

Section 27 11 00

COMMUNICATION EQUIPMENT ROOM FITTINGS

Section 27 11 16

Communications Cabinets, Racks, Frames and Enclosures

PART 1 – GENERAL

1.1 WORK INCLUDED

- A. Provide all labor, materials, and equipment for the complete installation of work called for in the Contract Documents.

1.2 SCOPE OF WORK

- A. This section includes the minimum requirements for the equipment and cable installations in data centers and communications equipment rooms.
- B. Included in this section are the minimum composition requirements and installation methods for the following:

Racks.

1.3 QUALITY ASSURANCE

- A. All cable and equipment shall be installed in a neat and workmanlike manner. All methods of construction that are not specifically described or indicated in the contract documents shall be subject to the control and approval of the Owner or Owner Representative. Equipment and materials shall be of the quality and manufacture indicated. The equipment specified is based upon the acceptable manufacturers listed. Where “approved equal” is stated, equipment shall be equivalent in every way to that of the equipment specified and subject to approval.
- B. Strictly adhere to all Building Industry Consulting Service International (BICSI), Electronic Industries Alliance (EIA) and Telecommunications Industry Association (TIA) recommended installation practices when installing communications/data cabling.
- C. Material and work specified herein shall comply with the applicable requirements of:

ANSI/NECA/BICSI 568-2006 – Standard for Installing Commercial Building Telecommunications Cabling

ANSI/TIA – 568-C.1 Commercial Building Telecommunications Cabling Standard, 2009

TIA – 569-B Commercial Building Standard for Telecommunications Pathways and Spaces, 2004

TIA – 606-A Administration Standard for Commercial Telecommunications Infrastructure, 2007

ANSI-J-STD – 607-A Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications, 2002

NFPA 70 – National Electric Code, 2008

1.4 SUBMITTALS

A. Provide product data for the following:

1. Manufacturers cut sheets, specifications and installation instructions for all products (submit with bid).

PART 2 – PRODUCTS

2.1 EQUIPMENT RACKS

A. Racks, Open, Four Post (Adjustable QuadraRack)

1. The rack will be manufactured from steel.
2. Each rack will have two rectangular mounting frames and four L-shaped horizontal braces. The mounting frames will be a welded sub-assembly made from an L-shaped base angle, an L-shaped top angle and two C-shaped equipment mounting channels.
3. The rack will assemble with nut and bolt hardware. When assembled, the L-shaped horizontal braces will connect the corners of the welded mounting frames to form an open, four-post rack. The base angles will be pre-punched for attachment to the floor. The top angles and the top horizontal braces will be pre-punched for attaching ladder rack with J-bolts.
4. The open, four-post rack will provide front and rear support for equipment. The vertical equipment mounting channels will be spaced to allow attachment of 19" EIA rack-mount equipment and will be punched on the front and rear facing flanges with the EIA-310-E Universal hole pattern. Each rack-mount space (U) will be marked and numbered bottom-to-top on the mounting channels.
5. The equipment mounting holes will be threaded to accept #12-24 hardware. Each rack will include (50) #12-24 screws. The rack manufacturer will sell compatible #12-24 equipment mounting screws.
6. The rack will be adjustable in depth during assembly. Rack depth will adjust in fixed .98" (25 mm) increments. Each rack will provide seven depth settings and 5.91" (150 mm) of front-to-rear depth adjustment. Rack size is specified below.
7. The rack components will be bonded during assembly through the assembly hardware. The rack will have at least one masked ground connection point with attachment points for a two mounting hole ground terminal block (two-hole lug). Each rack will include a two mounting hole ground terminal block and antioxidant joint compound.
8. The sides of the equipment-mounting channels will be punched to allow attachment of equipment support rails and vertical cable managers along the sides of the rack or for rack-to-rack baying (four post racks must be able to bay with a two-post relay rack).
9. The rack will be rated for 2,000 lb (907.2 kg) of equipment.
10. Finish shall be epoxy-polyester hybrid powder coat in the color as specified below.
11. Design Make:
Chatsworth Products, Inc. (CPI),

Adjustable QuadraRack™

Part Number 15215-101, Adjustable QuadraRack, 72" (1800 mm) High, 19" EIA x 38U, 15.75" (400 mm) to 21.65" (550 mm) Deep, Gray.

