

SECTION 260529
HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes:
 - 1. Provide supports, anchors, sleeves, concrete equipment pads, seals and other related supporting devices and methods as specified and indicated.
 - 2. Refer to related Division 26 Specification sections of the Specifications for specific and supplemental supporting device requirements.

1.3 SUBMITTALS

- A. General: Submit specific details for supporting electrical equipment with the appropriate electrical equipment submittal.
- B. Product Data: Submit manufacturer's technical product data on supporting devices specified and indicated.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications
 - 1. Firms regularly engaged in the manufacture of supporting devices, of types, sizes, and ratings required, whose products have been in satisfactory use in similar service for not less than 3 years.

PART 2 - PRODUCTS

2.1 MANUFACTURED SUPPORTING DEVICES

- A. U-channel Strut Systems:
 - 1. Manufacturers
 - a. Cooper B-Line, Inc.
 - b. Hilti Corp.
 - c. Midland-Ross Corp.
 - d. Unistrut Corp.
 - 2. No. 12 gage, with 9/16-inch diameter holes, 8-inches on center on top surface.
 - 3. Provide stainless steel, heavy duty plastic or other approved equivalent product approved by Port official, designed to limit corrosion which mate and match the U-channel.
- B. Wall and Floor Conduit Seals:
 - 1. Manufacturers
 - a. O-Z/Gedney Co., Unit of EGS Electrical Group

2. Provide factory-assembled, watertight wall and floor seals, of types and sizes required, suitable for sealing around conduit, pipe, or tubing passing through concrete floors and walls.
 3. Construct seals with steel sleeves, malleable iron body, neoprene sealing grommets and rings, metal pressure rings, pressure clamps, and cap screws.
- C. Conduit Straps:
1. Stainless steel, heavy duty plastic or other approved equivalent product approved by Port official, designed to limit corrosion.
- D. Clevis Hangers:
1. Stainless steel, heavy duty plastic or other approved equivalent product approved by Port official, designed to limit corrosion with 1/2-inch diameter hole for round steel rod.
- E. C-Clamps:
1. Stainless steel, heavy duty plastic or other approved equivalent product approved by Port official, designed to limit corrosion, 1/2-inch rod size, approximately 70 pounds per 100 units.
- F. Miscellaneous Devices and Hardware:
1. Stainless steel, heavy duty plastic or other approved equivalent product approved by Port official, designed to limit corrosion.

PART 3 - EXECUTION

3.1 COORDINATION

- A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 3.
- B. Coordinate installation of roof curbs, equipment supports, and roof penetrations. These items are specified in Division 7.

3.2 INSTALLATION

- A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.

In first paragraph below, support spacings in NECA 1, Table 1, are more detailed and specific and generally stricter than those permitted by NFPA 70 for EMT, IMC, and RMC. Revise to suit Project, and consider retaining reference to NECA table for critical projects.

- B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT, IMC, and RMC as required by NFPA 70. Minimum rod size shall be 1/4 inch (6 mm) in diameter.
- C. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted or other support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.
 1. Secure raceways and cables to these supports with single-bolt conduit clamps using spring friction action for retention in support channel.

Retain paragraph below for projects where seismic design requirements do not apply. Consider retaining for light-commercial projects only.

- D. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch (38-mm) and smaller raceways serving branch circuits and communication systems above suspended ceilings and for fastening raceways to trapeze supports.

3.3 SUPPORT INSTALLATION

Consult structural engineer for requirements in this Article.

- A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.

3.4 CONCRETE BASES

- A. Construct concrete bases of dimensions indicated but not less than 4 inches (100 mm) larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.
- B. Unless otherwise specified in Division 3, use 3000-psi (20.7-MPa), 28-day compressive-strength concrete. Concrete materials, reinforcement, and placement requirements are specified in related Division 3 Sections of the Specifications.
- C. Anchor equipment to concrete base.
 - 1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 2. Install anchor bolts to elevations required for proper attachment to supported equipment.
 - 3. Install anchor bolts according to anchor-bolt manufacturer's written instructions.

3.5 PAINTING

- A. Touchup:
 - 1. Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils (0.05 mm).
 - 2. Touchup: Comply with requirements in related Division 9 Sections of the Specifications for cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal.
- B. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION 260529