

Flex Frame Splice Cabinet

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Flex Frame Splice Cabinet

Introduction

This user manual describes the Flex Frame Splice Cabinet and provides directions for installing this product. Procedures include:

- Unpacking the cabinet
- Mounting the cabinet on a Flex Frame or wall
- Preparing cables for installation
- Installing cables
- Setting up splices

This user manual also lists related publications and tells how to obtain technical assistance.

Related Publications

The following related publications are available by contacting the online Commscope Support Center at <https://www.commscope.com/SupportCenter>

- **Ribbon Cable Breakout (RIBCBOUT) Kits User Manual (TC-96271-IP)** -- provides a high-level overview of and basic installation instructions for the CommScope RIBCBOUT (Ribbon Cable Breakout) series ribbon fiber cable breakout kits utilizing expandable mesh sleeve material to provide protection and transportation for the fiber ribbons from the point of exit from the cable sheath to the tie-down point on the fiber splice tray or wheel. The kits are applicable for both standard matrix and “rollable” style fiber ribbons in slotted core, central tube, or loose buffer tube cable constructions, and for cable counts ranging from 144-fiber to 3456-fiber.
- **Cable Clamp Kit Installation Drawings**- contain instructions for the cable clamps kits listed in this user manual. These instructions ship with the kit, and can also be obtained using <https://www.commscope.com/SupportCenter>

Table 1: Cable Clamp Documentation

Cable Clamp Kit	Installation Drawing
NG4-FLXACCSCMP	A180014150
FEC-ACCCLMP01	1029951
OSP-CLPFEC-XL-1	300100115081

1 Product Description

1.1 General Description

The Flex Frame Splice Cabinet is a compact splice enclosure that provides a splicing interface between “panel stubs” and facility cables.

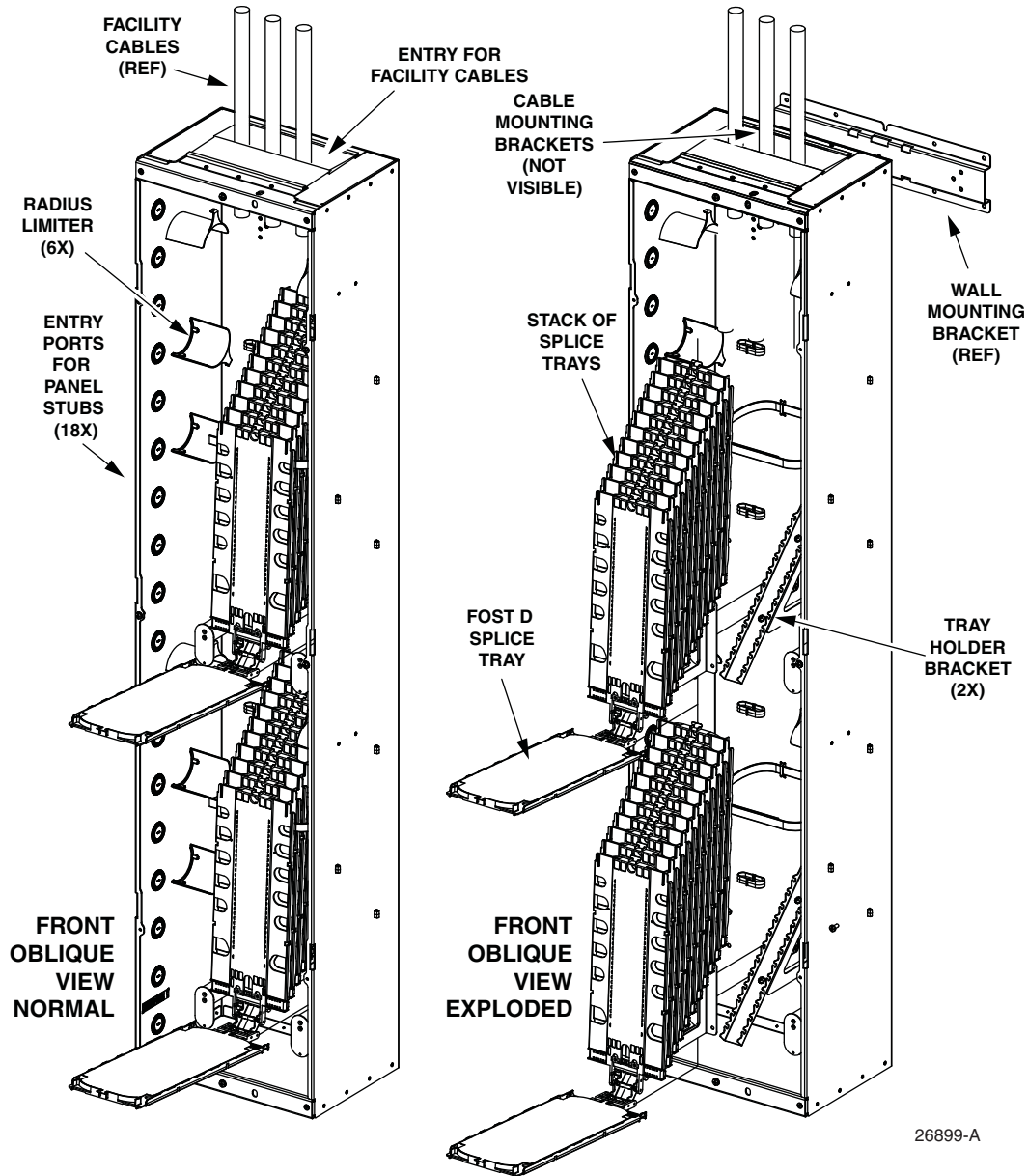
In a Flex Frame application, panel stubs originate in the Flex Frame in pre-terminated Enhanced High Density (EHD) or Compact High Density (CHD) panels. Panel stubs are covered with mesh tubing rather than a sheath, and contain rollable ribbons, each with 12 fibers.

Facility cables are high-fiber-count cables, likewise containing rollable ribbons, and of a type suitable for being routed indoors or outdoors as required.

The Flex Frame Splice Cabinet is also available in a stand alone kit with wall mounting brackets, providing the option of mounting the cabinet on a wall. In this case, the cabinet can be used with other types of panels and cables if they are comparable in function and structure to those used in a Flex Frame application. Cables from non-Flex-Frame panels (called “right-entry cables” in this user manual) may need to be broken out per the instructions and breakout diagram provided in [Section 5.4 on page 14](#).