Part Number 15215-201, Adjustable QuadraRack, 72" (1800 mm) High, 19" EIA x 38U, 15.75" (400 mm) to 21.65" (550 mm) Deep, Computer White.

Part Number 15215-701, Adjustable QuadraRack, 72" (1800 mm) High, 19" EIA x 38U, 15.75" (400 mm) to 21.65" (550 mm) D, Black.

Part Number 15215-103, Adjustable QuadraRack, 84" (2100 mm) High, 19" EIA x 45U, 15.75" (400 mm) to 21.65" (550 mm) Deep, Gray.

Part Number 15215-203, Adjustable QuadraRack, 84" (2100 mm) High, 19" EIA x 45U, 15.75" (400 mm) to 21.65" (550 mm) Deep, Computer White.

Part Number 15215-703, Adjustable QuadraRack, 84" (2100 mm) High, 19" EIA x 45U, 15.75" (400 mm) to 21.65" (550 mm) D, Black.

Part Number 15215-115, Adjustable QuadraRack, 96" (2400 mm) High, 19" EIA x 51U, 15.75" (400 mm) to 21.65" (550 mm) Deep, Gray.

Part Number 15215-215, Adjustable QuadraRack, 96" (2400 mm) High, 19" EIA x 51U, 15.75" (400 mm) to 21.65" (550 mm) Deep, Computer White.

Part Number 15215-715, Adjustable QuadraRack, 96" (2400 mm) High, 19" EIA x 51U, 15.75" (400 mm) to 21.65" (550 mm) D, Black.

Part Number 15215-108, Adjustable QuadraRack, 108" (2740 mm) High, 19" EIA x 58U, 15.75" (400 mm) to 21.65" (550 mm) Deep, Gray.

Part Number 15215-208, Adjustable QuadraRack, 108" (2740 mm) High, 19" EIA x 58U, 15.75" (400 mm) to 21.65" (550 mm) Deep, Computer White.

Part Number 15215-708, Adjustable QuadraRack, 108" (2740 mm) High, 19" EIA x 58U, 15.75" (400 mm) to 21.65" (550 mm) D, Black.

Part Number 15216-101, Adjustable QuadraRack, 72" (1800 mm) High, 19" EIA x 38U, 22.64" (575 mm) to 28.54" (725 mm) Deep, Gray.

Part Number 15216-201, Adjustable QuadraRack, 72" (1800 mm) High, 19" EIA x 38U, 22.64" (575 mm) to 28.54" (725 mm) Deep, Computer White.

Part Number 15216-701, Adjustable QuadraRack, 72" (1800 mm) High, 19" EIA x 38U, 22.64" (575 mm) to 28.54" (725 mm) D, Black.

Part Number 15216-103, Adjustable QuadraRack, 84" (2100 mm) High, 19" EIA x 45U, 22.64" (575 mm) to 28.54" (725 mm) Deep, Gray.

Part Number 15216-203, Adjustable QuadraRack, 84" (2100 mm) High, 19" EIA x 45U, 22.64" (575 mm) to 28.54" (725 mm) Deep, Computer White.

Part Number 15216-703, Adjustable QuadraRack, 84" (2100 mm) High, 19" EIA x 45U, 22.64" (575 mm) to 28.54" (725 mm) D, Black.

Part Number 15216-115, Adjustable QuadraRack, 96" (2400 mm) High, 19" EIA x 51U, 22.64" (575 mm) to 28.54" (725 mm) Deep, Gray.

Part Number 15216-215, Adjustable QuadraRack, 96" (2400 mm) High, 19" EIA x 51U, 22.64" (575 mm) to 28.54" (725 mm) Deep, Computer White.

Part Number 15216-715, Adjustable QuadraRack, 96" (2400 mm) High, 19" EIA x 51U, 22.64" (575 mm) to 28.54" (725 mm) D, Black.

Part Number 15216-108, Adjustable QuadraRack, 108" (2740 mm) High, 19" EIA x 58U, 22.64" (575 mm) to 28.54" (725 mm) Deep, Gray.

