

**SECTION 26 41 00  
FACILITY LIGHTNING PROTECTION**

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

- A. This section specifies the furnishing and installation of a complete UL master labeled lightning protection system. These parameters shall be applied to reconditioning of the existing system on this building as applicable.

**1.2 RELATED WORK - NA**

**1.3 QUALITY ASSURANCE**

- A. Electrician shall be qualified with minimum 5 years experience in this type of work.

**1.4 SUBMITTALS**

- A. Submit the following:
1. Shop Drawings:
    - a. Show locations of air terminals, connections to required metal surfaces, down conductors, and grounding means.
    - c. Show the mounting hardware and materials used to attach air terminals and conductors to the structure.
  2. Certifications: Two weeks prior to final inspection, submit the following.
    - a. Certification by the Contractor that the lightning protection system has been properly installed and inspected.
    - b. Certification that the lightning protection system has been inspected by a UL representative and has been approved by UL without variation.

**1.5 APPLICABLE PUBLICATIONS**

- A. Publications listed below (including amendments, addenda, revisions, supplements, and errata) form a part of this specification to the extent referenced. Publications are referenced in the text by designation only.
- B. National Fire Protection Association (NFPA):
- 70-11.....National Electrical Code (NEC)
- 780-11.....Standard for the Installation of Lightning Protection Systems
- C. Underwriters Laboratories, Inc. (UL):
- 96-05.....Lightning Protection Components

96A-07.....	Installation Requirements for Lightning Protection Systems
467-07.....	Standard for Grounding and Bonding Equipment

## **PART 2 - PRODUCTS**

### **2.1 GENERAL REQUIREMENTS**

- A. Lightning protection components shall conform to NFPA 780 and UL 96, for use on this structure. Aluminum materials are not allowed. To the extent that any components are required to be replaced, the following parameters shall apply:
1. Class I conductors: Copper.
  2. Class I air terminals (where required to be replaced): Solid copper to exactly match existing size and detail
  4. Ground rods: Copper-clad steel, 0.75 in (19 mm) diameter by 3 m (10 feet) long.
  5. Ground plates: Solid copper, not less than 20 gauge.
  6. Bonding plates: Bronze, 50 square cm (8 square inches).
  7. Through-roof connectors: Solid copper riser bar, length and type as required to accommodate roof structure and flashing requirements.
  8. Down conductor guards: Stiff copper or brass.
  9. Anchors and fasteners: Bronze bolt and clamp type shall be used for all applications except for membrane roof. Adhesive type are allowed only for attachment to membrane roof materials, using adhesive that is compatible with the membrane material.
  10. Connectors: Bronze clamp-type connectors shall be used for roof conductor splices, and the connection of the roof conductor to air terminals and bonding plates. Crimp-type connectors are not allowed.
  11. Exothermic welds: Exothermic welds shall be used for splicing the roof conductor to the down conductors, splices of the down conductors, and for connection of the down conductors to ground rods, ground plates, and the ground ring.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION**

- A. Removal and re-installation shall be coordinated with the roofing installer.

- B. Re-install all components in the exact locations as existing. Secure cables to building to make as inconspicuous as possible.
- C. Bond down conductors guards to down conductor at both ends.
- E. Make connections of dissimilar metal with bimetallic type fittings to prevent electrolytic action.
- F. Install ground rods and ground plates not less than 2 feet deep and a distance not less than 3 feet nor more than 8 feet from the nearest point of the structure. Exothermically weld the down conductors to ground rods and ground plates in the presence of the COTR.
- G. Bond down conductors to metal main water piping where applicable.
- H. Connect exterior metal surfaces, located within 3 feet of the conductors, to the conductors to prevent flashovers.
- I. Maintain horizontal or downward coursing of main conductor and insure that all bends have at least an 8 inch radius and do not exceed 90 degrees.
- J. Conductors shall be rigidly fastened every 3 feet along the roof and down to the building to ground.
- K. Air terminals shall be secured against overturning by firm attachment to the building or structure.
- L. Install air terminal bases, cable holders and other roof-system supporting means by using through-roof connectors for penetration of the roof system. Flashing shall be provided by roofing contractor.

### **3.2 ACCEPTANCE CHECKS AND TESTS**

- A. Test the ground resistance to earth by standard methods.
- B. A UL representative shall inspect the lightning protection system. Obtain and install a UL numbered master label for each of the lightning protection systems at the location directed by the UL representative and the COTR.

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