

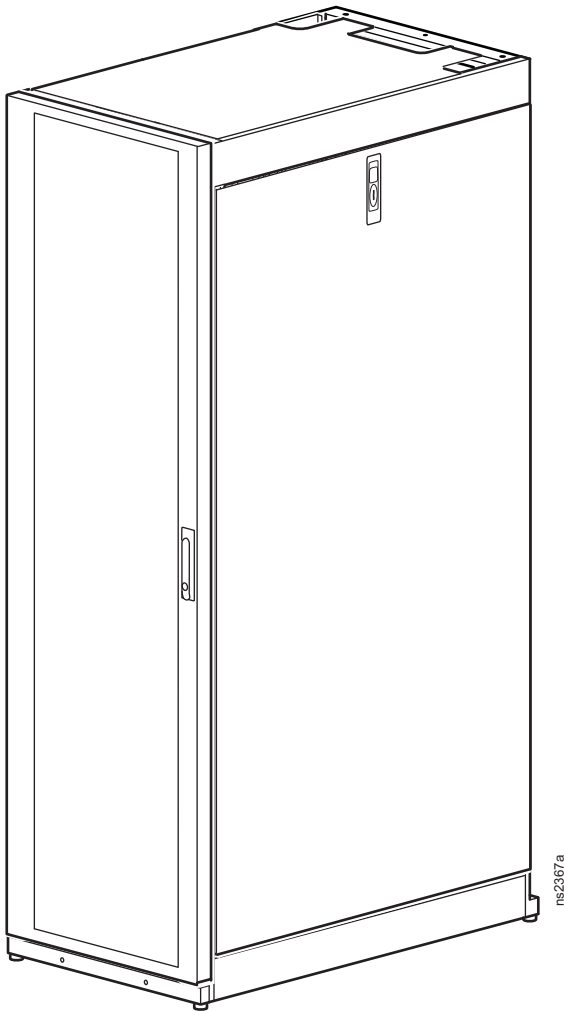
Installation Manual

NetShelter™ VX 42U Seismic Cabinet

AR2144, AR2144BLK

990-1145A-001

Publication Date: 03/2016



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Overview

The Schneider Electric VS Seismic Cabinet is a high-quality cabinet for storage of industry-standard (EIA-310) 19 in. rack-mount hardware, which includes servers, voice, data, networking, inter networking, and power protection equipment.

NOTICE	
<ul style="list-style-type: none"> • NetShelter VS cabinets are intended for use with approved equipment. If you install other than approved equipment, fully evaluate the safety of your configuration. • Use qualified personnel to install the cabinet. 	

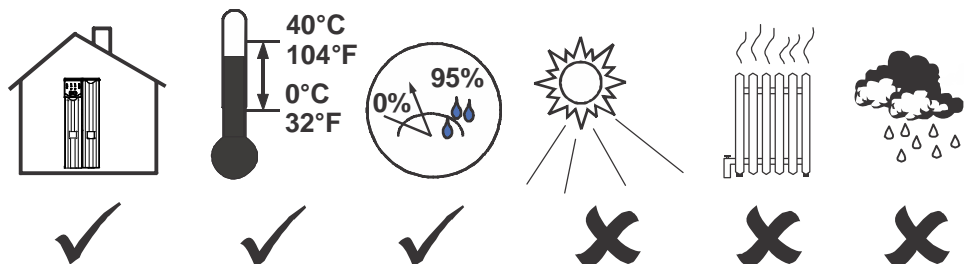
The NetShelter models listed below are certified for 1000 lb to NEBS GR-63-CORE zone 4 standards.

Model	Rack Mounting Height	Rack Mounting Width	External Cabinet Width	Description
AR2144 AR2144BLK	42U [†]	EIA 19 in.	600mm	Cabinet with sides
AR2145 AR2145BLK	42U	EIA 19 in.	600mm	Cabinet without sides
[†] One U = 1.75 in. (4.44 cm)				

Receiving the Cabinet

NOTICE	
Schneider Electric is not responsible for damage sustained during shipment of this product.	

Upon receipt, inspect the cabinet and contents for damage. Verify the contents are complete.



Report damage to the shipper immediately and contact Schneider Electric at www.schneider-electric.com or your Schneider Electric reseller. Keep all packaging material for inspection if damage is found.

Safety

Save these Instructions

Read the instructions carefully to become familiar with the equipment before trying to assemble, operate, service or maintain it. The following special messages may appear throughout this manual or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a Danger or Warning safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING

Indicates a potentially hazardous situation which, if not avoided, can result in death or serious injury.

⚠ CAUTION

Indicates a potentially hazardous situation which, if not avoided, can result in moderate injury.

NOTICE

Addresses practices not related to physical injury including certain environmental hazards, potential damage or loss of data.

Important Safety Information

⚠ CAUTION

WEIGHT/TIPPING HAZARD

- At least three people are necessary to unpack and assemble the cabinet.
- To avoid damage or injury, stabilize the cabinet in its permanent location before loading equipment.
- Stabilize the cabinet before installing the components. Failure to do so could cause the cabinet to tip.
- Do NOT extend more than one component from a populated cabinet at a time to prevent the cabinet from becoming dangerously unstable.
- Load the heaviest components first and place them toward the bottom of the cabinet to prevent the cabinet from becoming top-heavy.
- The panels are heavy. One person should support the side panel while another releases the side panel from its frame.

Failure to follow these instructions may result in injury or equipment damage.

Configuration

Before installing your cabinet, plan the location of the equipment to be installed. Consider the space needed by equipment and ergonomics of keyboards and video monitors.

The NetShelter™ Configurator, available on the Schneider Electric Web site, helps you plan your configuration to maximize the available U-space of your cabinet.

NOTICE

To maintain proper airflow, cover any empty vertical cabinet space with optional blanking panels (AR8101 and AR8101BLK for 19 in. equipment mounting, not included). Improper airflow could damage installed components.

