

Section 16111

CONDUIT, FITTINGS, AND BODIES

PART 1 GENERAL

1.01 SUMMARY

This Section covers the furnishing and installation of conduit, fittings and bodies.

1.02 MEASUREMENT AND PAYMENT

Unless indicated in the Unit Price Schedule as a pay item, no separate measurement or payment for work performed under this Section. Include cost of same in Contract price bid for work of which this a component part.

1.03 REFERENCES

This specification references the following publications in their current editions. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

- A. AISI D100: Cold-Formed Steel Design Manual – Section on Steel Electric Raceways
- B. AISI S100: North American Specification for the Design of Cold-Formed Steel Structural Members and AISI S100-12-C - Commentary on the Specification
- C. DLA A-A-50563B: Conduit Outlet Boxes, Bodies, and Entrance Caps, Electrical: Cast Metal
- D. DLA A-A-55810: Conduit, Metal, Flexible
- E. NEMA C80.1: Electrical Rigid Steel Conduit
- F. NEMA C80.3: Steel Electrical Metallic Tubing (EMT)
- G. NEMA C80.5: Electrical Rigid Aluminum Conduit (ERAC)
- H. NEMA FB 1: Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable
- I. NEMA RN 1: Polyvinyl-Chloride (PVC) Externally Coated Galvanized Rigid Steel Conduit and Intermediate Metal Conduit
- J. NEMA TC 2: Electrical Polyvinyl Chloride (PVC) Conduit
- K. NEMA TC 3: Polyvinyl Chloride (PVC) Fittings for Use with Rigid PVC Conduit and Tubing
- L. NEMA VE 2: Cable Tray Installation Guidelines

- M. NFPA 70: National Electrical Code (NEC)
- N. UL 1: Standard for Safety Flexible Metal Conduit
- O. UL 6: Standard for Safety Electrical Rigid Metal Conduit - Steel
- P. UL 6A: Standard for Safety Electrical Rigid Metal Conduit - Aluminum, Red Brass and Stainless Steel
- Q. UL 360: Standard for Safety Liquid-Tight Flexible Metal Conduit
- R. UL 514B: Standard for Safety Conduit, Tubing, and Cable Fittings
- S. UL 514C: Standard for Safety Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
- T. UL 514D: Standard for Safety Cover Plates for Flush-Mounted Wiring Devices
- U. UL 651: Standard for Safety Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
- V. UL 651A: Standard for Safety Schedule 40 and 80 High Density Polyethylene (HDPE) Conduit
- W. UL 797: Standard for Safety Electrical Metallic Tubing - Steel
- X. UL 1203: Standard for Safety Explosion-Proof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations
- Y. UL 1242: Standard for Safety Electrical Intermediate Metal Conduit - Steel
- Z. UL 2420: Standard for Safety Belowground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
- AA. UL 2515: Standard for Safety Aboveground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings
- BB. UL GIC DYIX: UL General Information Card DYIX - UL White Book of Information - Rigid Ferrous Metal Conduit - Ref. NFPA 70 (NEC) Article 344

#### 1.04 SUBMITTALS

- A. Submit the following under the provisions of Section 01330 – “Submittal Procedures:”
  - 1. Manufacturer's cut sheets, catalog data
  - 2. Installation, terminating and splicing procedure
  - 3. Instruction for handling and storage

4. Dimensions and weight
5. Code compliance certificate
6. Conformance certificate

1.05 RELATED REQUIREMENTS

- A. Section 01330 – “Submittal Procedures”
- B. Section 16051 – “Electrical Construction”
- C. Section 16195 – “Electrical Identification”
- D. Section 16402 – “Underground Duct Banks”

1.06 QUALITY ASSURANCE

- A. Tests
  1. Rigid steel conduit shall pass the bending, ductility, and thickness of zinc coating tests described by NEMA C80.1.
  2. PVC coated rigid galvanized steel conduit shall have the PVC coating adhesion tested to conform to the “ETL Verified PVC-001” label.
  3. Liquid tight flexible conduit shall pass the tension, flexibility, impact, and zinc coating test described by UL 1.
  4. Nonmetallic conduit and fittings shall pass the test requirements of NEMA TC2, UL 651, UL 651A, UL 514B, and UL 514C.