The splice cabinet accommodates up to 24 splice trays, each with a capacity of up to 288 rollable ribbon, mass fusion splices, for a total of 6912 splices. In a Flex Frame application, the capacity is 5184 splices (for panels with LC connectors).

[Figure 1](#) shows the interior components of the splice cabinet loaded with splice trays.



26899-A

Figure 1. Interior Components of Flex Frame Splice Cabinet

The interior components shown in [Figure 1](#) are as follows:

- **Splice trays** -- are FOST-ACC-D-TRAY-RR-288 trays, up to 24 (2x12) in total. The splice trays mount on a bracket and are held in place with hook-and-loop straps. Unfastening the strap for a particular splice tray allows the tray to hang down for examination. A splice tray can be easily removed to an adjacent work surface for fiber routing and splicing.
- **Entry for facility cables** -- is a brush-lined opening through which facility cables enter the cabinet.
- **Entry ports for panel stubs** -- each accommodate one panel stub, containing either 288 or 576 fibers, as described in [Section 1.2](#).

- **Cable Mounting Brackets** -- accommodate different types of cable clamps as required for the different sizes and combinations of cables that can be installed.

1.2 Typical Flex Frame Application

Figure 2 shows a typical splice cabinet installation on a Flex Frame loaded with 2RU EHD or CHD panels. In this example, three 1728-fiber facility cables are broken out into six 288-fiber sub-units, which are spliced to six 288-fiber panel stubs from six 2RU panels.

Note: An alternative Flex Frame application employs 4RU panels. In a 4RU configuration, the panel stubs each contain 576 fibers, and each stub is routed through a single entry port to two splice trays.

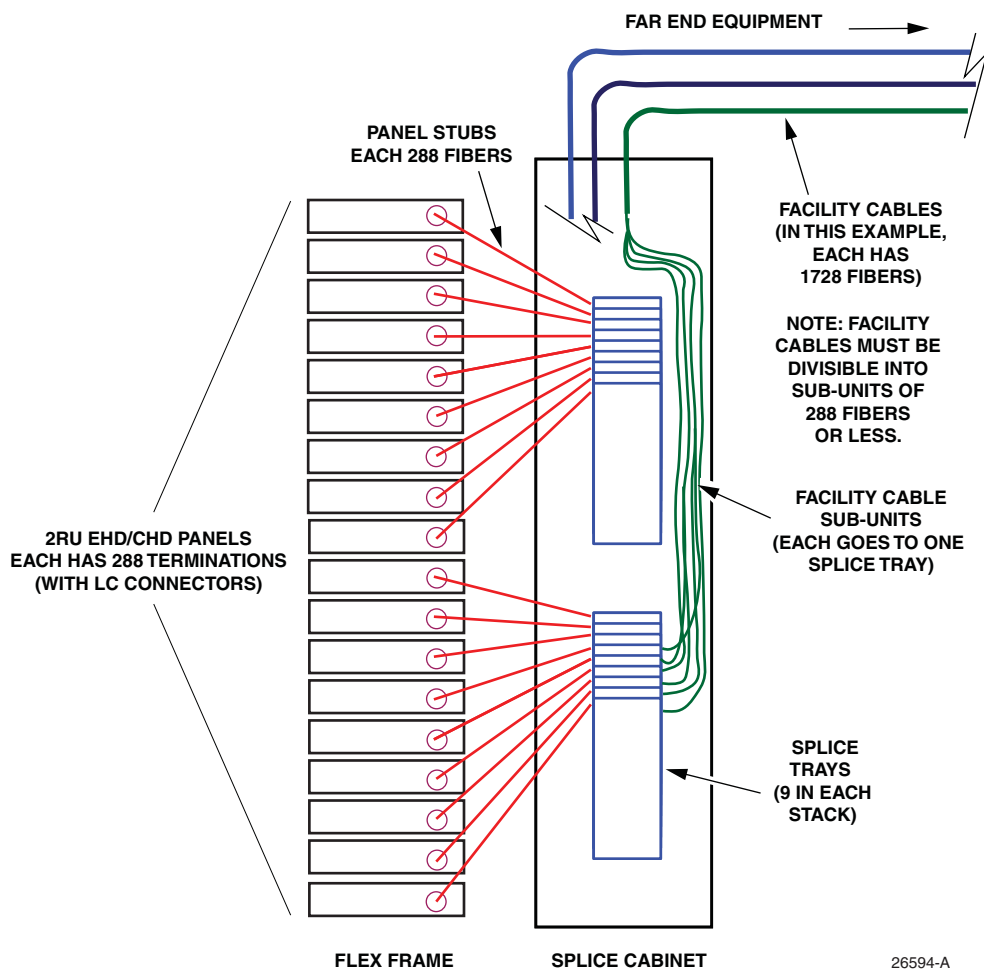


Figure 2. 2RU Flex Frame Application Example

Other features to observe in this sample Flex Frame 2RU application are:

- **Panel stubs** -- from 2RU panels each contain a stack of twenty-four 12-fiber rollable ribbons protected by mesh tubing ($24 \times 12 = 288$). (Alternatively, as noted above, panel stubs from 4RU panels each contain forty-eight 12-fiber ribbons ($48 \times 12 = 576$).)
- **Facility cables** -- have a total fiber count divisible into sub-units appropriate for the application. Typically, the sub-unit is 288 fibers, but other configurations are possible,

such as a 432-fiber cable broken out into two 216-fiber sub-units, each of which is routed to one splice tray.

1.3 Dimensions and Specifications

Figure 3 shows the splice cabinet dimensions. Table 2 lists specifications. Table 3 summarizes the capacity of a splice cabinet when used in a Flex Frame application.

