

Mounting the Cisco NCS 2006 Shelf

This chapter explains how to mount the Cisco NCS 2006 shelf.

The sections are:

- ANSI Rack Installation, on page 1
- ETSI Rack Installation, on page 3
- NTP-L3 Mounting the NCS 2006 Shelf, on page 4

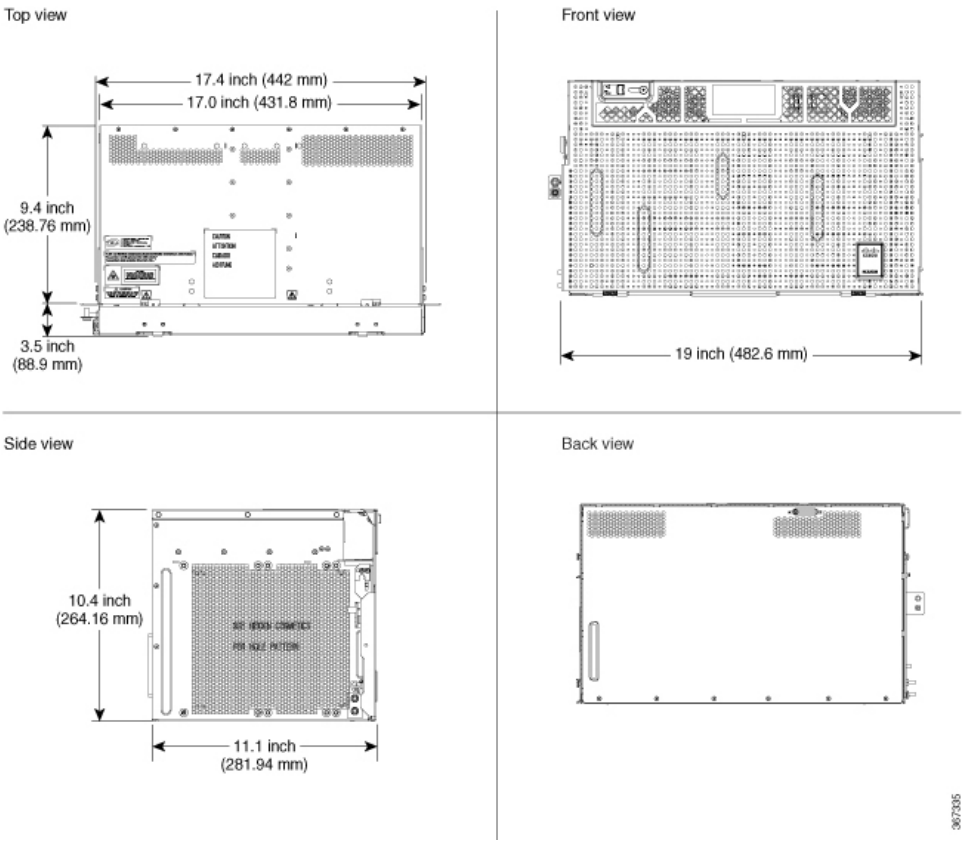
ANSI Rack Installation

The NCS 2006 shelf is mounted on a 19-inch (482.6-mm) or 23-inch (584.2-mm) equipment rack. Make sure that the correct type of 19-inch ANSI rack is used for mounting the NCS 2006 shelf. If the shelf is mounted in the front position, then it projects 1.7 inches (43.18 mm) from the front of the rack. If the shelf is mounted in the middle position, then it projects 5.1 inches (129.54 mm) from the front of the rack. The shelf mounts in both Electronic Industries Alliance (EIA) standard and Telcordia-standard racks. The shelf is a total of 17 inches (431.8 mm) wide with no mounting ears attached. Ring runs are not provided by Cisco and might hinder side-by-side installation of shelves where space is limited.

The NCS 2006 shelf measures 10.4 inches (264.16 mm) high, 19 or 23 inches (482.6 or 584.2 mm) wide (depending on which way the mounting ears are attached), and 11.1 inches (304.8 mm) deep. You can install up to seven NCS 2006 shelves in a 7-foot (2133.6 mm) equipment rack.

The figure below shows the dimensions of the NCS 2006 shelf on a 19-inch (482.6 mm) ANSI rack configuration with brackets mounted in the front position.

