

## SECTION 13 1611 – WATER FEATURE GROUNDING

**PART 1 - GENERAL**

## 1.1 SUMMARY

- A. This section includes the following:
  - 1. Furnish and install for entire electrical installation as specified below and described in the Contract Documents:
    - a. Separately Derived Systems.
    - b. Conduits and other conductor enclosures.
    - c. Neutral or identified conductor of interior wiring system.
    - d. Panel Boards and Control Panels.
    - e. Non-current-carrying metal parts of fixed equipment such as motors, starters and controller cabinets, light fixtures, and other metal water feature accessories.
- B. Related Sections:
  - 1. SECTION 13 1202 – WATER FEATURE STEEL REINFORCEMENT
  - 2. SECTION 13 1305 – WATER FEATURE ACCESSORIES
  - 3. SECTION 13 1502 – WATER FEATURE PUMPS AND MOTORS
  - 4. SECTION 13 1504 – WATER FEATURE CHEMICAL FEED SYSTEMS
  - 5. SECTION 13 1505 – WATER FEATURE OZONE GENERATION AND INJECTION
  - 6. SECTION 13 1506 – WATER FEATURE UV STERILIZERS
  - 7. SECTION 13 1507 – WATER FEATURE HEATERS
  - 8. SECTION 13 1508 – WATER FEATURE HYDRONIC SYSTEMS
  - 9. SECTION 13 1509 – WATER FEATURE CHILLERS
  - 10. SECTION 13 1510 – WATER FEATURE HEAT EXCHANGERS
  - 11. SECTION 13 1511 – WATER FEATURE VALVES, GAUGES, AND METERS
  - 12. SECTION 13 1602 – WATER FEATURE CONTROLS
  - 13. SECTION 13 1605 – WATER FEATURE CONTROL PANELS
  - 14. SECTION 13 1607 – WATER FEATURE PROGRAMMABLE LOGIC CONTROLLERS
  - 15. SECTION 13 1609 – WATER FEATURE MOTOR DISCONNECTS AND STARTERS
  - 16. SECTION 13 1610 – WATER FEATURE ELECTRICAL ACCESSORIES
  - 17. SECTION 26 0000 – ELECTRICAL
- C. References:
  - 1. NFPA 70 – National Electrical Code (NEC) – Article 250 Grounding
  - 2. Underwriters Laboratories (UL)

**PART 2 - PRODUCTS**

## 2.1 COMPONENTS

- A. Size materials as shown on the Contract Documents and in accordance with all applicable codes.
- B. Grounding Conductors shall be bare copper or copper with green insulation.
- C. Make grounding conductor connections to grounding electrodes and water pipes using approved bolted clamps of bronze or brass designed for such use.
- D. Concrete encases grounding electrode (UFER Ground): # 2/0 AWG bare copper conductor.
- E. Insulated grounding bushings: Plated malleable iron body with 150 °C molded plastic insulting throat, lay-in grounding lug with hardened stainless-steel fasteners.
- F. Grounding Rods: Steel with copper welded exterior 3/4-inch (20mm) diameter by 10-inches (250mm) long.

- G. Connections to structural steel, grounding rods, or splices: for splicing and/or connecting conductors, use exothermic welds or high pressure compression type connectors. Provide exothermic weld kits manufactured by Cadweld.

**PART 3 - EXECUTION****3.1 INSTALLATION**

- A. Pull ground conductors in all non-metallic raceways, flexible conduit, and liquid tight flexible conduit. Use same size ground as phase conductors up through #10 AWG. Using NEC Table 250-66 for all others unless otherwise stated on Contract Documents.
- B. Provide bonding jumpers across expansion and deflection couplings in conduit runs, across pipe connections at water meters, and across dielectric couplings in metallic cold water piping systems.
- C. Provide bonding jumpers from all wiring devices grounding terminals to metal back box.
- D. Provide grounding for water feature steel reinforcement and metal accessories and equal potential grid for water feature decks as per NEC.

END OF SECTION