1.07 SYSTEM DESCRIPTION (NOT USED)

1.08 DELIVERY STORAGE AND HANDLING

- A. Package conduit in 10-foot bundles maximum, except for PVC conduits which may be up to 20 feet in length, with conduit and coupling thread protectors suitable for indoor and outdoor storage. Package fittings in manufacturer's standard quantities and packaging suitable for indoor storage.
- B. Store conduit above ground on racks to prevent corrosion and entrance of debris.

1.09-1.13 (NOT USED)

PART 2 PRODUCTS

2.01 MANUFACTURER(S)

A. Rigid Steel Conduit

1. Allied Tube and Conduit Corp.
2. Triangle PWC Inc.
3. Or Approved Equal

B. Rigid Aluminum Conduit

1. Kaiser Aluminum
2. VAW of America Inc.
3. Or Approved Equal

C. Rigid Polyvinyl Chloride (PVC) Conduit

1. Carlon
2. Can-Tex Industries
3. Or Approved Equal

D. PVC-Coated Rigid Steel Conduit

1. Robroy Industries
2. Perma-Cote Industries
3. Or Approved Equal

E. Flexible Metallic Conduit

1. Anaconda Company – Sealtite Type U.A.
2. Electri-Flex Company – Liqueflex Type L.A.
3. Or Approved Equal

F. Conduit Fitting

1. Crouse-Hinds
2. Appleton

3. Or Approved Equal
  - G. Explosion Proof Conduit Outlet Body with Sealing Cover
    1. Crouse-Hinds Series GUA
    2. Appleton Series GR
    3. Or Approved Equal
  - H. Epoxy Fiberglass Conduit and Fittings
    1. Champion Fiberglass
    2. Or Approved Equal
- 2.02 MATERIALS AND EQUIPMENT
- A. Design Conditions:

Use electrical conduit, fittings, and bodies designed for service in areas as specified in Section 16051 – “Electrical Construction” and this section to form a continuous raceway system for power, control, and instrument cables or any combination thereof.
  - B. Conduit and Fittings
    1. Rigid Steel Conduit and Fittings
      - a. Rigid Steel Conduit, bends, nipples, bodies, etc., shall be UL listed, mild steel hot-dipped galvanized inside and outside with hot dipped galvanized threads in accordance with the latest editions of NEMA C80.1, UL 6, UL 6A, UL 514B, UL 514D, UL 1242, and NFPA 70-Article 344.
      - b. Mild steel tubing shall be used for conduit, nipples, and couplings, and shall be free of defects on both the inner and outer surfaces.
      - c. Fittings and bodies and covers for rigid steel conduit shall be steel or cast-iron and shall comply with NEMA FB1, UL 514B, and applicable NEC and UL standards.
    2. Rigid Aluminum Conduit and Fittings
      - a. Rigid Aluminum Conduit, bends, nipples, bodies, etc., shall be UL listed, No. and manufactured from 6063 aluminum alloy with T 1 temper designation in accordance with applicable standards as stated in paragraph 2.02 B.1.a and including the latest edition of NEMA C80.5.

- b. Fittings for Rigid Aluminum Conduit shall be cast aluminum with aluminum covers attached to the conduit fitting by stainless steel captive screws.
3. Rigid PVC Conduit and Fittings
- a. UL-listed, type 40, heavy wall PVC with 90° wire rating suitable for direct sunlight applications in accordance with the latest editions of UL 651 and NEMA TC 2.
  - b. UL-listed, schedule 80, extra-heavy wall PVC with 90°C wire rating suitable for direct sunlight applications in accordance with the standards as listed in paragraph 2.02.B.3.a.
  - c. Use PVC conduit, bends, and fittings, which comply with NEMA TC2, *UL 651*, *UL 514B*, *UL 514C*, and *NFPA 70-Article 352* for above ground and underground installation.
  - d. Conduit shall be Schedule 40 where conduit is concrete encased and Schedule 80 for all other applications.
4. PVC-Coated Rigid Galvanized Steel Conduit and Fittings
- a. PVC-coated conduit, fittings, bodies, and covers shall be Form 8 and conform to NEMA RN 1 (Type A).
  - b. Rigid steel galvanized conduit and fittings shall conform to *UL 6A*, *UL 514D* and *NEMA C80.1*.
  - c. PVC-coated rigid metal conduit shall be UL listed with PVC as the primary corrosion protection.
  - d. Conduit bodies shall conform to *UL 514B* and applicable NEC and UL standards.
  - e. PVC-coated fittings for general service locations shall be UL listed with the PVC as the primary corrosion protection. Provide sufficient coating for touch-up after installation.
  - f. PVC-coated couplings shall be of the ribbed type
  - g. Condulet covers shall have a V-Notch seal and encapsulated stainless steel thumb screws.
  - h. Condulets and covers shall be of malleable iron or ferroalloy material before coating.
  - i. Urethane coating shall be a minimum of 2 mil thickness on the interior of the conduit and the interior of fittings, condulets, covers, and bodies.

