



# Unpacking and Installing the Cisco ONS 15216 Five-Component Bay Assembly (15216-TERM-BAY)

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## Cisco ONS 15216 Five-Component Bay Assembly Overview

The Cisco ONS 15216 five-component bay assembly includes a dual-feed, pre-wired GMT-TPA combination fuse and alarm panel, two Cisco ONS 15216 EDFA2s, one Cisco DWDM Mux/Demux, and one fiber tray. Also included on the assembly are two vertical fiber ducts, and two 2.38-inch vertical extenders and extender bases.

This guide describes how to unpack and install the Cisco ONS 15216 five-component bay assembly. Because it is a complete system, installation simply requires you to remove the unit from the shipping pallet, move the unit into place, secure it, and supply power and ground attachment. Refer to the Cisco ONS 15216 user documentation for component-specific installation and replacement procedures.

[Figure 1 on page 2](#) shows a five-component bay assembly.

This guide includes the following sections:

- [Safety Recommendations](#)
- [Included Material](#)
- [Recommended Material](#)
- [Unpacking Instructions](#)
- [Installation Instructions](#)
  - [Raised Floor Plan](#)
  - [Install the ONS 15216 Five-Component Bay Assembly](#)
  - [Route Fiber Through the Base](#)
- [Cabling Illustrations](#)
- [GMT-TPA Fuse and Alarm Panel](#)
  - [FAP Alarming](#)
  - [Ground and Power](#)
- [Optional Kits](#)

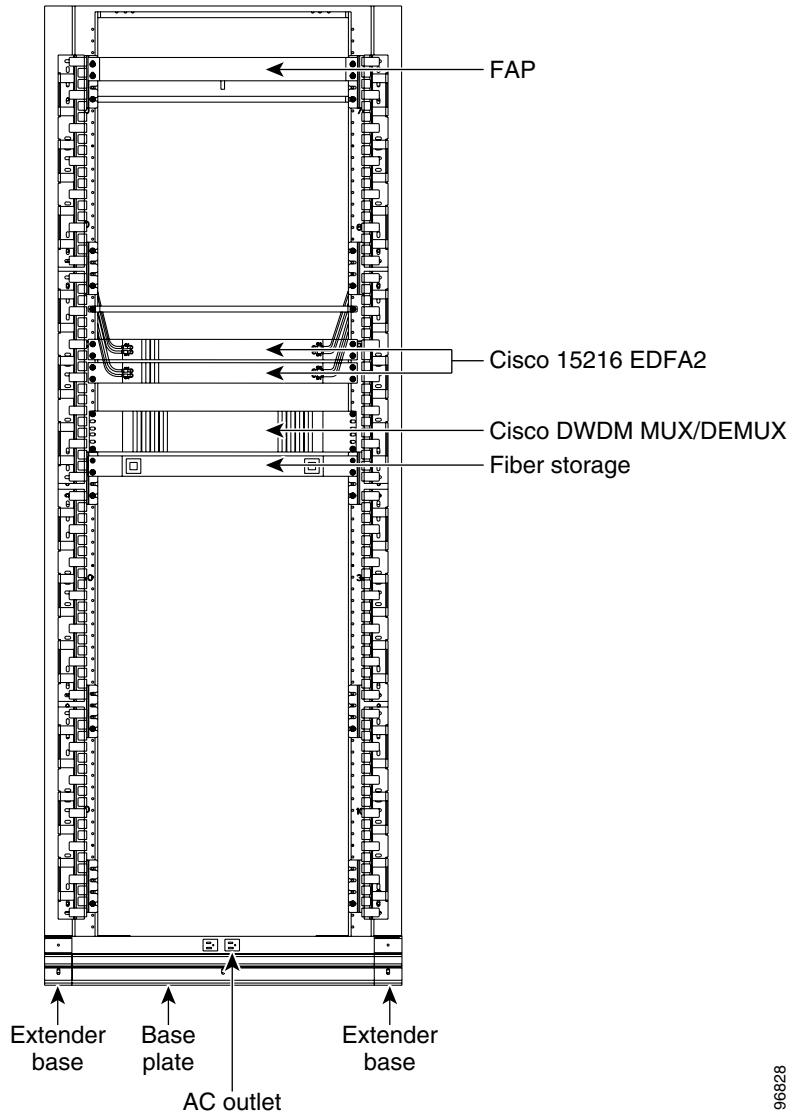


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Figure 1 ONS 15216 Five-Component Bay Assembly



  
**Caution**

The AC outlet at the base of the shelf should be protected by a 20A breaker maximum.

  
**Note**

An AC outlet is provided on the front of the base if 110VAC powering is needed. Wiring for AC power must be performed by an electrician.

# Safety Recommendations

The following guidelines will help to ensure your safety and protect the equipment. This list does not include every potentially hazardous situation.

- Never attempt to lift an object that might be too heavy for you to lift by yourself.
- Always disconnect the power source and unplug all power cables before installing or removing the bay assembly.
- Carefully examine your work area for possible hazards such as moist floors, ungrounded power extension cables, and missing power grounds.
- When using equipment such as a forklift or pallet jack to move the bay assembly to another location, use only moving equipment that is capable of preventing the bay assembly from tipping.
- Do not wear loose clothing, jewelry (including rings and chains), or other items that could get caught in the bay assembly.
- Do not work alone if potentially hazardous conditions exist.

# Included Material

The five-component bay assembly ships with the following materials:

- Fuses
- Electrical tape
- Anti-oxidant compound
- Lacing twine
- Tubing
- Emery cloth
- Tags
- Fische-paper
- Floor cutout template
- ESD wrist strap
- Unpacking and installation documentation
- Touch up paint

# Recommended Material

Because most of the installation is complete when you receive the system, the bay assembly requires little installation material. The most significant tasks are removing the packaging from the bay assembly and removing the bay assembly from the shipping pallet. Because the actual installation of the bay assembly in each facility is done according to local site practice, your material needs may vary.

Cisco recommends that you have the following items on hand for installation:

- A forklift or pallet jack to move the packaged bay assembly to the unpacking/staging area
- A pair of scissors to cut the plastic banding on the shipping container
- Utility blankets or their equivalent to protect the bay assembly while on the forklift or pallet jack
- Phillips screw driver or cordless drill with Phillips bit
- 3/4 inch socket or box-end wrench for the earthquake floor bolts
- Four optional kits listed in [Table 3 on page 20](#) that can be ordered separately
- Use this guide in conjunction with the latest release of Cisco ONS 15216 documentation.

# Unpacking Instructions

The ONS 15216 five-component bay assembly ships in a corrugated container that covers the unit on its shipping pallet. After removing the corrugated container, you must remove the bolts that hold the rack to the pallet before moving the unit to the desired location. [Figure 2 on page 5](#) shows the five-component bay assembly on a shipping pallet.