Figure 1: Cisco NCS 2006 Shelf Dimensions for a 19-inch ANSI Rack Configuration



Mounting a Single Shelf

Mounting the NCS 2006 shelf on a rack requires a minimum of 10.4-inches (265 mm) of vertical rack space. To ensure that the mounting is secure, use two to three #12-24 mounting screws for each side of the shelf. For an ANSI rack, the brackets can be mounted in the front or middle position.

If the NCS 2006 shelf is fully loaded, then two people should install it. However, it is possible for one person to install an empty shelf. The shelf should be empty for easier lifting.

Mounting Multiple Nodes

Most standard (Telcordia GR-63-CORE, 19-inch (482.6-mm) or 23-inch (584.2-mm) 7-foot (2.133-m) racks can hold seven NCS 2006 shelves and a fuse and alarm panel. However, unequal flange racks are limited to six NCS 2006 shelves and a fuse and alarm panel, or seven NCS 2006 shelves using a fuse and alarm panel from an adjacent rack. In an ANSI shelf, the brackets can be mounted in the front or middle position.

The NCS 2006 shelves can be mounted above each other without any space between the shelves. This method of mounting does not restrict the air flow because the air vents are on either sides of the NCS 2006 shelves.

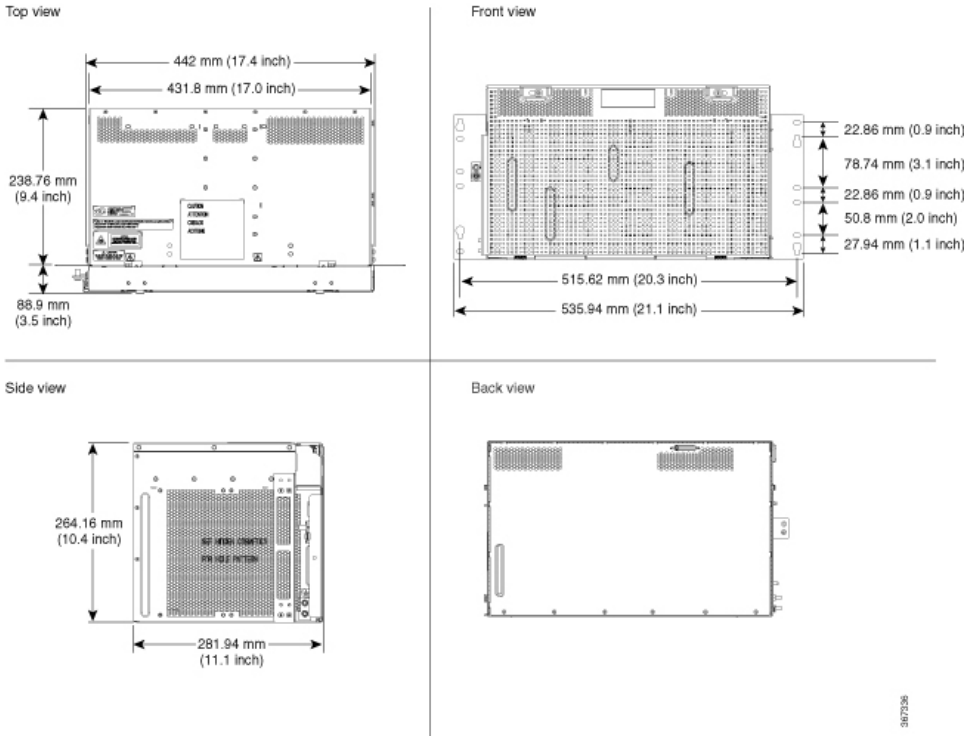
ETSI Rack Installation

The NCS 2006 shelf is mounted on a 600 x 600-mm (23.6 x 23.6-inch) or 600 x 300-mm (23.6 x 11.8-inch) ETSI standard equipment rack. In an ETSI rack, the shelf can be mounted only in the front position. The shelf projects 1.7 inch (43.18 mm) from the front of the rack and is a total of 431.8 mm (17 inch) wide with no mounting ears attached. Cisco does not provide ring runs, which might hinder side-by-side installation of shelves where space is limited.