- j. All PVC coated conduits and fittings shall be supplied by the same manufacturer.
  - k. UL-listed, hot-dipped galvanized mild steel inside and outside with hot-dipped galvanized threads in accordance with the standards as stated in paragraph 2.02.B.1.a
  - l. Conduit to also include a PVC outer coating with minimal thickness of 40 mils and a phenolic inner coating with minimal thickness of 4 mils. Coated conduit to comply with all requirements of the latest edition of NEMA RN 1.
5. Liquid Tight Flexible Metal Conduit and Fittings
- a. Use liquid tight flexible metal conduit with spiral-wound, square locked, hot dip galvanized steel strip, manufactured in accordance with UL 1, UL 360, and DLA A-A-55810.
  - b. Fittings used with liquid tight flexible metal conduit shall match the conduit fittings for that area of construction. Aluminum conduit areas shall have aluminum fittings and galvanized conduit areas may be galvanized steel or malleable iron. Fittings shall be of such design as to thoroughly ground the conduit to the fittings, and through it to the box or enclosure to which it is attached.
  - c. Liquid tight flexible couplings and fittings for use in hazardous areas shall comply with UL 1203, NFPA 70-Article 501, and DLA A-A-50563B.
6. Explosion-Proof Conduit Outlet Body with Sealing Cover
- a. Corrosion-resistant construction rated for Class 1, Division 1 hazardous locations in accordance with the latest edition of UL 1203 and DLA A-A-50563B. Body and seal also to be provided with a neoprene O-ring gasket.
7. Electrical Metallic Tubing and Fittings
- a. Electrical Metallic Tubing (EMT) shall be galvanized steel tubing and shall comply with the latest NEMA C80.3 and UL 797 requirements.
  - b. EMT fittings shall be galvanized malleable iron or steel compression type which tighten around the tubing by use of hex compression nuts. EMT connectors shall have insulated throats. Zinc or pot metal compression fittings are not acceptable. Set screw EMT fittings are also not acceptable.

8. Epoxy Fiberglass Conduit and Fittings
  - a. Use epoxy fiberglass conduit, bends and fittings which comply with UL 2420 and UL 2515 and NFPA 70-Article 352 for underground applications.
  - b. Where used for bends greater than 15 degrees in underground duct bank conduits, provide epoxy fiberglass bends with a deep socket PVC coupling factory attached to each end of each bend.
  - c. When used for stub-ups, provide an epoxy fiberglass elbow with a vertical epoxy fiberglass nipple to extend the conduit upward to a termination point. Join the elbow to the nipple with an epoxy fiberglass straight socket connection joined with epoxy adhesive. On the top of the epoxy fiberglass nipple, provide an epoxy fiberglass conduit adapter to transition to rigid aluminum conduit. On the underground end of the epoxy fiberglass elbow, provide a factory attached deep socket PVC coupling to transition to Schedule 40 PVC conduit.
  - d. Epoxy fiberglass conduit shall have a wall thickness of 0.070" for sizes ¾" through and including 4" conduit. A wall thickness of 0.096" shall be provided for 5" epoxy fiberglass conduit.
9. Cable Tray and Fittings
  - a. Cable tray, bends, and covers shall be Aluminum with 316 Stainless Steel hardware. All tray accessories shall be specifically designed for the series of tray installed, field fabricated tray items are not acceptable. Cable tray shall be installed according to the latest revision of NEMA VE 2.
  - b. Dimensions:

Unless otherwise indicated on the Plans. Depth: 6", Width 24". Fittings shall have a minimum radius of 12 inches.
  - c. Type:

Unless otherwise indicated on the Plans all tray shall be Ladder type with 6 inch rung spacing.
  - d. Support:

All tray support components shall be specifically designed for the series of tray installed. Tray supports shall have a maximum spacing of 8'-0". Splice plates shall be "wedge lock" design with locking hardware.



e. Fittings:

All conduit entrance fittings shall be UL Listed and designed for the tray utilized.

f. Grounding:

Any disconnected sections of the tray system shall be bonded with copper grounding “jumpers”. All bonding hardware shall be 316 Stainless Steel. Any splice plate connection that exceeds 0.00033 Ohms shall have supplemental bonding with a copper jumper.