**Caution**

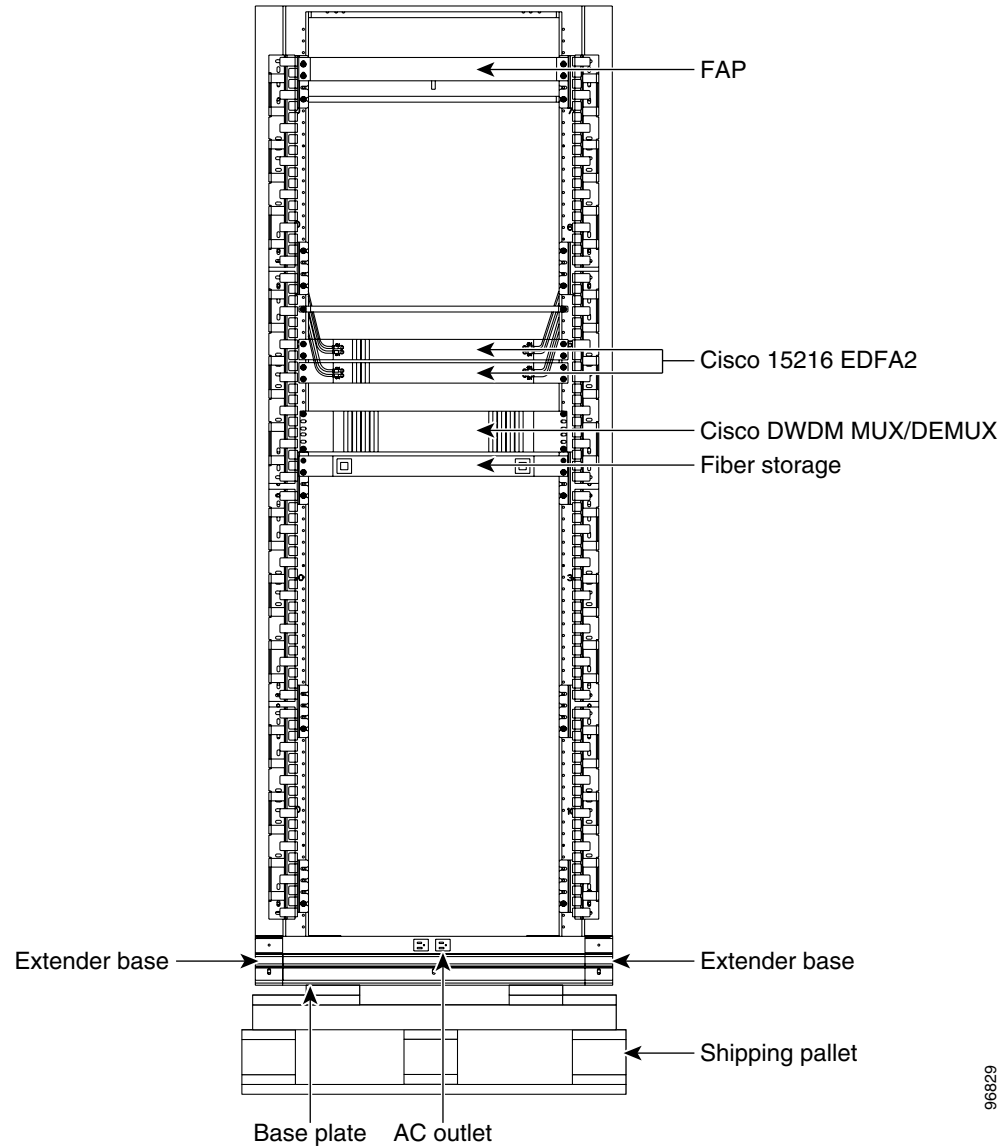
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Cisco recommends that a minimum of three people move the bay assembly.

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- Step 1** Use a forklift or pallet jack to place the shipping container as close to the installation location as possible.
- Step 2** Cut the plastic banding off of the cardboard shipping container.
- Step 3** Remove the cap from the corrugated container.
- Step 4** Pull the side panels away from the shipping pallet and set it aside.
- Step 5** Remove the base plate from the bottom front of the rack:
- a. Remove the two screws that fasten the kick plate to the rack.
  - b. Pull the base plate away.
- Step 6** Remove the four bolts that hold the rack to the pallet (rack base bolts).
- Step 7** Remove the vertical extenders if necessary.
-

**Figure 2 ONS 15216 Five-Component Bay Assembly on Shipping Pallet**



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**Stability hazard. The rack stabilizing mechanism must be in place, or the rack must be bolted to the floor before you slide the unit out for servicing. Failure to stabilize the rack can cause the rack to tip over.**

# Installation Instructions

Prior to installing the bay assembly, you should prepare your raised floor plan.

## Raised Floor Plan

### Level Equipment

The raised floor is laser-leveled at the time of the floor installation, so no leveling blocks or shims should be necessary to level the frames. This is especially important in seismic zones 2B and higher, because leveling blocks will cause a rocking motion of the frames during an earthquake.

### Cut and Drill Removable Floor Tile

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- Step 1** Mark the removable floor tile for the cable access to the rack using one of the following methods: the floor cutout template (700-14208-XX) included in the accessory kit that ships with the bay assembly, the diagrams in [Figure 3 on page 7](#), a floor plan drawing, or place the frame in the proper footprint and mark the tile from the base of the frame or cabinet.
  - Step 2** Mark the tile for the frame anchoring holes.
  - Step 3** Remove the tile.
  - Step 4** Cut cable access holes.
  - Step 5** Drill the anchoring holes through the tile in an area away from the equipment to ensure the equipment area is not contaminated with metal shavings or debris.



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**Note** If the floor plan identifies a future frame on the same tile as the one you are adding a frame to, you must drill and cut the tile for the future frame at this time because you cannot remove the tile later.

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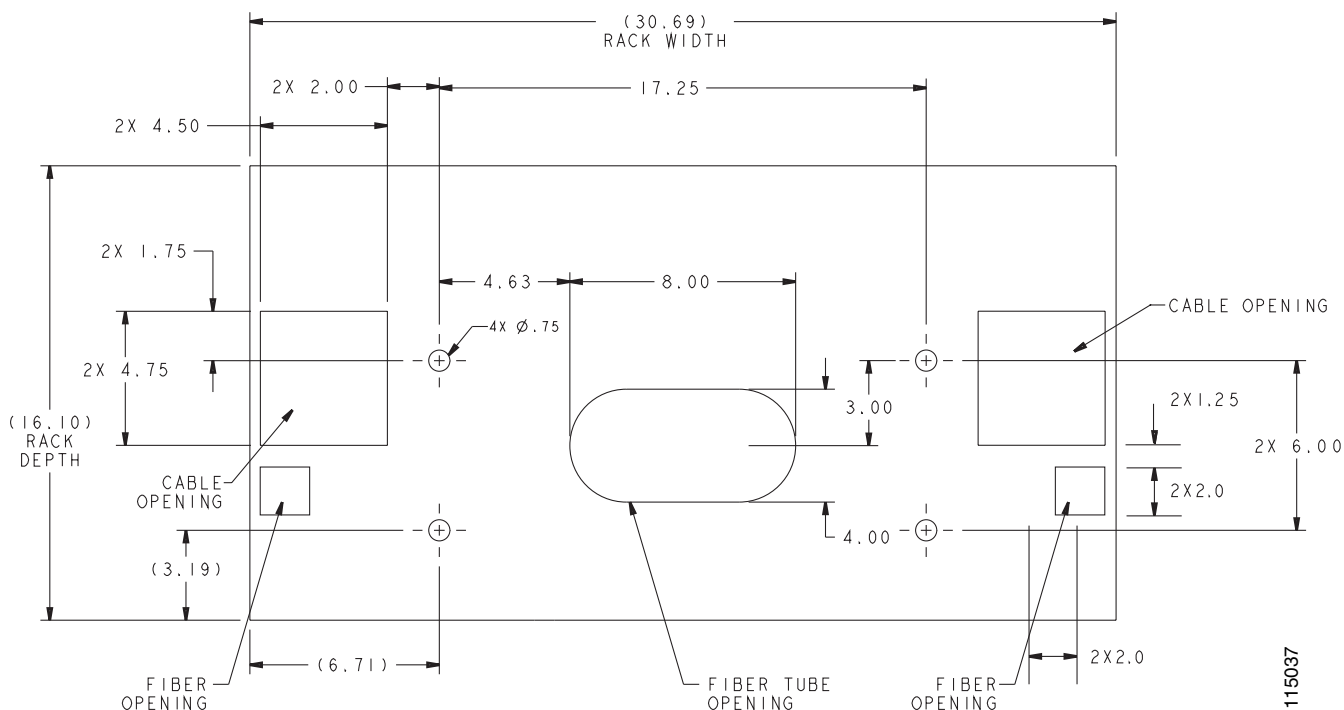


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**Note** It will be necessary to use alternate anchoring holes in the event the primary holes are obstructed by the stringers that support the removable tile.

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**Figure 3** Raised Floor Cutout for CORE and Local



## Framework Anchoring

To anchor framework to a raised floor, you must know in what earthquake zone the equipment is being installed. Zones 0–2A have the frames bolted to the raised floor through a u-channel across the bottom of the floor tile and stringers. Zones 2B–4 have 1/2-inch threaded rods extending through the raised floor and connected to seismic anchors with coupling nuts. In all zones, standard hold-down parts are used on top of the floor with threaded rods of varying lengths. Anchors and hold-down material must be engineered for proper seismic zone.

