COMMSCOPE

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Flex Frame

Contents

Introduction

This user manual describes the Flex Frame and provides directions for installation. Procedures include: unpacking the frame, mounting the frame on concrete floor, mounting the frame on a raised floor, installing the aftermarket rack numbering labels, installing cable manager and accessories, and grounding the frame and installing gang plates (in lineup). This user manual lists related publications and tells how to obtain technical assistance.

Flex Frame

Related Publications

The following related publications are available at https://www.commscope.com/SupportCenter

- **Flex Frame Cable Clamping Application Guide (TC-96289-IP)** -- provides guidelines for using the flex frame with factory pre-terminated fiber termination panels and Commscope cable clamp bracket kits (included with frame) or cable clamp kits (sold separately)

- **Flex Frame Universal Splice Cabinet User Manual (TC-96291-IP)** -- provides guidelines for installing the Flex Frame Universal Splice Cabinet when purchased separately from the Flex Frame.

1   Product Description

1.1   General Description

The Flex Frame (ODF-FF19CM) shown in Figure 1, is an optical distribution frame providing a connection point between facility cables in a data center. Facility cables are high-fiber-count cables containing rollable ribbons, and of a type suitable for being routed indoors or outdoors. The basic product consists of a 19-inch seismic rack with two cable managers, one on each side. Two sizes are offered: ODF-FF19CM-40RU, which has 40 rack units of connector panel spacing, and ODF-FF19CM-36RU, which has 36 rack units.

The ODF-FF19CM is also offered with an integral Splice Cabinet (ODF-FF19CM-36RU-SP). The Splice Cabinet is installed on the back of the left cable manager (when viewed from the front).
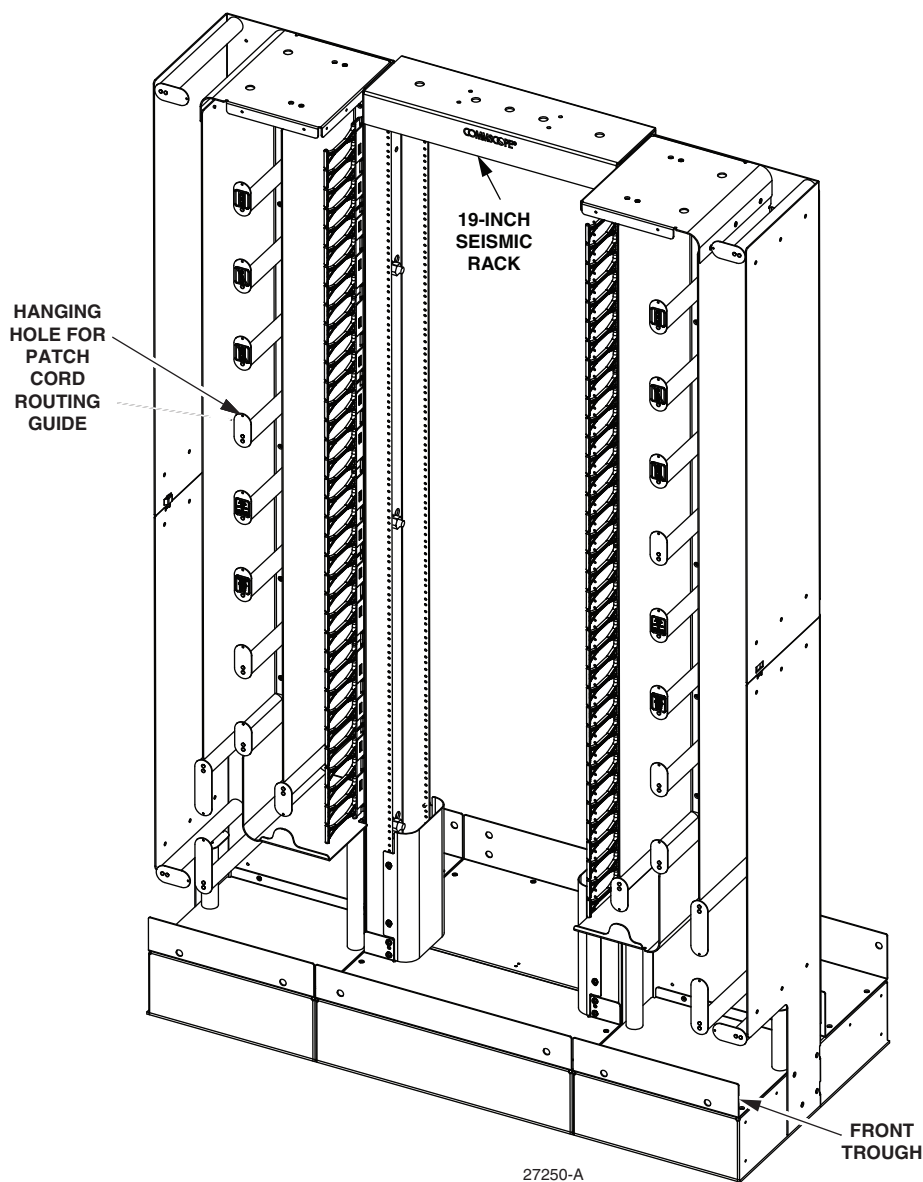

Figure 1. Flex Frame (Front Isometric View), ODF-FF19CM Shown

Figure 2 shows the frame in a rear isometric view with call outs indicating important features of the frame. The identified features include the following:

- **19-Inch Seismic Rack** -- provides the basic rack structure of the Flex Frame.

- **Hanging Hole for Patch Cord Routing Guide** -- is the location of laminated cards providing a pictorial guide to the preferred routing of patch cords on the frame.

- **Front Trough** -- is used to route patch cords horizontally on front bottom of frame.

- **Flat Clamp Bracket** -- is used to secure cables at the top of the frame.

- **Offset Clamp Bracket** -- is used to secure cables at the middle of the frame.

- **Accessory Rails** -- are used for mounting accessories. The main accessories are the clamp brackets and the Splice Cabinet.

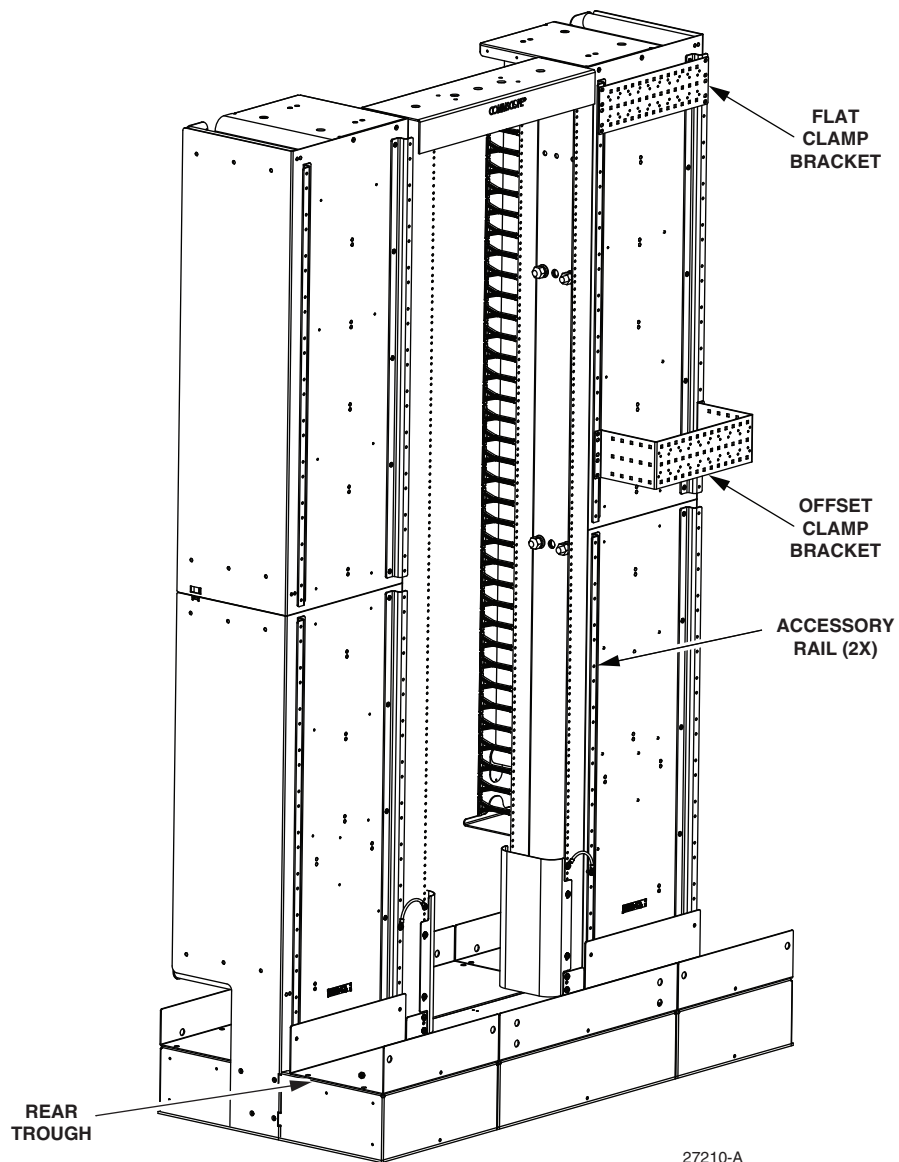- **Rear Trough** -- is used to route patch cords horizontally on rear bottom of frame.

