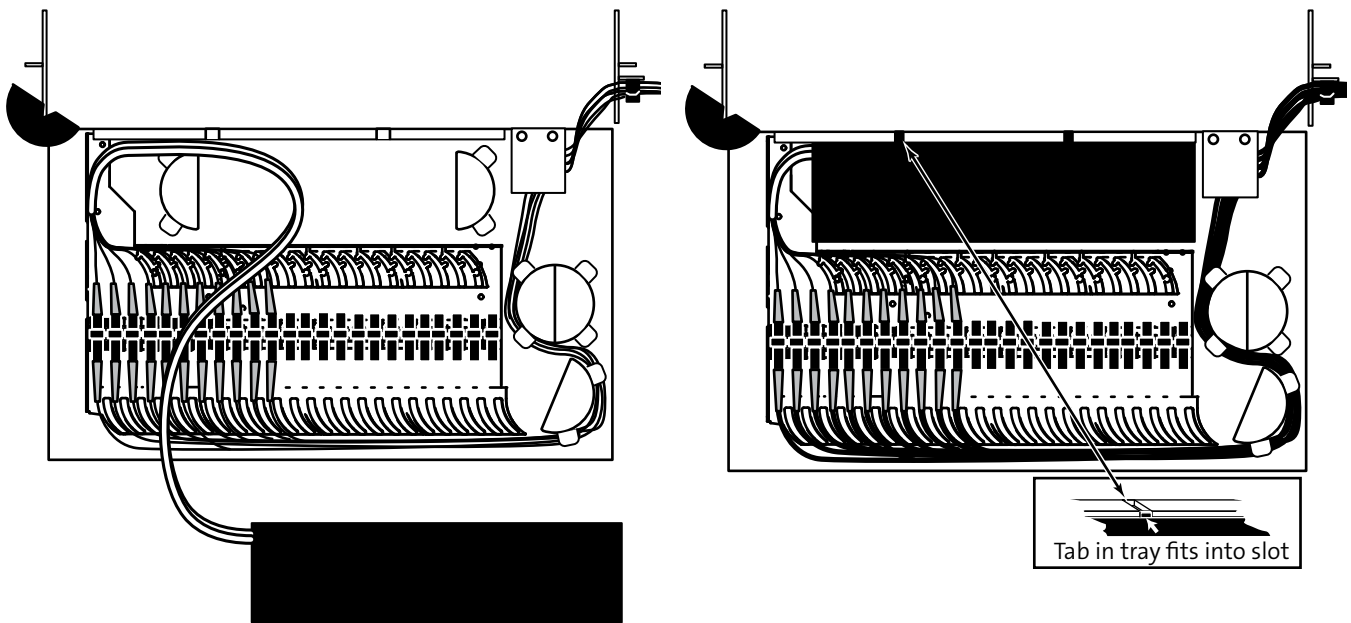


Figure 17

12. Jumper Installation

- Step 1:** Jumpers are fiber optic cable with connectors at both ends. Install one end in the connector sleeve in the HDF drawer and the other end to electronic equipment.
- Step 2:** Route jumpers around routing guides on the drawer assembly as shown in Figure 18.
- Step 3:** Close drawer assembly and use the hook-and-loop strap on the side of the housing to secure the incoming bundle of jumpers.

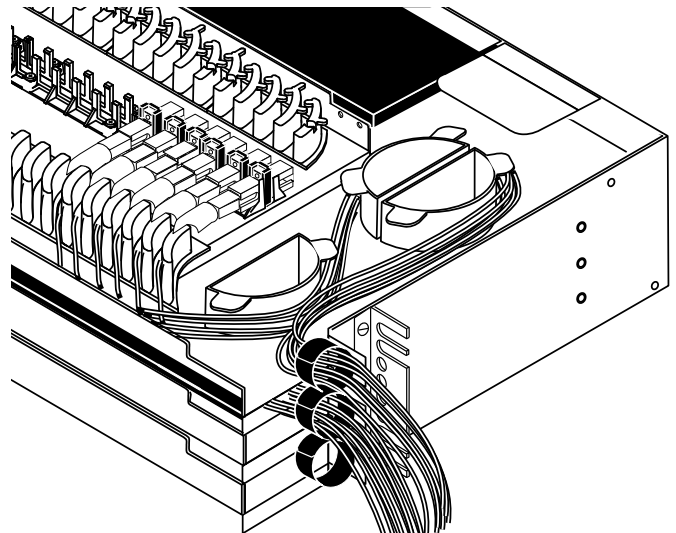


Figure 18

16. Connector Care



WARNING: Isopropyl alcohol is flammable with a flashpoint at 54°F. It can cause irritation to eyes on contact. In case of contact, flush eyes with water for at least 15 minutes. Inhalation of vapors irritates the respiratory tract. Exposure to high concentrations has a narcotic effect, producing symptoms of dizziness, drowsiness, headache, staggering, unconsciousness, and possibly death.

- Always keep dust caps on connectors and adapters when not in use.
- Ensure dust caps are clean before reuse.
- Use optical cleaning materials as standardized by your company.
- Clean the connector before every mating, especially for test equipment patch cords (jumpers).
- A minimum level of cleaning is listed below. Local procedures may require more rigorous cleaning methods.

Step 1: Remove plugs from the connector adapter.

Step 2: Wipe the connector ferrule twice with a lint-free wiping material moistened with isopropyl alcohol. Then wipe across the end of the ferrule.

Step 3: Repeat previous step with a dry wipe.