Part Number 15216-208, Adjustable QuadraRack, 108" (2740 mm) High, 19" EIA x 58U, 22.64" (575 mm) to 28.54" (725 mm) Deep, Computer White.

Part Number 15216-708, Adjustable QuadraRack, 108" (2740 mm) High, 19" EIA x 58U, 22.64" (575 mm) to 28.54" (725 mm) D, Black.

Part Number 15217-101, Adjustable QuadraRack, 72" (1800 mm) High, 19" EIA x 38U, 29.53" (750 mm) to 35.43" (900 mm) Deep, Gray.

Part Number 15217-201, Adjustable QuadraRack, 72" (1800 mm) High, 19" EIA x 38U, 29.53" (750 mm) to 35.43" (900 mm) Deep, Computer White.

Part Number 15217-701, Adjustable QuadraRack, 72" (1800 mm) High, 19" EIA x 38U, 29.53" (750 mm) to 35.43" (900 mm) D, Black.

Part Number 15217-103, Adjustable QuadraRack, 84" (2100 mm) High, 19" EIA x 45U, 29.53" (750 mm) to 35.43" (900 mm) Deep, Gray.

Part Number 15217-203, Adjustable QuadraRack, 84" (2100 mm) High, 19" EIA x 45U, 29.53" (750 mm) to 35.43" (900 mm) Deep, Computer White.

Part Number 15217-703, Adjustable QuadraRack, 84" (2100 mm) High, 19" EIA x 45U, 29.53" (750 mm) to 35.43" (900 mm) D, Black.

Part Number 15217-115, Adjustable QuadraRack, 96" (2400 mm) High, 19" EIA x 51U, 29.53" (750 mm) to 35.43" (900 mm) Deep, Gray.

Part Number 15217-215, Adjustable QuadraRack, 96" (2400 mm) High, 19" EIA x 51U, 29.53" (750 mm) to 35.43" (900 mm) Deep, Computer White.

Part Number 15217-715, Adjustable QuadraRack, 96" (2400 mm) High, 19" EIA x 51U, 29.53" (750 mm) to 35.43" (900 mm) D, Black.

Part Number 15217-108, Adjustable QuadraRack, 108" (2740 mm) High, 19" EIA x 58U, 29.53" (750 mm) to 35.43" (900 mm) Deep, Gray.

Part Number 15217-208, Adjustable QuadraRack, 108" (2740 mm) High, 19" EIA x 58U, 29.53" (750 mm) to 35.43" (900 mm) Deep, Computer White.

Part Number 15217-708, Adjustable QuadraRack, 108" (2740 mm) High, 19" EIA x 58U, 29.53" (750 mm) to 35.43" (900 mm) D, Black.

Part Number 15218-101, Adjustable QuadraRack, 72" (1800 mm) High, 19" EIA x 38U, 36.42" (925 mm) to 42.32" (1075 mm) Deep, Gray.

Part Number 15218-201, Adjustable QuadraRack, 72" (1800 mm) High, 19" EIA x 38U, 36.42" (925 mm) to 42.32" (1075 mm) Deep, Computer White.

Part Number 15218-701, Adjustable QuadraRack, 72" (1800 mm) High, 19" EIA x 38U, 36.42" (925 mm) to 42.32" (1075 mm) D, Black.

Part Number 15218-103, Adjustable QuadraRack, 84" (2100 mm) High, 19" EIA x 45U, 36.42" (925 mm) to 42.32" (1075 mm) Deep, Gray.

Part Number 15218-203, Adjustable QuadraRack, 84" (2100 mm) High, 19" EIA x 45U, 36.42" (925 mm) to 42.32" (1075 mm) Deep, Computer White.

Part Number 15218-703, Adjustable QuadraRack, 84" (2100 mm) High, 19" EIA x 45U, 36.42" (925 mm) to 42.32" (1075 mm) D, Black.

Part Number 15218-115, Adjustable QuadraRack, 96" (2400 mm) High, 19" EIA x 51U, 36.42" (925 mm) to 42.32" (1075 mm) Deep, Gray.