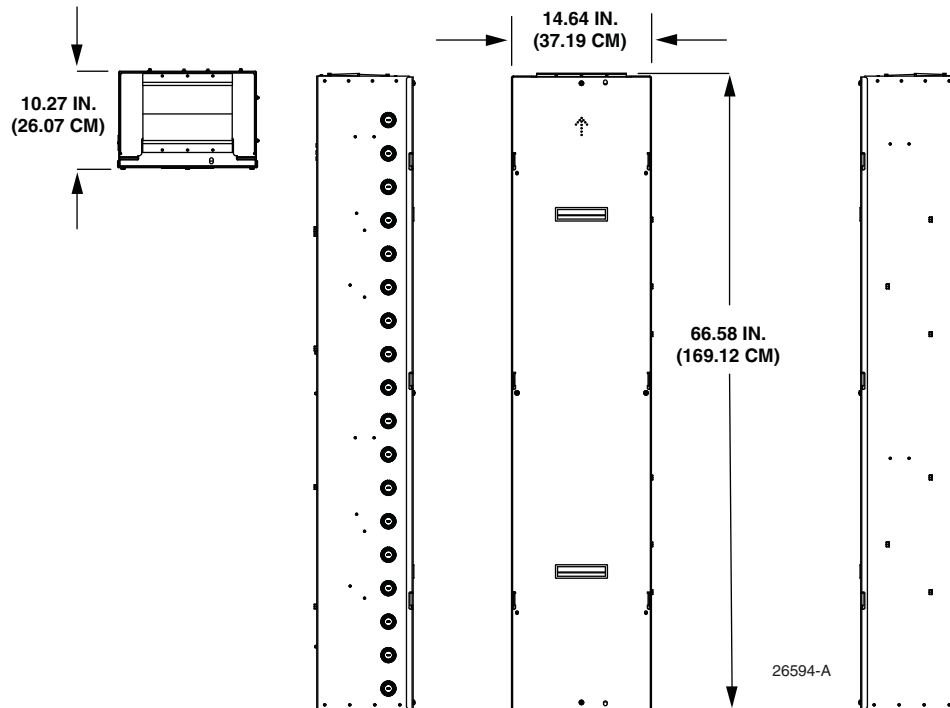


Figure 3. Flex Frame Splice Cabinet Dimensions

Table 2: Specifications

Parameter	Specification
Dimensions (H x W x D)	66.58 in.(169.1cm) x 14.64 in.(37.19cm) x 10.27 in. (26.07cm)
Weight	40 lbs. (110.2 Kg)
Splice tray used	FOST-ACC-D-TRAY-RR-288-KIT
Number of splice trays	Up to 24 (2 stacks of 12 trays)
Total number of splices	Up to 6912 mass fusion splices
Cable type	12-fiber rollable ribbon
Fiber count	6912 in, 6912 out
Mounting options	Can be mounted on a Flex Frame or on a wall using wall mounting brackets (see Section 4.1)

Table 3: Splice Cabinet Capacity in Flex Frame Application

Parameter	Specification
Total number of splices	5184 mass fusion, rollable ribbon splices
Number of splice trays	18 (FOST-ACC-D-TRAY-RR-288-KIT)
Panel stubs	18 rollable ribbon cable stubs (each has twenty-four 12-fiber ribbons)
Facility cables	Common applications include nine 576-fiber cables, six 864-fiber cables, or three 1728-fiber cables
Flex Frame panels	Eighteen EHD or CHD 2RU panels or nine EHD or CHD 4RU panels

2 Unpacking and Inspection

1. Inspect the exterior of the shipping container(s) for evidence of rough handling that may have damaged the components in the container.
2. Unpack each container while carefully checking the contents for damage.
3. If damage is detected or if parts are missing, file a claim with the commercial carrier and notify CommScope Support Center at <https://www.commscope.com/SupportCenter>
4. Save all shipping containers for use if the equipment requires shipment at a future date.

3 Overview of Installation

The main steps in installation are:

- Mounting the cabinet on a Flex Frame or wall
- Preparing and installing cables
- Loading splice trays

4 Mounting the Cabinet

4.1 Mounting Options

The cabinet may be mounted on the Flex Frame or on a wall if mounting with wall mounting brackets. Catalog numbers vary for different mounting.

- Mounting to Flex Frame (760242402, cabinet shipped with Flex Frame)
- Mounting to Flex Frame (760242404, cabinet alone)
- Mounting to wall (760243212, cabinet alone, shipped with wall mounting brackets)

4.2 Tools Required

- Phillips #2 screwdriver
- Level (when wall mounting)

4.3 Frame Mounting

The splice cabinet is mounted on the right rear side of the cable management panel of the Flex Frame. Use the following procedure, referring to [Figure 4](#).