The NCS 2006 shelf measures 264.16 mm (10.4 inches) high, 535 mm (21.06 inches) wide, and 304.8 mm (11.1 inches) deep. You can install up to seven NCS 2006 shelves in a 7-foot (2133.6-mm) equipment rack.

The figure below provides the dimensions of the NCS 2006 shelf installed on a 600 x 600-mm (23.6 x 23.6-inch) ETSI standard equipment rack.

Figure 2: Cisco NCS 2006 Shelf Dimensions for an ETSI Rack Configuration



Caution The standard ETSI racks can hold seven NCS 2006 shelves. When mounting a shelf in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack. If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.

Mounting a Single Node

The NCS 2006 requires 264.16 mm (10.4-inches) minimum of vertical rack space. To ensure the mounting is secure, use two to three mounting screws for each side of the shelf. A shelf should be mounted at the bottom of the rack if it is the only unit in the rack.

In an ETSI rack, the brackets are mounted only in the front position.

If the NCS 2006 shelf is fully loaded, then two people should install it. However, it is possible for one person to install an empty shelf. The shelf should be empty for easier lifting. For information on the NCS 2006 shelf weight, see the "A.3.14 Dimensions" section on page A-14.

NTP-L3 Mounting the NCS 2006 Shelf

Purpose	This procedure helps in mounting the NCS 2006 shelf.

Tools/Equipment	• #2 Phillips Dynamometric screwdriver
	• Medium slot-head screwdriver
	• Small slot-head screwdriver
	• ETSI only:
	  • Six M6 x 20 pan-head Phillips mounting screws
	• ANSI only:
	  • Six #12-24 x 3/4 pan-head Phillips mounting screws

Prerequisite Procedures	DLP-L62 Unpacking and Verifying the Shelf DLP-L63 Inspecting the Shelf NTP-L2 Mounting the Brackets in ANSI Configuration
Required/As Needed	Required
Onsite/Remote	Onsite
Security Level	None



Warning **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.** Statement 1048



Warning **This product requires short-circuit (overcurrent) protection, to be provided as part of the building installation. Install only in accordance with national and local wiring regulations.** Statement 1045



Warning **This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than: 40A and between -40.5 VDC to -57.6 VDC.** Statement 1005



Warning **This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than: 10A-20A, 100-240 VAC~.** Statement 1005



Warning **To prevent the system from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of: 131°F (55°C).** Statement 1047



Warning **Take care when connecting units to the supply circuit so that wiring is not overloaded.** Statement 1018



Warning **To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:**

- **This unit should be mounted at the bottom of the rack if it is the only unit in the rack.**
- **When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.**
- **If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.** Statement 1006



Warning **To prevent airflow restriction, allow clearance around the ventilation openings to be at least:1 inch (25.4 mm).** Statement 1076



Note Make sure that the correct type of 19-inch ANSI rack is used for mounting the NCS 2006 shelf.



Warning **To comply with EN50121-4:2006 - Railway applications, Electromagnetic compatibility, a shielded cable must be used to connect to the EMS port. This cable must be less than 30 meters in length and not placed in the 3 meter boundary, as defined in EN50121-4:2006, Table 2, note 1.** Statement 8010

Warning **To comply with EN50121-4:2006 - Railway applications, Electromagnetic compatibility, DC power cables must be less than 30 meter long.** Statement 8011

Note During installation, do not use the door to handle the chassis.

Note Remove the door from the NCS 2006 shelf and reinstall it after installing all the other modules.

Procedure

Complete the necessary task as applicable:

- DLP-L9 Mounting the NCS 2006 Shelf on a Rack (One Person) , on page 6
- DLP-L10 Mounting the NCS 2006 Shelf on a Rack (Two People) , on page 8
- DLP-L11 Mounting Multiple NCS 2006 Shelves on a Rack , on page 9

Stop. You have completed this procedure.