## Seismic Zones 0–2A

To fasten network and unequal flange duct framework to a raised floor:

- Step 1** Place a 1 5/8 x 1 5/8 u-channel (with continuous slot down) under the stringers and use clips to cover the free ends of the u-channel where the threaded rod goes through to prevent it from spreading when compressed.

In the base of the frame, use the hold-down plate engineered for that frame, threaded rod, nut, washer, insulating bushing, and hold-down washer.

On the bottom of the u-channel, use the clip, washer, lockwasher, and nut.



**Note**

The u-channel should not extend more than four inches past the edge of the stringers or it will block access under the floor.

**Warning**

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**End caps must be used on the u-channel to prevent injury.**

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**Step 2**

Torque the nut to 30 ft-lbs.

**Note**

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Do not over tighten the nut; the tile will become deformed and will be uneven with surrounding tiles.

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## Seismic Zones 2B–4

In seismic zones 2B and higher, threaded rods are run down to seismic anchors with coupling nuts from the concrete floor. U-channels are not used in higher earthquake zones. Anchor the rack at all four corners in higher earthquake zones.

**Note**

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Do not over tighten threaded rods; floor tile will deform and make the floor uneven.

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## Install the ONS 15216 Five-Component Bay Assembly

The emphasis in the following installation instructions is to position the bay assembly in your facility after it has been removed from its shipping pallet. Perform actual installation and individual node provisioning according to local site practice.

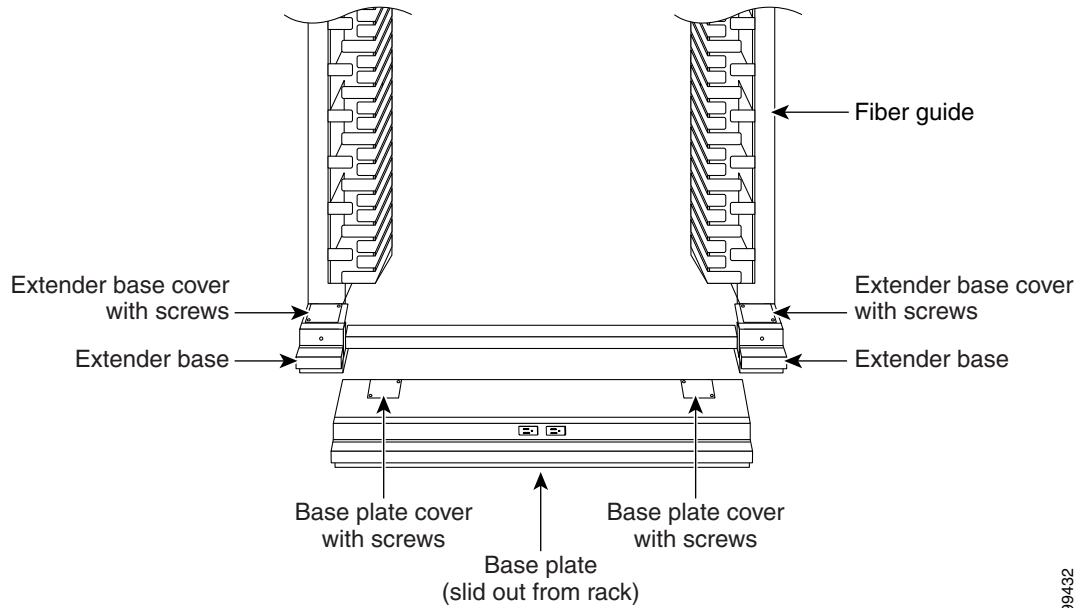
- 
- Step 1** Use a utility blanket or its equivalent to protect the bay assembly while on the forklift or pallet jack.
  - Step 2** Position the forklift or pallet jack so that it faces the front (door side) of the bay assembly.
  - Step 3** With one person on each side of the bay assembly, position the forklift or pallet jack under the rack.
  - Step 4** If a safety strap is used to secure the bay assembly, fit the safety strap snugly around the bay assembly. Do not cinch the strap too tightly. Cinching the strap too tightly can result in component damage.
  - Step 5** Move the bay assembly to the installation site and unload it.  
To avoid injury, make sure that a sufficient number of people are present.
  - Step 6** Install the bay assembly according to local site practice.
  - Step 7** After the rack is installed attach the extender bases and vertical extenders to both sides of the rack as needed.
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## Route Fiber Through the Base

- Step 1** After installing the rack onto the raised floor slide the base plate out from the rack (if not already removed) (Figure 4).

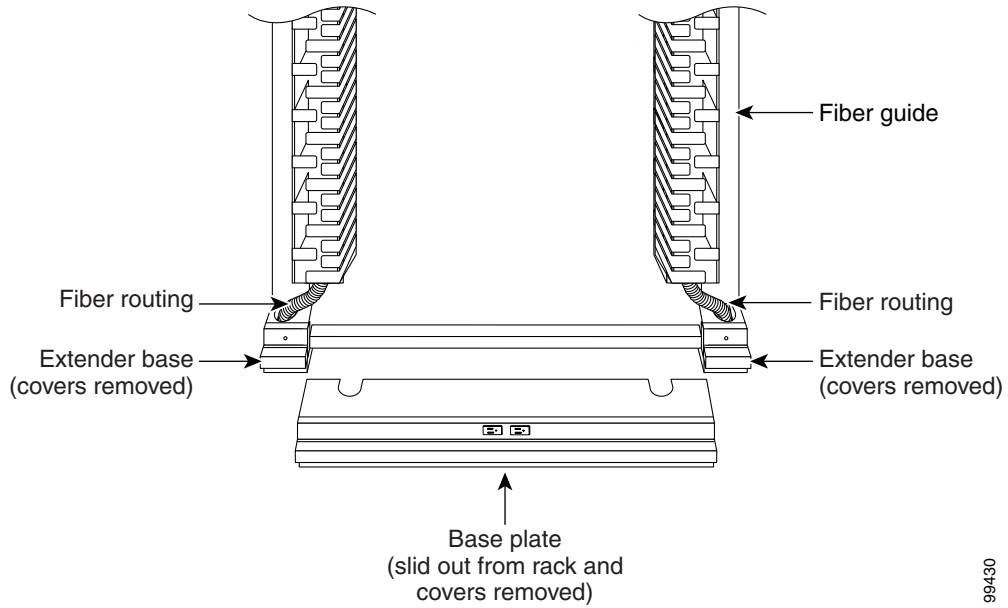
**Figure 4** Sliding the Base Plate Out from the Rack



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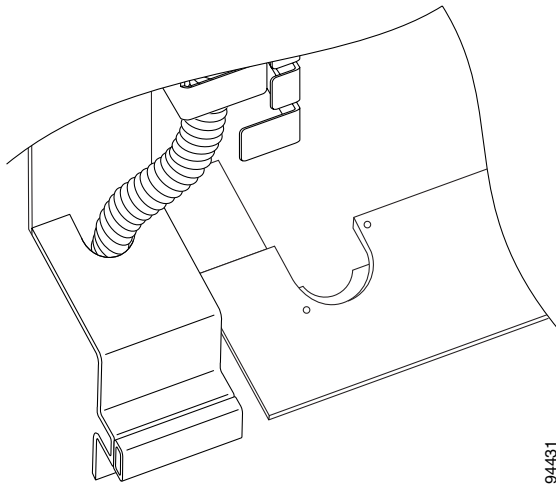
**Step 2** To route fiber, unscrew and remove the covers on the base plate and extender bases ([Figure 5](#)).

**Figure 5 Base Plate and Extender Bases with Covers Removed**



When the covers have been removed, you have access to the base of the rack and any holes previously cut into the raised floor tile, as shown in [Figure 6](#).

