

CORNING

FDF Installation Guide

P/N 003-286
Issue 6

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1. General

This instruction describes the installation of the Fiber Distribution Frame (FDF) manufactured by Corning Optical Communications.

To order accessories that are purchased separately, contact Corning Optical Communications customer care for assistance.

NOTE: Read and understand this procedure (as well as the instructions provided with related assemblies) before beginning an installation. Do not discard this instruction; keep it on hand for future reference. Familiarize yourself to understand the unit's placement in your network. Make sure you know where the cable will enter the unit, how jumpers will be routed and other details of the installation plan.

2. Tools and Materials Required

IMPORTANT: Make sure you have all required provisions before beginning an installation.

The following tools are required for this installation:

- Carpenter's square or level
- Flat-tip screwdriver
- Phillips screwdriver
- Assorted nutdrivers or sockets with wrenches (7/16-, 8/16- and 9/16-in)

3. Components

The Fiber Distribution Frame is part of a family of modular cable management products (Figure 1).

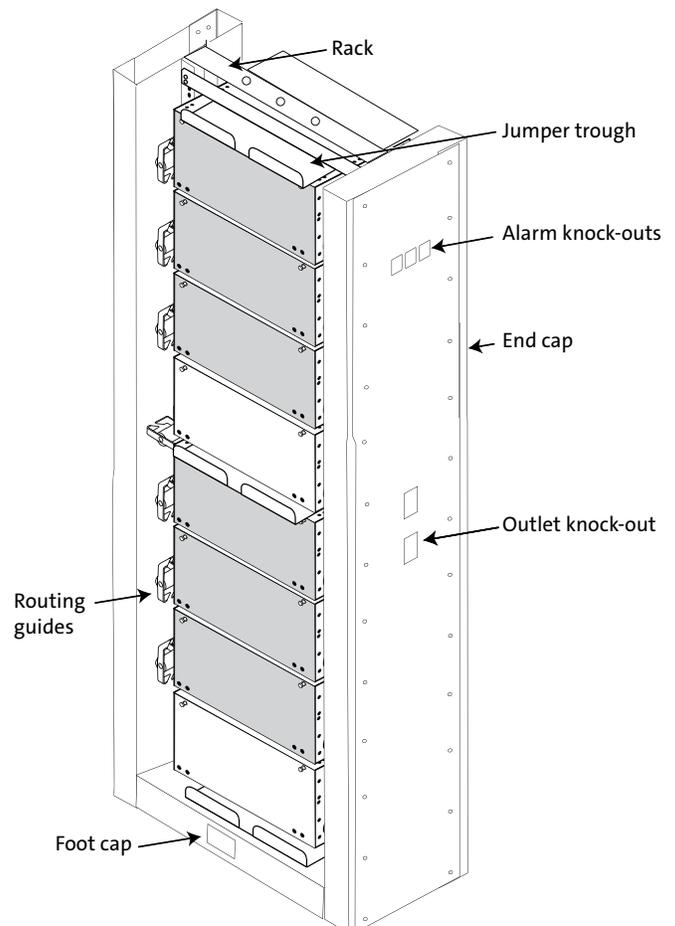


Figure 1

The standard 23-inch equipment frame has equal flanges, measures 7 ft high, and can hold up to eight FDC units (Figure 2). The Universal Distribution Frame (UDF) has unequal flanges.