2.03 – 2.04 (NOT USED)

PART 3 EXECUTION

3.01 GENERAL / MANUFACTURER(S)

- A. Install all equipment and materials in accordance with the recommendations of each equipment manufacturer.
- B. Use only person skilled in type of work required by Plans, and Specification Sections.

3.02 PREPARATION

- A. Ensure that the conduit system to be installed is sized properly for the cable and wire requirements.
- B. Verify the actual physical conduit route from the conduit plan drawings and prepare the conduit support system.
- C. Verify the equipment locations to which the conduit shall be connected and determine detail requirements for connections.

3.03 INSTALLATION AND CONSTRUCTION

- A. Install rigid aluminum conduits in all indoor and outdoor locations, unless a different type of conduit is identified below for a specific application. The minimum bending radius for rigid aluminum conduits containing 5 kV and higher voltage cables shall be 36” for conduits 4” and smaller and 48” for conduits 5” and larger. If smaller radius bends are required at a particular location for rigid aluminum conduits containing 5 kV and higher voltage cables, submit to Project Manager for approval by Engineer, before proceeding with smaller radius bends.
- B. Install Schedule 80 PVC conduits in all indoor areas where chemicals are stored, metered, pumped or processed.
- C. Install all conduits concealed where possible, unless indicated otherwise on the Plans. All conduits underground to be encased in concrete.

- D. Install rigid galvanized steel conduits inside valve vaults and valve manholes.
- E. Install Schedule 40 PVC conduits for all underground applications including all single conduits, duct banks, and where conduits are encased in concrete slabs. See Section 16402 – “Underground Duct Banks” for additional requirements. For stub-ups, use epoxy fiberglass elbows with an appropriate length epoxy fiberglass nipple to extend the conduit to the surface of the concrete or 12” above grade where concrete will not be poured. Install a conduit adapter with threaded plug flush with the top surface of the concrete or 12” above grade in dirt areas where concrete will not be poured. The threaded plug shall be removed when the conduit is extended. Where stub-ups are in dirt, concrete encase PVC conduits 6” above grade.
- F. EMT conduits shall only be used where concealed in walls of air conditioned rooms or above lay-in ceilings in air conditioned rooms. EMT conduits shall not be installed exposed at any locations.
- G. Exposed Rigid Steel Conduit
1. Installation practices to be in accordance with AISI D100, AISI S100, and the NEC.
  2. Run exposed conduit parallel or perpendicular to walls, ceilings or main structural members.
  3. Group multiple conduits together where possible on hot dip galvanize Unistrut P-2000 supports or equal. Surface mount on structural members.
  4. Two or more conduits in the same direction shall have symmetrical bends for changes in direction. Use fittings to make changes in direction for conduits larger than 1-inch.
  5. Support conduits with screw clamp backs, U-bolts, parallel or right angle conduit clamps, as applicable.
  6. Use locknuts inside and outside of an enclosure and insulating bushings by O-Z/Gedney or equal to connect conduits.
  7. Cap all conduits during construction
  8. Install insulating type grounding bushings equal to O-Z/Gedney Type BLG at the conduit entrance to all electrical equipment such as transformers, motor control centers, and control panels.
  9. Install conduits to avoid moisture traps. Provide a “T” fitting at the bottom of long vertical conduit runs. Install a Crouse-Hinds ECD or equal drain in the bottom openings of the fitting.
  10. Install conduit system complete with outlet boxes and fittings before pulling in wiring.