DLP-L9 Mounting the NCS 2006 Shelf on a Rack (One Person)

Purpose	This task allows one person to mount the shelf on a rack. **Note** When the chassis is installed in the middle position, in an ETSI rack, the cabinet doors must be kept open (if present).
Tools/Equipment	• # 2 Phillips Dynamometric screwdriver • ANSI —Six #12-24 x ¾ pan-head Phillips mounting screws • ETSI—Six M6 mounting screws
Prerequisite Procedures	NTP-L2 Mounting the Brackets in ANSI Configuration
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	None

Note The NCS 2006 requires a minimum of six RU of vertical rack space. To ensure that the mounting is secure, use two to three M6 mounting screws on each side of the shelf. A shelf should be mounted at the bottom of the rack if it is the only unit in the rack.

Procedure

Step 1 Verify that the proper fuse and alarm panel has been installed in the top mounting space. If a fuse and alarm panel is not present, you must install one according to manufacturer instructions:

- For a DC power supply, the fuse rating must not exceed 40A.
- For an AC power supply, the fuse rating must not exceed 10A, 15A, or 20A. For North America, the branch circuit protection must be rated 20A. The overcurrent/short circuit protection must be in accordance with local and national electrical codes.

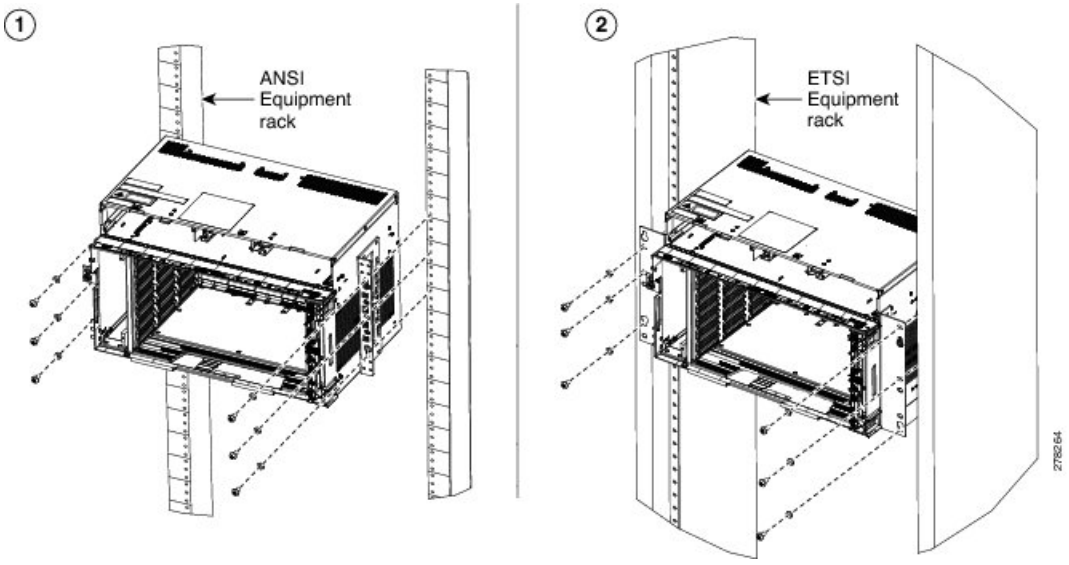
Step 2 Ensure that the shelf is mounted on the appropriate rack equipment:

- 23-inches (584.2 mm) or 19-inches (482.6 mm) for racks.
- 600 x 600-mm (23.6 x 23.6-inch) or 600 x 300-mm (23.6 x 11.8-inch) for ETSI racks.

Diagram 1 of the figure below shows the NCS 2006 shelf mounted on an rack in the middle position using 19-inch mounting brackets.

Diagram 2 of the figure below shows the NCS 2006 shelf mounted on an ETSI rack in the front position.

Figure 3: Mounting an NCS 2006 on a Rack



Step 3 Lift the shelf to the desired position in the rack. If the rack is empty, place the shelf at the bottom of the rack. The placement of the shelf is dependent on where you want to install the new equipment in the rack.

Note

To ensure proper cooling of the NCS 2006 shelf, make sure that the space in front of the air flow vents are free of cables, fibers, and mechanical fixtures for fiber and cable management.

Step 4 Align the screw holes on the mounting brackets with the mounting holes in the rack.

Step 5 Using the Phillips Dynamometric screwdriver, install one mounting screw in each side of the assembly. Tighten the screw to a torque value of 22 in-lb (2.5 N-m).