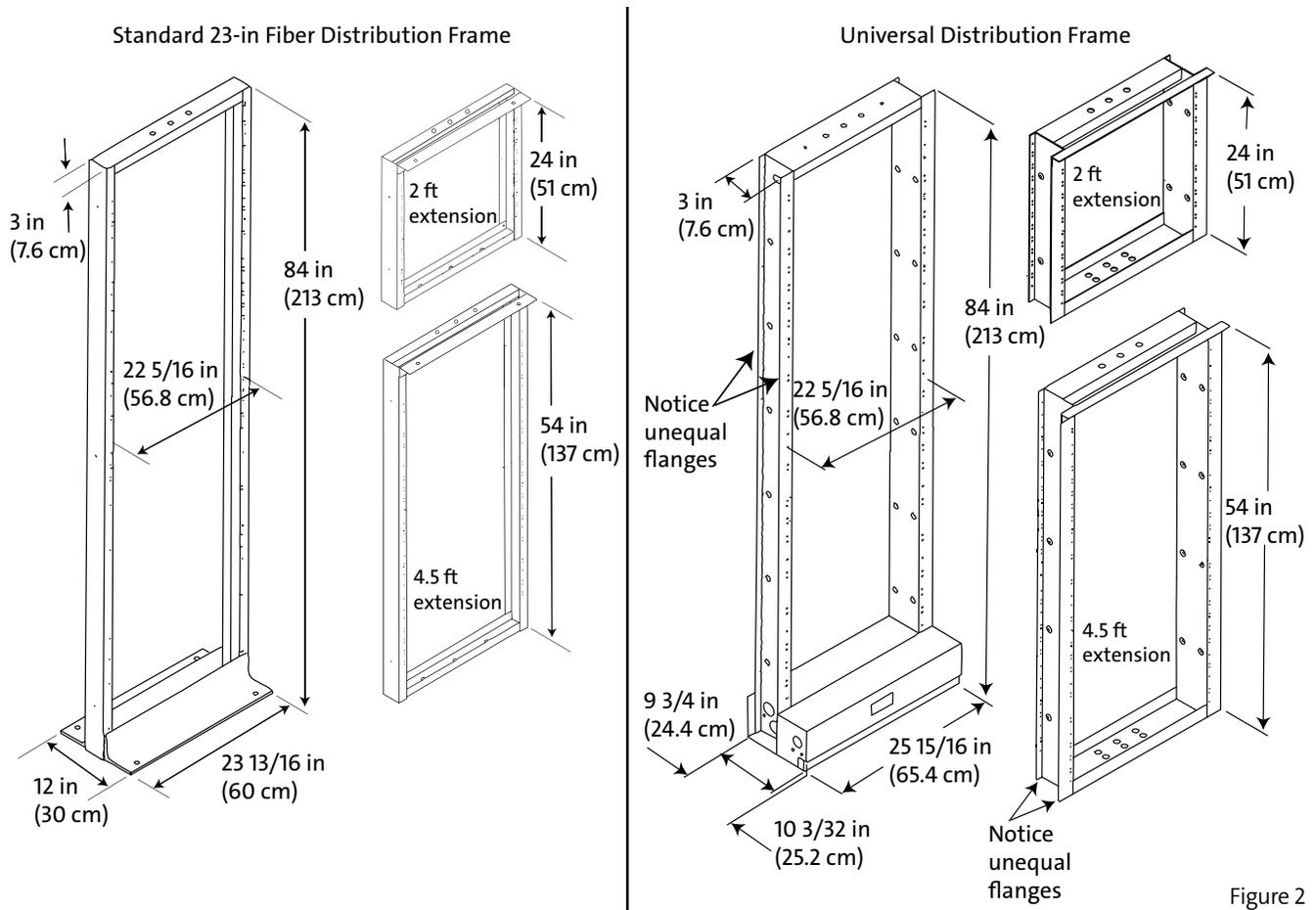


Figure 2

Equipment frame extensions are available to bring the total height of the FDF to 9 ft and 11.5 ft (Figure 2). The 9-ft frame allows two more housings to be installed and the 11.5-ft frame holds five more housings.

End caps for the FDF increase the dimensions by 3 inches per end cap. To add more frames, remove the end caps (see Figure 12) and bolt the new frames in place.

Interbay Storage Units (IBU) are used between frames to route and manage jumpers on front of the FDF. The IBUs have nine routing hubs, a top jumper trough, and a jumper trough bridge (Figure 3). Do not coil fibers around a hub. Refer to the instruction provided with the IBU for more detailed assembly instructions.

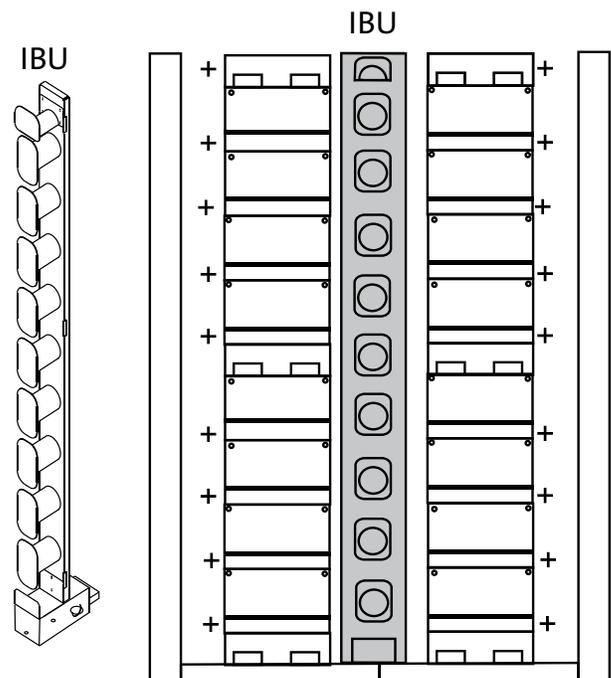


Figure 3

4. Sample Floor Plan

IMPORTANT: Make sure that enough space is allocated for the installation. The FDF footprint is shown in Figure 6.

A sample line-up is shown in Figure 4. Up to 20 complete FDF units can be mounted side-by-side.

