APC by Schneider Electric

NetShelter™ Open Frame Racks

THIS GUIDE SPECIFICATION IS WRITTEN IN ACCORDANCE WITH THE CONSTRUCTION SPECIFICATIONS INSTITUTE (CSI) MASTERFORMAT. THIS SECTION MUST BE CAREFULLY REVIEWED AND EDITED BY THE ARCHITECT OR THE ENGINEER TO MEET THE REQUIREMENTS OF THE PROJECT. COORDINATE THIS SECTION WITH OTHER SPECIFICATION SECTIONS IN THE PROJECT MANUAL AND WITH THE DRAWINGS.
WHERE REFERENCE IS MADE THROUGHOUT THIS SECTION TO "PROVIDE", "INSTALL", "SUBMIT", ETC., IT SHALL MEAN THAT THE CONTRACTOR, SUBCONTRACTOR, OR CONTRACTOR OF LOWER TIER SHALL "PROVIDE", "INSTALL", SUBMIT", ETC., UNLESS OTHERWISE INDICATED.
THIS SECTION IS WRITTEN TO INCLUDE THE 2004 MASTERFORMAT AND THE 1995 MASTERFORMAT VERSIONS. WHERE APPLICABLE, THESE ITEMS ARE BRACKETED AND, IN EACH CASE, UNLESS OTHERWISE INDICATED, THE FIRST CHOICE APPLIES TO THE 2004 MASTERFORMAT AND THE SECOND CHOICE APPLIES TO THE 1995 MASTERFORMAT.

SECTION [27 11 16]

COMMUNICATIONS RACKS

PART 1 - GENERAL

1.1 SUMMARY

A. Provide design and engineering, labor, material, equipment, related services, and supervision required, including, but not limited to, manufacturing, fabrication, erection, and installation as required for the complete performance of the work, and as herein specified.

B. The work specified includes, but shall not be limited to, requirements for racks in data centers, computer rooms, and communications equipment rooms.

C. Included in this section are the minimum composition requirements and installation methods for NetShelter Open Frame Two and Four-Post Racks.

1.2 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 the following standards and regulations:
   1. TIA – 569-B Commercial Building Standard for Telecommunications Pathways and Spaces, 2004
   2. ANSI/ TIA – 568-C Commercial Building Telecommunications Cabling Standard, 2009
   3. ANSI/ NECA/BICSI 568-2006 – Standard for Installing Commercial Building Telecommunications Cabling
   4. TIA – 606-A Administration Standard for Commercial Telecommunications Infrastructure, 2007
   5. ANSI-J-STD – 607-A Joint Standard for Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications, 2002
   6. ANSI/TIA-942 Telecommunications Infrastructure Standard for Data Centers, 2005
   7. NFPA 70 – National Electric Code, 2008

1.3 SUBMITTALS

A. Provide product data for the following:
   1. Manufacturer's data sheets/cut sheets, specifications and installation instructions for all products (submit with bid).

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to the Project site in supplier's or manufacturer's original wrappings and containers, labeled with supplier's or manufacturer's name, material or product brand name, and lot number, if any.
   1. The equipment shall be shipped in a carton, unassembled, as one orderable SKU.
   2. The unit shall have unpacking instructions including manufacturer's contact information for customer support.

B. The customer shall store materials in their original, undamaged packages and containers, inside a well-ventilated area protected from weather, moisture, soiling, extreme temperatures, and humidity.
   1. The manufacturer shall offer an inside-delivery shipping option which includes reasonable delivery to the inside of a customer's building.

1.5 PROJECT CONDITIONS

A. Environmental Requirements**:** Do not install equipment until space is enclosed and weatherproof, wet work in space is completed and nominally dry, work above ceilings is complete, and ambient temperature and humidity conditions are and will be continuously maintained at values near those indicated for final occupancy.

1.6 WARRANTY

A. The manufacturer shall warrant the unit to be free from defects in materials and workmanship for a minimum period of five years (two years in Japan) from the date of purchase. The manufacturer's obligation under this warranty shall be to repair or replace the unit, at its own sole option. This warranty shall not apply to equipment that has been damaged by accident, negligence, or misapplication or has been altered or modified in any way.

B. The manufacturer shall warrant all accessories and options to be free from defects in materials and workmanship for a minimum period of two years from the date of purchase. The manufacturer's obligation under this warranty shall be to repair or replace the equipment, at its own sole option. This warranty shall not apply to equipment that has been damaged by accident, negligence, or misapplication or has been altered or modified in any way.

PART 2 – PRODUCT

2.1 MANUFACTURER

A. Product specified is "NetShelter" Open Frame Rack as manufactured by Schneider Electric. Items specified are to establish a standard of quality for design, function, materials, and appearance.

2.2 DESIGN REQUIREMENTS

A. Two or four-post equipment racks to store computer, data storage and networking equipment in data centers, computer rooms and equipment rooms. Each rack shall be designed to provide an economical, quality solution for installation of server and networking equipment. Racks shall be designed to accommodate power and cable management accessories that keep network and power cables separate and organized.