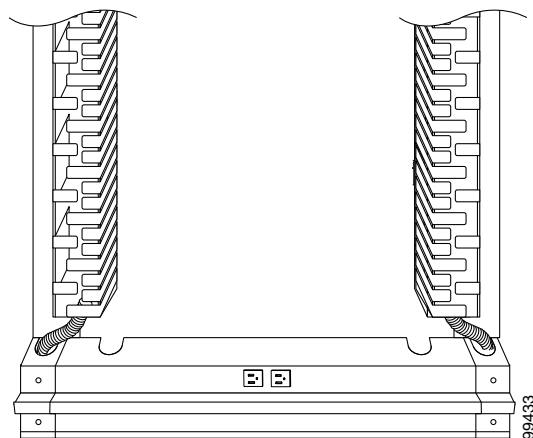
**Figure 6 Raised Floor Extender Base Fiber Routing Close-Up**



You can use the base plate or extender base holes to route the fibers. Cisco recommends using the base plate holes for the bottom component or node and the extender base holes for the other components. All electrical cables will be routed in the back of the rack in the extender bases. Holes should already be cut out in the raised floor tile to compensate for any cables.

- Step 3** Once all fiber cables have been placed in the front portion of the rack, replace the base plate by sliding it toward the back of the rack. [Figure 7](#) shows the routed fiber with the base plate replaced.

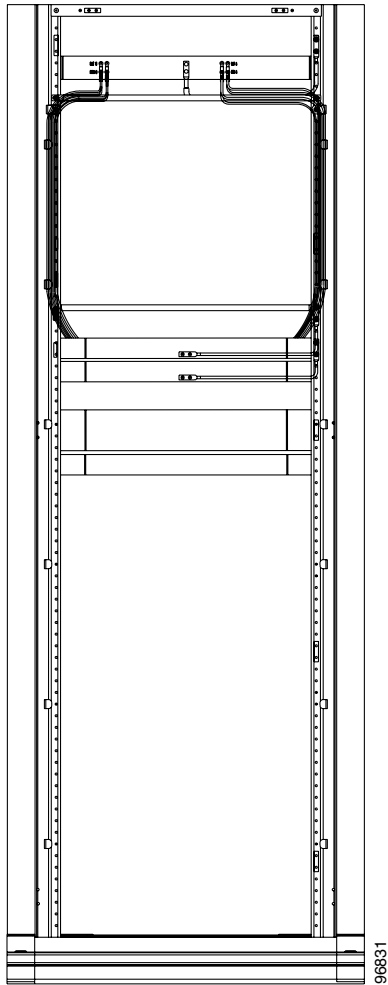
**Figure 7** *Raised Floor Extender Base Fiber Routing*



# Cabling Illustrations

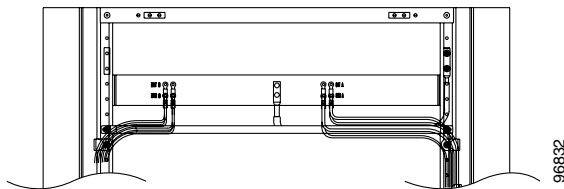
Figure 8 through Figure 10 illustrate cabling for the five-component bay assembly.

**Figure 8** Rear View of the FAP Power and Ground Cabling



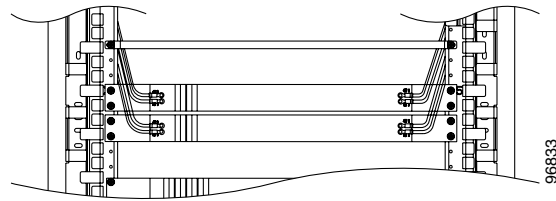
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**Figure 9** FAP Cabling



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Figure 10 EDFA2 Power Cabling



# GMT-TPA Fuse and Alarm Panel

The FAP included in the five-component bay assembly is a GMT-TPA combination that contains two analogous modules, one for each of its two separate power buses, designated A and B. Each side has an LVD indicator, two TPA fuse holders with separate fuse alarm indicators, a power-on indicator, a GMT fuse holder and a GMT fuse alarm indicator (one alarm indicator for all five GMT fuses). Figure 11 shows the front view of the FAP and Figure 12 shows the rear view of the FAP.

Figure 11 GMT-TPA FAP (front view)

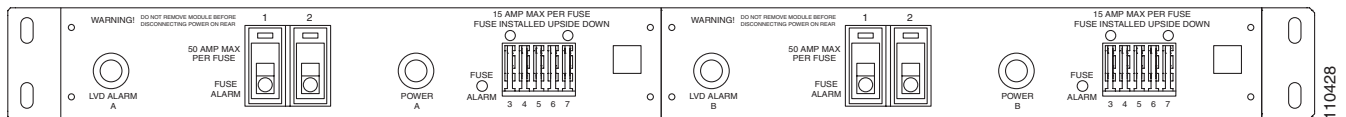
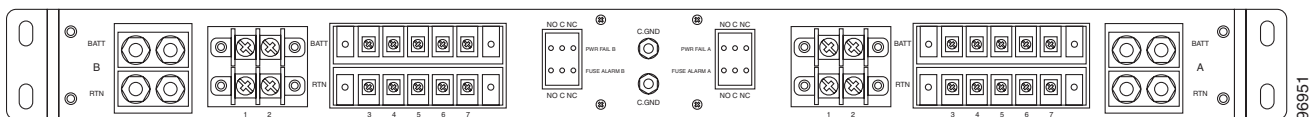


Figure 12 GMT-TPA FAP (rear view)

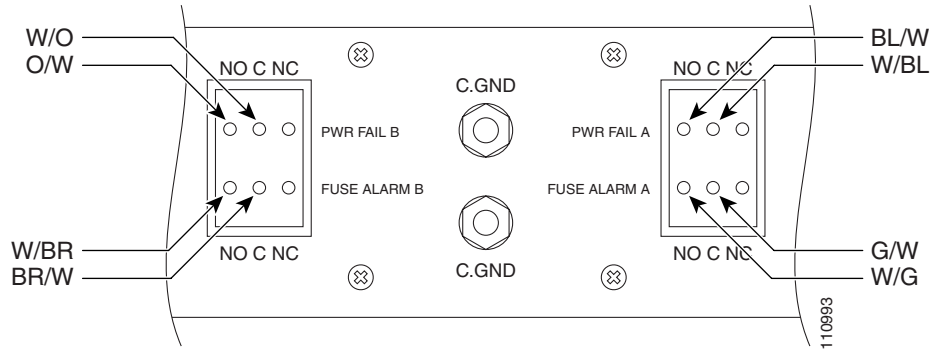


## FAP Alarming

The Cisco ONS 15216 five-component bay assembly uses 4-pair, CAT 3-rated, twisted pair wire for FAP wiring. The alarming for the FAP must go to an existing 110-type, or 66-type block for the alarm circuits to work on the existing alarm circuitry created within the CO, CEV, or Hut. Figure 13 on page 14 shows a close-up of the alarm pins and wiring. Figure 14 on page 14 and Figure 15 on page 15 show the 66-type and 110-type block tie downs.

For assistance contact the Cisco Technical Assistance Center (TAC) at [www.cisco.com](http://www.cisco.com) or call (800) 553-2447 for unresolved problems.