11. Support conduits in accordance with the NEC, between couplings, on either side of bends, at terminations, and fittings.
  12. Use liquid tight flexible conduit in lengths of 24 to 36 inches to connect to motors, solenoid valves, and any equipment subject to vibration.
- H. Rigid Aluminum Conduit – Aboveground – Exposed Outdoors, Wet or Damp Locations
1. Install per paragraph 3.03.G.
  2. Conduits in damp locations to be installed so that they are exposed to air circulation on all sides.
  3. Use Myers Scru-Tite hubs or equal at all conduit entries to sheet metal enclosures outdoors.
- I. Conduits – In Concrete Construction
1. Use rigid steel except where concrete is in the contact with water or earth, Schedule 40 PVC to be used in these conditions.
  2. Install an O-Z/Gedney Type DX or equal watertight expansion fitting where conduit crosses expansion joints.
  3. Install conduit in the middle one-third of the slab or wall thickness.
  4. Do not install conduits in slabs or walls if there outside diameter exceeds one-third of the thickness of the slab or wall.
  5. Provide 1½ inches separation between conduits except at panelboard and motor control center locations where conduits have to be grouped.
  6. Install conduits at entrance to or exit from concrete construction so that curved portions are not visible externally.
  7. Terminate conduits designated for future use with flush conduit coupling and Crouse-Hinds PLG plug or equal. Adjust pipe plug so that it is flush with the finished surface.
  8. Sleeves through footings for exterior runs to be O-Z/Gedney Type FSK or WSK as required or equal by 3M Company or G&W Electric Company.
- J. Conduits – Below Ground
1. PVC Schedule 40
    - a. Install for individual runs and for grouped conduits.

- b. Encase in Class B concrete, minimum 24-inch ground cover, 2 inches between conduits' outer wall, 3-inch clearance to outside of envelope. Concrete to be red as poured. Minimum of 5 pounds red coloring per bag of cement. Red coloring to be manufactured by L. Sonneborn Co. or equal.
  - c. Reinforce each duct bank with one No. 4 reinforcing rod for each vertical row of conduits. Provide No. 4 stirrups at 24 inches on center where there is more than one reinforcing rod.
  - d. Slope conduits to pull boxes for drainage.
  - e. Transition to be of same material as above ground conduit when connecting to below ground conduit indoors. PVC-coated rigid steel elbow and coupling with approved adaptor to be used when transitioning from below ground conduit to above ground conduit outdoors.
  - f. Make all bends with a long radius elbow or with an approved hot box bender.
  - g. Install in accordance with the conduit manufacturer's recommendations. Use solvent weld cement sparingly. Do not use the clear-type fast-drying cement.
- K. Plastic Conduit – Above Ground
- Where specifically shown on Plans and always in chlorine and chlorine storage rooms, use PVC Schedule 40 heavy wall conduit installed in accordance with manufacturer's recommendations and with a continuous grounding wire. Seals to be installed in all aboveground and belowground conduits entering and exiting all chlorine rooms. Seals to be Crouse-Hinds Series EZS or equal.
- L. Conduit shall not interfere with the use of passageways, doorways, overhead cranes, monorails, equipment removal areas or working areas. In no case shall conduit routing present a safety hazard or interfere with normal plant operating and maintenance procedures. A minimum overhead clearance of 8'-0" shall be maintained in passageways.
- M. Installation and support of conduits shall be from steel or concrete structures using Type 316 stainless steel Unistrut P1000 (or equivalent by other vendors) attached with Type 316 stainless steel bolts, expansion anchors and associated hardware. Furnish necessary Type 316 stainless steel conduit straps, clamps, fittings, rods and supports for the conduit in accordance with standard construction practices. Above lay-in ceilings in air conditioned rooms and above chemical storage rooms, EMT conduits shall be supported using hot-dip galvanized steel Unistrut P1000 (or equivalent by other vendors) with hot-dip galvanized steel hardware.