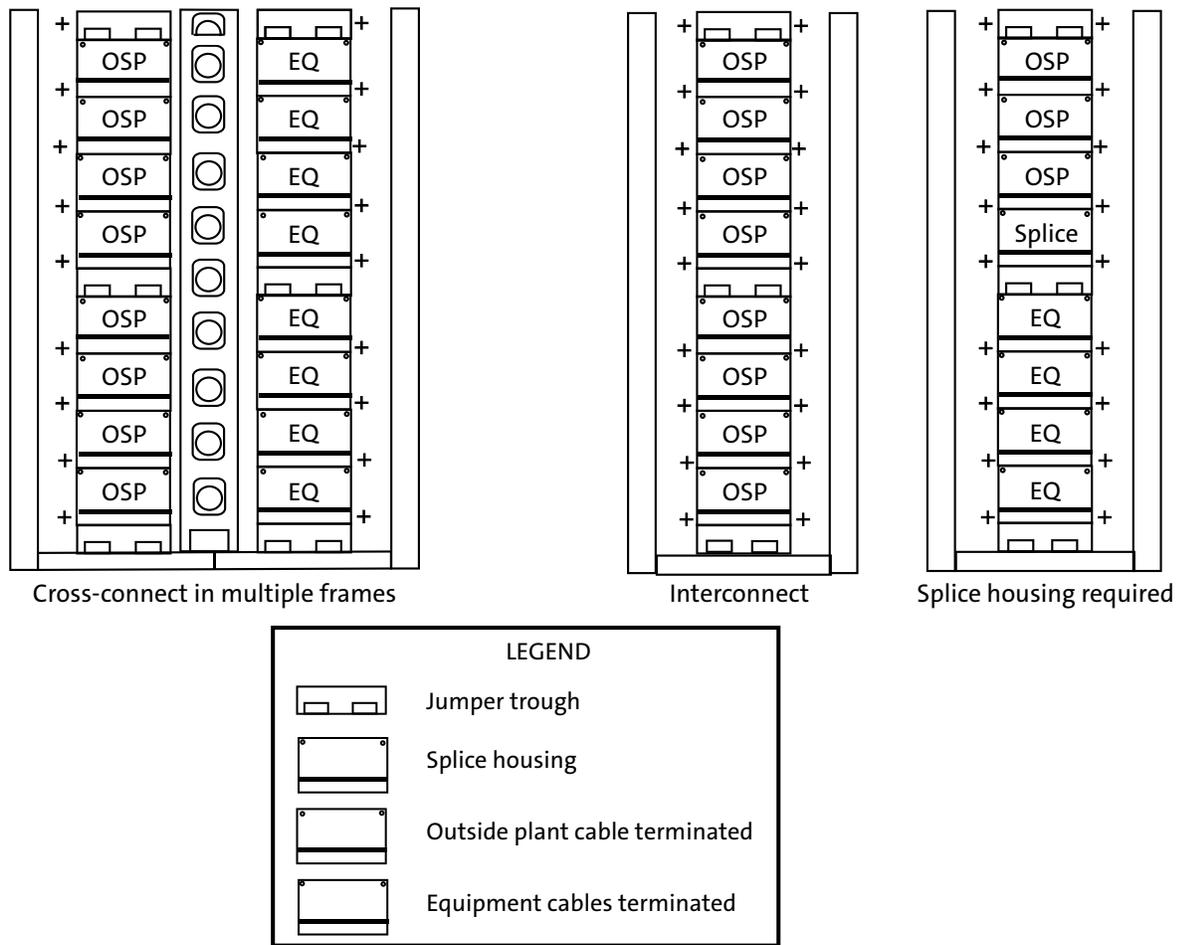


Figure 4

5. Jumper Planning Chart

IMPORTANT: In order to successfully utilize the jumper lengths recommended in Table 1, follow this routing scheme exactly.

	A1	A2	A3	A4	B1	B2	B3	B4
A1		10	8	12	8	12	12	14
A2	10		14	10	6	10	10	14
A3	8	14		12	14	16	12	14
A4	12	10	12		6	14	8	12
B1	8	6	14	6		10	8	12
B2	12	10	16	14	10		14	8
B3	12	10	12	8	8	14		12
B4	14	14	14	12	12	8	12	

Table 1: Recommended Jumper Lengths

See Figure 5 for frame references. Jumpers should be installed according to planning diagrams.

