**SECTION 26 41 00**

**LIGHTNING PROTECTION for STRUCTURES**

**PART 1 GENERAL**

1. SECTION INCLUDES
   1. Grounding and bonding for lightning protection
   2. Air terminals and interconnecting conductors
2. RELATED SECTIONS
   1. Section 07 52 00 - Roofing systems
3. REFERENCES
   1. LPI-175 - Lightning Protection Installation Standard
   2. LPI-177 – Inspection Guide for LPI Certified Systems
   3. NFPA 780 – Lightning Protection Code
   4. UL 96 – Standard for Lightning Protection Components
   5. UL 96A – Standard for Installation Requirements for Lightning Protection Systems
4. SYSTEM DESCRIPTION
   1. Lightning Protection systems: Provide conductor system protecting roofs consisting of air terminals on roofs, roof-mounted mechanical equipment, chimneys, stacks, steeple, parapets, and penthouse roofs; bonding of structure and other metal objects; grounding electrodes; interconnecting conductors, and irrigation pumps and structure.
5. SUBMITTALS
   1. Section 01 33 00 – Submittals Procedures for submittals.
   2. Shop Drawings:
      1. Indicate layout of air terminals, grounding electrodes, and bonding connections to structure and other metal objects.
      2. Include terminal, electrode, and conductor sizes and connection and termination details.
   3. Product Data: Provide dimensions and materials of each component, and include indication of listing in accordance with UL 96.
6. PROJECT RECORD DOCUMENTS
   1. Submit under Provisions of Section 01 33 00.
   2. Record the actual locations of air terminals, grounding electrodes, bonding connections, and routing of system conductors in project record documents.
7. QUALITY ASSURANCE
   1. Perform work in accordance with NFPA 780.
   2. Perform work in accordance with UL 96A and provide master label.
   3. Perform work in accordance with LPI-175 and provide LPI certification.
   4. Maintain one copy of each document on site.
8. QUALIFICATIONS
   1. Manufacturer: Company specializing in lightning protection equipment with minimum three years documented experience and member of the Lightning Protection Institute.
   2. Installer: Authorized installer of manufacturer with minimum three years documented experience and certified by the Lightning Protection Institute.
9. FIELD MEASUREMENTS
   1. Verify that field measurements are as indicated on shop drawings.
10. COORDINATION
    1. Coordinate work with roofing, exterior, and interior finish installations.

**PART 2 PRODUCTS**

1. COMPONENTS
   1. Air Terminals: Provide either solid copper or aluminum with adhesive bases for single-ply roof installations.
   2. Air Terminal for Chimney: Lead-coated copper
   3. Decorations: Ball
   4. Grounding Rods: Solid copper
   5. Ground Plate: Copper
   6. Grounding down conductors and grounding ring electrodes: Copper.
   7. Conductors except those noted above copper or aluminum.
   8. Connectors and Splicers: Bronze

**PART 3 EXECUTION**

1. INSTALLATION
   1. Install in accordance with NFPA 780, UL 96A, and LPI-175.
   2. Connect conductors using exothermic welding process.
      1. Protect adjacent construction elements and finishes from damage.
   3. Bond exterior metal bodies on building to the lightning protection system, and provide intermediate level interconnecting loops 60' (18 m) on center.
   4. Do not install copper lightning protection materials on aluminum roofing, siding, or other aluminum surfaces.
   5. Do not install aluminum lightning protection materials on copper surfaces.
   6. Protect copper components installed within 24" of the top of a chimney or vent emitting corrosive gases by a hot-dipped lead coating or equivalent.
   7. Down conductors shall be routed concealed in PVC sleeves installed in the structure.
   8. Connect conductor to metal bodies of conductance located within 6' by secondary conductor.
   9. Provide lightning protection for buildings, covered walkways, press boxes, scoreboards, and all other structures required by NFPA 780.
2. FIELD QUALITY CONTROL
   1. Obtain the services of Underwriters Laboratories, Inc. to provide inspection and labeling of the lightning protection system in accordance with UL 96A.
   2. Perform inspection and testing in accordance with NFPA 780.
   3. Provide owner with an Underwriters Laboratories final certification of the lightning protection system.
   4. Contractors' tests shall be scheduled and documented in accordance with the commissioning requirements.
      1. Refer to Section 01 91 00 - Commissioning, for further details.
3. DEMONSTRATION AND TRAINING
   1. Training of the Owner’s operation and maintenance personnel is required in cooperation with the Owner's Representative.
      1. Provide competent, factory authorized personnel to provide instruction to operation and maintenance personnel concerning the location, operation, and troubleshooting of the installed systems.
      2. Schedule the instruction in coordination with the Owner's Representative after submission and approval of formal training plans.
      3. Refer to Section 01 91 00, Commissioning, for further contractor training requirements.
   2. Provide demonstration and training for all types of lightning protection systems installed in this project.

END OF SECTION