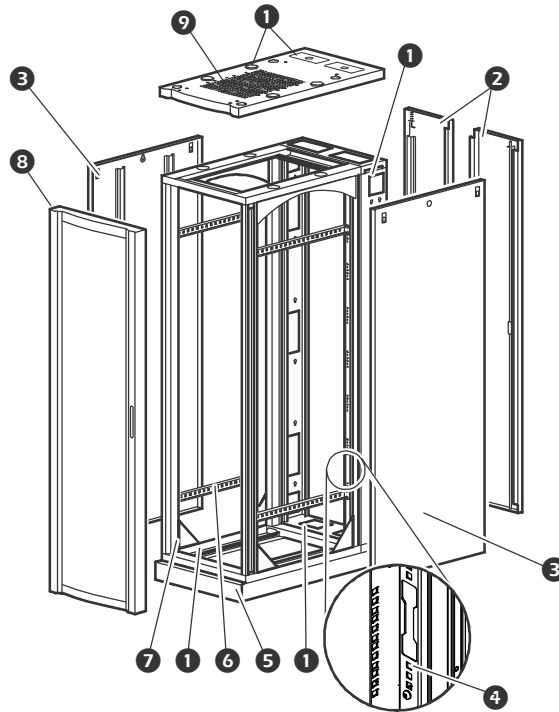
⚠ CAUTION

TIPPING HAZARD

To avoid damage or injury, stabilize the cabinet in its permanent location before loading equipment.

Failure to follow these instructions can result in injury or equipment damage.

Component Identification



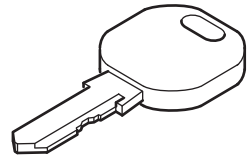
Features	
Cable access	• Access on roof, sides, and base 1
Doors	<ul style="list-style-type: none"> • Ventilated split rear door for added access in narrow aisles 2 • Quick-release, ventilated, reversible front door 8 • Front and rear door locks
Side panels	• Side panels with locks 3 (cabinets with sides only)
Frame	<ul style="list-style-type: none"> • 42U (73.5in.) of storage height for 19 in. rack-mount equipment • Adjustable vertical mounting rails 4 and horizontal braces 6 • Front and rear skirt 5 • Frame posts 7 • Ground studs on all panels and main structure
Roof	• Ventilated roof 9

Hardware

Item	AR2144 AR2144BLK	AR2145 AR2145BLK
Baying hardware		
Baying brackets	—	4
Vertical baying trim	—	1
M6 counter-sunk screws	—	4
M6 x 12 socket-head screws	—	8
M6 caged nuts	—	8
Mounting hardware		
M6 x 16 mm Phillips/slotted screws	60	60
Caged nut installation tool	1	1
M6 caged nuts	60	60
Plastic cup washers	60	60
Open-ended wrench (13mm/14mm)	1	1
M5 Allen wrench	1	1
Door/side panel keys	2	2
Grommets/covers (included in bag)		
4 x 4" grommets	2	4
4 x 8" grommets	3	6
4 x 4" cover	4	4

Location of keys and Mounting Hardware

1. The keys are inside the cabinet, fastened to the front left, vertical, side-facing mounting rail.
2. The bag containing the mounting hardware is fastened to the floor of the cabinet.



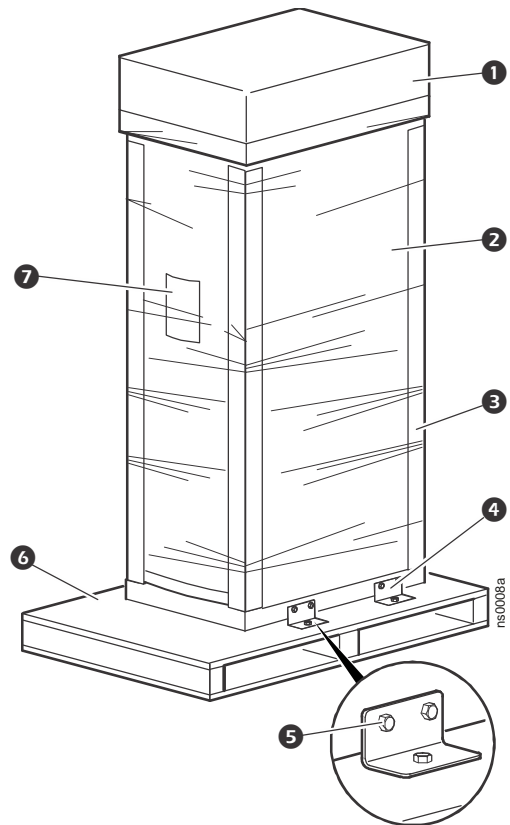
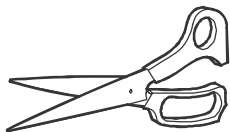
Installation

Unpack the Cabinet

Cabinet Packaging

- ❶ Cardboard top cover
- ❷ Stretch wrap
- ❸ Cardboard corner protectors
- ❹ Pallet brackets
- ❺ 13mm bolts
- ❻ Shipping pallet
- ❼ Pouch containing the open-ended wrench, the user manual, warranty card, and literature

Tools Required (not provided)



Please Recycle



The shipping materials are recyclable. Save them for later use, or dispose of them appropriately.

Disclaimer

Schneider Electric is not responsible for damage sustained during reshipment of this product.

Take Inventory

After unpacking the cabinet, verify that all required components and hardware have been shipped with the cabinet. See the product inventory section for a list of components.

NOTICE

If any items are missing, contact Schneider Electric Customer Support.

Unpacking Sequence

⚠ CAUTION

WEIGHT/TIPPING HAZARD

- At least three people are necessary to unpack and assemble the cabinet.
- Stabilize the cabinet before installing the components. Failure to do so could cause the cabinet to tip.
- Do NOT extend more than one component from a populated cabinet at a time to prevent the cabinet from becoming dangerously unstable.
- Load the heaviest components first and place them toward the bottom of the cabinet to prevent the cabinet from becoming top-heavy.