Figure 2. Flex Frame (Rear Isometric View)

1.2   Dimensions and Specifications

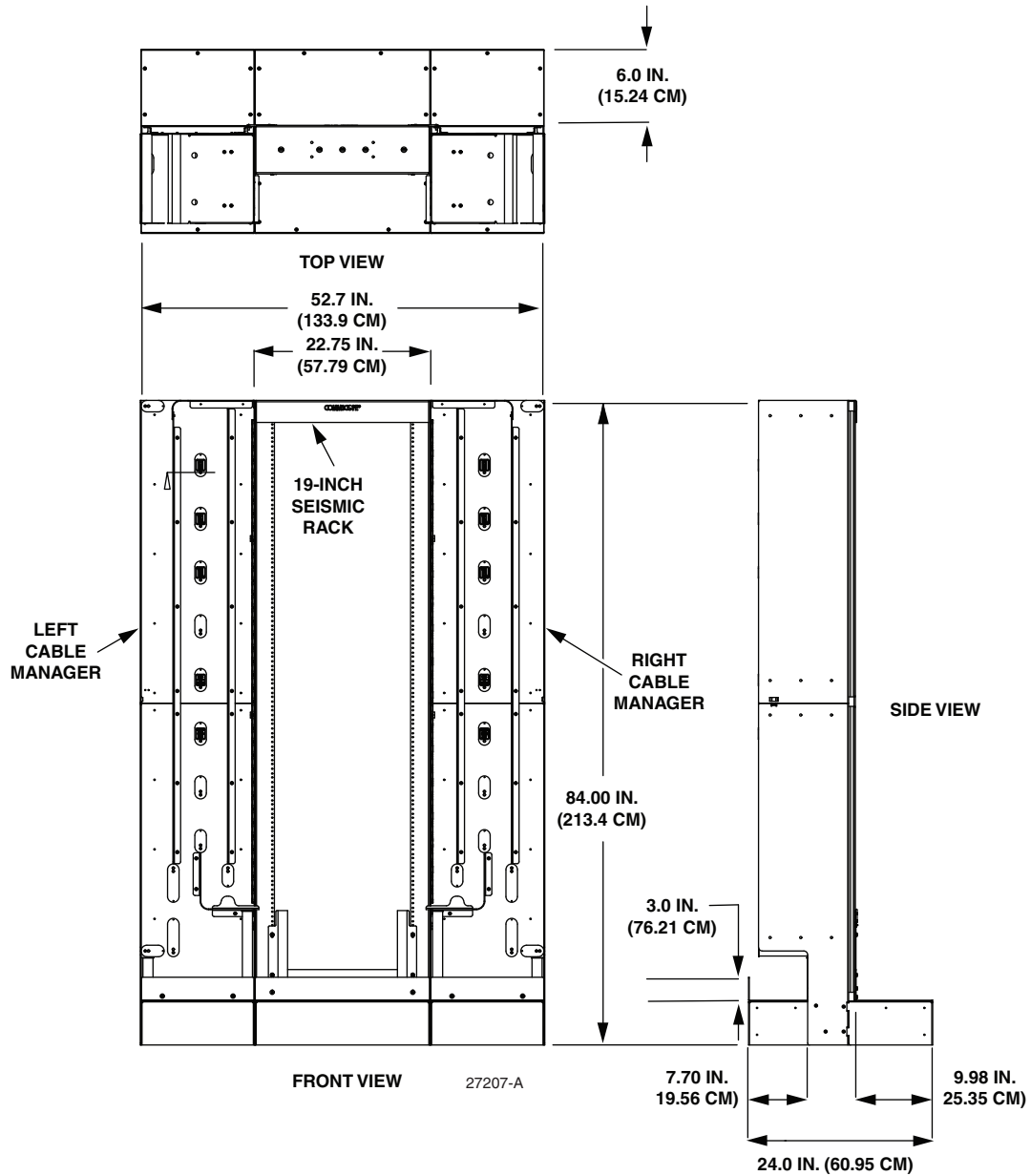Figure 3 shows the Flex Frame dimensions, which are the same overall for all options.

Figure 3. Flex Frame Dimensions

Table 1 lists installation specifications for the Flex Frame.

Table 1: Flex Frame Installation Specifications

Parameter	Specification
Catalog numbers	ODF-FF19CM-36RU (760242401) 36 RU frame alone; ODF-FF19CM-36RU-SP (760242402) 36RU with splice cabinet; ODF-FF19CM-40RU (760249125) 40 RU frame alone

Table 1: Flex Frame Installation Specifications (Continued)

Parameter	Specification
Mounting Space	36 Rack Units - ODF-FF19CM-36RU (760242401); 40 Rack Units - ODF-FF19CM-40RU (760249125)
Dimensions (H x W x D) ODF-FF19CM-36RU ODF-FF19CM-40RU	84.0 x 52.7 x 24.0 in. (213.4 x 133.9 x 60.95 cm); 84.0 x 52.7 x 24.0 in. (213.4 x 133.9 x 60.95 cm)
Weight ODF-FF19CM-36RU ODF-FF19CM-36-RU-SP ODF-FF19CM-40RU	400 lbs. (181.4 Kg); packaged weight 630 lbs. (285.8 Kg); 440 lbs. (199.5 Kg); packaged weight 670 lbs. (303.9 Kg); 400 lbs. (181.4 Kg); packaged weight 630 lbs. (285.8 Kg)

2   Unpacking and Inspection

The Flex Frame is shipped on a pallet within a wood crate. Use the following procedure to inspect and unpack the items in the wood crate.

1. Using a fork lift, move the wood crate to the installation location within your facility.

2. Inspect the exterior of the shipping container(s) for evidence of rough handling that may have damaged the components in the wood crate. If damage is detected or if parts are missing, file a claim with the commercial carrier and notify CommScope Support Center at http://www.commscope.com/SupportCenter

3. The crate is held together with 36 TORX size T7 wood screws. Remove the 36 screws to disassemble the wood crate, as shown in Figure 4.
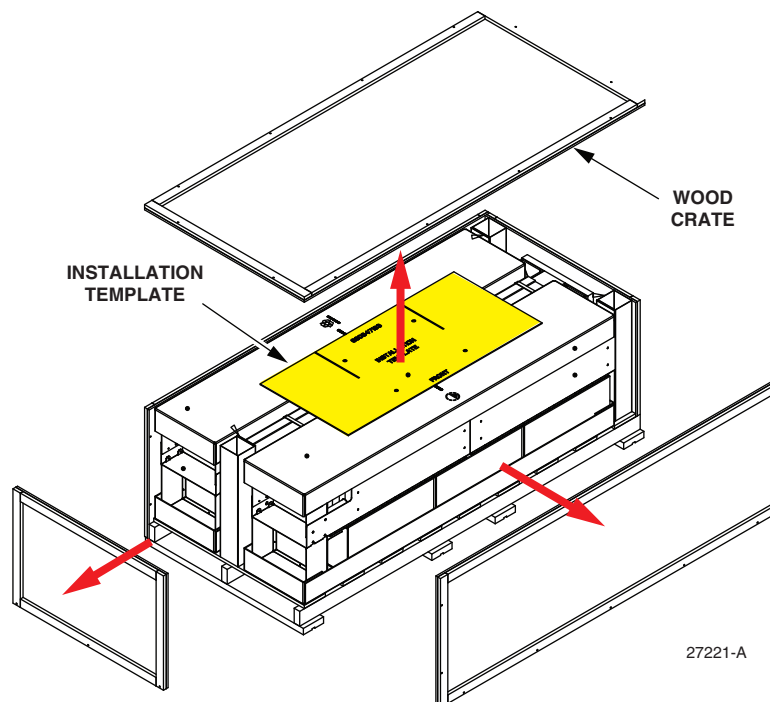

Figure 4. Flex Frame in Wood Crate

Note: Save all shipping containers for use if the equipment requires shipment at a future date.

4.   Carefully unpack the items on the pallet identifying the following:

- installation template (1)
- left cable manager assembly(1)
- right cable manager assembly (1)
- front bottom center shelf (1)
- rear bottom center shelves (1)
- pass thru radius limiter (2)
- trays (4)
- Boxes containing hardware (2)

3   Installation

3.1   General

The Flex Frame can be installed on a concrete floor or raised floor. Information is provided in separate sections for each scenario. Other steps are the same for concrete floor and raised floor installations.

3.2   Overview of Installation

The Flex Frame can be installed on a concrete floor or raised floor. Installation involves the following main steps:

- The frame, while still on the pallet, is moved to the installation location.

- The installation template is used to mark the frame footprint on the floor.

- The frame is mounted on a concrete floor or raised floor.

Note: Raised floor kit must be separately ordered.

- The aftermarket rack numbering labels are installed on the frame rails.

- Cable managers are installed, one on either side of frame.

- Accessories are installed, including radius limiters and shelves.

- Frame is grounded and gang plates are added for frames in a lineup.

- Splice cabinet is installed (optional).

- The total assembly is final checked to ensure everything is in correct order.

3.3   Required Tools and Material

The following tools are required for installing the Flex Frame.

- Slot tip and Phillips screwdrivers - #1, #2, #3
- Level
- Socket wrench
- Set of sockets - 0.25 to 1 inch (8 to 25.4 mm)
- Set of open-end/box-end wrenches - 0.25 to 1 inch (8 to 25.4 mm)
- T7 Torx bit
- Drill with metal and concrete drill bits - 0.25 to 1 inch (8 to 25.4 mm)
- Ruler or tape measure
- Torque wrench - 19.9 ft-lbs. (27 Nm)
- Hammer
- Vacuum
- Concrete floor or raised floor installation kit
- Scissors

3.4   Footprint and Installation Template

Figure 5 shows the Flex Frame installation template with dimensions of footprint,
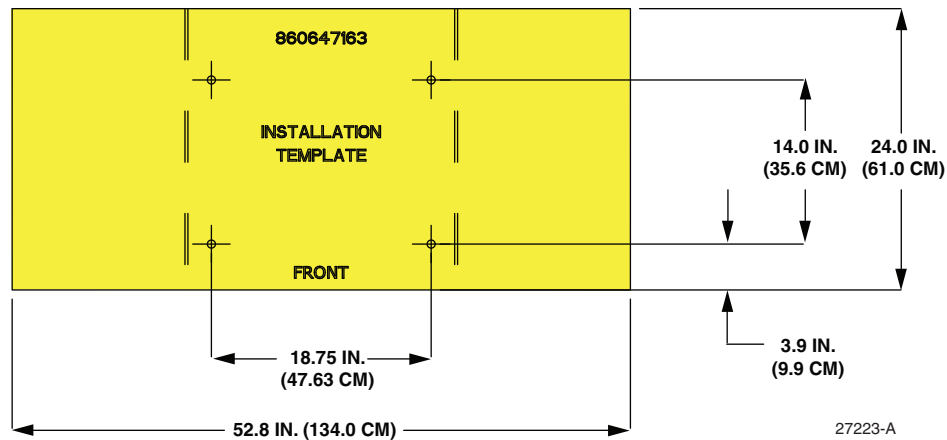

Figure 5. Frame Footprint (Optional Template Shown)

3.5   Mounting the Frame on a Concrete Floor

To mount the frame on a concrete floor, use the following procedure.