Step 6 When the shelf is secured to the rack, install the remaining two mounting screws on either sides.

Note
Use at least one set of the horizontal screw slots on the shelf to prevent slippage.

Step 7 Return to your originating procedure (NTP).

DLP-L10 Mounting the NCS 2006 Shelf on a Rack (Two People)

Purpose	This task allows two people to mount the shelf on a rack. **Note** When the chassis is installed in the middle position, in an ETSI rack, the cabinet doors must be kept open (if present).

Tools/Equipment	• # 2 Phillips Dynamometric screwdriver
	• ETSI only:
	  • Six M6 x 20 pan-head Phillips mounting screws
	• only:
	  • Six #12-24 x 3/4 pan-head Phillips mounting screws

Prerequisite Procedures	NTP-L2 Mounting the Brackets in ANSI Configuration
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	None

Note The NCS 2006 shelf requires a minimum of six RU of vertical rack space. To ensure that the mounting is secure, use two to three M6 mounting screws on each side of the shelf. A shelf should be mounted at the bottom of the rack if it is the only unit in the rack.

Procedure

Step 1 Verify that the proper fuse and alarm panel has been installed in the top mounting space. If a fuse and alarm panel is not present, you must install one as per the instructions of the manufacturer:

- For a a DC power supply, the fuse rating must not exceed 40A.
- For an AC power supply, the fuse rating must not exceed 10A, 15A, or 20A. For North America, the branch circuit protection must be rated 20A. The overcurrent/short circuit protection must be in accordance with local and national electrical codes.

Step 2 Ensure that the shelf is mounted on the appropriate rack equipment:

- 23-inches (584.2 mm) or 19-inches (482.6 mm) for racks.
- 600 x 600-mm (23.6 x 23.6-inch) or 600 x 300-mm (23.6 x 11.8-inch) for ETSI racks.

Step 3 Lift the shelf to the desired position in the rack. If the rack is empty, place the shelf at the bottom of the rack. The placement of the shelf is dependent on where you want to install the new equipment in the rack.

Note
To ensure proper cooling of the NCS 2006 shelf, make sure that the space in front of the air flow vents are free of cables, fibers, and mechanical fixtures for fiber and cable management.

Step 4 Align the screw holes on the mounting brackets with the mounting holes in the rack.

Step 5 Have one person hold the shelf in place while the other person uses the Phillips Dynamometric screwdriver to install one mounting screw in each side of the assembly. Tighten the screw to a torque value of 22 in-lb (2.5 N-m).

Step 6 When the shelf is secured to the rack, install the remaining mounting screws.

Note
Use at least one set of the horizontal screw slots on the shelf to prevent slippage.

Step 7 Return to your originating procedure (NTP).

DLP-L11 Mounting Multiple NCS 2006 Shelves on a Rack

Purpose	This task installs multiple shelves in a rack.

Tools/Equipment	• #2 Phillips Dynamometric screwdriver
	• ETSI only:
	  • Six M6 x 20 pan-head Phillips mounting screws, per shelf
	• only:
	  • Six #12-24 x 3/4 pan-head Phillips mounting screws, per shelf

Prerequisite Procedures	NTP-L2 Mounting the Brackets in ANSI Configuration
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	None

Note A standard rack can hold six or seven NCS 2006 shelves. When mounting a shelf in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack. If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.

Note The NCS 2006 shelf requires a minimum of six RU of vertical rack space.

Procedure

Step 1 Verify that the proper fuse and alarm panel has been installed in the top mounting space. If a fuse and alarm panel is not present, you must install one according to manufacturer's instructions:

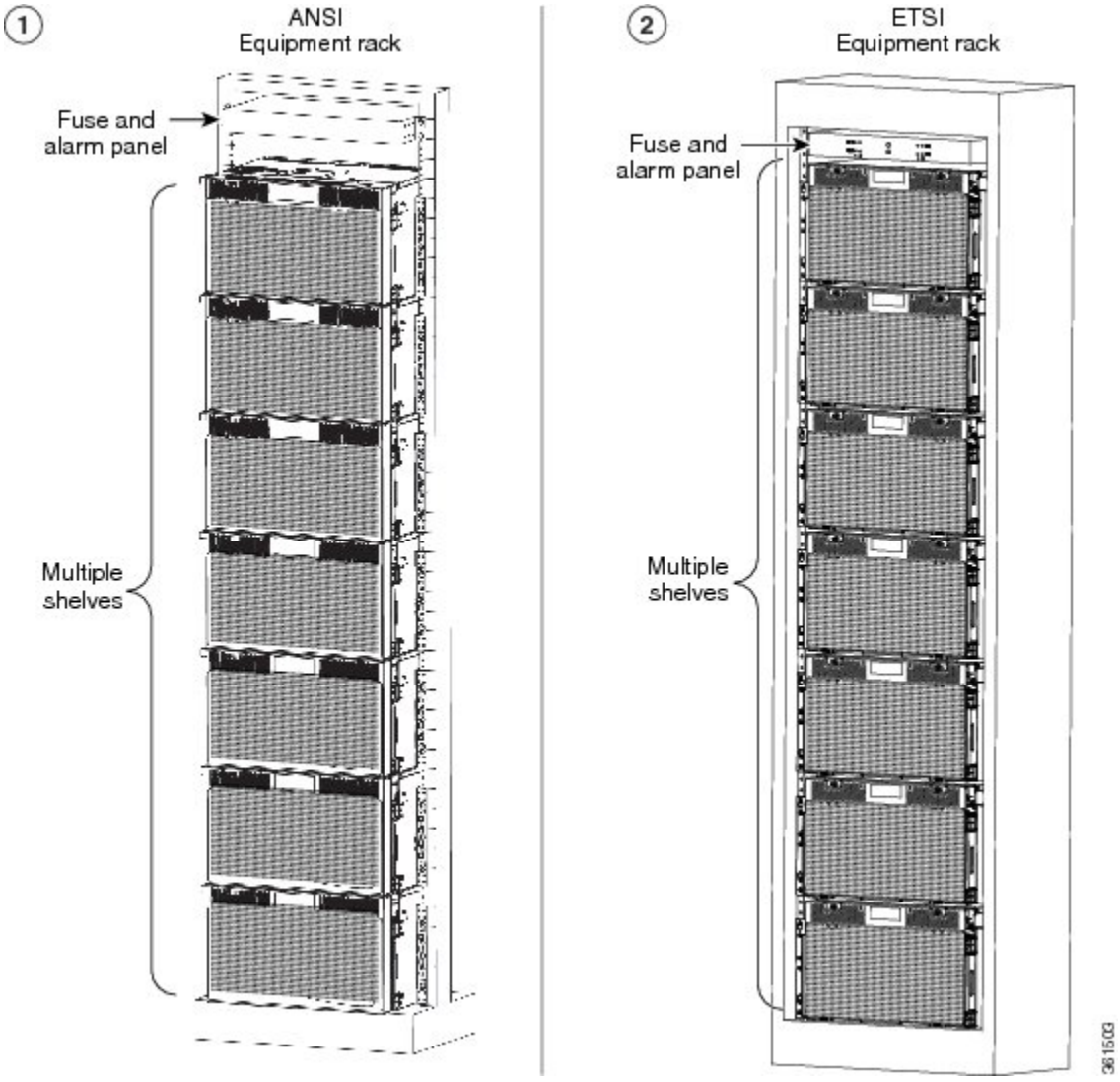
- For a DC power supply, the fuse rating must not exceed 40A.
- For AC power supply, the fuse rating must not exceed 20A.

Step 2 Mount the first shelf in the bottom of the rack usingDLP-L9 Mounting the NCS 2006 Shelf on a Rack (One Person) , on page 6 or DLP-L10 Mounting the NCS 2006 Shelf on a Rack (Two People) , on page 8.

Diagram 1 of the figure below shows multiple NCS 2006 shelf assemblies mounted on the rack.

Diagram 2 of the figure below shows multiple NCS 2006 shelf assemblies mounted on the ETSI rack.

Figure 4: Multiple NCS 2006 Shelves Mounted on the Rack



Step 3 Repeat Step 2 for every shelf you need to install.

Step 4 Return to your originating procedure (NTP).