Failure to follow these instructions may result in injury or equipment damage.

Move the shipping pallet to a firm, level surface in an open area. Inspect the cabinet for visible signs of shipping damage. Report damage immediately to the shipping company and contact Schneider Electric Customer Support at the number listed on the yellow sticker on the front of the cabinet.

1. Remove the open-ended wrench from the pouch on the front of the packaging.
2. Refer to the label on the packaging to determine where to cut the wrapping. Using heavy-duty shears or a utility knife, carefully remove the plastic stretch-wrap surrounding the cabinet.
3. Remove the cardboard cover and the 4 cardboard corner protectors.
4. Remove the 4 brackets anchoring the cabinet to the shipping pallet. Use the 13mm end of the open-ended wrench, obtained in step 1, to remove the bolts securing the brackets to the pallet.
5. With one person on each side of the cabinet, carefully slide it toward the rear of the pallet. The pallet will tip as it is moved to the rear of the pallet. Continue to slide the cabinet rearward until the rear edge makes contact with the floor.
6. While two people carefully tip the cabinet slightly away from the pallet, have the third person pull the pallet away from the cabinet.

NOTE: Save the pallet, mounting brackets, and bolts if you plan to reship the cabinet.

Stabilize the Cabinet

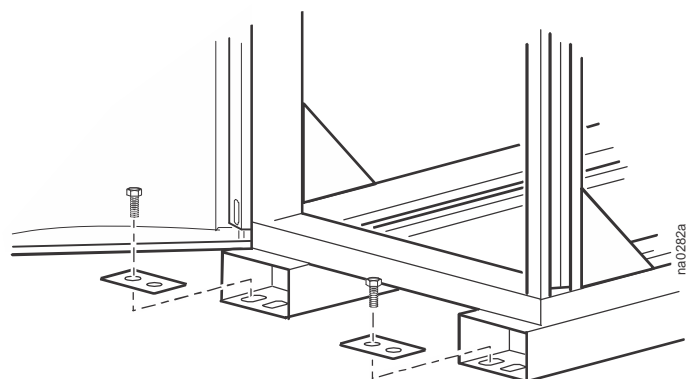
For seismic stability, the NetShelter VX Seismic Cabinet must be bolted to the floor. Install proper anchoring hardware before starting this procedure.

Tools and Hardware Required.

Qty	Item
4	Bolt plates (included)
8	M12 or ½-in. bolts (not included)
1	Adjustable wrench (not included)
1	Torque wrench (not included)

Bolt the Cabinet to the floor.

1. Remove the front and rear skirts on the cabinet. (See "Remove the Skirts" on page 10.)
2. Insert two bolts through each plate and the holes in the plinth, using the bolt plate (included). Screw the bolts into the pre-installed anchoring hardware in the floor.
3. Tighten the bolts to 60 lb-ft (81 N•m) using a torque wrench.



Side Panels

Remove.

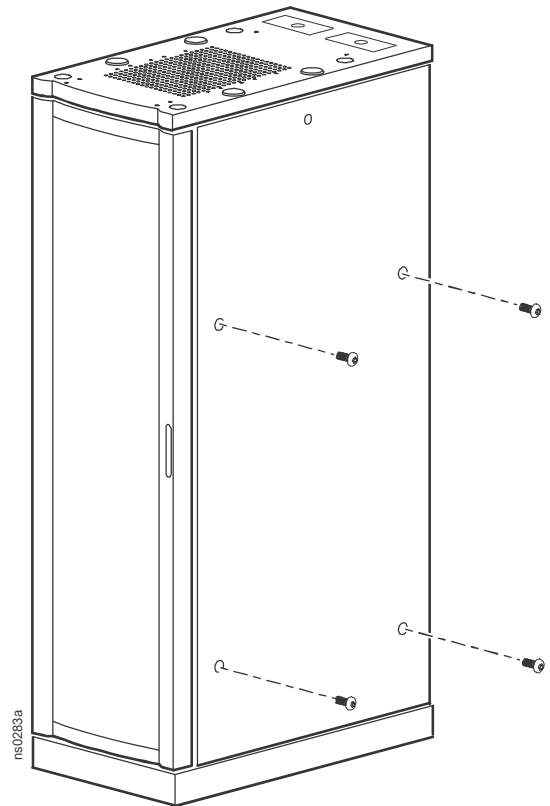
Remove the side panels for access to the interior.

⚠ CAUTION

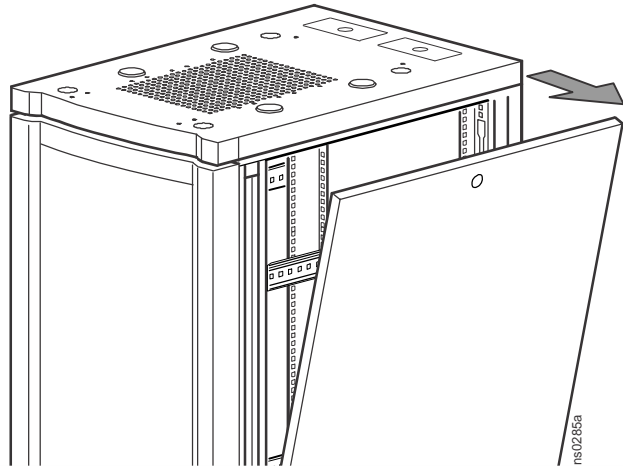
HEAVY EQUIPMENT HAZARD

The panels are heavy. One person should support the side panel while another releases the side panel from its frame. **Failure to follow these instructions can result in injury or equipment damage.**

1. Use the key to unlock the panel, if necessary.
2. Unscrew all 4 screws holding the panel, starting from the bottom and working up.