1. Determine the frame location and ensure that the front and rear aisles at that location meet the recommended minimum widths shown in Figure 6. Mark the location with the installation template, as shown.

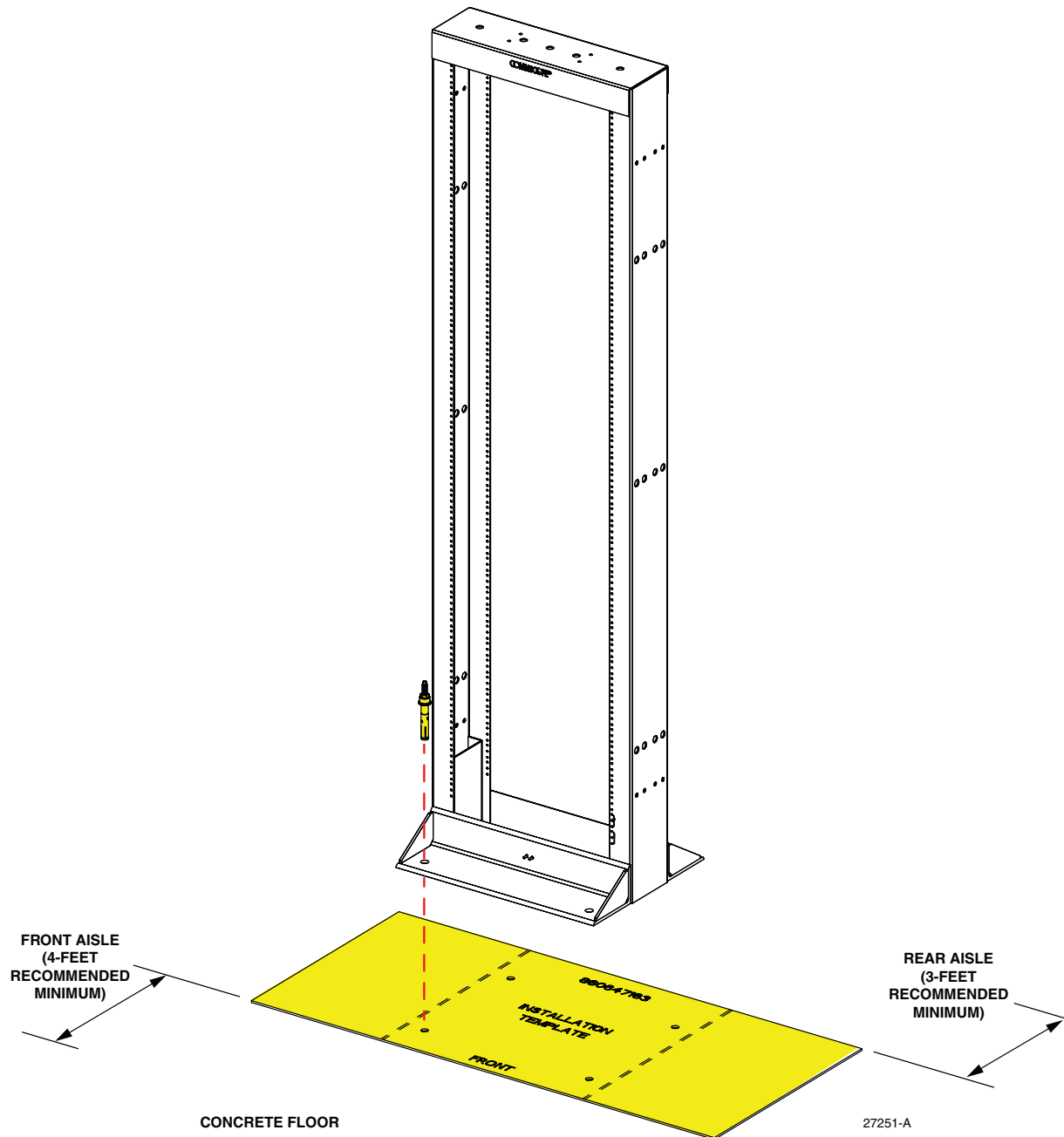Figure 6. Determining Frame Location

2. Place the installation template on the concrete floor at the location just chosen, and use it to mark the concrete for the four mounting holes as shown in Figure 7.
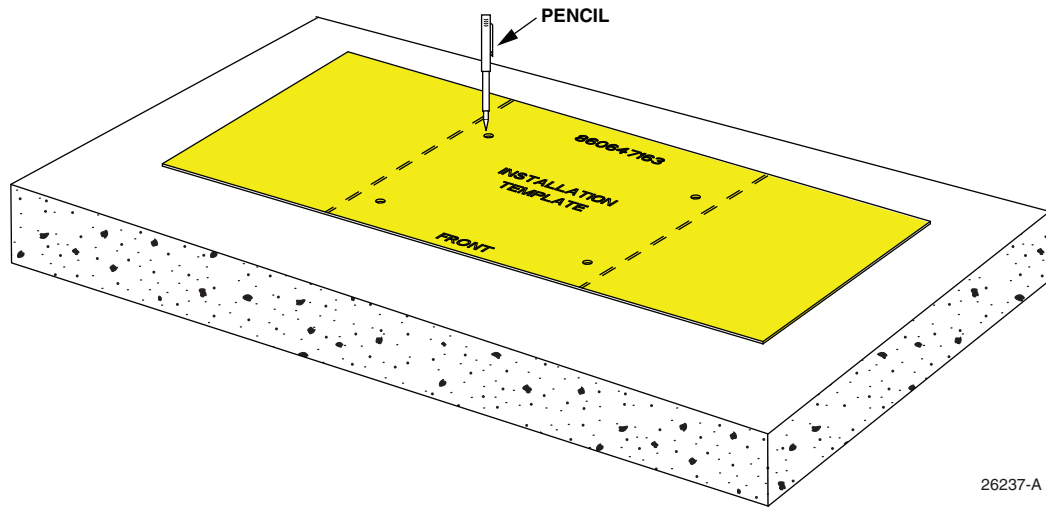

Figure 7. Marking Concrete

3. Set aside the isolation pad and drill four mounting holes in the concrete at the marks just made, as shown in Figure 8.
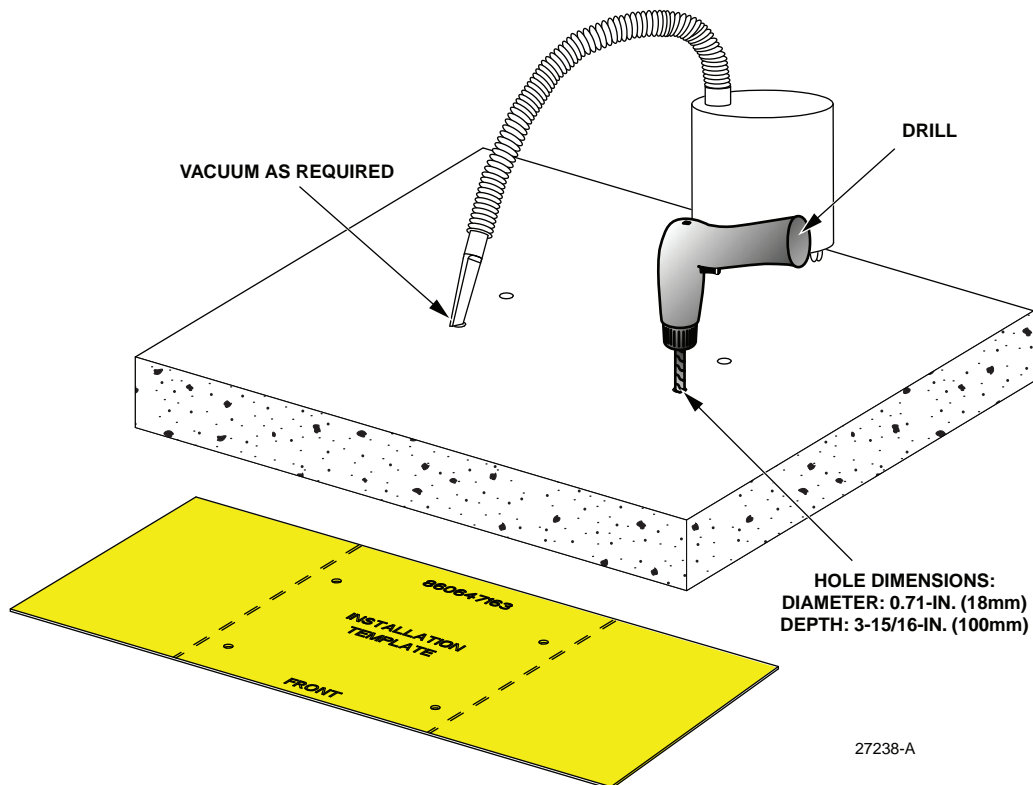