1. Remove the door from the front of the splice cabinet.

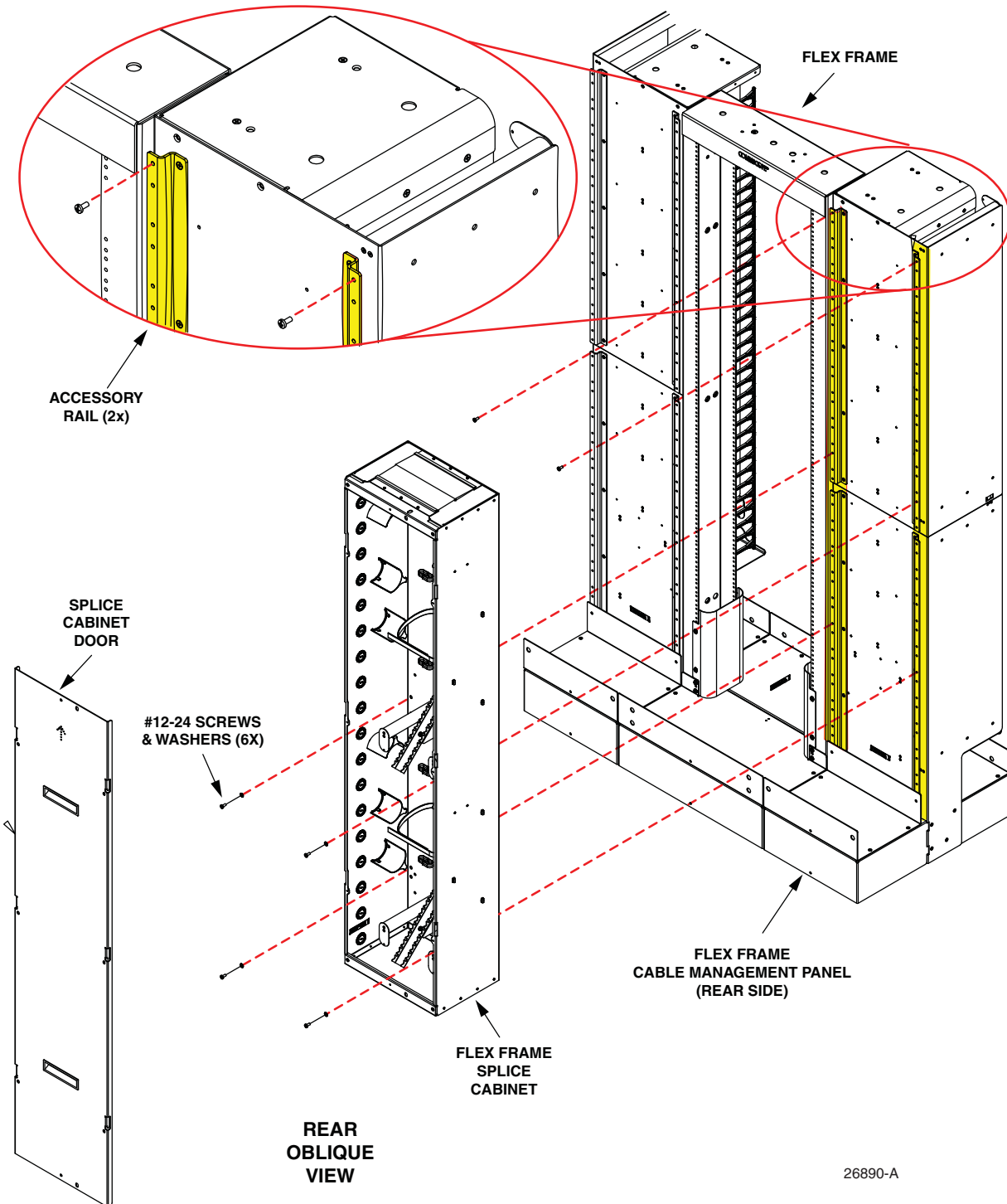


Figure 4. Mounting the Splice Cabinet on the Flex Frame

2. Install two #12-24 screws without washers in the top two holes of the accessory rails on the back of the Cable Management Panel of the Flex Frame as shown in [Figure 4](#).

Note: Install the screws part way only.

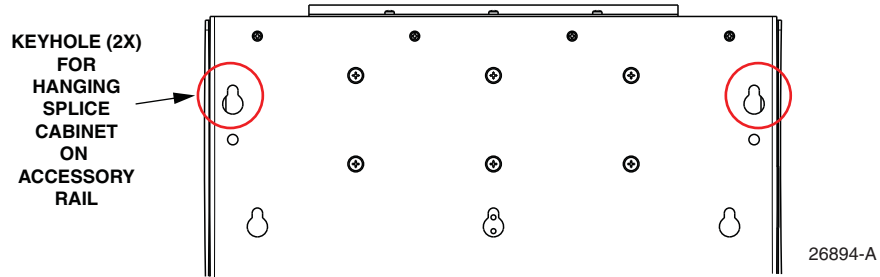


Figure 5. Key Hole Location on Back Interior Wall of Splice Cabinet

3. Hang the cabinet on the two screws just installed, using the cabinet mounting keyholes shown in [Figure 5](#).
4. Fasten splice cabinet to cable manager accessory rails with additional #12-24 screws (4x) and star washers (4x), as shown in [Figure 4](#). Start all fasteners before tightening.
5. Ground the splice cabinet in the location shown in [Figure 6](#).

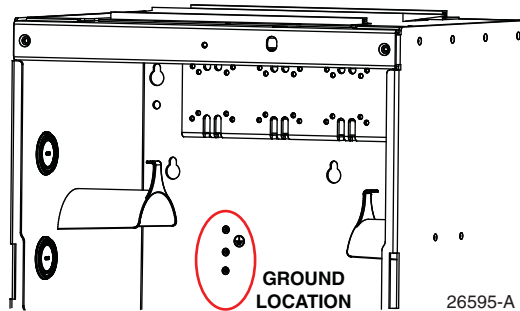


Figure 6. Grounding the Splice Cabinet

4.4 Wall Mounting on Brackets

[Figure 7](#) shows the features of the wall mounting brackets. Use the following procedure referring to [Figure 8](#).