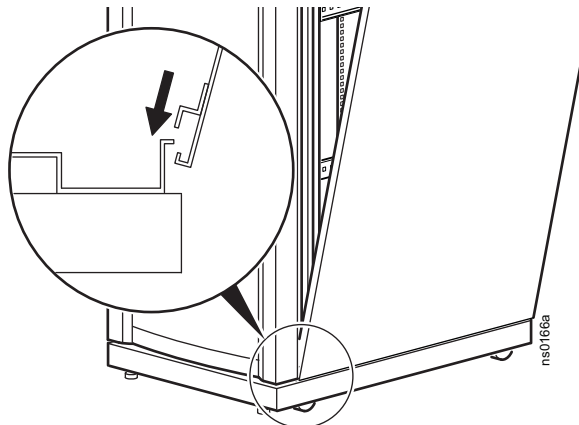
3. Tip the top of the panel away from the cabinet.
4. Lift the panel up and off the narrow horizontal lip at the bottom of the cabinet frame.



Install.

1. Engage the bottom of the panel securely with the lip before pushing the top of the panel forward into place.
2. Replace the screws, working from top to bottom.

NOTE: When installing the side panels on an extension cabinet, be sure to remove the plastic grommets from the rear, side-facing, cable-access openings on the rear cabling channel.

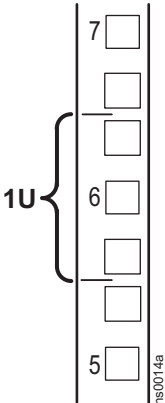


Populate the Cabinet

This section provides general information on installing rack-mount equipment in the cabinet. Read the documentation provided with the equipment you are installing for more specific instructions.

How to Identify a U space on a Mounting Rail or Frame Post

One U space consists of three square holes. Each U space, or position, is marked with a number and separated by horizontal lines.



Caged Nuts

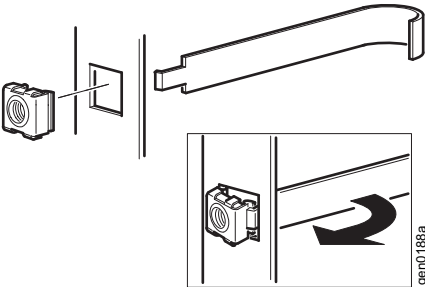
Install.

CAUTION
<p>UNSTABLE EQUIPMENT HAZARD</p> <p>Install caged nuts horizontally, the ears engaging the sides of the square hole. Do NOT install caged nuts vertically with the ears engaging the top and bottom of the square hole.</p> <p>Failure to follow these instructions can result in equipment damage.</p>

1. Insert the caged nut into the square hole by hooking one ear of the caged nut assembly through the far side of the hole
(Install the cage nuts on the interior of the mounting rails.)
2. Place the caged nut tool (provided) on the other side of the caged nut and pull to snap it into position.

Remove.

1. Remove any attached screw.
2. Grasp the caged nut and squeeze the sides to release it from the square hole.



Grounding Studs

There are twenty-two grounding studs on the cabinet, located on the doors, the roof, the side panels, and the frame.

# of studs	Location
12	Base
1	Rear cabling channel
1	Roof
2	Front door
4	Rear doors
2	Side panels (cabinets with sides only)

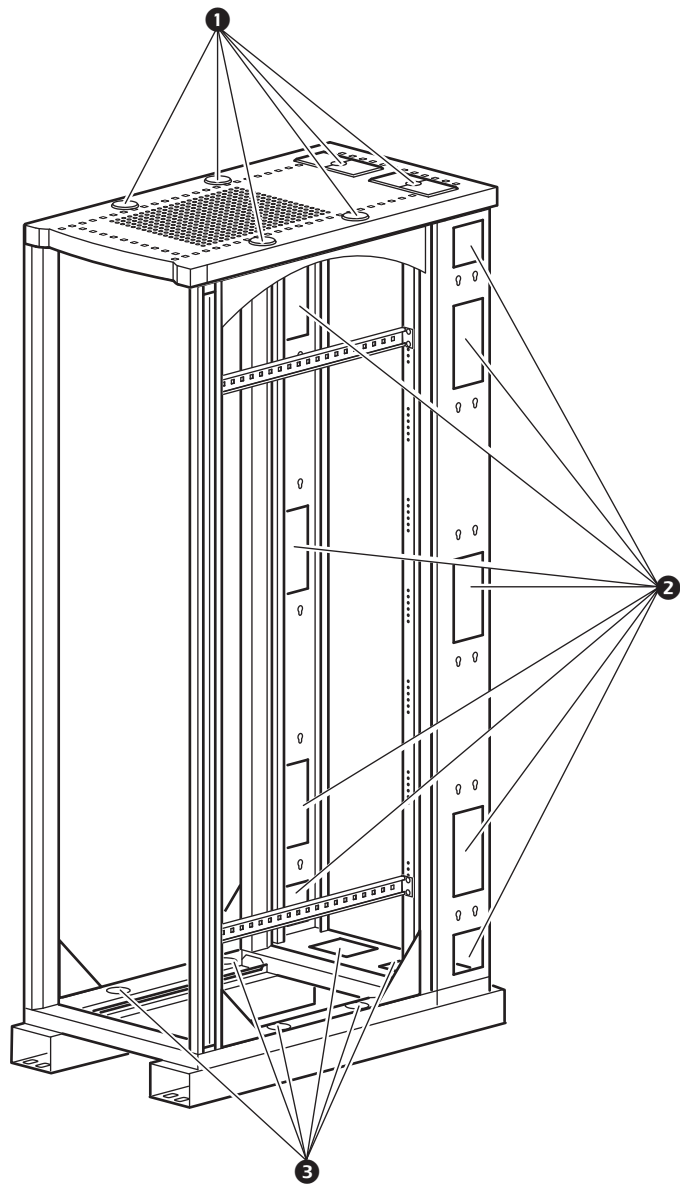
Schneider Electric offers an optional grounding kit (AR8390) for grounding the cabinet.