Part Number 15218-215, Adjustable QuadraRack, 96" (2400 mm) High, 19" EIA x 51U, 36.42" (925 mm) to 42.32" (1075 mm) Deep, Computer White.

Part Number 15218-715, Adjustable QuadraRack, 96" (2400 mm) High, 19" EIA x 51U, 36.42" (925 mm) to 42.32" (1075 mm) D, Black.

Part Number 15218-108, Adjustable QuadraRack, 108" (2740 mm) High, 19" EIA x 58U, 36.42" (925 mm) to 42.32" (1075 mm) Deep, Gray.

Part Number 15218-208, Adjustable QuadraRack, 108" (2740 mm) High, 19" EIA x 58U, 36.42" (925 mm) to 42.32" (1075 mm) Deep, Computer White.

Part Number 15218-708, Adjustable QuadraRack, 108" (2740 mm) High, 19" EIA x 58U, 36.42" (925 mm) to 42.32" (1075 mm) D, Black.

Part Number 40605-001, Equipment Mounting Screws, #12-24, 50 each, Zinc.
Part Number 40605-005, Equipment Mounting Screws, #12-24, 50 each, Black.

B. Accessory Equipment Mounting Rail Kit, for Open Four Post Racks (Adjustable QuadraRack Center Rail)

1. The accessory mounting rail kit will include an additional pair of equipment mounting rails that can be attached and positioned between the front and rear of the four-post rack to provide a second four-post mounting depth or an independent equipment mounting rail
2. The accessory equipment mounting rails will be manufactured from steel.
3. Each accessory equipment mounting rail will be L-shaped and have a flat equipment mounting surface punched with #12-24 threaded equipment mounting holes spaced vertically according to the EIA-310-E Universal hole pattern providing rack-mount spaces (U) that are 44.45 mm high (44.45 mm)
4. Each rack-mount space (U) on the rails will be marked and numbered
5. Rails will attach at the top and bottom to the side of the four-post rack using brackets that allow the rails to be adjusted in depth and position the rails so that they are 19" wide and so that rack-mount spaces (U) on the rails align with rack-mount spaces (U) on the four-post rack
6. The pair of rails will be rated for 1000 lb (453.6 kg) of equipment
7. Finish shall be epoxy-polyester hybrid powder coat in the color as specified below.
8. Design Make:
Chatsworth Products, Inc. (CPI),
Center Rail for Adjustable QuadraRack™

Part Number 15335-101, Center Rail for Adjustable QuadraRack, 19" EIA x 38U, Threaded #12-24, 1 Pair, Gray.

Part Number 15335-201, Center Rail for Adjustable QuadraRack, 19" EIA x 38U, Threaded #12-24, 1 Pair, Computer White.

Part Number 15335-701, Center Rail for Adjustable QuadraRack, 19" EIA x 38U, Threaded #12-24, 1 Pair, Black.

Part Number 15335-103, Center Rail for Adjustable QuadraRack, 19" EIA x 45U, Threaded #12-24, 1 Pair, Gray.

Part Number 15335-203, Center Rail for Adjustable QuadraRack, 19" EIA x 45U, Threaded #12-24, 1 Pair, Computer White.

Part Number 15335-203, Center Rail for Adjustable QuadraRack, 19" EIA x 45U, Threaded #12-24, 1 Pair, Black.

Part Number 15335-115, Center Rail for Adjustable QuadraRack, 19" EIA x 51U, Threaded #12-24, 1 Pair, Gray.

Part Number 15335-215, Center Rail for Adjustable QuadraRack, 19" EIA x 51U, Threaded #12-24, 1 Pair, Computer White.

Part Number 15335-715, Center Rail for Adjustable QuadraRack, 19" EIA x 51U, Threaded #12-24, 1 Pair, Black.

Part Number 15335-108, Center Rail for Adjustable QuadraRack, 19" EIA x 58U, Threaded #12-24, 1 Pair, Gray.

Part Number 15335-208, Center Rail for Adjustable QuadraRack, 19" EIA x 58U, Threaded #12-24, 1 Pair, Computer White.

Part Number 15335-708, Center Rail for Adjustable QuadraRack, 19" EIA x 58U, Threaded #12-24, 1 Pair, Black.