**Figure 13 Close-Up of FAP Alarm Pins, Alarm Wiring, and Ground**



**Figure 14 66-Type Block Tie-Downs for Existing Alarm Circuitry**

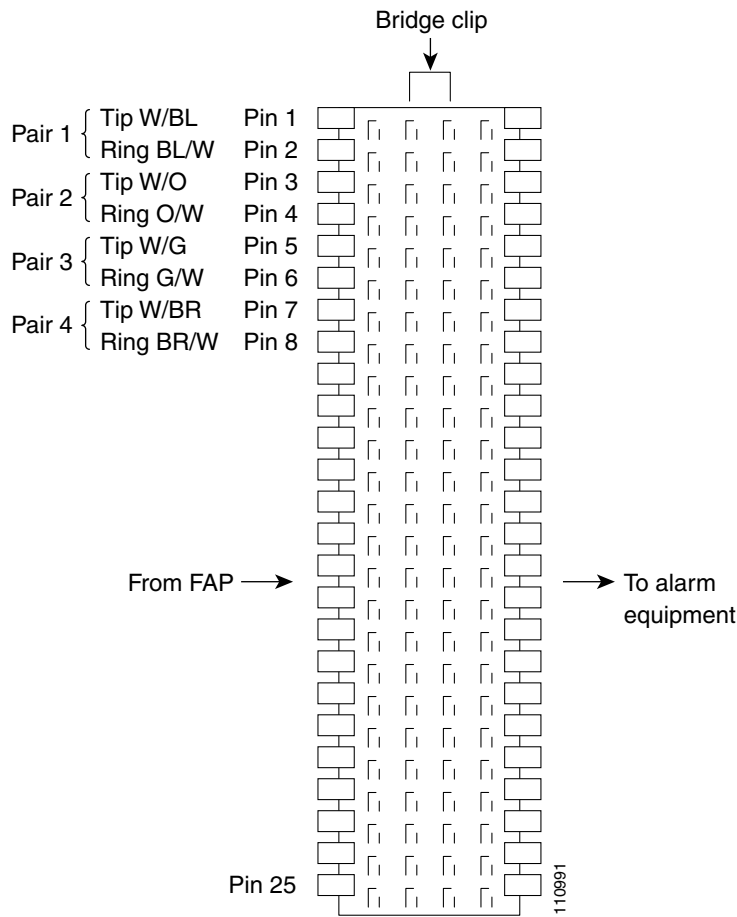
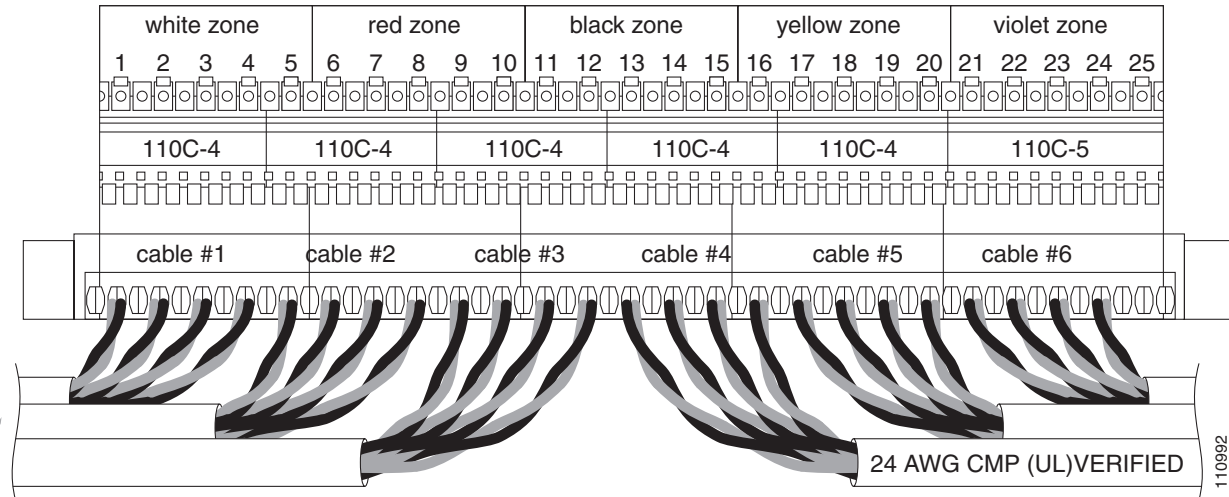


Figure 15 110-Type Block Tie-Downs for Existing Alarm Circuitry



## Ground and Power

The ground studs and power input and output terminals are mounted on the rear side of the FAP. The plastic protective covers install over the input and output power terminals. The covers prevent accidental contact with the terminals when power is present in the panel.

  
Warning

**Shut off the power from the power source or turn off the breakers before beginning work.**

  
Warning

**This equipment is intended to be grounded. Ensure that the rack is connected to common office earth ground during normal use.**

  
Warning

**Do not mix conductors of dissimilar metals in a terminal or splicing connector where physical contact occurs (such as copper and aluminum, or copper and copper-clad aluminum), unless the device is suited for the purpose and conditions of use.**

  
Warning

**Connect the ONS 15216 only to a DC power source that complies with the safety extra-low voltage (SELV) requirements in IEC 60950-based safety standards.**

  
Warning

**The ONS 15216 relies on the protective devices in the building installation to protect against short circuit, overcurrent, and grounding faults. Ensure that the protective devices are properly rated to protect the system, and that they comply with national and local codes.**

  
Warning

**A readily accessible fuse must be incorporated in the fixed wiring.**

**Warning**

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**If you use redundant power leads to power the ONS 15216, disconnecting one lead will not remove power from the node.**

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**Caution**

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Always use the supplied ESD wristband when working with a powered ONS 15216. Plug the wristband cable into the ESD jack located on the lower-right outside edge of the shelf assembly.

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## Central Office Ground to Bay Wire Ground

Connect the CO ground to the bay wire ground according to local site practice.

**Note**

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The bay assembly ground must be attached to the common central office (CO) ground via an H TAP compression connector.

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## FAP Output and Input Power

Route and connect output and input power according to local site practice. [Figure 16](#) through [Figure 19](#) show output and input lugs and wiring and [Table 1](#) and [Table 2 on page 18](#) list lug wiring positions.

**Note**

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CO power from the BDFB to the bay assembly must be a direct feed from a single breaker (one breaker for return, and one breaker for -48VDC) at the BDFB to the input connection of the bay assembly. The size or gauge of the power wire feed must be calculated by the distance from the BDFB to the FAP.

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**Figure 16** Connecting Output Power Using Ring-Type Compression Lugs