Cable Management

Cable Access Openings

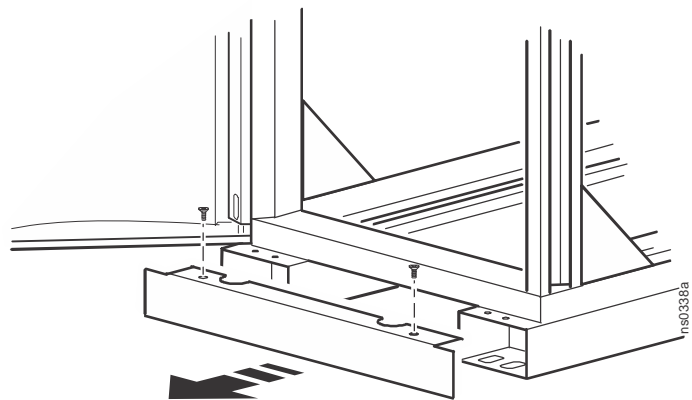
There are cable access openings in the roof **1**, sides **2**, and base **3** of the cabinet. The rear cabling channel on the back of the cabinet provides clearance for wiring between the doors and the mounting rails. It is recommended to use the clearance between the rear mounting rails and rear door for routing data and power cables—data on one side, and power on the other side.

Before routing wires through the side access holes on the cabinet with side panels, ensure the protective grommets (included) are installed into the cable access openings.



Remove the Skirts

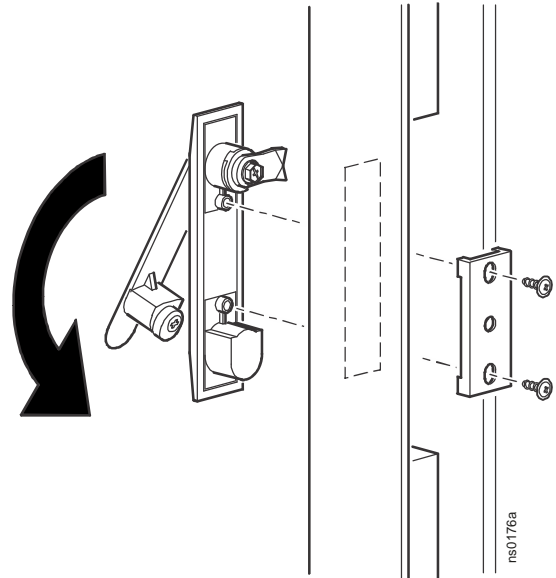
For additional cable access, you can remove the skirts at the front and rear of the cabinet by removing the two countersunk screws in each skirt.



Reverse the Front Door

You can reverse or remove the front door to accommodate your site configuration. This section shows how to remove and reverse the door on your cabinet.

1. Remove both side panels. See “Side Panels” on page 8.
2. Remove the two Phillips screws from the rear of the door handle assembly and remove the handle assembly from the door.
3. Rotate the door handle assembly 180° and reinstall it, using the hardware removed in step 2.



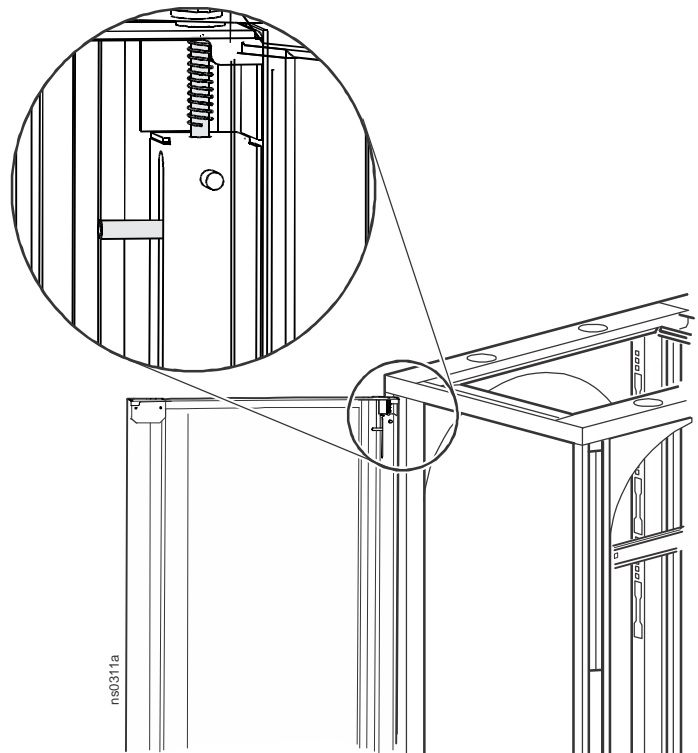
⚠ CAUTION

HEAVY EQUIPMENT HAZARD

At least two people are required to perform this task. To avoid personal injury or damage to the cabinet, one person should support the door while another removes the door from its frame.

Failure to follow these instructions can result in injury or equipment damage.