Figure 8. Drilling Mounting Holes

4. Thread the washer and torque nuts onto the threaded rod, as shown in Figure 9. Insert the anchor bolt assembly into the hole. The washer should touch the top of the anchor sleeve. Tap the anchor bolt assembly with a hammer until the washer touches the concrete.
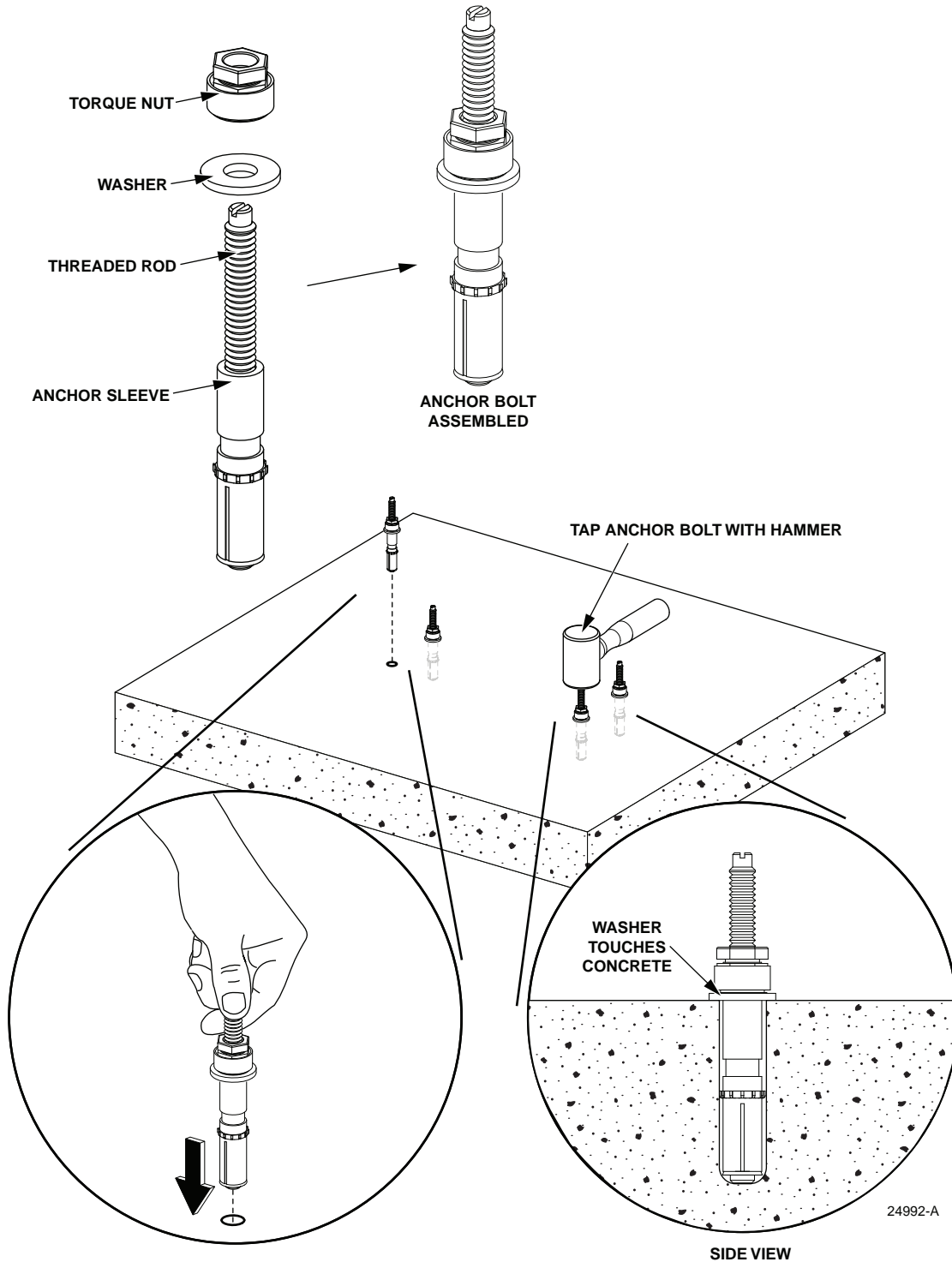

Figure 9. Installing Washer and Torque Nut on Threaded Rod

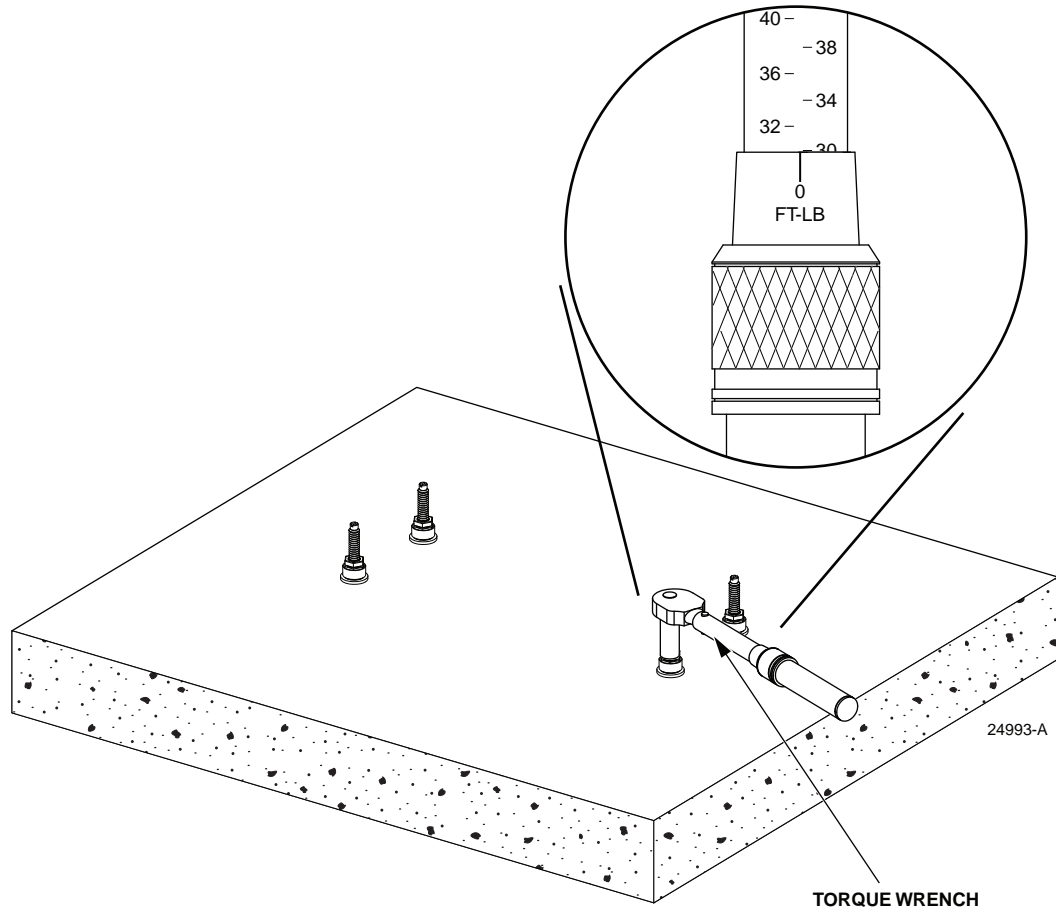5. Pre-torque the anchor bolt to approximately 30 foot-pounds (41 Newton meters). Refer to Figure 10.