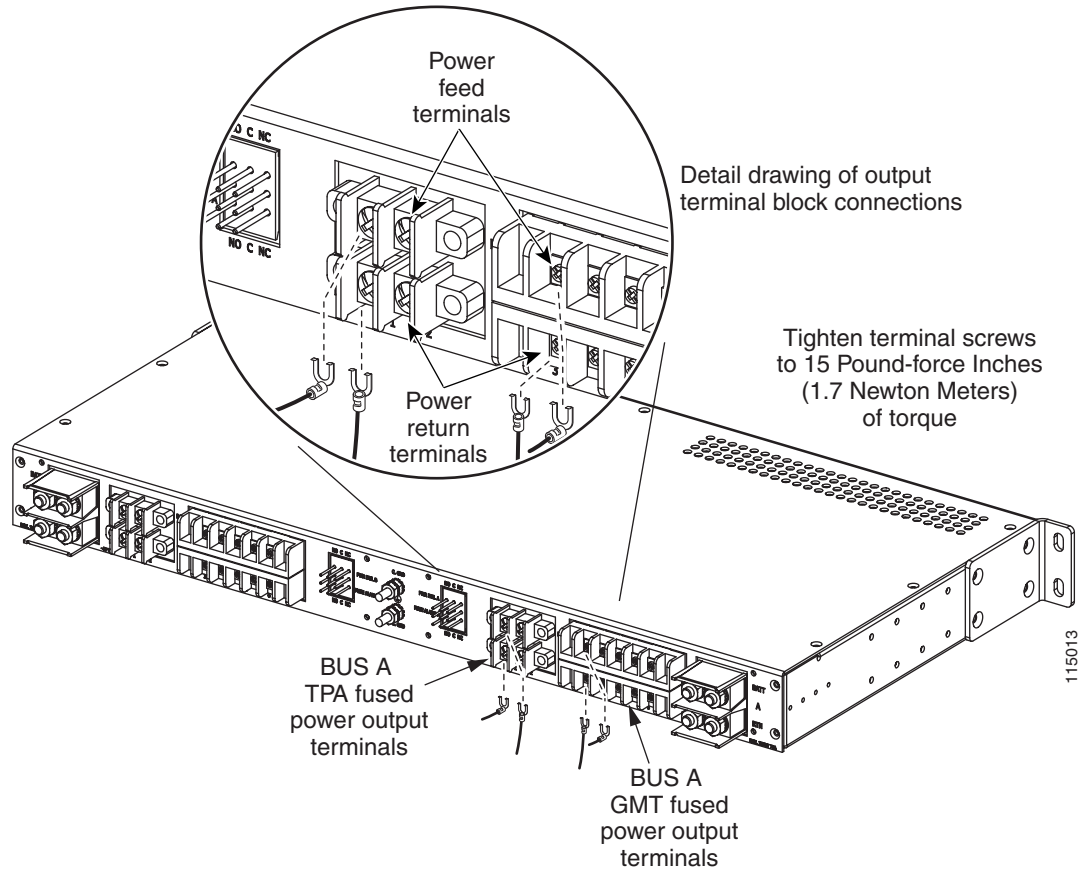


Figure 17 Close-Up of Lugs on Rear of FAP

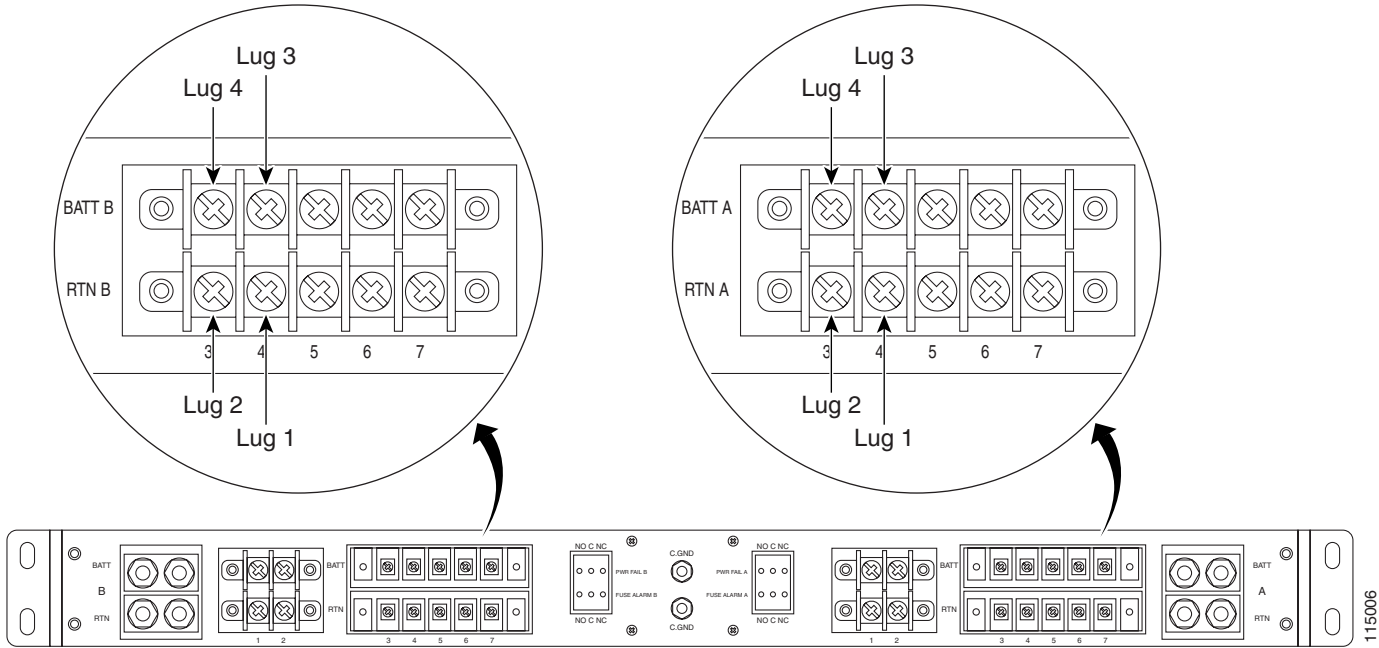


Table 1 Lug Wiring Positions (72-4135-01 Wire Bundle)

Lug (From) (See Figure 17)		Wire		Lug (To) (See Figure 18 on page 19)	
Lug	Label	Color	Wire P/N	Label	Lug
1	FAP, A Side, RTN, Pos 4	Black	31-0405	EDFA, Top, RTN A	5
2	FAP, A Side, RTN, Pos 3	Black	31-0405	EDFA, Bottom, RTN A	6
3	FAP, A Side, -48V, Pos 4	Red	31-0406	EDFA, Top, -48V A	7
4	FAP, A Side, -48V, Pos 3	Red	31-0406	EDFA, Bottom, -48V A	8

Table 2 Lug Wiring Positions (72-4137-01 Wire Bundle)

Lug (From) (See Figure 17)		Wire		Lug (To) (See Figure 18 on page 19)	
Lug	Label	Color	Wire P/N	Label	Lug
1	FAP, B Side, RTN, Pos 4	Black	31-0405	EDFA, Bottom, RTN B	5
2	FAP, B Side, RTN, Pos 3	Black	31-0405	EDFA, Top, RTN B	6
3	FAP, B Side, -48V, Pos 4	Red	31-0406	EDFA, Top, -48V B	7
4	FAP, B Side, -48V, Pos 3	Red	31-0406	EDFA, Bottom, -48V B	8



**Note**

Power wiring color is not limited to red and black and can be used to designate A or B sides; for example, black and red for the A power feed to the EDFA2, and black and blue for the B power feed to the EDFA2. Wire power according to local site practice.

Figure 18 Lug Wiring from Rear of FAP to EDFA2s

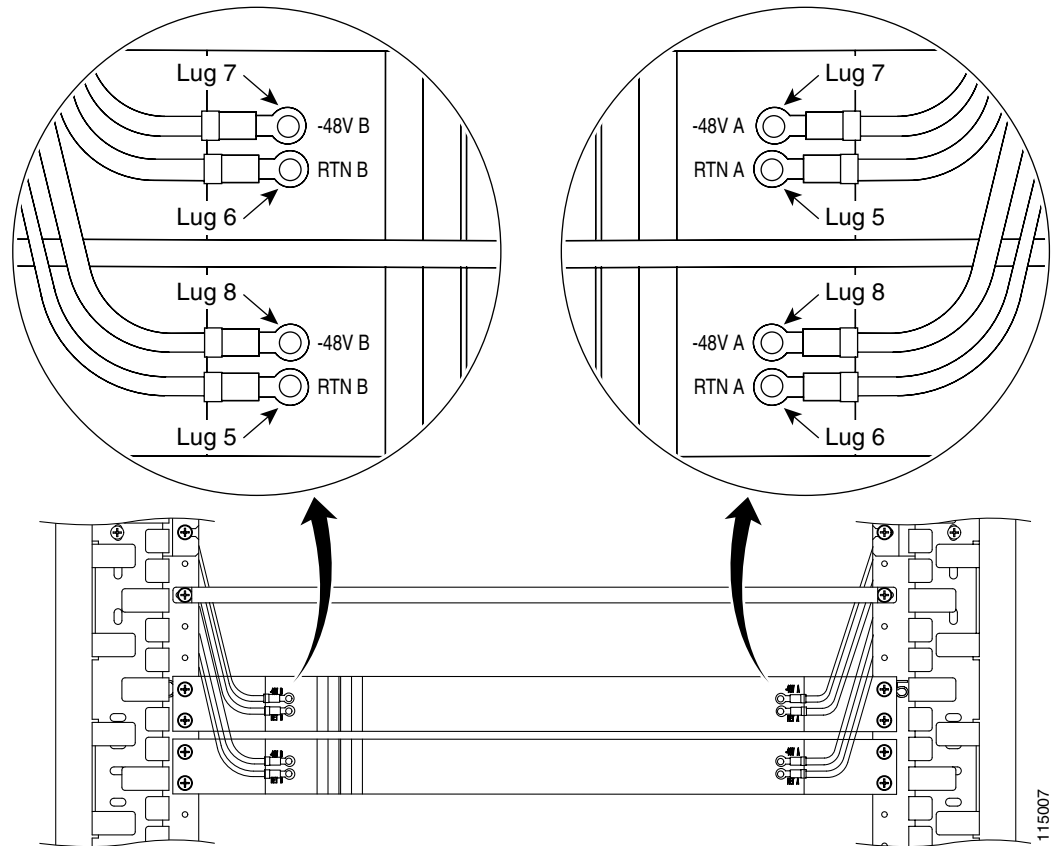
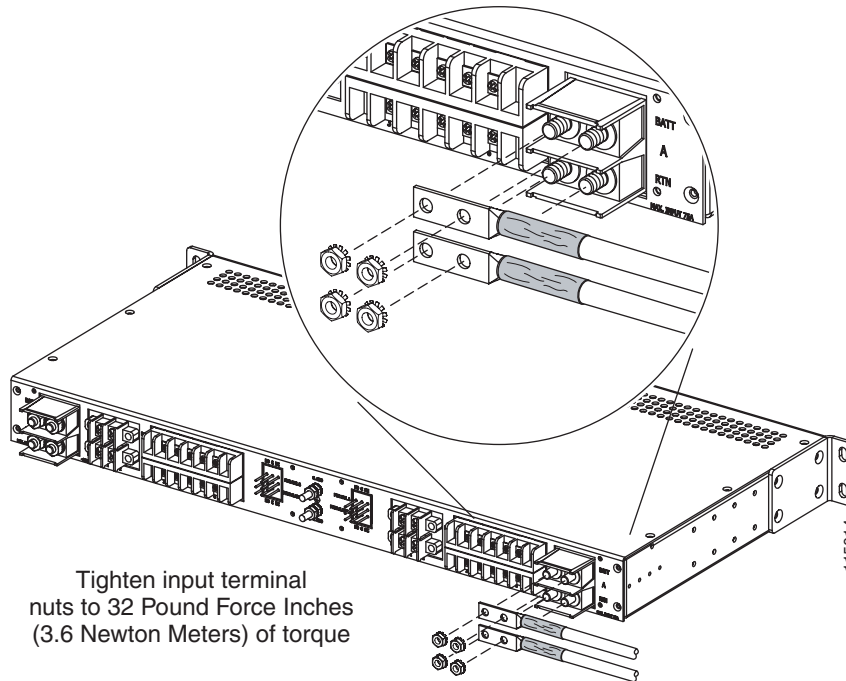