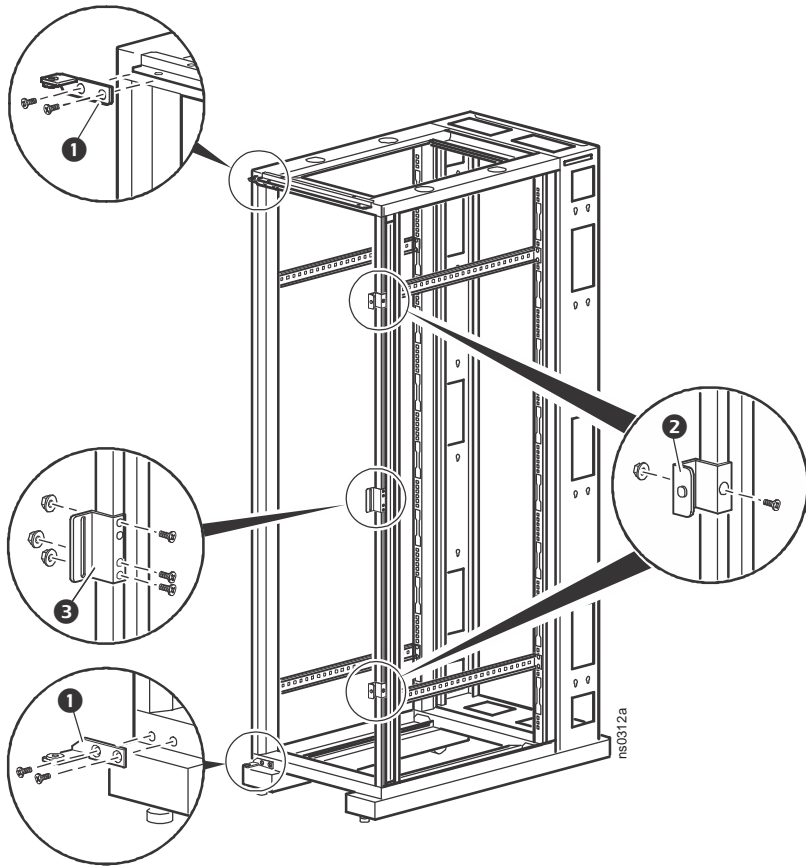
4. Open the door and pull down on the spring-loaded hinge pin attached to the top of the door. Lift the door from its frame and set it safely aside.



Remove the Hinge Pin, Bumper, and Latch Brackets.

NOTE: Remember the location of and distance between all items being removed. You will need to duplicate this positioning when reinstalling.

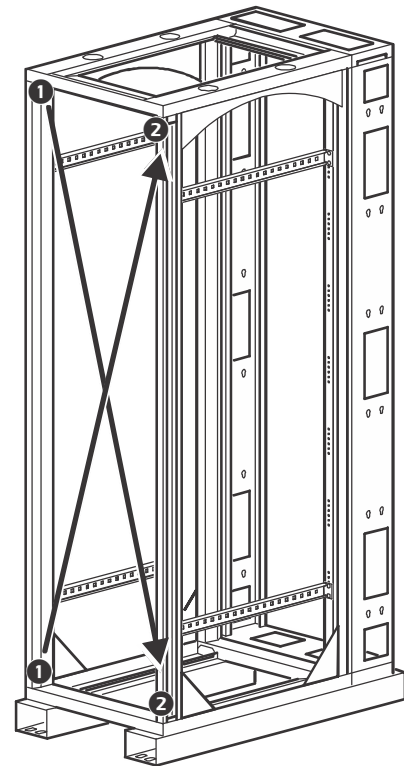
Use a Phillips head screwdriver (not included) to remove the hinge pin brackets **1**, bumper brackets **2**, and latch bracket **3** from the cabinet frame.



Install the Hinge Pin Brackets.

Install the hinge pin brackets on the opposite side of the cabinet.

- a. Remove the small plastic plugs covering the insertion holes in the base and the top of the cabinet frame. Reinstall them in the holes on the opposite side of the cabinet.
- b. Relocate the two hinge pin brackets from their original position **1** to their new position **2**. Secure by tightening the screws.



Install the Latch Plate and Bumpers.

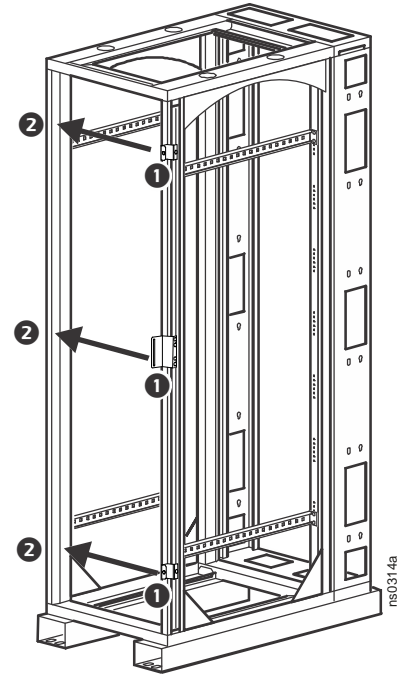
Relocate the latch bracket and the two door bumper brackets from their original position ❶ to their new position ❷.

NOTICE

- Be sure to maintain the original spacing between the latch plate and bumpers, as well as their vertical relationship with the cabinet frame.
- On the cabinet without sides, the baying trim is attached to the same holes used by the bumpers and latch bracket. See "Move the Joining Trim" on page 17.

Install the Door Assembly.

1. Loosely tighten the hinge pin brackets.
2. Reinstall the door assembly.
 - a. Align the lower door hinge pin with the hole in the bottom of the hinge pin bracket and slide the hinge pin into the hole.
 - b. Pull down the upper hinge pin.
 - c. Align the upper hinge pin with hole in the upper hinge pin bracket and release the hinge pin into the hole.
 - d. Make sure that the door opens and closes properly.
3. Firmly tighten the countersunk screws to secure the hinge pin brackets to the cabinet frame.
4. If using the Base model, reinstall the side panels.



⚠ CAUTION

HEAVY EQUIPMENT HAZARD

One person should support the door while another person places the door in its frame.