Note: Center Rail cannot be used with Equipment Support Rails, Item D.

C. Shelves, for Open Four Post Racks (Adjustable ServerRack/QuadraRack Shelves)

1. The shelves will be manufactured from steel.
2. Each shelf will have a flat mounting surface with a fixed front facing mounting bracket and two extendible rear facing mounting brackets that attach to the side of the shelf with screws.
3. The shelf will be sized to attach to 19" EIA-310-E compliant racks and will use 1U of vertical mounting space. The mounting depth of the shelf will adjust in .98" (25 mm) increments to match the depth of the rack. Each shelf will have a mounting depth range of 5.91" (150 mm). The mounting surface will be solid or vented and sized as specified below.
4. The shelf will be rated for 200 lb (90.7 kg) of equipment.
5. Finish shall be epoxy-polyester hybrid powder coat in the color as specified below.
6. Design Make:
Chatsworth Products, Inc. (CPI),
Adjustable ServerRack/QuadraRack™ Shelves

Part Number 15245-101, Adjustable ServerRack/QuadraRack Solid Shelf, 19" EIA x 1U, 15.75" (400 mm) to 21.65" (550 mm) Mounting Depth, 17.68" (449.1 mm) x 13.84" (351.5 mm) Mounting Surface, Gray.

Part Number 15245-201, Adjustable ServerRack/QuadraRack Solid Shelf, 19" EIA x 1U, 15.75" (400 mm) to 21.65" (550 mm) Mounting Depth, 17.68" (449.1 mm) x 13.84" (351.5 mm) Mounting Surface, Computer White.

Part Number 15245-701, Adjustable ServerRack/QuadraRack Solid Shelf, 19" EIA x 1U, 15.75" (400 mm) to 21.65" (550 mm) Mounting Depth, 17.68" (449.1 mm) x 13.84" (351.5 mm) Mounting Surface, Black.

Part Number 15245-102, Adjustable ServerRack/QuadraRack Solid Shelf, 19" EIA x 1U, 22.64" (575 mm) to 28.54" (725 mm) Mounting Depth, 17.68" (449.1 mm) x 20.73" (526.5 mm) Mounting Surface, Gray.

Part Number 15245-202, Adjustable ServerRack/QuadraRack Solid Shelf, 19" EIA x 1U, 22.64" (575 mm) to 28.54" (725 mm) Mounting Depth, 17.68" (449.1 mm) x 20.73" (526.5 mm) Mounting Surface, Computer White.

Part Number 15245-702, Adjustable ServerRack/QuadraRack Solid Shelf, 19" EIA x 1U, 22.64" (575 mm) to 28.54" (725 mm) Mounting Depth, 17.68" (449.1 mm) x 20.73" (526.5 mm) Mounting Surface, Black.

Part Number 15245-103, Adjustable ServerRack/QuadraRack Solid Shelf, 19" EIA x 1U, 29.53" (750 mm) to 35.43" (900 mm) Mounting Depth, 17.68" (449.1 mm) x 27.62" (701.6 mm) Mounting Surface, Gray.

Part Number 15245-203, Adjustable ServerRack/QuadraRack Solid Shelf, 19" EIA x 1U, 29.53" (750 mm) to 35.43" (900 mm) Mounting Depth, 17.68" (449.1 mm) x 27.62" (701.6 mm) Mounting Surface, Computer White.

Part Number 15245-703, Adjustable ServerRack/QuadraRack Solid Shelf, 19" EIA x 1U, 29.53" (750 mm) to 35.43" (900 mm) Mounting Depth, 17.68" (449.1 mm) x 27.62" (701.6 mm) Mounting Surface, Black.

Part Number 15245-104, Adjustable ServerRack/QuadraRack Solid Shelf, 19" EIA x 1U, 36.42" (925 mm) to 42.32" (1075 mm) Mounting Depth, 17.68" (449.1 mm) x 34.51" (876.6 mm) Mounting Surface, Gray.

Part Number 15245-204, Adjustable ServerRack/QuadraRack Solid Shelf, 19" EIA x 1U, 36.42" (925 mm) to 42.32" (1075 mm) Mounting Depth, 17.68" (449.1 mm) x 34.51" (876.6 mm) Mounting Surface, Computer White.