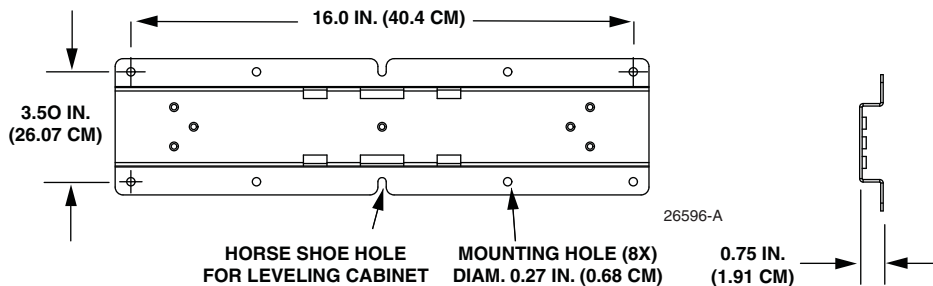


Figure 7. Wall Mounting Bracket

1. Remove the door from the front of the splice cabinet.

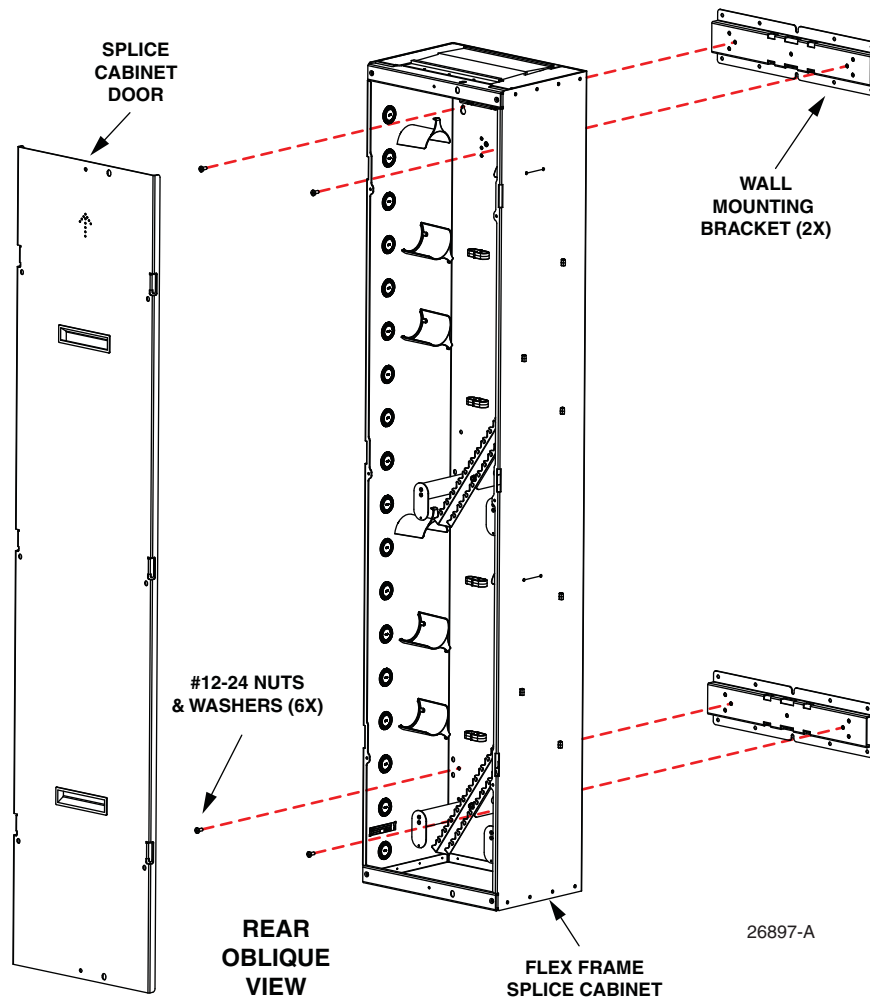


Figure 8. Mounting the Splice Cabinet on a Wall

2. On the rear side of the cabinet, install the mounting bracket on the cabinet using the #12-24 screws provided. The top and bottom brackets are identical in design. Select from the possible hole configurations drilled into the back wall of the cabinet.
3. Install a single support screw in the wall to temporarily hold the top mounting bracket. Place the screw in the top center of the desired cabinet location.

Note: Install the screw part way only.

4. Hang the cabinet on the wall by positioning the middle horseshoe opening (shown in [Figure 7 on Page 8](#)) on the support screw just installed. Level the cabinet.
5. Secure the cabinet in a level position using appropriate wall mounting hardware on both sides. Install the hardware from inside of the cabinet into the wall material.

5 Installing Cables and Loading Splice Trays

5.1 Overview

Panel stubs originate in panels mounted on an adjacent frame. Facility cables originate in other equipment, inside or outside of the building. Panel stubs come in from the left and are routed in the area left of the splice decks. Facility cables come in from the top and are routed in the area right of the splice decks. Splice trays are typically removed to a nearby work area for fiber routing and splicing. When a splice tray is returned to the cabinet, the slack is lifted over the cable management on the appropriate side of the splice deck as shown in Figure 9. Slack for subsequent splice trays is nested neatly within the slack loops already present. Slack for upper and lower splice decks is kept separate.

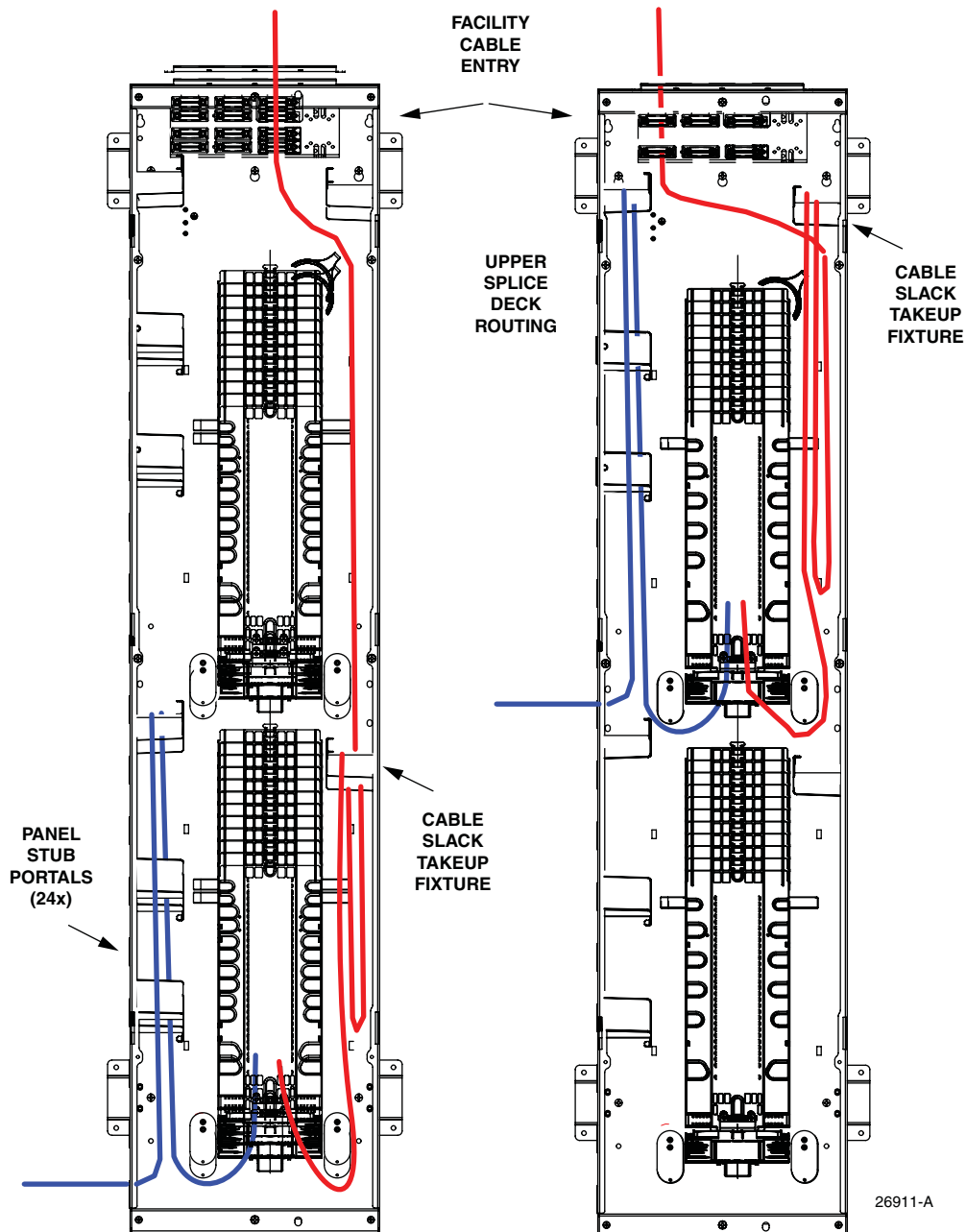


Figure 9. Cable Routing in Splice Cabinet

Panel stubs on Flex Frame EHD and CHD panels will already be broken out to the required dimensions. Cables from non-Flex-Frame panels must be broken out to the dimensions provided in [Section 5.4 on page 14](#). Panel stubs and equivalent cables from non-Flex-Frame panels are not secured within the cabinet. They simply enter through the side and the slack is dressed into the slack management features.