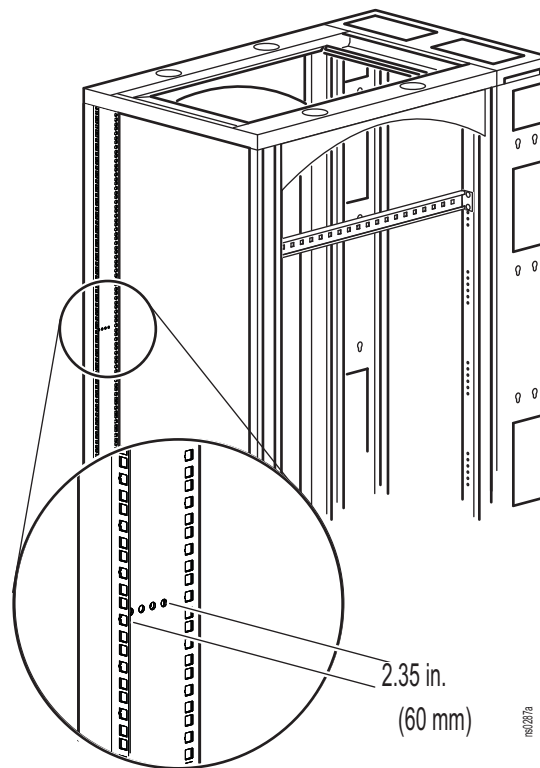
Failure to follow these instructions can result in injury or equipment damage.

Vertical Mounting Rails

The vertical mounting rails are factory-installed in the proper position for use with rack-mountable equipment that has a depth of 29.13 in. (740mm). You can adjust the rails to the front or rear a total of 2.35 in. (60mm) to accommodate different rails or equipment with various depths. The following sections describe the procedures for adjusting the position of the mounting rails and for moving them within the cabinet.

Mounting Rail Screws

The location of the screws that govern the position of the mounting rails is shown below.



Adjust the Mounting Rails

⚠ CAUTION

HAZARD OF DAMAGE/INJURY

To avoid personal injury or damage to the enclosure, NEVER perform this procedure with equipment installed on the vertical mounting rails.

Failure to follow these instructions can result in injury or equipment damage.

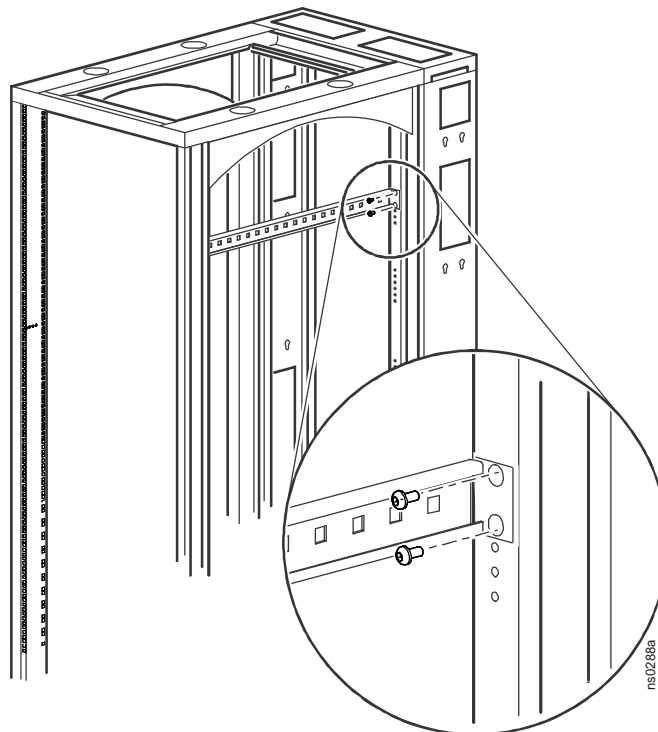
1. Use the 5mm Allen wrench (included) to remove the socket-head screws from the hole in the vertical mounting rail.
2. Slide the vertical mounting rail forward or rearward as desired. Insert the screws into the appropriate holes. Tighten each screw.

Horizontal Braces

Each side of the enclosure has adjustable horizontal braces between the vertical frame posts to support the vertical mounting rails and manage cables.

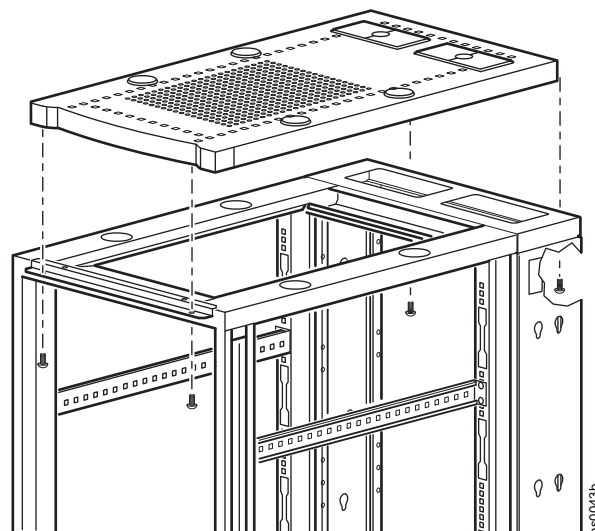
Move a Brace

1. Use the 5mm hex wrench (provided) to remove the four hex-head screws that are holding the brace to the frame posts.
2. Locate the new position for the brace and secure the brace to the frame posts.
3. Place the brace at the new position and insert a socket-head screw through the brace and frame post and tighten.



Remove the Roof

To remove the roof from the cabinet, remove the four hex-head screws from the inside corners. Use the 5mm hex wrench (provided).



Join Cabinets

You can expand your installation by joining a cabinet without sides to a cabinet with sides or by joining two cabinets without sides together. The cabinet without sides includes pre-installed expansion hardware and vertical trim that covers the gap between the joined cabinets for a finished appearance.

Before Joining the Cabinets

Sometimes you need to change cabinet configurations before joining cabinets together. Often this means moving side panels or the baying hardware from one cabinet to the other.