Part Number 15245-704, Adjustable ServerRack/QuadraRack Solid Shelf, 19" EIA x 1U, 36.42" (925 mm) to 42.32" (1075 mm) Mounting Depth, 17.68" (449.1 mm) x 34.51" (876.6 mm) Mounting Surface, Black.

Part Number 15255-101, Adjustable ServerRack/QuadraRack Vented Shelf, 19" EIA x 1U, 15.75" (400 mm) to 21.65" (550 mm) Mounting Depth, 17.68" (449.1 mm) x 13.84" (351.5 mm) Mounting Surface, Gray.

Part Number 15255-201, Adjustable ServerRack/QuadraRack Vented Shelf, 19" EIA x 1U, 15.75" (400 mm) to 21.65" (550 mm) Mounting Depth, 17.68" (449.1 mm) x 13.84" (351.5 mm) Mounting Surface, Computer White.

Part Number 15255-701, Adjustable ServerRack/QuadraRack Vented Shelf, 19" EIA x 1U, 15.75" (400 mm) to 21.65" (550 mm) Mounting Depth, 17.68" (449.1 mm) x 13.84" (351.5 mm) Mounting Surface, Black.

Part Number 15255-102, Adjustable ServerRack/QuadraRack Vented Shelf, 19" EIA x 1U, 22.64" (575 mm) to 28.54" (725 mm) Mounting Depth, 17.68" (449.1 mm) x 20.73" (526.5 mm) Mounting Surface, Gray.

Part Number 15255-202, Adjustable ServerRack/QuadraRack Vented Shelf, 19" EIA x 1U, 22.64" (575 mm) to 28.54" (725 mm) Mounting Depth, 17.68" (449.1 mm) x 20.73" (526.5 mm) Mounting Surface, Computer White.

Part Number 15255-702, Adjustable ServerRack/QuadraRack Vented Shelf, 19" EIA x 1U, 22.64" (575 mm) to 28.54" (725 mm) Mounting Depth, 17.68" (449.1 mm) x 20.73" (526.5 mm) Mounting Surface, Black.

Part Number 15255-103, Adjustable ServerRack/QuadraRack Vented Shelf, 19" EIA x 1U, 29.53" (750 mm) to 35.43" (900 mm) Mounting Depth, 17.68" (449.1 mm) x 27.62" (701.6 mm) Mounting Surface, Gray.

Part Number 15255-203, Adjustable ServerRack/QuadraRack Vented Shelf, 19" EIA x 1U, 29.53" (750 mm) to 35.43" (900 mm) Mounting Depth, 17.68" (449.1 mm) x 27.62" (701.6 mm) Mounting Surface, Computer White.

Part Number 15255-703, Adjustable ServerRack/QuadraRack Vented Shelf, 19" EIA x 1U, 29.53" (750 mm) to 35.43" (900 mm) Mounting Depth, 17.68" (449.1 mm) x 27.62" (701.6 mm) Mounting Surface, Black.

Part Number 15255-104, Adjustable ServerRack/QuadraRack Vented Shelf, 19" EIA x 1U, 36.42" (925 mm) to 42.32" (1075 mm) Mounting Depth, 17.68" (449.1 mm) x 34.51" (876.6 mm) Mounting Surface, Gray.

Part Number 15255-204, Adjustable ServerRack/QuadraRack Vented Shelf, 19" EIA x 1U, 36.42" (925 mm) to 42.32" (1075 mm) Mounting Depth, 17.68" (449.1 mm) x 34.51" (876.6 mm) Mounting Surface, Computer White.

Part Number 15255-704, Adjustable ServerRack/QuadraRack Vented Shelf, 19" EIA x 1U, 36.42" (925 mm) to 42.32" (1075 mm) Mounting Depth, 17.68" (449.1 mm) x 34.51" (876.6 mm) Mounting Surface, Black.