B. Physical Specifications:

1. Rack dimensions, equipment mounting compatibility and weight load ratings:

	Internal Height	EIA-310	External Height	External Width	External Depth	Static Rating
2-Post	45U	19"	2136mm (84.09")	513mm (20.20")	376mm (14.80")	340.91kg (750lbs))
4-Post	44U	19"	2130mm (83.36")	600mm (23.62")	747mm (29.41")	909.09kg (2000lbs)

2. The 45U (Two-Post) racks shall support a load of at least 340.91 kg. (750 lb) total installed equipment weight.
3. The 44U (Four-Post) racks shall support a load of at least 909.09 kg. (2000 lb) total installed equipment weight.
4. The 44U (Four-Post) racks: AR203A has square mounting holes while AR204A has threaded holes (for networking and telecom applications).

C. Material Requirements
   1. 45U (Two-Post) racks: Constructed from 6061-T6 structural grade aluminum, painted using a powder coat paint process.
   2. 44U (Four-Post) racks: Steel construction, painted using a powder coat paint process.
   3. Plastic materials shall comply with Underwriters Laboratory Specification 94 with HB rating (UL94 V-1) or better.
   4. All rack components shall not have electroplated zinc coating to minimize zinc whiskers near active equipment.

D. Access and Installation:
   1. The racks shall provide 45U (Two-Post Racks), and 44U (Four-Post Racks) of equipment vertical mounting space.
   2. Each vertical frame post shall be marked on both sides with lines showing the top and bottom of each U and the number U space next to the middle hole. Each U consists of three square holes and is 1.75 inches (44.45 mm) high.
   3. Hardware packages shall consist of connecting hardware for assembling the rack and additional fasteners for equipment installation:
      a. AR201 (Two-Post) racks shall include M6 caged nuts, screws, and washers, 13/14mm open-ended wrench, and caged nut tool.
      b. AR203A (Four-Post) racks shall include M6 caged nuts, screws, and washers, 13/14mm open-ended wrench, and caged nut tool.
      c. AR204A (Four-Post) racks shall include 12-24 x ½ screws, nuts, and washers, 13/14mm open-ended wrench, and caged nut tool.
   4. A Four-Post Rack shall be joined to an adjacent Four-Post Rack via specific holes on the vertical frame posts and provided hardware.
   5. Grounding points shall be provided on the rack to externally bond each unit to the building ground. Grounding wire and screws not provided.

2.3 CABLE ACCESS

A. The racks are open on the top, bottom, and sides for cable access. Optional equipment includes cable management accessories for easily routing, organizing, and storing large bundles of cables.

2.4 ENVIRONMENTAL

A. Manufacturer must certify products are RoHS and China RoHS compliant.

B. The rack shall generally meet the requirements (stability, mechanical strength, aperture sizes, etc.) as defined in IEC 60950 Third Edition.

2.5 STABILIZATION

A. 44U (Four-Post Rack): The bottom horizontal frame brackets can be attached with the bolting holes facing toward the interior of the rack or the exterior. This bracket is used to bolt the rack to the floor. Hardware not provided.

B. 45U (Two-Post Rack): Bottom angle brackets have 2 holes each for securing the rack to the floor. Hardware not provided.

2.6 OPTIONAL ACCESSORIES

A. The manufacturer shall offer the following optional accessories as required to accommodate customer requirements.

1. Six inch Spacer Brackets: (Four-Post Racks) When installed with optional cable management accessories shall join two racks while managing cable. The same brackets can be used to mount Rack Power Distribution Units.
2. Shelving: The manufacturer shall offer as optional accessories various fixed and sliding shelves with the ability to support up to 250 lbs of non-rack mount equipment.
3. Cable Management: The manufacturer shall offer a variety of cable management accessories to neatly organize the routing of data and power cables within the cabinet.
4. Rack Power Distribution Units: The manufacturer shall offer a variety of single-phase and three-phase rack mount power distribution units with current monitoring outlet switching, and remote management capabilities.
5. RMLCD Monitor/Keyboard drawer: The manufacturer shall offer a 1U high, rack-mounted LCD monitor/keyboard drawer to maximize space in a data center environment.
6. Uninterruptible Power Supplies: The manufacturer shall offer various rack mounted uninterruptible power supplies (UPS), with user-replaceable and hot-swappable batteries, and with extended runtime options available.

PART 3- EXECUTION

3.1 EXAMINATION

A. Verification of Conditions: Examine areas and conditions under which the equipment is to be installed, and notify the Contractor in writing, with a copy to the Owner and the Architect/Engineer, of any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected. Beginning the work shall indicate acceptance of the areas and conditions as satisfactory by the Installer.

3.2 INSTALLATION

A. NetShelter Open Frame Racks
   1. Provide all components of the rack system (including any optional accessories).
   2. Provide the manufacturer's assembly and installation instructions for all components including optional accessories.
   3. When attached to the structural floor, the installer shall provide installation hardware.
   4. When used in a multi-rack bay, Four-Post Racks shall be attached side-by-side using attaching hardware, optional baying kits, or optional spacer brackets with cable managers.
   5. An optional cable trough can be attached to the top of the Four-Post Racks.
   6. Racks shall be securely bonded to a common ground. Attach a bonding conductor sized as defined in J-STD-607-A and as defined by local code or the authority having jurisdiction (AHJ) between the common ground and the cabinet. Attach the bonding conductor to the cabinet using a ground terminal block according to the manufacturer's installation instructions. The installer shall provide the bonding conductor and other necessary hardware required to make the connections between the cabinet and the common ground.

3.3 FIELD QUALITY CONTROL

A. **MANUFACTURER FIELD SERVICE**

1. Replacement parts: Parts shall be available through the worldwide service organization 24 hours a day, 7 days a week, and 365 days a year.

END OF SECTION