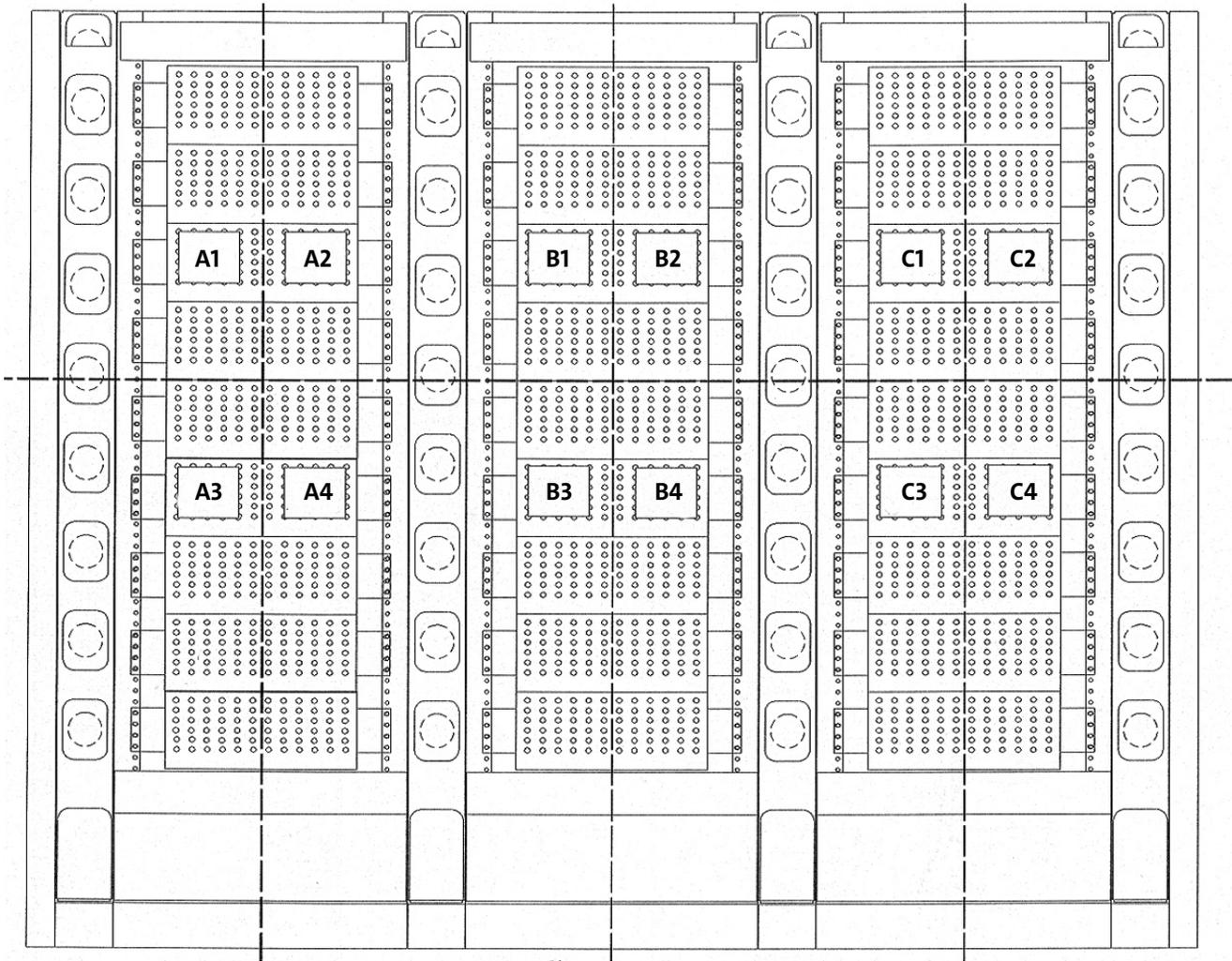


Figure 5

6. Securing the Frame

IMPORTANT: *If you are installing more than one FDF side-by-side, attach the frames together first.*

Step 1: Attach the utility frame to the floor according to local practices using anchors and hardware specific to the type of floor. See Figure 6 for hole locations.

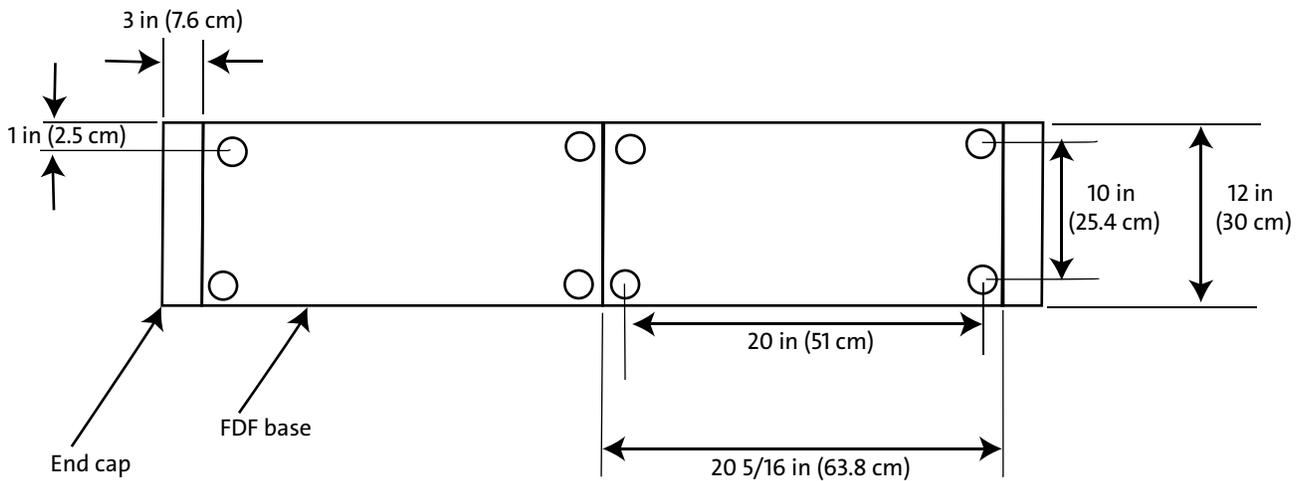


Figure 6

- a. Locate the frames over the floor holes.
- b. Secure them to each other using nuts and bolts through the uprights on the frames.
- c. Install the floor mounting bolts and tighten.

Step 2: If the installation requires the frame to be supported from the top, use a 1/2-in diameter J-bolt or threaded rod (not supplied) and secure the frame to the overhead support (Figure 7) using the washer and nut. Attach the top supports so they run perpendicular to the frame. This will provide clear space for cable routing.

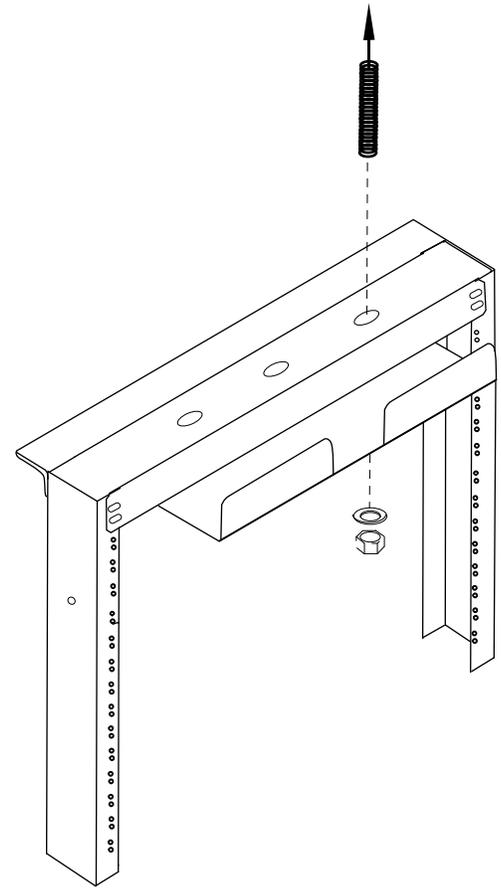


Figure 7

Step 3: Attach the foot cap assembly as shown in Figure 8.