Figure 10. Pre-torquing Anchor Bolt

6. Loosen the torque nuts several turns, and then remove the torque nut and washer, as shown in Figure 11.

LOOSEN TORQUE NUT

24994-A

TORQUE NUT

WASHER

REMOVE TORQUE NUT
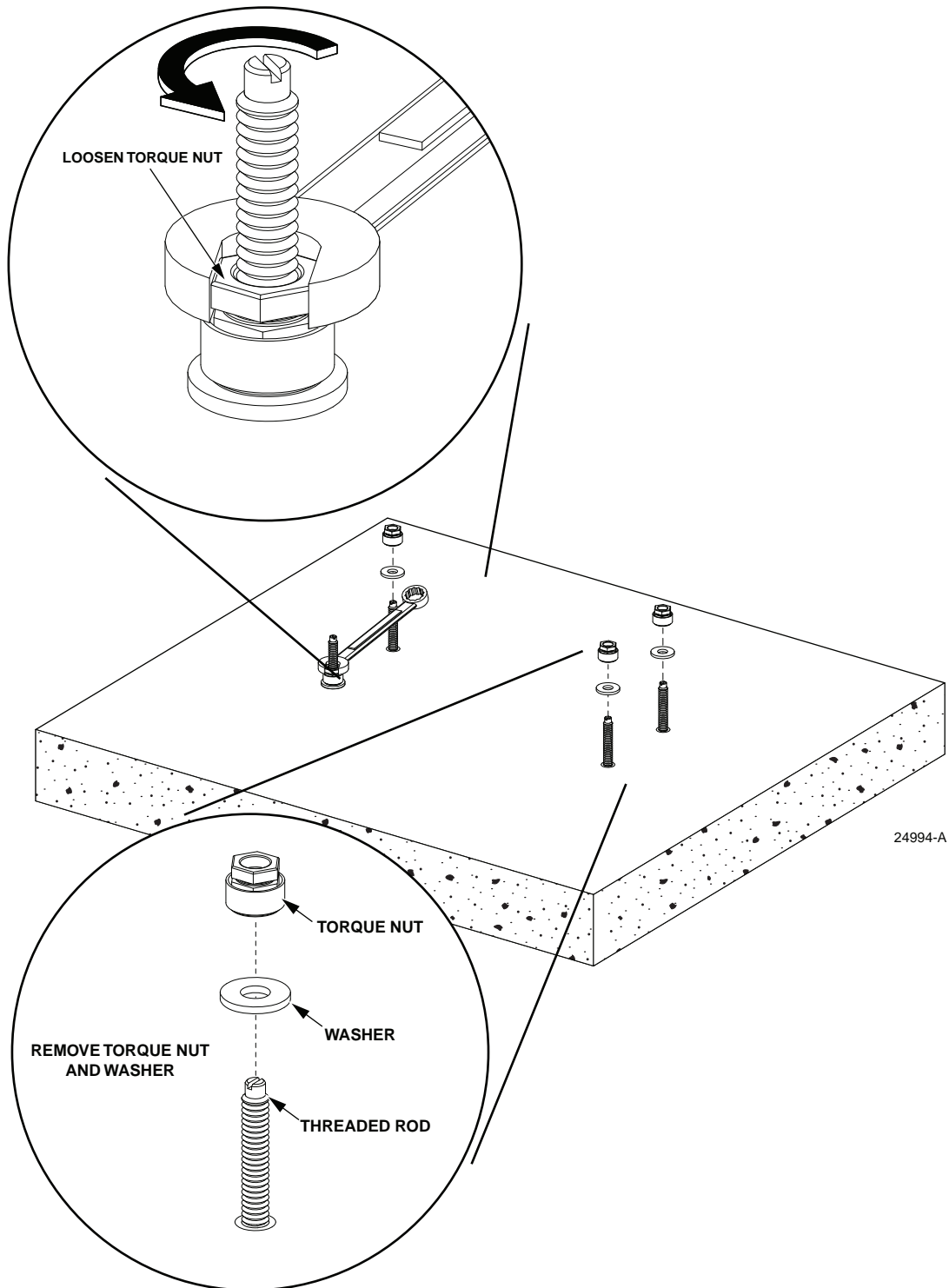AND WASHER

THREADED ROD

Figure 11. Removing Torque Nut and Washer

3.6   Mounting the Frame on a Raised Floor

The Flex Frame can be mounted on a raised floor using the CommScope Raised Floor Mounting Kit, 5/8" (FDF-ACC146). Figure 15 shows an exploded view of the kit components. To order the kit, refer to the following URL:

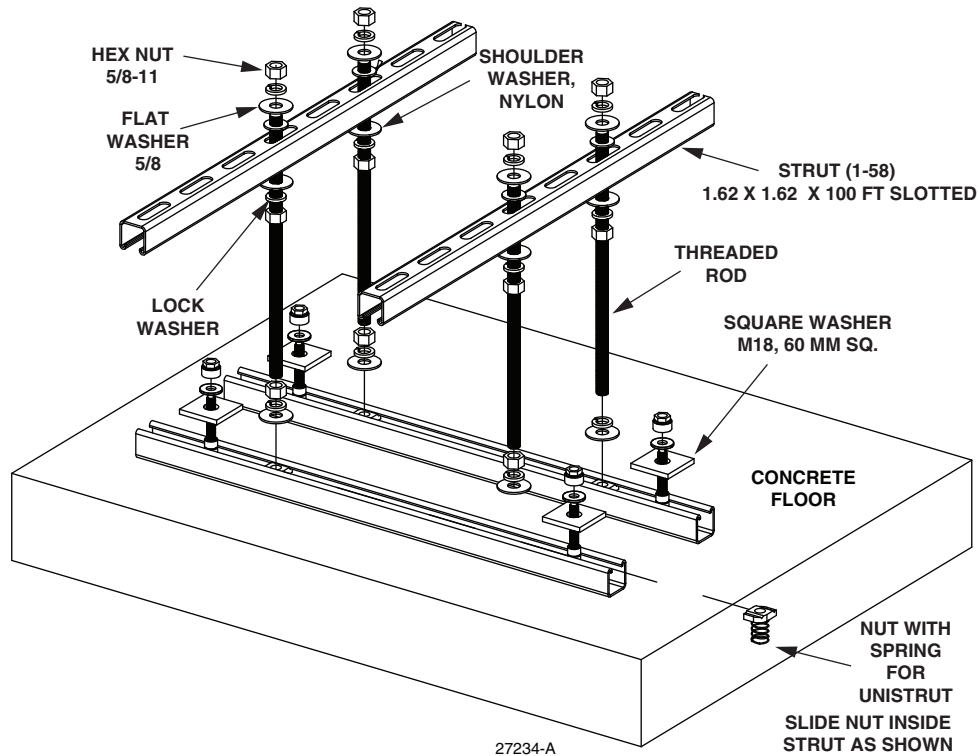https://www.commscope.com/product-type/cabinets-panels-enclosures/frames-racks-cabinets/accessories/itemfdf-acc146/

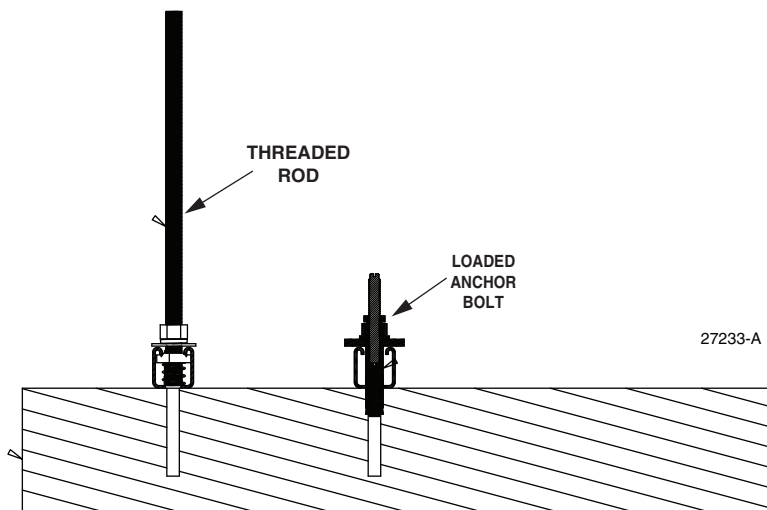Figure 12. CommScope Raised Floor Mounting Kit, 5/8" (FDF-ACC146) Components

Figure 13. Side View of Typical Concrete Floor Anchor (4 Places)

3.7   Installing Aftermarket Rack Numbering Labels

The same 43 RU 19" seismic equipment rack is used in both the 36 RU Flex Frame (ODF-FF19CM-36RU) and the 40 RU Flex Frame (ODF-FF19CM-40RU). In both applications, several rack units are sacrificed at the bottom of the rack for the lower trough system and the rack pass-through radius limiters. As such, the silk-screened rack unit numbering provided on each side of the two vertical rails on the rack must be updated with adhesive rack unit numbering tape to reflect the correct RU numbering for the particular frame. Use the following procedure referring to Figure 14.
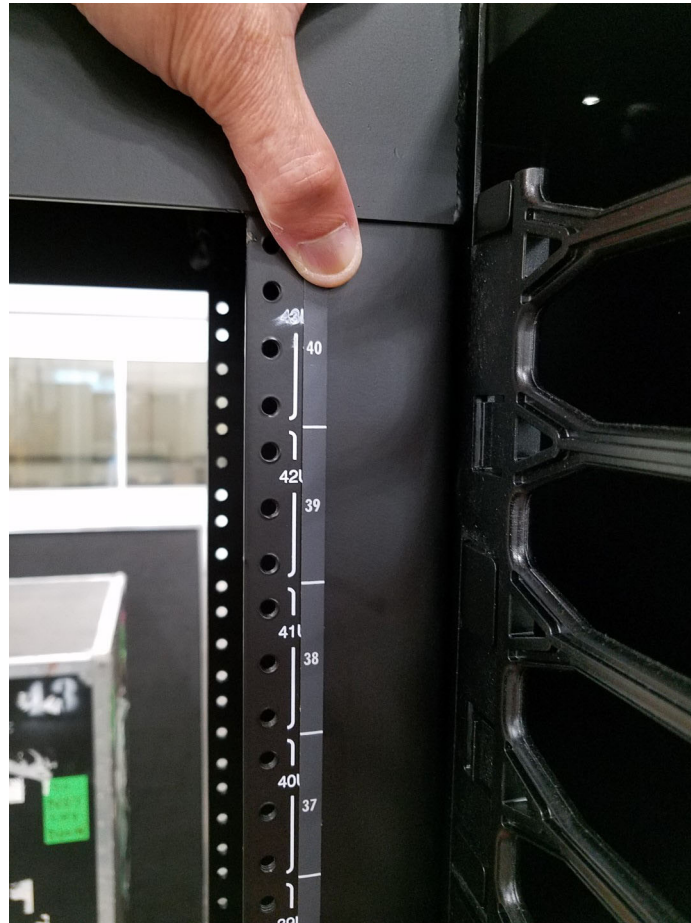

Figure 14. Silk-Screened Rack Unit Numbering

For the 36 RU Flex Frame (ODF-FF19CM-36RU) – locate the four rolls of adhesive RU labeling tape and carefully cut off and discard the RUs numbered from 37-52 from each tape. Beginning at the uppermost rack unit on the rack, begin applying the label tape over the silk-screened numbering so that only the adhesive label numbers are visible and work your way downward from top to bottom. At the top of the rack, the silk-screened RU number 43 should correlate to the adhesive RU number 36 and at the bottom of the rack, silk-screened RU number 8 should correlate to the adhesive RU number 1. Repeat this procedure for the remaining rack rails.

For the 40 RU Flex Frame (ODF-FF19CM-40RU) – locate the four rolls of adhesive RU labeling tape and carefully cut off and discard the RUs numbered from 41-52 from each tape. Beginning at the uppermost rack unit on the rack, begin applying the label tape over the silk-screened

numbering so that only the adhesive label numbers are visible and work your way downward from top to bottom.

At the top of the rack, the silk-screened RU number 43 should correlate to the adhesive RU number 40 and at the bottom of the rack, silk-screened RU number 4 should correlate to the adhesive RU number 1. Repeat this procedure for the remaining rack rails

3.8 Installing Cable Managers and Accessories

Once the seismic rack is anchored in the floor, the cable manager and accessories can be installed. Use the following procedure.

Note: The fasteners should NOT be fully tightened until the lower troughs have been installed so that they can be properly aligned.