Facility cables must be broken out to the dimensions provided in [Section 5.5 on page 14](#). This may be done for all cables at the same time, before loading splice trays, or it may be done for the associated cable as each splice tray is loaded. Breakout kits are required for facility cables. The RIBCBOU kits described in TC-96271-IP (see [“Related Publications” on page 2](#)) are advised. RIBCBOU kits include cable clamps. Cable clamps are also available for cables not being installed with RIBCBOU kits (see [Table 5 on page 16](#)).



Figure 10. Cable Routing in Splice Cabinet Top Splice Deck

5.2 Installing Splice Trays

The FOST-ACC-D-TRAY-RR-288 trays used in the splice cabinet are shipped in separate packages. Use the following procedure to install the splice trays in the cabinet.

1. Unpack the splice tray. Refer to [Figure 11](#). There are two per box.

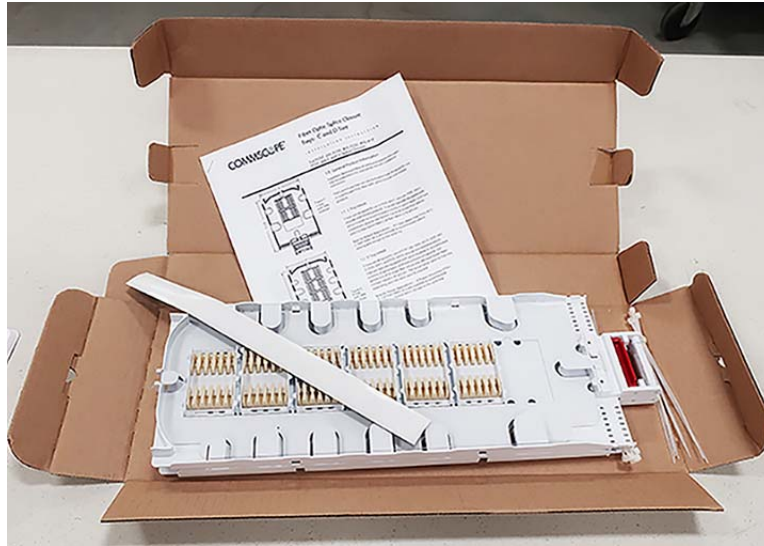


Figure 11. Unpacking the Splice Tray

2. Hold the splice tray vertically over the tray holder bracket, and insert the tray hinge into the designated slot on the tray holder bracket. Lift the red tray support latch up to lower the tray. Refer to [Figure 12](#).



Figure 12. Inserting the Tray in the Tray Holder Bracket

3. Take the second splice tray and in a similar manner install it in the designated slot. Refer to [Figure 13](#).



Figure 13. Installing the Second Splice Tray

4. When done installing trays in a particular tray holder bracket, lift the trays up together and fasten them in place using the hook-and-loop strap. Refer to [Figure 14](#).

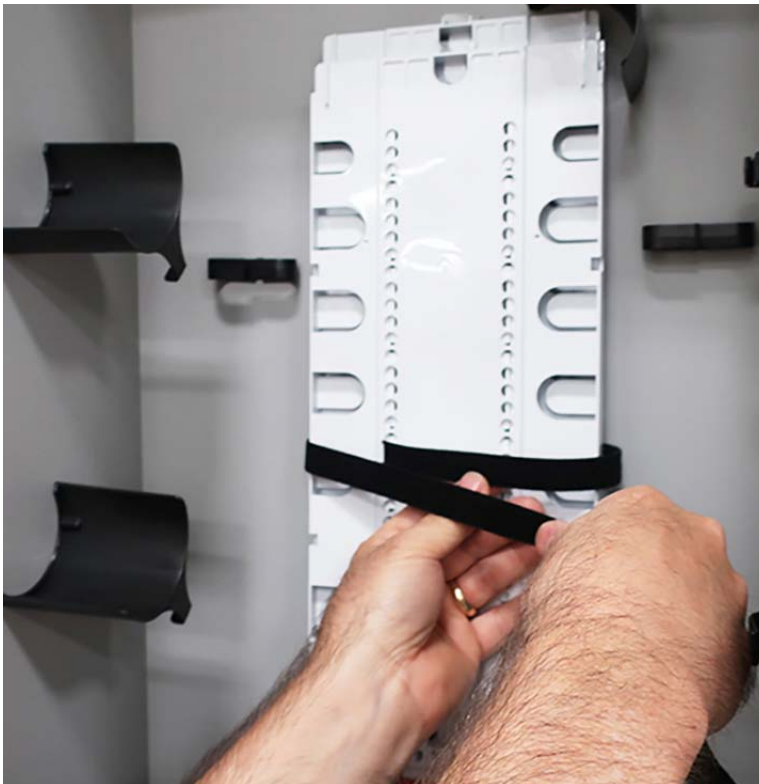


Figure 14. Inserting the Top of the Splice Tray in the Splice Tray Bracket

5.3 Removing Splice Trays

After being installed, a splice tray can be removed. For example, this is done when moving the splice tray to a work surface to perform splices. To remove a splice tray from the tray holder bracket, use the following procedure.

1. Unfasten the hook-and-loop strap.
2. Lift up the splice trays above the tray of interest and fasten them in place using the hook and hook-and-loop strap.
3. Take hold of the tray of interest and pull the tray hinge out of the tray holder bracket.
4. If the splice tray has already been loaded with fibers, be sure to carefully free up any stored cable as you move away from the cabinet.

5.4 Breaking Out Side Entry Cables (from non-Flex-Frame Panels)

When using a stand-alone splice cabinet with side entry cables from other than CommScope EHD/CHD panels in a Flex Frame application, use the following procedure referring to [Figure 15](#).

Note: This procedure is only used with a stand alone splice cabinet and only when panels of a type other than CommScope EHD/CHD in a Flex Frame application are used.

1. Pull approximately a 134 in. (340 cm) length of the cable from the panel to a flat surface near the cabinet.
2. Cut back the cable jacket to this location.
3. Cut a section of mesh tubing to a length of 80 in. (203.2 cm).
4. Slide the mesh tubing onto the cable from the bare ribbon end.