Figure 19 Connecting Input Power



## Optional Kits

There are four optional kits that can be ordered separately as needed for cable protection, aisle guards, and supplementary installation components. This section lists the kits by product name, title, and part number and provides descriptions for each kit.

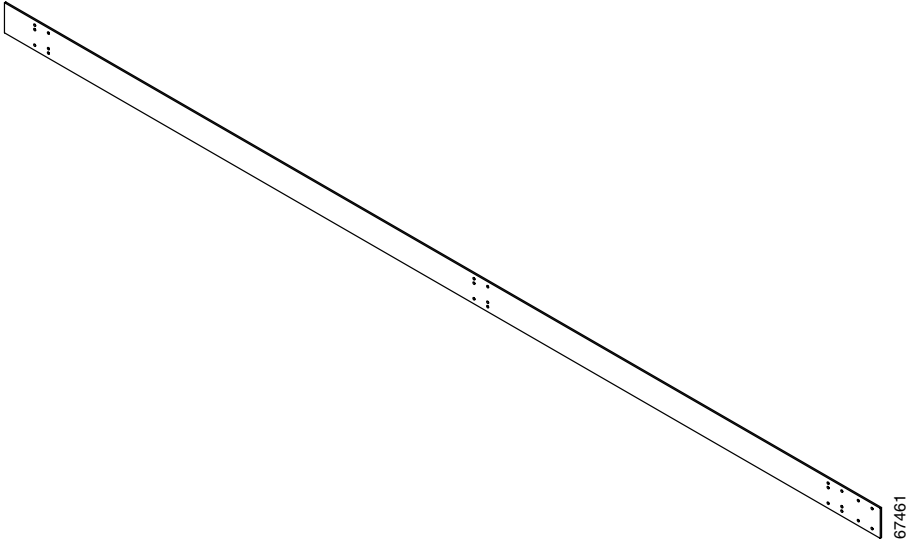
Table 3 Optional Kits

Product Name	Title	Part Number
15454-BAY-EXT=	15454 Bay Extender Kit (2.38-inch)	74-2794-01
15454-BAY-COVER=	15454 Bay End Plate Cover Kit	74-2795-01
15454-BAY-GUARD=	15454 Bay End Guard Kit	74-2796-01
15216-BAY-ACCKIT=	15216 First Aid Kit	53-2234-01

# 15454 Bay Extender Kit (2.38-inch)

The 15454 Bay Extender Kit provides rear cable protection, additional cable management space and includes a 2.38-inch vertical extender (Figure 20) and extender base (Figure 21 and Figure 22).

**Figure 20** Vertical Extender



**Figure 21** Extender Base

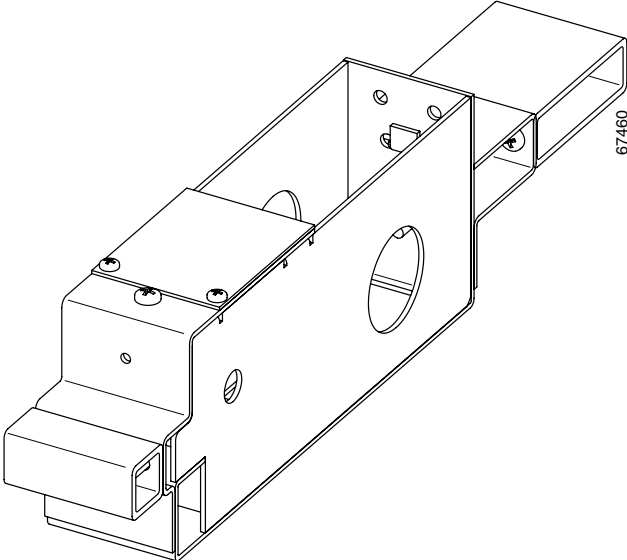
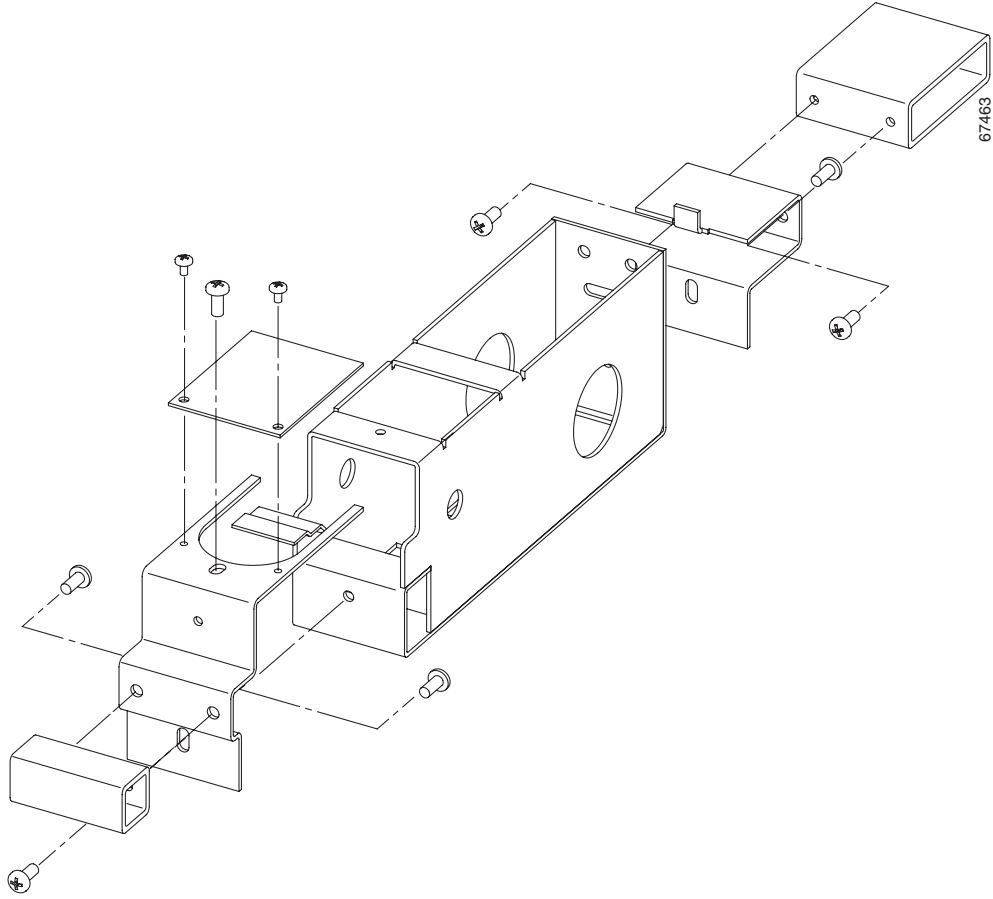