1. Fasten the left and right cable managers to the frame, aligning the components as shown in Figure 15.
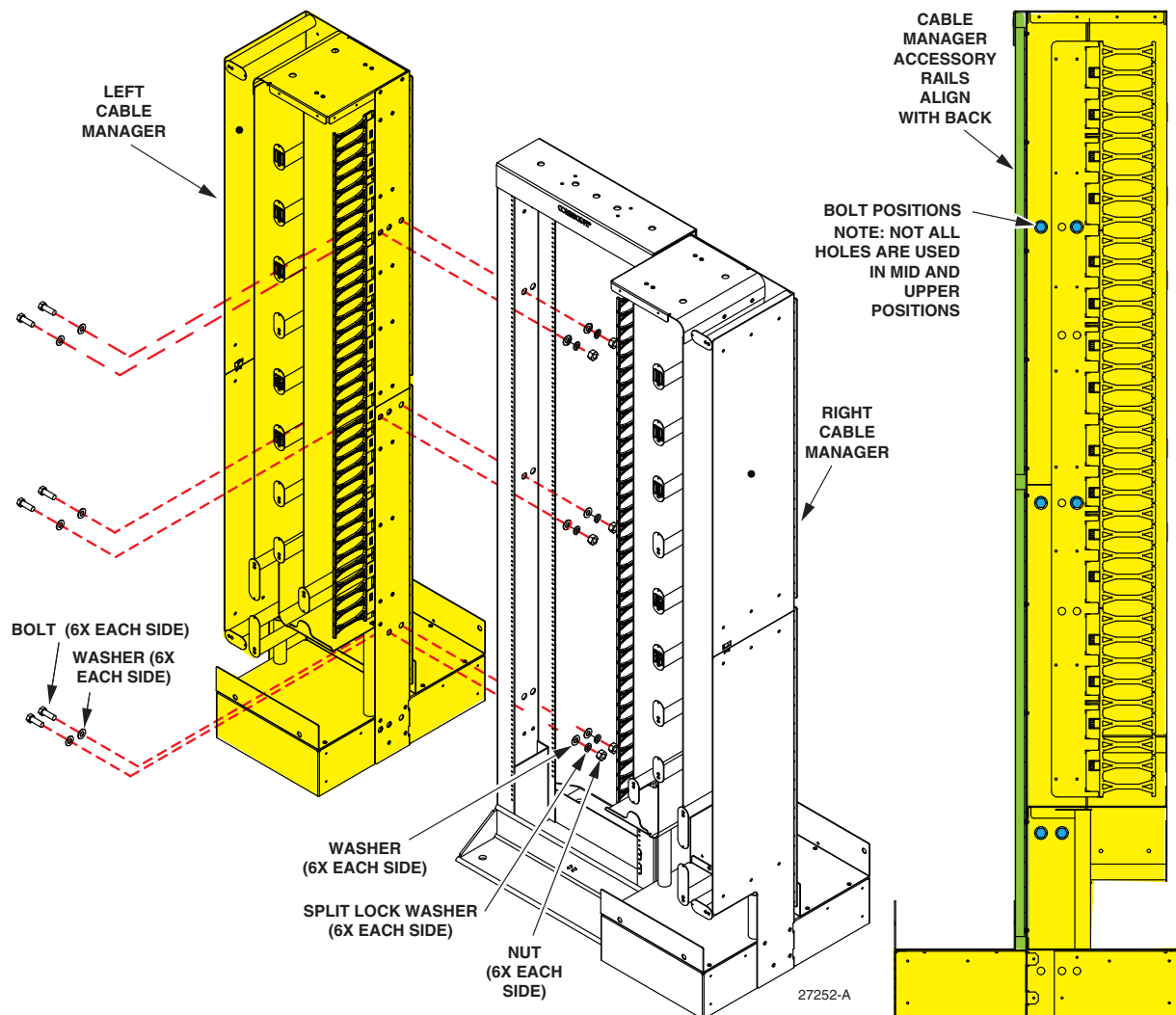

Figure 15. Installing the Cable Managers

2. Fasten the front bottom middle shelf to the front of the Flex Rack, using four #12-24 screws and star washers, as shown in Figure 16. Fasten the rear bottom middle shelf to the rear of the frame in the same manner.

LEFT
CABLE
MANAGER

RIGHT
CABLE
MANAGER

REAR
BOTTOM
CENTER
SHELF

#12-24 SCREW
(4X EACH
SHELF)

#12-24
STAR WASHER
(4X EACH
SHELF)
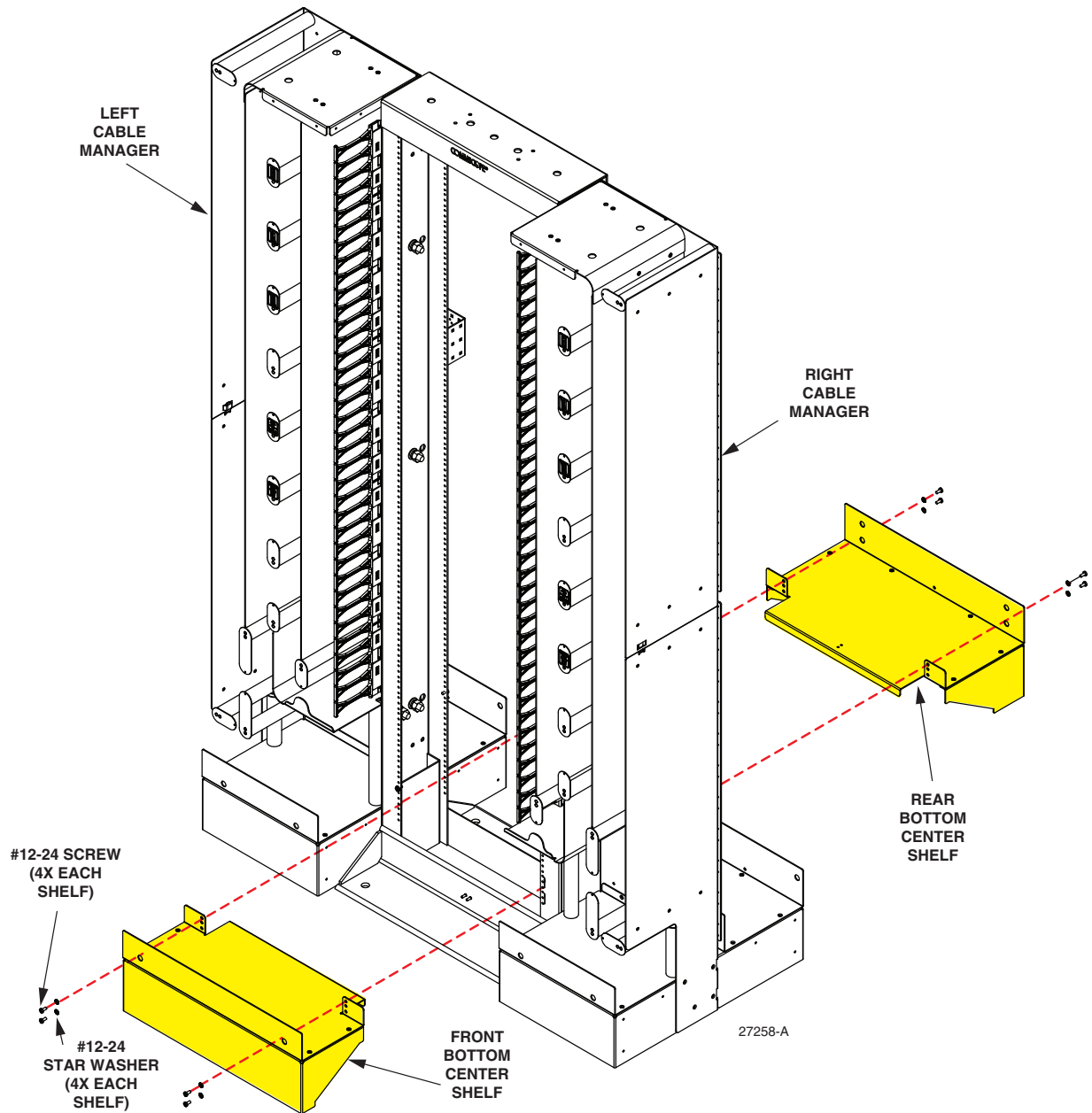
FRONT
BOTTOM
CENTER
SHELF

27258-A

Figure 16. Installing the Middle Shelves

3. Fasten the two pass thru radius limiters to the frame using #12-24 screws and lock washers (4 of each on front and rear of the frame), as shown in Figure 17. Align and assemble as shown.Fasten the clamp brackets to the accessory rails.