D. Equipment Support Rails, for Open Four Post Racks (Adjustable ServerRack/QuadraRack Equipment Support Rails)

1. The equipment support rails will be manufactured from steel.
2. The equipment support rails are sold in pairs. Each equipment support rail is made from one long and two short L-shaped brackets. The brackets bolt together to form an extendible three-piece support that bolts to the side of the rack.
3. The equipment support rails will be sized to fit within 1U of vertical mounting space. The mounting depth of the equipment support rails will adjust in .98" (25 mm) increments to match the depth of the rack. Each equipment support rail will have a mounting depth range of 3.94" (100 mm). Equipment support rails will provide a 1.5" (38 mm) wide front-to-rear support surface for equipment.
4. The equipment support rails will be rated for 200 lb (90.7 kg) of equipment.
5. Finish shall be epoxy-polyester hybrid powder coat in the color as specified below.
6. Design Make:
Chatsworth Products, Inc. (CPI),
Adjustable ServerRack/QuadraRack™ Equipment Support Rails

Part Number 15235-101, Adjustable ServerRack/QuadraRack Equipment Support Rails, 15.75" (400 mm) to 19.69" (500 mm) Mounting Depth, Gray.

Part Number 15235-201, Adjustable ServerRack/QuadraRack Equipment Support Rails, 15.75" (400 mm) to 19.69" (500 mm) Mounting Depth, Computer White.

Part Number 15235-701, Adjustable ServerRack/QuadraRack Equipment Support Rails, 15.75" (400 mm) to 19.69" (500 mm) Mounting Depth, Black.

Part Number 15235-102, Adjustable ServerRack/QuadraRack Equipment Support Rails, 20.67" (525 mm) to 24.61" (625 mm) Mounting Depth, Gray.

Part Number 15235-202, Adjustable ServerRack/QuadraRack Equipment Support Rails, 20.67" (525 mm) to 24.61" (625 mm) Mounting Depth, Computer White.

Part Number 15235-702, Adjustable ServerRack/QuadraRack Equipment Support Rails, 20.67" (525 mm) to 24.61" (625 mm) Mounting Depth, Black.

Part Number 15235-103, Adjustable ServerRack/QuadraRack Equipment Support Rails, 25.59" (650 mm) to 29.53" (750 mm) Mounting Depth, Gray.

Part Number 15235-203, Adjustable ServerRack/QuadraRack Equipment Support Rails, 25.59" (650 mm) to 29.53" (750 mm) Mounting Depth, Computer White.

Part Number 15235-703, Adjustable ServerRack/QuadraRack Equipment Support Rails, 25.59" (650 mm) to 29.53" (750 mm) Mounting Depth, Black.

Part Number 15235-104, Adjustable ServerRack/QuadraRack Equipment Support Rails, 30.51" (775 mm) to 34.45" (875 mm) Mounting Depth, Gray.

Part Number 15235-204, Adjustable ServerRack/QuadraRack Equipment Support Rails, 30.51" (775 mm) to 34.45" (875 mm) Mounting Depth, Computer White.

Part Number 15235-704, Adjustable ServerRack/QuadraRack Equipment Support Rails, 30.51" (775 mm) to 34.45" (875 mm) Mounting Depth, Black.

Part Number 15235-101, Adjustable ServerRack/QuadraRack Equipment Support Rails, 35.43" (900 mm) to 39.37" (1000 mm) Mounting Depth, Gray.

Part Number 15235-201, Adjustable ServerRack/QuadraRack Equipment Support Rails, 35.43" (900 mm) to 39.37" (1000 mm) Mounting Depth, Computer White.

Part Number 15235-701, Adjustable ServerRack/QuadraRack Equipment Support Rails, 35.43" (900 mm) to 39.37" (1000 mm) Mounting Depth, Black.

Part Number 15235-101, Adjustable ServerRack/QuadraRack Equipment Support Rails, 40.35" (1025 mm) to 44.29" (1125 mm) Mounting Depth, Gray.

Part Number 15235-201, Adjustable ServerRack/QuadraRack Equipment Support Rails, 40.35" (1025 mm) to 44.29" (1125 mm) Mounting Depth, Computer White.

Part Number 15235-701, Adjustable ServerRack/QuadraRack Equipment Support Rails, 40.35" (1025 mm) to 44.29" (1125 mm) Mounting Depth, Black.

Note: Equipment Support Rails cannot be used with Center Rail, Item B.

