

## **PART I. GENERAL**

- 1.01 **Objective:** To provide a ground system in compliance with UL96a and NFPA 780 for a future lightning protection package that will utilize this ground system in a UL master labeled lightning protection system. The ground system will be installed with the foundation package.
- 1.02 **Standards:** The following specifications and standards of the latest issue form a part of this specification:
- (1) Underwriters Laboratories, Inc., (UL)  
*Installation Requirements for Lightning Protection Systems, UL 96A*
  - (2) Underwriters Laboratories, Inc.,  
*Lightning Protection Components, UL 96*
- 1.03 **System Design:** The work covered by this section of the specifications consists of furnishing all labor, materials and items of service required for the completion of a functional and unobtrusive lightning protection ground system approved by the architect, engineer, and in strict accordance with this section of the specifications and the applicable contract drawings.
- If any departure from the contract drawings or submittal drawings, covered below are deemed necessary by the Contractor, details of such departures and reasons therefore shall be submitted as soon as practical to the architect and engineer for approval.
- The lightning protection ground system shall be designed by a Lightning Protection Certified Master Designer and the drawing shall bear the seal. The seal shall be current at the time of submission and shall be signed by the Master Designer. This shall be accepted in lieu of a state certified engineers stamp on the lightning protection ground system drawings.
- 1.04 **Submittals:** Complete design drawings showing the type, size and locations of all ground electrodes, counterpoise cables, rebar grounds, down conductor tails, steel beam tails as well as connections to the utilities as required by NFPA 780 and UL 96a. Drawings and cuts of material shall be submitted to the architect and engineer for approval.
- 1.05 **Quality Assurance:** The lightning protection ground system shall conform to the requirements and standards for lightning protection systems of UL and NFPA.

## **PART II. PRODUCTS**

- 2.01 **Standard:** The system to be furnished under this specification shall be the standard product of a manufacturer regularly engaged in the production of lightning protection equipment and shall be the manufacturer's latest approved design. The equipment shall be UL listed and properly UL labeled. All equipment shall be new, and of a design and construction to suit the application where it is used in accordance with accepted industry standards and UL and NFPA requirements. All buried conductors shall bear the UL label at 10 foot intervals and be a product of one of the following UL listed manufacturers.

Acceptable Manufacturers:

## SECTION 16670 (also 13100): LIGHTNING PROTECTION SYSTEM

Northeast Lightning Protection, Bloomfield, CT  
East Coast Lightning Protection Equipment, Winsted, CT  
Advanced Lightning Technologies - Argyle, TX

- 2.02 **Equipment** : Provide and install a complete lightning protection ground system in compliance with the specifications and standards of the most current editions of the National Fire Protection Association's Lightning Protection Standard NFPA-780, and Underwriters Laboratories Lightning Protection Standard UL96-A. The ground system shall be installed by a lightning protection contractor who is listed by Underwriters Laboratories, Inc.
- 2.03 **Materials**: Copper, bronze fittings and copper clad steel electrodes.

### **PART III. EXECUTION**

- 3.01 **Installation**: The installation shall be accomplished by an experienced installation company that is listed with Underwriters Laboratories for lightning protection installation. The installation company shall utilize Lightning Protection Institute Certified Master Installers. All equipment shall be installed in a neat, workmanlike manner. The ground system shall consist of a buried loop conductor encircling the building perimeter. The loop conductor shall be sized per UL 96 as main sized copper conductor. It shall bond structural steel frame work at not less than a 60 foot average spacing around the perimeter and jump out all expansion joints at grade to provide a complete electrically continuous steel frame work.  
In the case of concrete construction, tails shall be left in such a manner that all down conductors required for the future lightning protection system shall have access to this ground system. The roof lightning protection system must be fully designed by the LPI certified installing contractor to provide the tail locations required for the next phase of lightning protection installation.  
Whips of conductor shall be provided from the loop to items such as water main, gas main, electric ground, Telco ground, underground pipe systems, steel rails, fencing, grade mounted electro-mechanical units as well as all required for a UL master label lightning protection system.
- 3.02 **Coordination**: The lightning protection installer will work with other trades to ensure a correct, neat and unobtrusive installation. The concrete contractor will be responsible for providing sleeves in the pours to accommodate all lightning protection ground system penetrations as required to comply with UL 96a.
- 3.03 **Inspection and Certification**: Upon completion of the lightning protection installation, the contractor shall furnish the Master Label issued by Underwriters Laboratories, Inc. for this system. If the protected structure is an addition to, or is attached to (as defined by UL96a), an existing structure that does not have a lightning protection system, the contractor shall advise the Owner of installation requirements on the existing structure to obtain the Master Label. If the existing structure does have a lightning protection system, the contractor shall advise the Owner of any additional work required on the existing system to achieve compliance with current UL Master Label requirements.