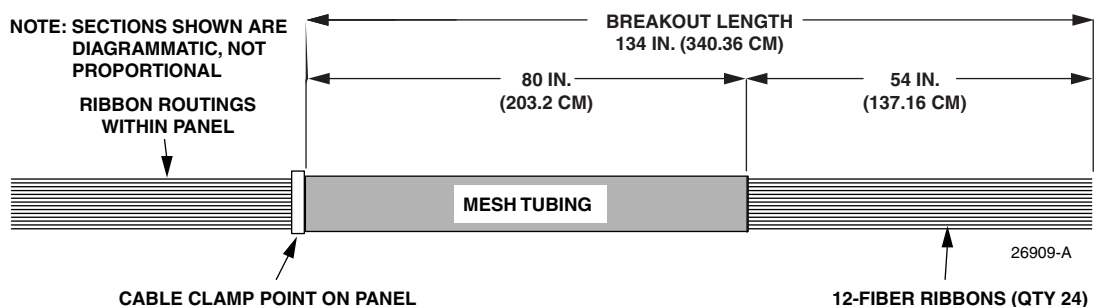


Figure 15. Side Entry Cable Breakout Exploded View

5. Secure the mesh tubing at the panel using vinyl tape.

5.5 Breaking Out Facility Cables

[Table 4](#) lists the RIBCBOU series breakout kits available for use with facility cables. These kits include cable clamps, as indicated in the table.

All facility cables are broken out to the same dimensions (shown in [Figure 16](#)). These dimensions allow approximately 6 feet (1.83 m) of working length for moving the splice tray to a convenient

work surface. When the splice tray is returned to the cabinet, the cable management features in the cabinet are used to store slack as needed.

Note: For more on these kits, refer to TC-96271-IP (see “Related Publications” on page 2).

Table 4: Cable Clamp Kits

Breakout Kit Catalog Number	Fiber Count	Material ID	Cable Clamp Kit (Included)
RIBCBOUT-3/8-50-144/288/432/576	144-576	760244150	FEC-ACCCLMP01
RIBCBOUT-3/8-50-864/1152	864-1152	760244144	FEC-ACCCLMP01
RIBCBOUT-3/8-75-1728	1728	760244149	FEC-ACCCLMP01
RIBCBOUT-3/8-125-3456	3456	760244147	OSP-CLPFEC-XL-1

Use the following procedure to break out facility cables.

1. Identify and have on hand the breakout kit being used. Refer to the guidelines and instructions provided with the kit.
2. Strip back the cable jacket to expose the internal fiber ribbons. Strip the cable at a distance of 166 in. (421.6 cm) from the lead end of the cable as shown in Figure 16.

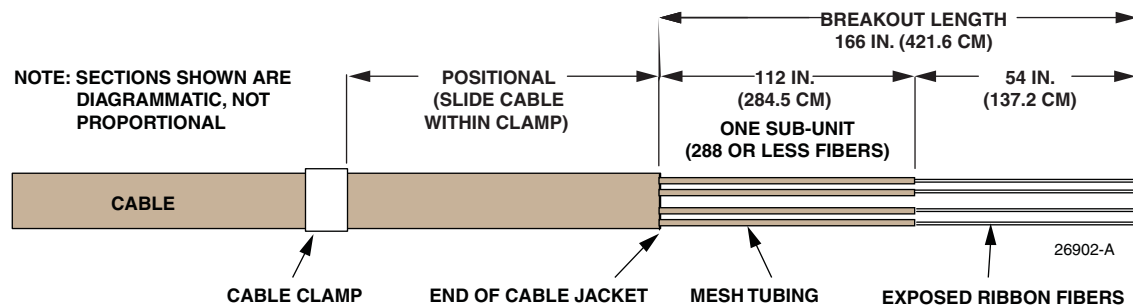


Figure 16. Facility Cable Breakout Exploded View

3. Prepare a piece of mesh tubing for each sub-unit of 288 fibers. Cut the pieces of mesh sleeve to a length of 112.3 inches (284.5 cm).
4. Prior to insertion into the mesh, trim and tape together the fiber ends to prevent them from snagging and breaking while being inserted.
5. Install a single piece of mesh tubing over each sub-unit of 288 fibers and slide the mesh sleeve back to the cable jacket.

Note: When the mesh tubing is installed, there will be a length of 54 in. (137.2 cm) of exposed ribbon fibers, as shown in the breakout diagram.

6. When all the sub-units have been routed to splice trays and the splice trays prepared, wind a section of vinyl tape around at the meeting place of the cable jacket and the mesh tubing to secure the mesh tubing to the cable jacket.

5.6 Securing Facility Cables

Table 5 lists the CommScope cable clamp kits suggested for use with facility cables.

Table 5: Cable Clamp Kits

Cable Clamp	Remarks
NG4-FLXACCSMCMP (760242717)	This is a stackable clamp with mounting pitch of 1.04 in. (2.64 cm) for cable diameters of 0.4 – 0.75 in. (1.0 - 1.90 cm). It uses a pair of Phillips head screws for attachment, and is a good choice for lower count all-dielectric cables as it is very compact and stackable
FEC-ACCCLMP01	This is a stackable clamp with a mounting pitch of 1.5 in. (3.81 cm) for cable diameters of 0.4 – 1.2 in. (1.0 - 3.05 cm). It uses a 3/8 in. male/female bolt for attachment, and is a good choice for low or medium count all-dielectric or armored cables as it is stackable and more robust than the clamp above
OSP-CLPFEC-XL-1	This is a stackable clamp with a mounting pitch of 1.85 in. (4.7 cm) for cable diameters of 0.4 – 1.5 in. (1.0 - 3.81 cm) It uses a 3/8 in. male/female bolt for attachment, and is a good choice for high count all-dielectric or armored cables. It is also the only option for some of the more prevalent 3456-fiber cables on the market today

Use the following procedure to clamp facility cables.

1. Select and have on hand the appropriate cable clamp kit referring to [Table 5](#).

Note: RIBCBOU kits include the appropriate cable clamp.

2. Plan for spatial placement of the cables being installed. Typically, the cable being routed to the lowest splice trays in the cabinet should be clamped on the rightmost position and cables should be added going to the left, as shown in [Figure 17](#).
3. Select the grommet that fits the cable and assemble the clamp components in the cabinet, following the instructions provided in the kit. [Figure 18](#) shows an example.