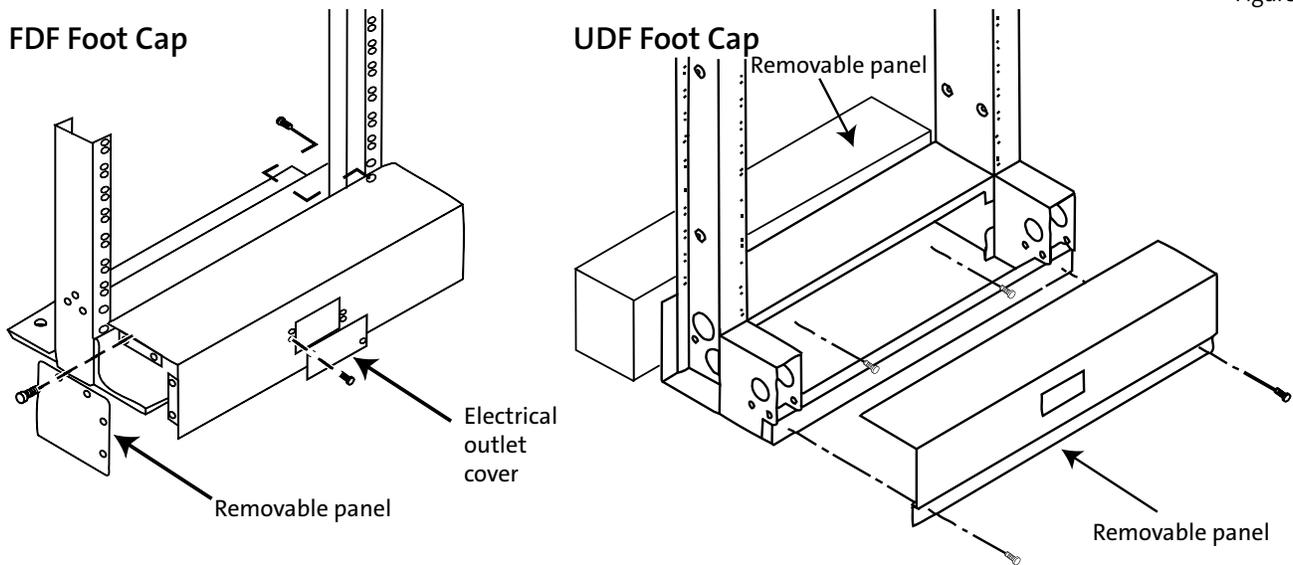


Figure 8

NOTE: Install an electrical outlet into the foot cap, if necessary. Knock-outs are provided in the foot cap panels and the base of the end cap to route the power cables.

- a. Remove the outlet cover.
- b. Install the electrical outlet into the cut-out in the foot cap. Secure the outlet to the foot cap using the mounting plate and screws provided with the outlet (Figure 9).
- c. Attach the foot cap to the frame.

Step 4: If a frame extension is required, install it now using the provided hardware. Use the carpenter's square to square the extension with the frame.

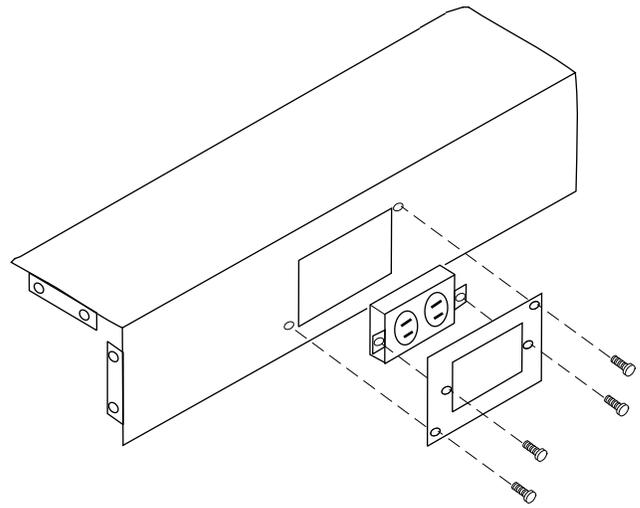


Figure 9

NOTE: When the FDF will be secured to an overhead support structure (Figure 6), use a 1/2 -in diameter J-bolt or threaded rod (purchased separately).

7. Grounding the Frame

Step 1: Determine the location on the frame where the ground wire (purchased separately) will be attached. Scrape off paint from this location of the frame to ensure metal-to-metal contact.

Step 2: Attach a #6 AWG copper ground wire and ground lug together.

Step 3: Screw the ground lug directly into the frame using 12-24X1/4 screws (Figure 9).

Step 4: Attach the grounding wire to the building ground by crimping the C-tap around the two grounds and connecting them together.

NOTE: In a line-up of more than one frame, use the extra ground lug that is included in the kit. Attach the ground lugs to the frames and then attach the ground wire to both frames.

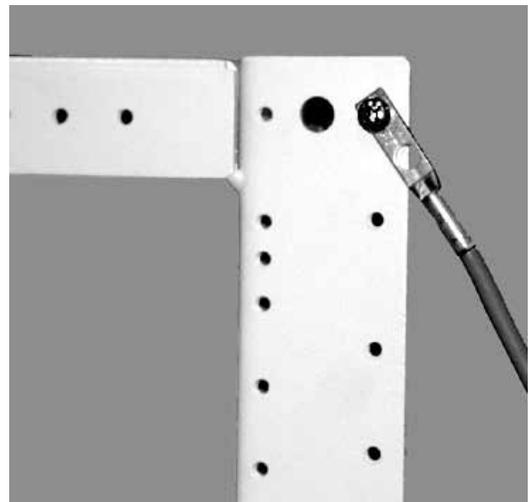


Figure 10

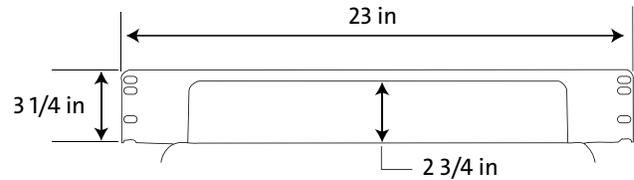
8. Install Jumper Troughs

Jumper troughs (Figure 11) are designed to hold fiber optic cables running from one FDF to another and are attached to the frame in three places at regular intervals. The troughs are 4 1/2 inches deep and facilitate the running of fibers when more than one FDF is connected side-by-side. Jumper troughs are not required when running jumpers to adjacent housings; in this case, jumpers are routed through the housings.