Note: For mounting location of clamp brackets, see Figure 2 on Page 3.
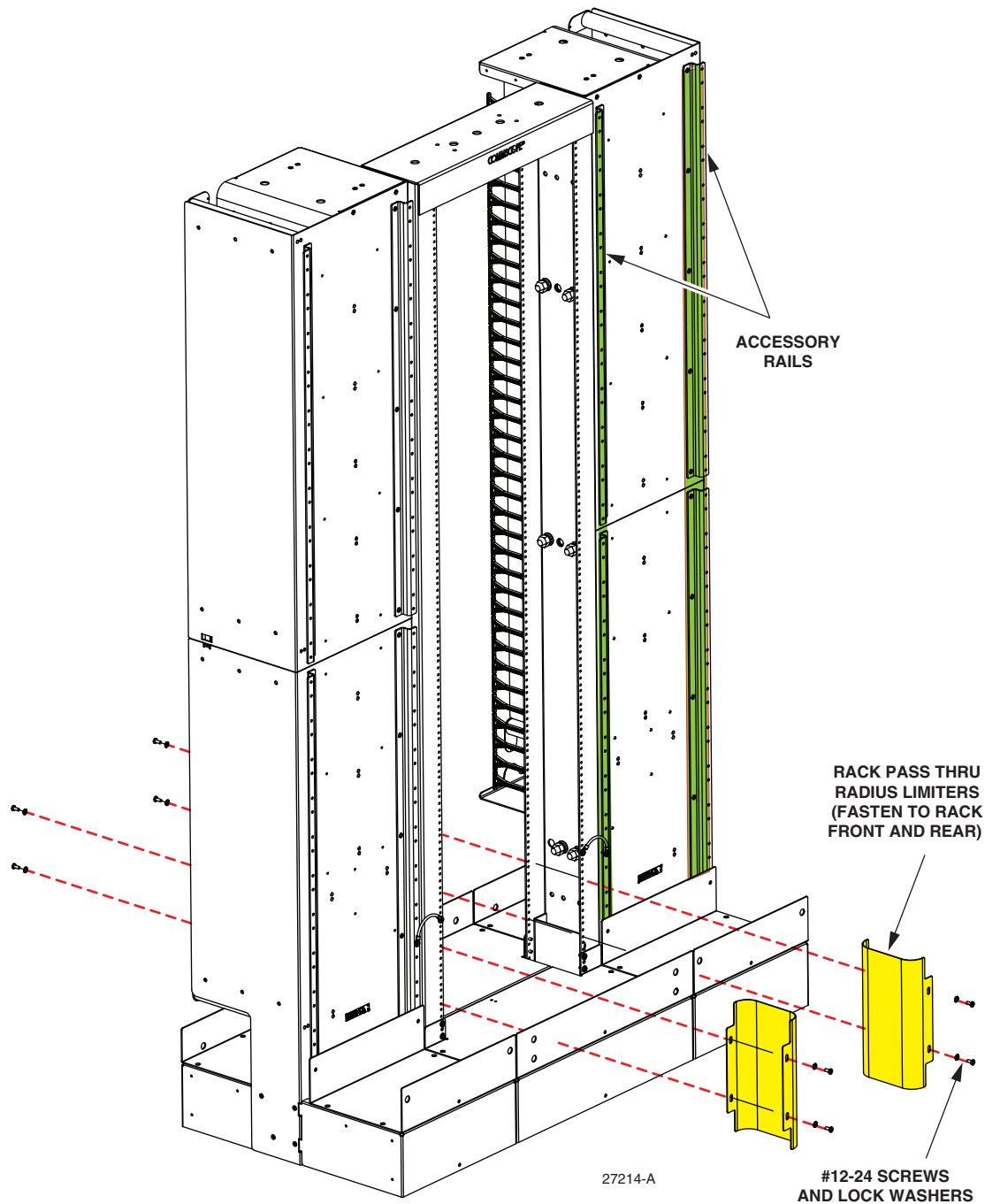

Figure 17. Installing Pass Thru Radius Limiters

3.9   Grounding Frame, Installing Gang Plates

Figure 18 shows the location of the #10-32 ground studs on the rear of the Flex Frame. The studs are intended for a ground strap with a 2-hole lug with 5/8-inch hole spacing. Fasten the ground straps between the frame and the adjacent cable manager as shown in Figure 19 on Page 19. Ground with AWG 6 wire, conforming to local standards,
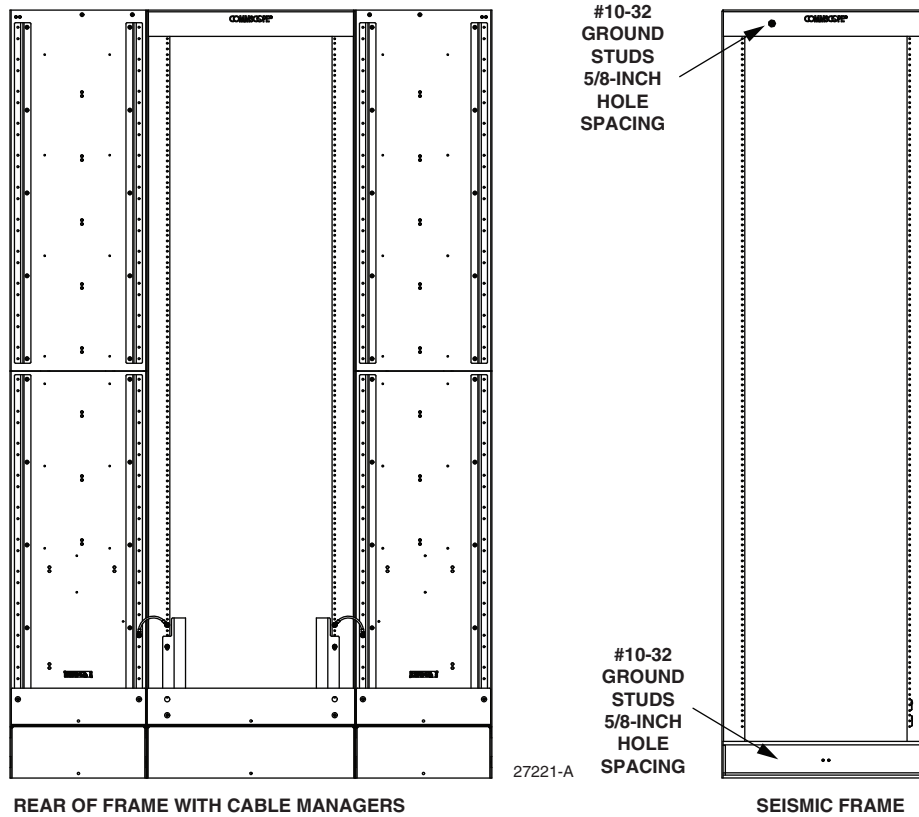

Figure 18. Grounding the Frame

Fasten ground straps between the frame and the cable manager as shown in Figure 19. If assembling frames in a lineup, fasten gang plates to adjacent cable management accessory rails to aid alignment. Assemble as shown, using #12-24 screws.

Note: For an exploded view of a gang plate installation, see Figure 20 on Page 20.
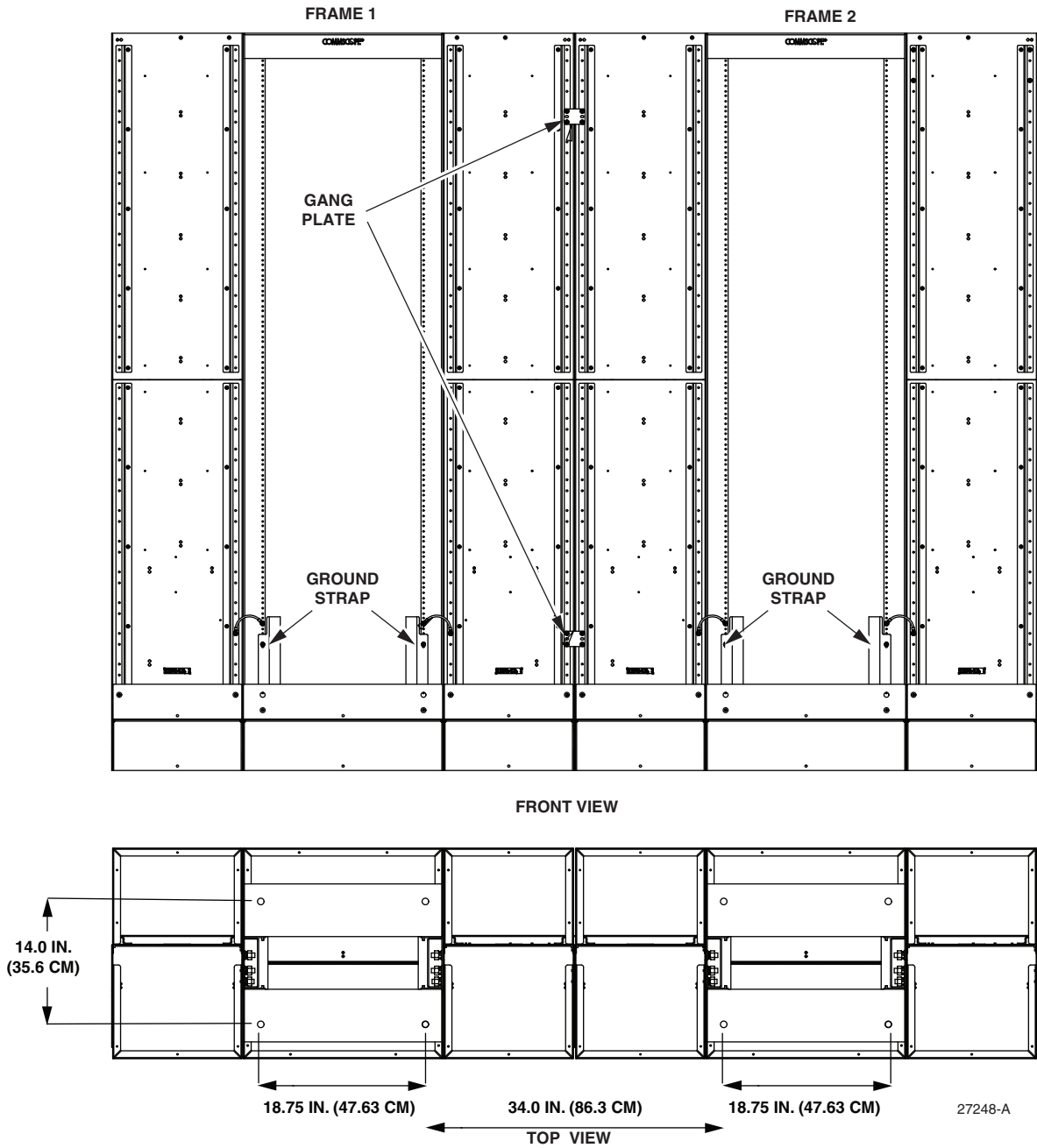
FRAME 1