Figure 17. Example of Facility Cable Clamping

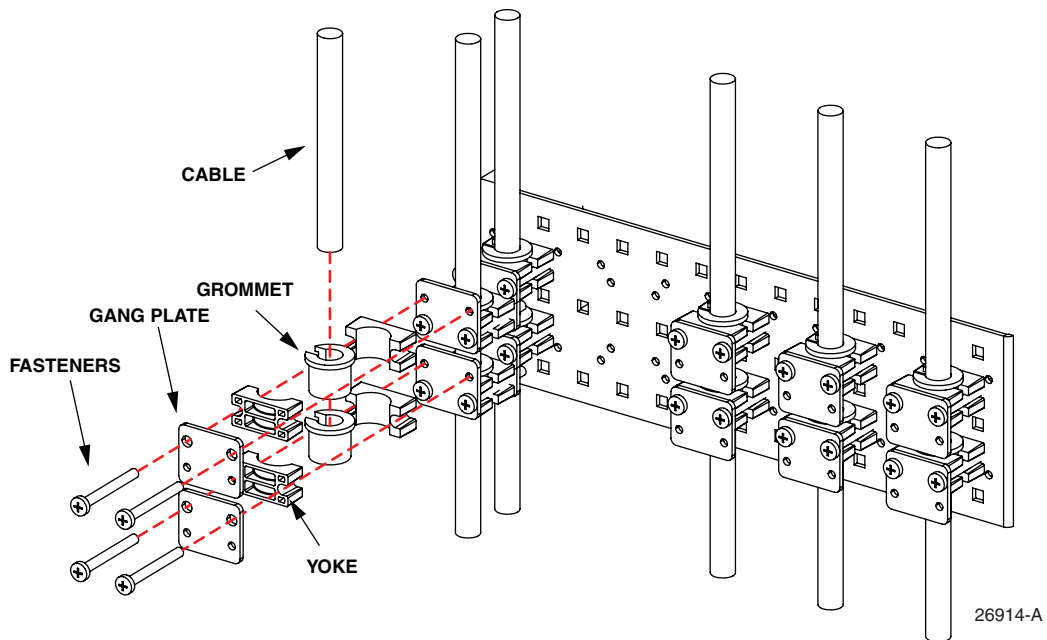


Figure 18. Cable Clamp Kit Example (NG4-FLXACCSMCMP)

5.7 Loading Splice Trays

The Flex Frame Splice Cabinet uses the FOST-ACC-D-TRAY-RR-288-KIT splice tray. Each splice tray accommodates four splice chips, each with six mass fusion splices, for a capacity of 24 splices or 288 fibers per tray.

Panel stubs (or equivalent cables from non-Flex-Frame panels) come in from the left side of the splice cabinet. Each panel stub goes to one splice tray. Facility cable sub-units come in from the top of the splice cabinet. Each sub-unit (of 288 fibers maximum) goes to one splice tray.

Use the following procedure.

Note: This procedure assumes that all splice trays are being loaded at the same time and are being loaded from bottom to top within the cabinet. This is the most common but not the only arrangement. If required, splice trays can be individually loaded. Any arrangement is possible that results in an orderly routing of cables within the cabinet.

1. Once the number of facility cables to be brought into the cabinet is known, designate cable positions from right to left in the cable entry area.
2. Unstrap the lowest splice tray in the bottom deck and remove it to a nearby flat working surface.
3. Route the first panel stub (coming through the lowest entry portal) to the splice tray and tie it down at the tie down point shown in [Figure 19](#).
4. Wind the panel stub ribbons twice counterclockwise around the splice tray as shown.
5. Route the first sub-unit of the rightmost facility cable to the splice tray and tie it down at the tie down point shown in [Figure 19](#).
6. Wind the sub-unit ribbons twice clockwise around the splice tray as shown.
7. Return the splice tray to the splice deck.
8. Lift up the panel stub slack and hang it over the radius limiter just to the left of the top of the splice deck.
9. Lift up the facility cable sub-unit slack and hang it over the cable management feature just to the right of the top of the splice deck, forming a J pattern.
10. Place slack loops into cable routing clips on top and side of cabinet.
11. Continue to the second splice tray to do the same steps described above and then continue on upward to the remaining splice trays.
12. When completed with the lower splice deck, repeat the same steps for the upper splice deck using the analogous features in the top half of the cabinet.

Note: Cables routed to the upper and lower splice decks should be separate from each other.

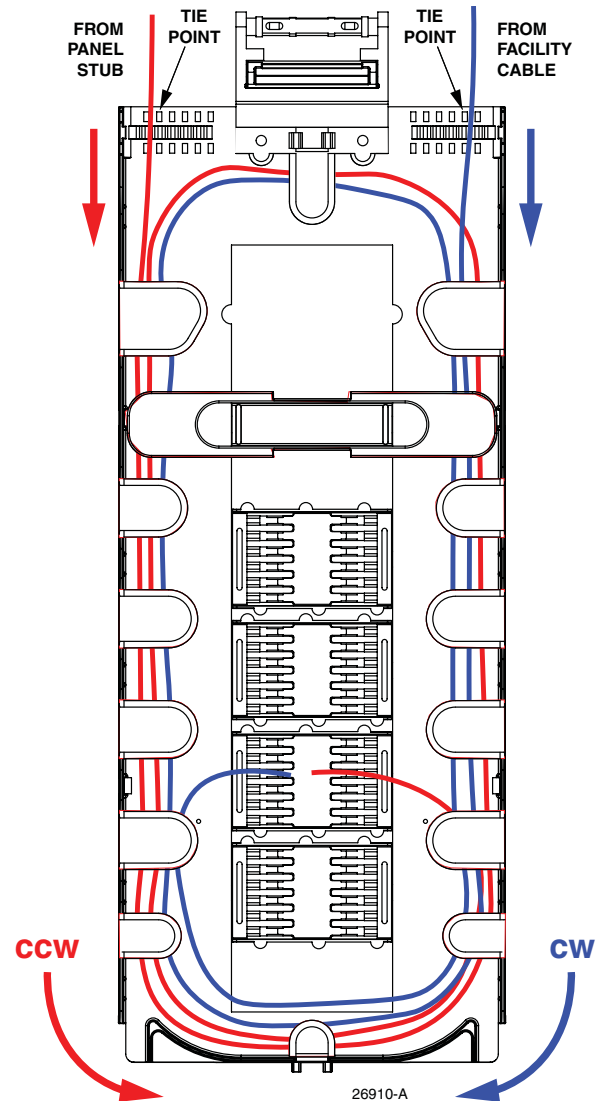


Figure 19. Routing on Splice Tray

5.8 Performing Splices

A procedure for splicing is not provided in this document. Perform splices per local practice.

5.9 Changing Splice Trays

Any splice tray in the splice cabinet can be isolated for removal or for adding or removing splices by allowing the splice trays in front of it to hang down while holding up the splice trays behind it using the hook-and-loop strap.

6 Contact Information

- To find out more about CommScope® products, visit us on the web at <http://www.commscope.com>
- For technical assistance, customer service, or to report any missing/damaged parts, go to <https://www.commscope.com/SupportCenter>
- For information on product patents, go to <http://www.cs-pat.com>