Use jumper troughs to route jumpers around rather than through housings. Attach jumper troughs as shown in Figure 11. Use the top and bottom troughs to service the two top and bottom housings. Use the center trough to service the remaining housings.

- On a 7-ft frame, use a large trough at the bottom of the frame and a standard trough at the top and center.
- On a 9-ft frame, use a large trough at the top and bottom and a standard trough in the center.
- On an 11.5-ft. frame, use three large troughs.

Large trough



Standard trough

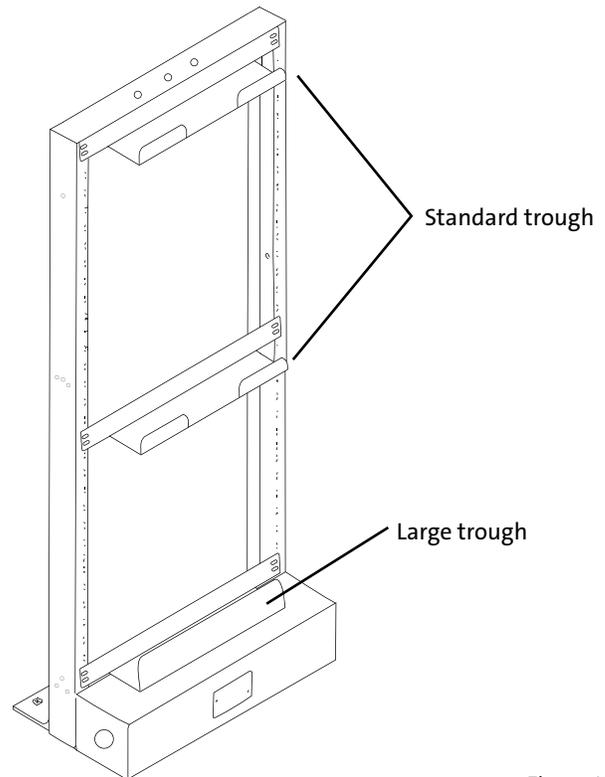
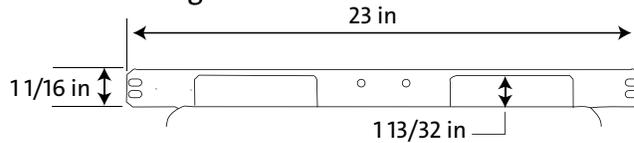


Figure 11

9. Install End Caps

End caps (Figure 12) provide protection for the end of each row of bays. End caps are not required between the frames in the row.