FRAME 2

GANG
PLATE

GROUND
STRAP

GROUND
STRAP

FRONT VIEW

14.0 IN.
(35.6 CM)

18.75 IN. (47.63 CM)

34.0 IN. (86.3 CM)

18.75 IN. (47.63 CM)

27248-A

TOP VIEW

Figure 19. Two Frames in a Lineup

27229-A

GROUNDING STRAP

GANG PLATE

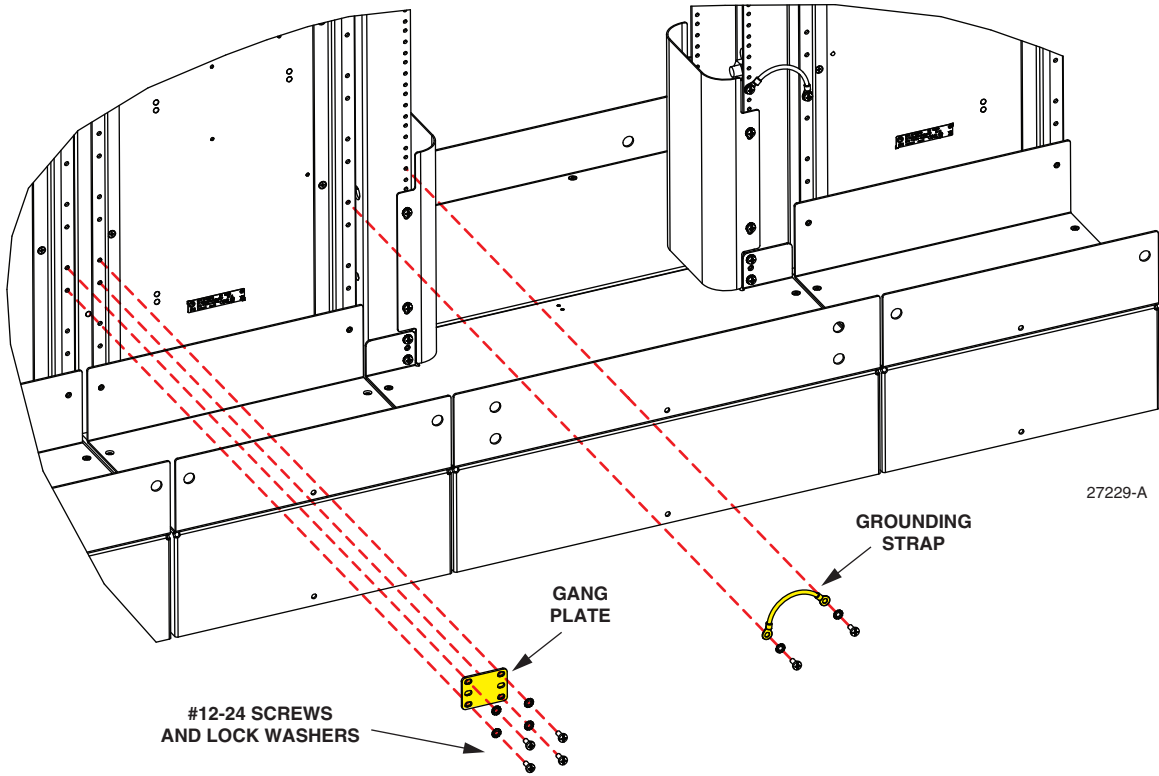**#12-24 SCREWS AND LOCK WASHERS**

Figure 20. Installing Gang Plates and Grounding Straps in Flex Frame Lineup

4   Installing an Optional Splice Cabinet

The splice cabinet (optional) is installed on the right cable manager (when viewed from the rear). Within the splice cabinet are a grounding location, shown in Figure 21, and two keyholes, also shown, for hanging the cabinet on screws installed in the accessory rails.
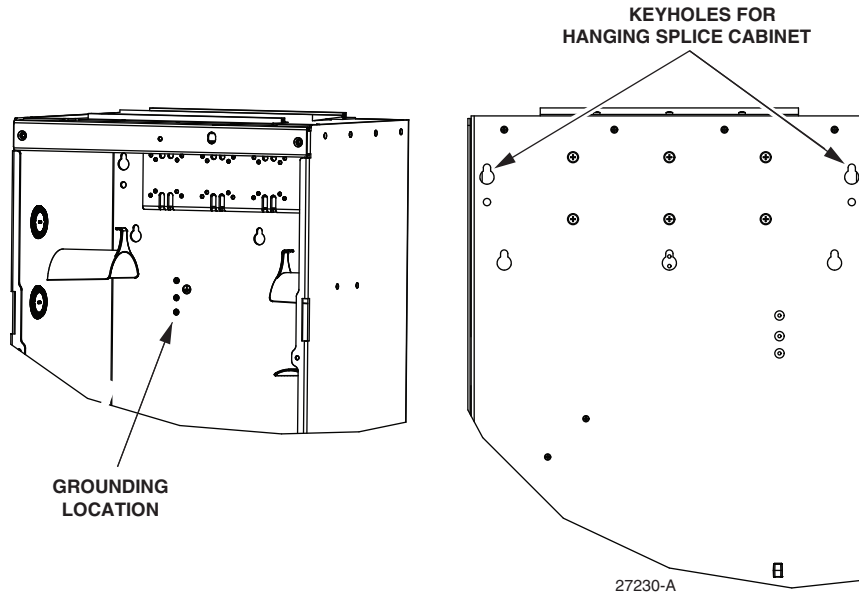

Figure 21. Keyholes for Hanging Splice Cabinet

Use the following procedure to install the Splice Cabinet.

1.   Pre-assemble two #12-24 screws in the top holes of the accessory rails on the back of the cable manager where the splice cabinet is being installed. Install the screws part way only with no washers.

2.   Hang the splice cabinet on the screws just installed and fasten the cabinet using #12-24 screws. Refer to Figure 21 and also to Figure 22 on Page 22.

ACCESSORY
RAILS

NOTE: INSTALL #12-24 SCREWS
PART WAY WITHOUT WASHERS
FOR USE IN HANGING
SPLICE CABINET
ON ACCESSORY RAILS

#12-24 SCREWS
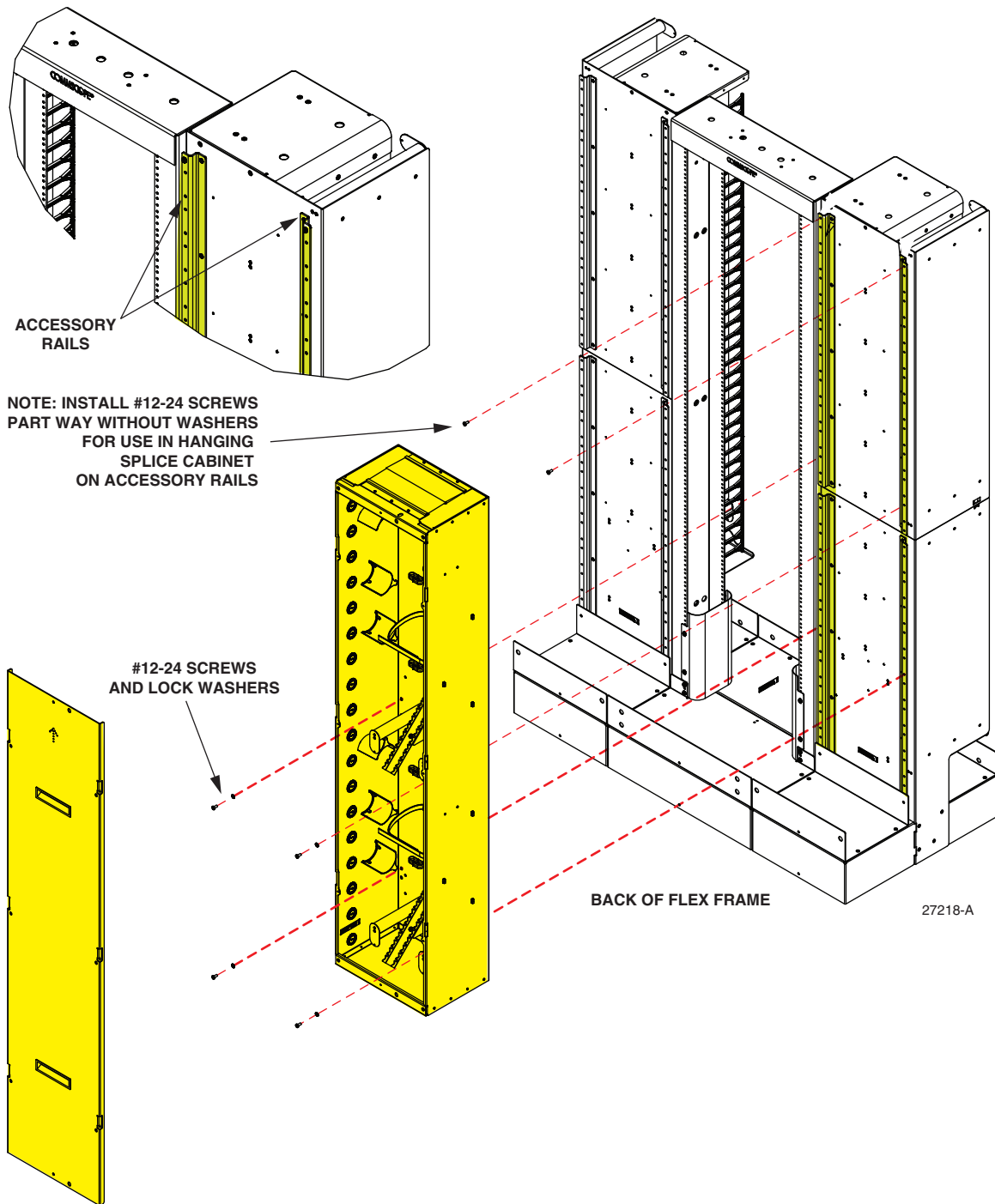AND LOCK WASHERS

BACK OF FLEX FRAME

27218-A

Figure 22. Installing the Splice Cabinet

5   Contact Information

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