PART 1 - GENERAL:

1.01 DESCRIPTION OF WORK:

A. Extent of supports, anchors, sleeves and seals is indicated by drawings and schedules and/or specified in other Electrical work sections.

B. Types of supports, anchors, sleeves and seals specified in this section include but are not limited to the following:

- Clevis hangers.
- Riser clamps.
- C-clamps.
- I-beam clamps.
- One-hole conduit straps.
- Two-hole conduit straps.
- Round steel rods.
- Lead expansion anchors.
- Toggle bolts.
- Wall and floor seals.

C. Furnish and install supports, anchors, sleeves and seals for factory-fabricated equipment as required to properly and securely mount the equipment.

D. Furnish and install supports, braces, anchors and fasteners to meet seismic code requirements.

PART 2 - PRODUCTS

2.01 MANUFACTURED SUPPORTING DEVICES:

A. General: Provide supporting devices; complying with manufacturer's standard materials, design and construction in accordance with published product information, and as required for a complete installation; and as herein specified. Where more than one type of device meets indicated requirements, selection is Installer's option.
B. Supports: Provide supporting devices of types, sizes and materials indicated; and having the following construction features:

1. Clevis Hangers: For supporting 2" rigid metal conduit; galvanized steel; with 1/2" dia. hole for round steel rod; approx. 54 pounds per 100 units.

2. Riser Clamps: For supporting 5" rigid metal conduit; black steel; with 2 bolts and nuts, and 4" ears; approx. 510 pounds per 100 units.

3. Reducing Couplings: Steel rod reducing coupling, 1/2" X 5/8"; black steel; approx. 16 pounds per 100 units.

4. C-Clamps: Black malleable iron; 1/2" rod size; approx. 70 pounds per 100 units.

5. I-Beam Clamps: Black steel, 1-1/4" X 3/16" stock; 3/8" cross bolt; flange width 2"; approx. 52 pounds per 100 units.

C. One-Hole Conduit Straps: For supporting 3/4" rigid metal conduit; galvanized steel; approx. 7 pounds per 100 units.

1. Two-Hole Conduit Straps: For supporting 3/4" rigid metal conduit, galvanized steel; 3/4" strap width; and 2-1/8" between center of screw holes.

2. Hexagon Nuts: For 1/2" rod size; galvanized steel; approx. 4 pounds per 100 units.

3. Round Steel Rod: Black steel; 1/2" dia.; approx. 67 pounds per 100 feet.

4. Offset Conduit Clamps: For supporting 2" rigid metal conduit; black steel; approx. 200 pounds per 100 units.

D. Anchors: Provide anchors of types, sizes and materials indicated; and having the following construction features:

1. Lead Expansion Anchors: 1/2"; approx. 38 pounds per 100 units.

2. Toggle Bolts: Springhead; 3/16" X 4"; approx. 5 pounds per 100 units.
E. Available Manufacturers: Subject to compliance with requirements, manufacturers offering anchors which may be incorporated in the work include, but are not limited to, the following:

Ackerman Johnson Fastening Systems Inc.
Ideal Industries, Inc.
Star Expansion Co.
U.S. Expansion Bolt Co.

F. Sleeves and Seals: Provide sleeves and seals, of types, sizes and materials indicated; and having the following construction features:

1. Wall and Floor Seals: Provide factory-assembled watertight wall and floor seals, of types and sizes indicated; suitable for sealing around conduit, pipe, or tubing passing through concrete floors and walls. Construct with steel sleeves, malleable iron body, neoprene sealing grommets and rings, metal pressure rings, pressure clamps, and cap screws. Floor sleeves and seals shall match the fire rating of the assembly being penetrated.

G. Conduit Cable Supports: Provide cable supports with insulating wedging plug for non-armored type electrical cables in risers; construct for 2" rigid metal conduit; 3-wires, type wire as indicated; construct body of malleable iron casting with hot dip galvanized finish.

H. U-Channel Strut Systems: Provide U-channel strut system for supporting electrical equipment, 16-gauge hot dip galvanized steel, of types and sizes indicated; construct with 9/16" dia. holes, 8" o.c. on top surface, with standard green finish (provide finish coat of paint in field to match surroundings), and with the following fittings which mate and match with U-channel:

Fixture hangers.
Channel hangers.
End caps.
Beam clamps.
Wiring stud.
Thinwall conduit clamps.
Rigid conduit clamps.
Conduit hangers.
U-bolts.
I. Available Manufacturers: Subject to compliance with requirements, manufacturers offering channel systems which may be incorporated in the work include, but are not limited to, the following:

Greenfield Mfg Co., Inc.
Midland-Ross Corp.
Unistrut Div; GTE Products Corp.

2.02 FABRICATED SUPPORTING DEVICES:

A. Pipe Sleeves: Provide pipe sleeves, suitable for the application, of one of the following:

1. Sheet-Metal: Fabricate from galvanized sheet metal; round tube closed with snaplock joint, welded spiral seams, or welded longitudinal joint. Fabricate from the following gauges: 3” and smaller, 20 gauge; 4” to 6”, 16 gauge; over 6”, 14 gauge.

2. Steel-Pipe: Fabricate from schedule 40 galvanized steel pipe; remove burrs.

3. Iron-Pipe: Fabricate from cast-iron or ductile-iron pipe; remove burrs.

4. Plastic-Pipe: Fabricate from Schedule 80 PVC plastic pipe; remove burrs.

B. Sleeve Seals: Provide sleeve seals for sleeves located in foundation walls below grade, or in exterior walls, of one of the following:

1. Lead and Oakum: Caulked between sleeve and pipe.

C. Fire Barriers: Provide galvanized steel conduit sleeves through all fire wall, floor ceiling or barrier penetration. Seal sleeve with an approved expanding fire/smoke material. The wall penetration and seal assembly shall equal the fire rating of the barrier penetrated. Refer to Architectural plans for the location and type of fire barrier construction.
PART 3 - EXECUTION

3.01 INSTALLATION OF SUPPORTING DEVICES:

A. Install hangers, anchors, sleeves and seals as indicated, in accordance with manufacturer's written instructions and with recognized industry practices to insure supporting devices comply with requirements. Comply with requirements of NECA, NEC, MSS, and ANSI/NEMA for installation of supporting devices.

B. Coordinate with other electrical work, including raceway and wiring work, as necessary to interface installation of supporting devices with other work.

C. Install hangers, supports, clamps and attachments to support piping properly from building structure. Arrange for grouping of parallel runs of horizontal conduits to be supported together on trapeze type hangers where possible. Install supports with maximum spacings indicated.

D. Tighten sleeve seal nuts until sealing grommets have expanded to form watertight seal.

E. Install all supporting devices to meet seismic requirements.

END OF SECTION 26 05 29