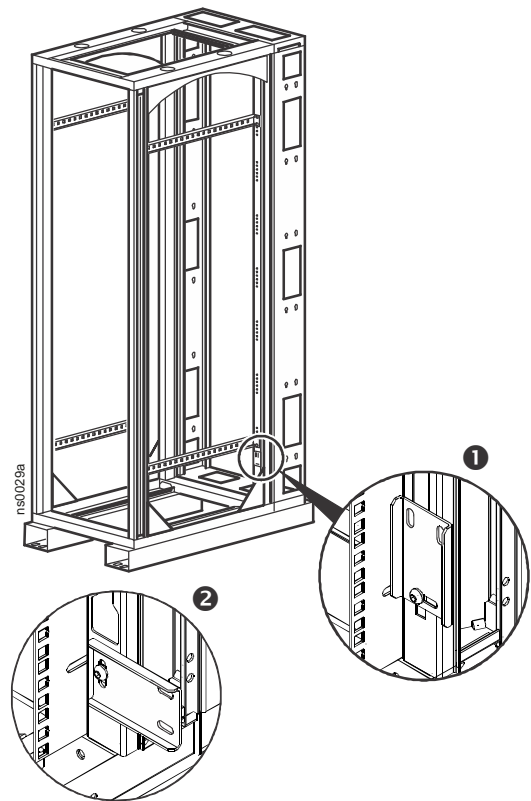
Preliminary steps for joining cabinets:

NOTE: See “Reverse the Front Door” on page 11.

1. Remove the side panel from the existing cabinet or bay, if necessary.
NOTE: See “Side Panels” on page 8.
2. Move the baying trim from one side of the cabinet without sides to the other side, if necessary.
NOTE: See “Move the Joining Trim” on page 17.

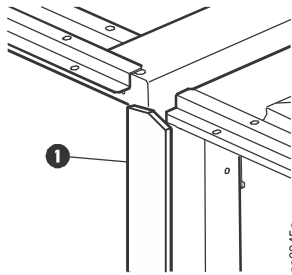
Join the Cabinets

1. Connect the four baying brackets, pre-installed on the cabinet without sides, to the cabinet with sides:
 - a. Using the 5mm Allen wrench (included), loosen the socket-head screw that is holding the baying bracket to the cabinet without sides.
 - b. Rotate the bracket from its original position ❶ to its new position ❷.



Move the Joining Trim

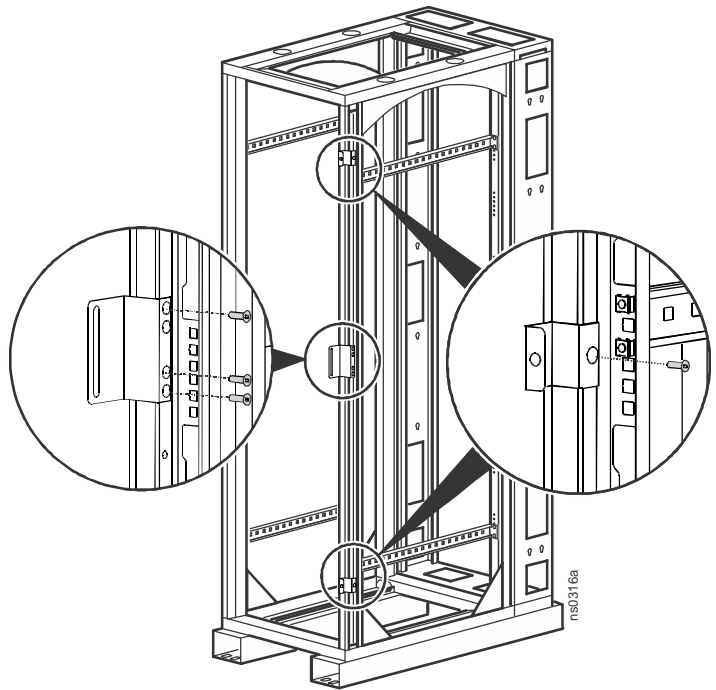
Joining Trim



The joining trim ❶ is pre-installed to one side of the cabinet without sides. It covers the gap between cabinets after they have been joined together. Your site configuration may require you to move the trim to the other side of the cabinet.

Move the Trim

1. Using the 5mm Allen wrench (included), remove the 4 socket-head screws securing the vertical trim to the frame of the cabinet.
2. Remove the countersunk screws securing the door latch bracket and the door bumper brackets and keep the screws for later use.
3. Reinstall the trim to the opposite side of the cabinet.
 - a. Insert the socket-head screw, removed from the other side of the cabinet, through the upper hole in the vertical trim, the upper door bumper bracket, and the upper hole in the frame of the cabinet, securing it with the nut.
 - b. Repeat the step above for the door latch bracket and the lower bumper bracket.
 - c. Tighten the screws securing the vertical trim to the cabinet assembly.
4. Reinstall any side panels required.
NOTE: See "Side Panels" on page 8."



Specifications

	AR2144, AR2144BLK	AR2145, AR2145BLK
Item	Measurement	
Height	81.5 in. (207 cm)	81.5 in. (207 cm)
Width	23.5 in. (59.6 cm)	23.0 in. (58.5 cm)
Depth	42.2 in. (107.4 cm)	42.2 in. (107.4 cm)
Net weight	545 lb (162.8 kg)	458 lb (127.9 kg)
Ventilation (front door)	1384 in. ² (8929 cm ²)	1384 in. ² (8929 cm ²)
Ventilation (rear door)	791.3 in. ² (5105.5 cm ²)	791.3 in. ² (5105.5 cm ²)
Ventilation (roof)	156 in. ² (1006 cm ²)	156 in. ² (1006 cm ²)
Clearance (for wiring between front door and vertical rail)	3.27 in. (8.31 cm)	3.27 in. (8.31 cm)

Worldwide Customer Support

Customer support is available at no charge via e-mail or telephone. Contact information is available at www.schneider-electric.com.

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