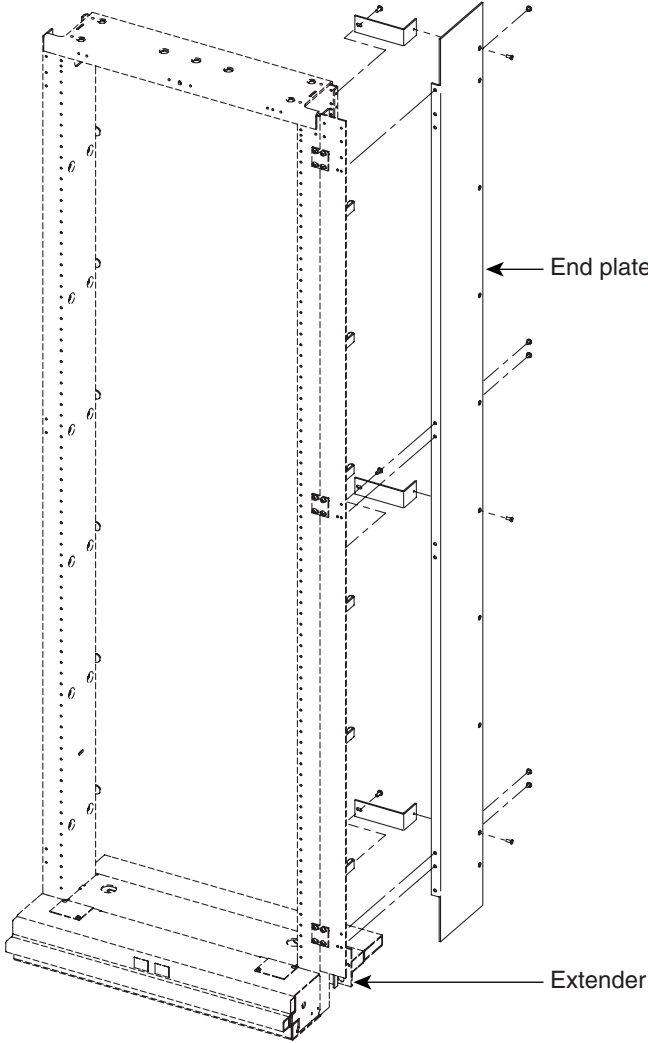
Figure 22 Extender Base Assembly



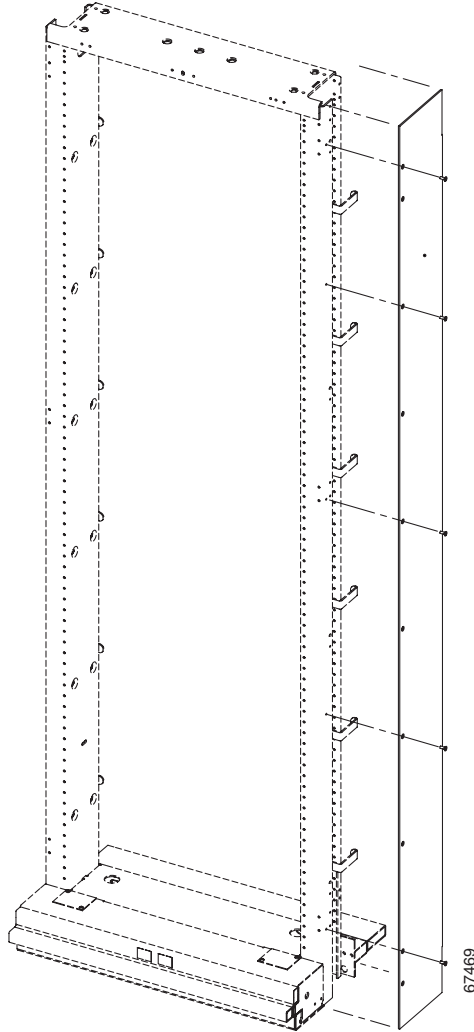
# 15454 Bay End Plate Cover Kit

The 15454 Bay End Plate Cover Kit provides a basic end plate for temporary cable protection. It contains parts that mount flush against the rack with no major footprint change (thickness of the metal only) against the edge of the rack to protect the cables. This plate is usually used for an aisle that is not complete, or as an aisle guard for aisles. The end plate cover can be mounted with the 2.38-inch extender as shown in [Figure 23](#) or mounted directly as shown in [Figure 24 on page 24](#).

**Figure 23** End Plate Cover Assembly Mounted with 2.38-inch Extender



**Figure 24** *End Plate Cover Assembly Mounted Directly*

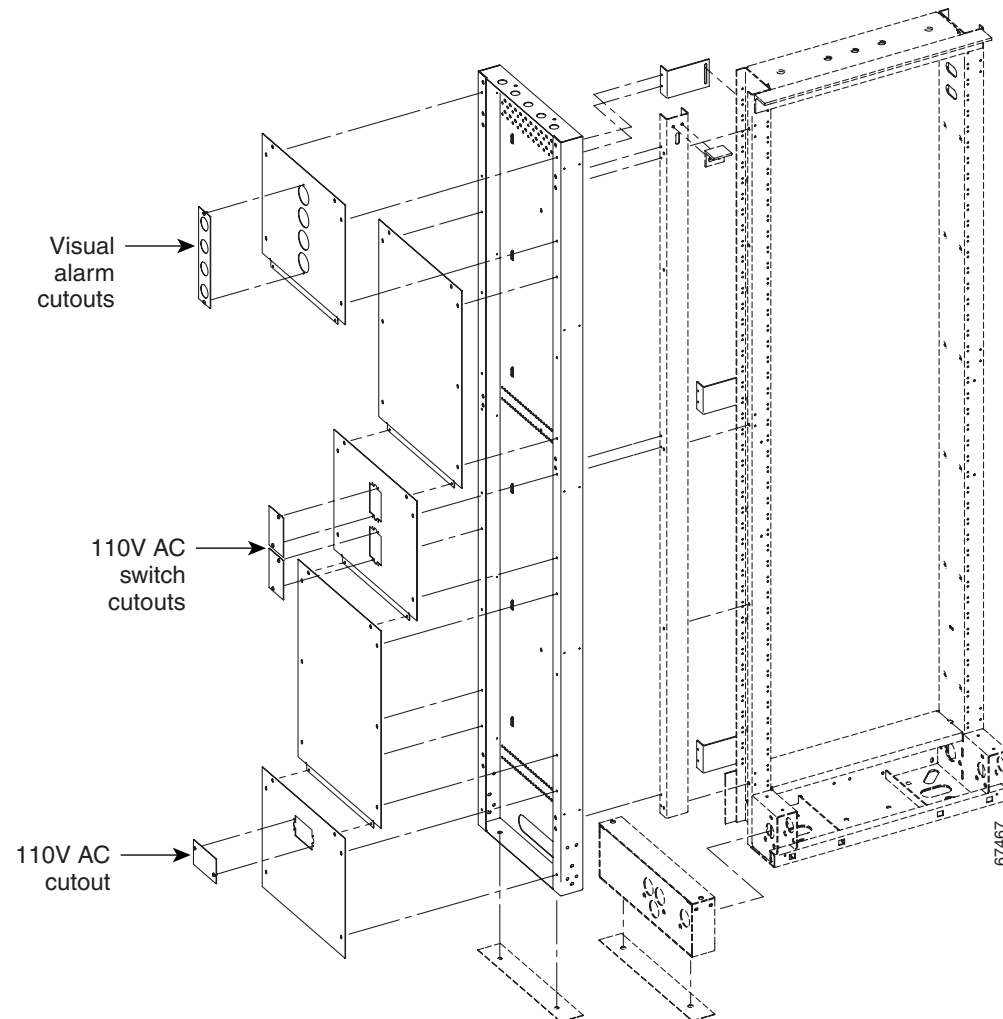




## 15454 Bay End Guard Kit

The 15454 Bay End Guard Kit provides a full aisle guard with AC on/off switch cutout. It is used to complete the end of the aisle (about 2.50-inch wide or thick). The end guard may or may not have power (110VAC), 110VAC outlets, and a visual light for alarms. See [Figure 25](#) for end guard assembly.

**Figure 25** End Guard Assembly



## 15216 First Aid Kit

The 15216 First Aid Kit contains extra items such as, tape, cord, tags; and cosmetic items such as, touch-up paint to promote a quality installation.

# Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

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