- N. Not more than 3 equivalent 90 degree bends shall be permitted between outlets. Provide bonded expansion fittings at building expansion joints.
- O. Install conduit runs so that they are mechanically secure, mechanically protected from physical harm, electrically continuous, and neat in appearance. The interiors of conduit shall provide clean, smooth raceways through which conductors may be drawn without damage to the insulation. Make threaded connections wrench tight.
- P. Cut conduit square with a power saw or a rotary type conduit cutter designed to leave a flat face. Do not use plumbing pipe cutters for cutting conduit. Ream the cut ends of conduit with a reamer, designed for the purpose to eliminate rough edges and burrs. Threads shall be cut with standard conduit dies providing 3/4 inch taper per foot, allowing the proper length so that joints and terminals may be made up tight and the ends of the conduit not deformed. Keep dies sharp and use a good quality threading oil continuously during the threading operation. Remove metal cuttings and oil from the conduit ends after the threads are cut.
- Q. Make up changes in direction of conduit using elbows or fittings. Do not use pull boxes to make direction changes unless specifically designated otherwise.
- R. Field fabricated bends shall be free of indentations or elliptical sections. The radius of the bends shall not be less than listed in Paragraph 3.03A.
- S. Protect all conduit terminations from mechanical injury. Prevent the entry of moisture and foreign mater into the conduit system shall be prevented by properly capping terminations.
- T. Avoid trapped runs of conduit, if possible. When they are necessary, provide drainage using a "tee" conduit equipped with a drain. Conduit is likely to pass through areas with a temperature differential of 20 degrees F or more. Seal penetrations with a proper seal fitting at the wall or barrier between such areas. For conduit passing through walls separating pressurized areas from non-pressurized areas, install sealing fittings at the wall on the non-pressurized side.
- U. Fit all conduit crossing building or structure expansion joints with approved expansion fittings, except that fittings will not be required when conduit crossing an expansion joint is supported on trapeze hangers in such a way that at no time will the conduit be under stress due to expansion. Install bonding jumpers around expansion joint fittings.
- V. Where conduit terminates in sheet metal enclosures and where no threaded hubs are provided, fit the conduit with double locknuts and bushings. Sheet metal enclosures located outside or in any other wet, damp or corrosive areas shall be furnished with threaded hubs. Restrict side penetrations to the lower one third of the enclosure.
- W. Provide liquid tight flexible metallic conduit where necessary to allow for movement or to localize sound or vibration, at transformers, at motors and any other rotating equipment unless shown otherwise on Plans.

- X. Seal all openings or holes where conduits pass through walls or floors. When passing thru a firewall or floor, use a fire-rated seal. Certain walls, as indicated on the Plans, require environmental (air-tight) seals; seal as indicated on the Plans.
- Y. Install explosion-proof seals in conduit runs crossing or entering a hazardous classified area (as shown on Plans). Install type CSBE removable sealing fittings to seal pump cables between wet well and first junction box.
- Z. Unless otherwise indicated on the Plans, install expansion fittings every 300 feet within a straight conduit run and where conduit crosses building expansion joints, using bonding straps to ensure ground continuity.
- AA. Conduit Racks:
  - 1. Parallel runs of conduit may be supported by structural steel racks. When two or more racks are arranged one above the other, provide vertical separation of not less than 12 inches between racks, unless otherwise indicated on the Plans. Space conduits on the racks with at enough spacing to provide 1/4-inch clearance between the hubs on adjacent conduits at terminations and to allow room for fittings.
  - 2. Fill conduit racks no more than 75 percent of their capacity, providing usable space for future conduit. To ensure this, conduits leaving the rack horizontally shall be offset up or down so that future conduits may be installed in the space remaining. Construct conduit racks to permit access for wire or cable pulling at all pull points, even when future conduits are added to fill the racks.
  - 3. Where conduit racks are supported on rods from beam clamps or by some other non-rigid suspension system, install rigid supports at no more than 50-foot intervals to give lateral stability to the rack.
  - 4. Conduit racks or hangers shall in no way interfere with machinery (or its operation), piping, structural members, process equipment, or access to anticipated future equipment. Refer to architectural, structural, equipment layout and piping Plans to ensure that this requirement is met. Label high voltage conduit with the circuit phase-to-phase voltage by means of a firmly attached tag or label of approved design at each conduit termination, on each side of walls or barriers pierced and at intervals not exceeding 200 feet along the entire length of the conduit.
- BB. Support conduit sizes 2 inches and larger at spacings not exceeding 10 feet and conduit sizes 1-1/2 inches and smaller at spacings not exceeding 8 feet.
- CC. Support conduit runs with Type 316 stainless steel conduit clamps, hangers, straps and Type 316 stainless steel metal framing channel attached to structural steel members.
- DD. Install conduits supported from building walls with at least 1/4-inch clearance from the wall to prevent the accumulation of dirt and moisture behind conduit.

- EE. The minimum conduit size shall be 3/4-inch.
- FF. Install pipe caps for conduits marked “spare” and capped bushings for conduits marked “telephone.” Leave a nylon pull wire (200# tensile strength) in each spare conduit. Allow 12 inches minimum of slack at each end.
- GG. Identification:
1. Provide conduit tags for conduits as indicated in Section 16195 – “Electrical Identification.”
  2. Identify conduits at termination points like MCC, light fixtures, control panels, receptacles, and junction boxes.

3.04-3.10 (NOT USED)

END OF SECTION