E. Cable Runway (Ladder Rack) Mounting Bracket, for Open Four Post Racks (Adjustable ServerRack/QuadraRack Cable Runway Mounting Bracket)

1. The cable runway mounting bracket will be manufactured from steel.
2. Each cable runway mounting bracket is an S-shaped bracket that is punched with a hole pattern on the top and bottom flange. The top hole pattern is spaced for centered attachment of 6" (150 mm) wide to 24" (610 mm) wide 1-1/2" (38 mm) high cable runway (ladder rack). The bottom hole pattern is spaced for attachment to the open, four-post rack and includes an attachment point for each depth setting for the rack.
3. The cable runway mounting bracket will be 3.3" (84 mm) wide by 1.0" (25 mm) high x 24.4" (620 mm) long. Each cable runway mounting bracket will include a pair of J-bolts and mounting hardware to attach the bracket to the top of the rack and the cable runway (ladder rack) to the bracket.
4. Finish shall be epoxy-polyester hybrid powder coat in the color as specified below.
5. Design Make:
Chatsworth Products, Inc. (CPI),
Adjustable ServerRack/QuadraRack™ Equipment Support Rails

Part Number 15205-101, Adjustable ServerRack/QuadraRack Cable Runway Mounting Bracket, 6" (150 mm) Wide to 24" (610 mm) Wide Cable Runway, Gray.

Part Number 15205-201, Adjustable ServerRack/QuadraRack Cable Runway Mounting Bracket, 6" (150 mm) Wide to 24" (610 mm) Wide Cable Runway, Computer White.

Part Number 15205-701, Adjustable ServerRack/QuadraRack Cable Runway Mounting Bracket, 6" (150 mm) Wide to 24" (610 mm) Wide Cable Runway, Black.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Racks, Open, Four-Post

1. Assemble racks according to manufacturer's instructions. Verify that equipment mounting rails are sized properly for rack-mount equipment before attaching the rack to the floor.

2. All racks must be attached to the floor in four places using appropriate floor mounting anchors. When placed over a raised floor, threaded rods should pass through the raised floor tile and be secured in the structural floor below.
 3. Racks shall be grounded to the TGB using appropriate hardware provided by the contractor. The ground will meet local code requirements and will be approved by the Authority Having Jurisdiction (AHJ).
 4. In seismic areas, the rack should have additional bracing as required by building codes and the recommendations of a licensed structural engineer.
 5. Ladder rack may be attached to the top of the rack to deliver cables to the rack. The rack should not be drilled to attach ladder rack. Use appropriate hardware from the ladder rack manufacturer.
 6. The equipment load should be evenly distributed and uniform on the rack. Place large and heavy equipment towards the bottom of the rack. Secure all equipment to the rack with equipment mounting screws or place equipment on shelves. Add equipment support rails to help support deep, heavy rack-mount equipment when equipment attaches to the front of the rack only or add accessory equipment mounting rails to provide support for four-post equipment that does not fit the rack.
- B. Accessory Equipment Mounting Rails, for Open Four-Post Racks
1. Install accessory equipment mounting rails according to manufacturer's instructions.
 2. Equipment must be attached to the equipment mounting rails and must not exceed the accessory equipment mounting rails load capacity.
 3. Verify that the rack has sufficient load capacity for the accessory equipment mounting rails and equipment.
- C. Shelves, for Open Four-Post Racks
1. Install shelves according to manufacturer's instructions.
 2. Equipment placed on the shelf must fit completely within the shelf surface and must not exceed the shelf load capacity.
 3. Verify that the rack has sufficient load capacity for the shelf and equipment.
 4. In seismic areas, additional bracing should be used to secure equipment to the shelf or rack
- D. Equipment Support Rails, for Open Four-Post Racks
4. Install equipment support rails according to manufacturer's instructions.
 5. Equipment placed on the equipment support rails must be attached to the rack and must not exceed the equipment support rails load capacity.
 6. Verify that the rack has sufficient load capacity for the equipment support rails and equipment.
- E. Cable Runway (Ladder Rack) Mounting Bracket, for Open Four-Post Racks
1. Install the cable runway mounting bracket according to manufacturer's instructions.