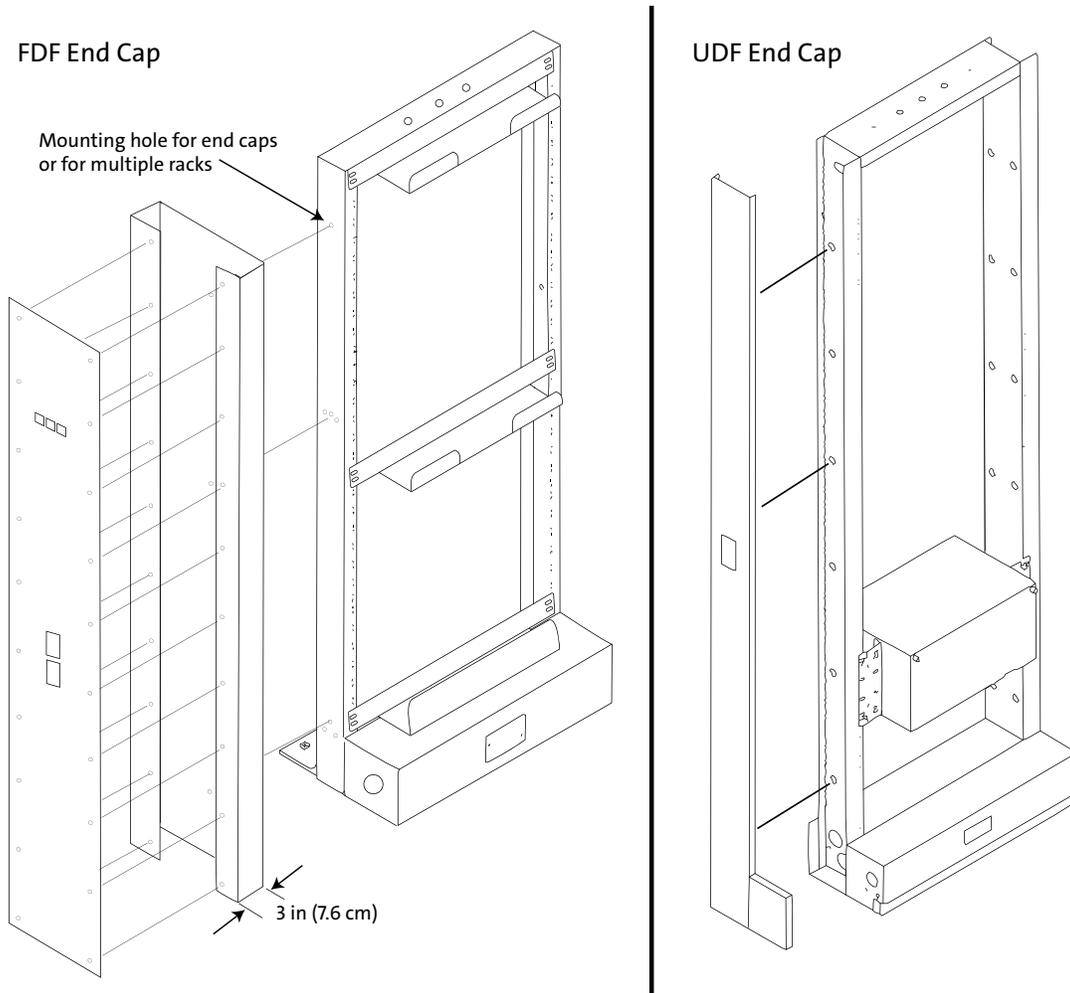


Figure 12

10. Housing Installation

10.1 Attach Fiber Routing Guides

Attach fiber routing guides to the housings before the housings are installed into the frame to provide bend radius control and organization (Figure 13). Several types are available.

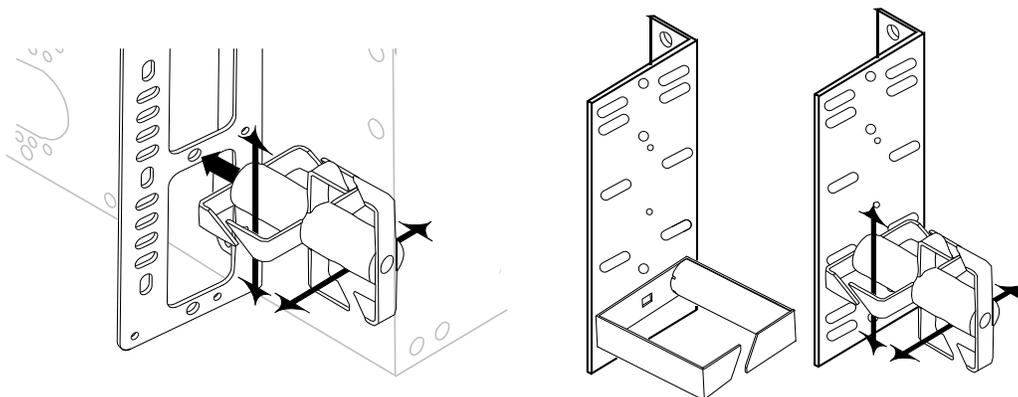


Figure 13

NOTE: The routing guides are designed to allow the separation of vertical and horizontal runs in a single frame. Do not wrap a jumper completely around a routing guide. This may violate the fiber's recommended bend radius and degrade its transmission characteristics. Always leave sufficient slack.

10.2 Install Housings

Follow the instructions provided with the housings to install them into the FDF.

10.3 Attach Labels

Attach labels as shown in Figure 14.

1. Attach a trough label to each jumper trough.
2. Attach bay identification labels to the foot cap or at the top of the bay.
3. Attach routing guide labels to either side of the housings near the guides.

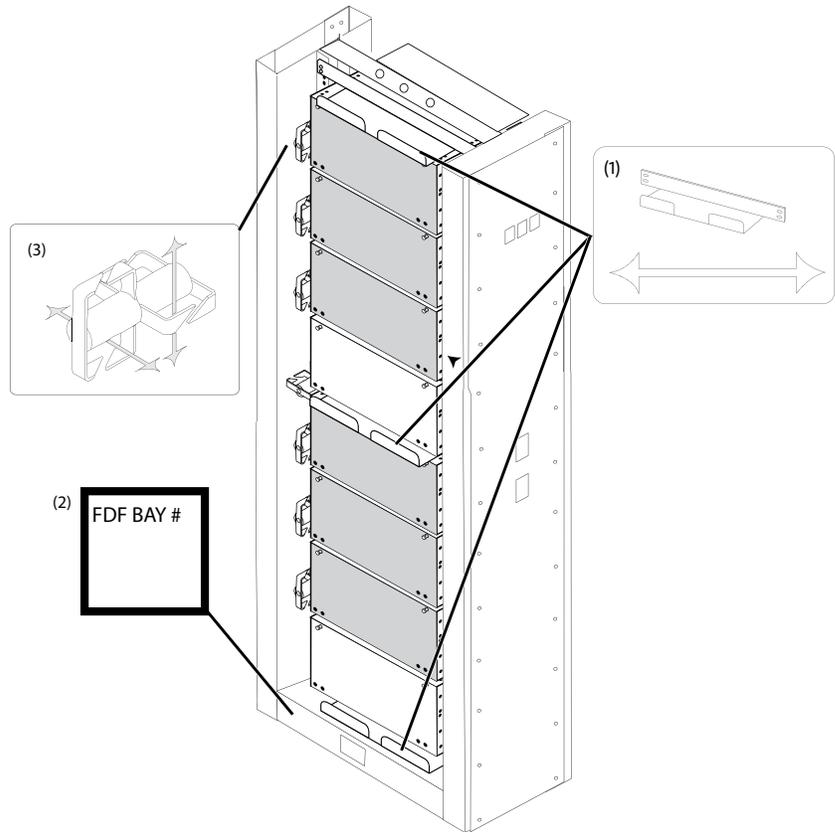


Figure 14

11. Jumper Installation

11.1 Connector Cleaning

IMPORTANT: To protect connector connector end faces from damage and dirt, leave the protective covers (dust caps) on the jumpers until ready to plug into adapters. Obey the following precautions in order not to damage the surface of the connector and make it unusable:



WARNING: Never look directly into the end of a fiber that may be carrying laser light. Laser light can be invisible and can damage your eyes. Viewing it directly does not cause pain. The iris of the eye will not close involuntarily as when viewing a bright light. Consequently, serious damage to the retina of the eye is possible. Should accidental eye exposure to laser light be suspected, arrange for an eye examination immediately.



WARNING: DO NOT use magnifiers in the presence of laser radiation. Diffused laser light can cause eye damage if focused with optical instruments. Should accidental eye exposure to laser light be suspected, arrange for an eye examination immediately.



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.

11.2 Installing Jumpers



CAUTION: Fiber optic cable is sensitive to excessive pulling, bending, and crushing forces. Consult the cable specification sheet for the cable you are installing. Do not bend the cable more sharply than the minimum recommended bend radius. Do not apply more pulling force to the cable than specified. Do not crush the cable or allow it to kink. Doing so may cause damage that can alter the transmission characteristics of the cable; the cable may have to be replaced.

To install a jumper, first identify the two ports to be connected.

- Select a jumper length based on Table 1 and Figure 11.
- Remove the dust cap from each connector and mate with their appropriate adapters.
- Route the jumper per previous instruction in sections 10.3 and 10.4.
- Use the nearest available IBU to store jumper slack.

NOTE: *It is important to use proper methods when removing jumpers from a populated bay line-up to prevent temporary attenuation or permanent damage to the jumper being removed and the other jumpers in the routing pathways.*

11.3 Removing Jumpers

To properly remove a jumper, first identify the first end to be disconnected.

- Unplug the first connector, taking care not to disturb adjacent connections, and place a dust cap on the connector to prevent damage to the connector endface. Also, place a dust cap on the exposed adapter to prevent dirt from entering the adapter alignment sleeve.
- Carefully feed the jumper out of the housing and trace the jumper back through the routing pathways. Be careful not to snag, pull or bend any of the surrounding jumpers.
- Once the second end of the jumper has been reached, unplug the connection and place a dust cap on the connector and the exposed adapter.

12. Fiber Management

12.1 Attach Cable Tie Brackets

FDF cable tie brackets are provided to maintain an organized installation by grouping cables at the rear of the frame together. Attach the brackets to the frame as shown in Figure 15 using the provided hardware.

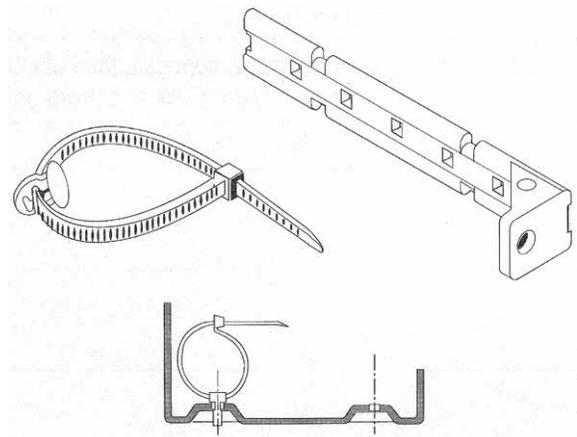


Figure 15

12.2 Routing in a Single Frame

- When routing to the left or right side of a single frame, use the Interbay Storage Unit (IBU) to store jumper slack.
- When routing from an upper quadrant of one side of a frame to either quadrant of the opposite side of the frame, route to the top of the frame to traverse to the opposite side and route back down to the correct housing.
- When routing from a lower quadrant of one side of a frame to either quadrant of the opposite side of the frame, route to the lower jumper trough to traverse to the opposite side of the frame and route up to the correct housing.

12.3 Routing in a Multiple-Frame Line-Up

- When routing from quadrants on the shared sides of adjacent frames, route directly from housing to housing and store excess jumper slack in the IBU.
- When routing from upper quadrants to any quadrant on another frame, route to the upper jumper trough to traverse to the appropriate frame. Route down to the appropriate side frame and into the correct housing.
- When routing from lower quadrants to any quadrant on another frame, route to the lower jumper trough to traverse to the appropriate frame. Route up to the appropriate side frame and into the correct housing using the nearest IBU to store any jumper slack.

13. Door Installation

Doors (purchased separately) are available for the FDF frame (Figure 16). Refer to SRP 003-242 provided with the doors for detailed assembly instructions.

14. Maintenance

The unit requires very little maintenance to make sure fibers and parts remain in good condition.

Loose Parts: Check nuts, bolts and screws for looseness and tighten.

Moisture: Check the housings for accumulated moisture and place moisture absorbent packets as needed.

Fiber Bends: Check fiber optic cable to make sure bends do not exceed the minimum bend radius. Check cable for unnecessary strain. Check cable entries and exits for crimping or crushing.

Documentation: Check record label to make sure it is clear and accurate.

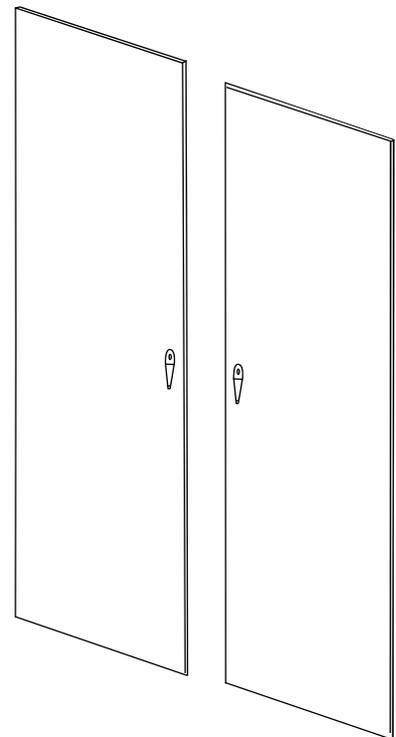


Figure 16