#### SECTION 26 41 13.14

**LIGHTNING PROTECTION FOR BUILDINGS - ROOF LEVEL UPGRADE**

#### BASED ON DFD MASTER ELECTRICAL SPEC DATED 03/01/23

***This section has been written to cover most (but not all) situations that you will encounter. Depending on the requirements of your specific project, you may have to add materials, delete items, or modify what is currently written. The Division of Facilities Development expects changes and comments from you.***

***Notes to Specifier: Pay special attention to items in italic typeface. Roof system options are identified within [brackets]. These and other items must be added to or deleted, as the project requires. This section has language for both new construction and re-roofing projects.***

part 1 - GENERAL

Scope

The work under this section includes all labor, material, equipment and related services necessary to upgrade or reinstall the roof level portion of an existing lightning protection system.

PART 1 - GENERAL

 Scope

 Related Work

 Reference Standards

 Design and Installation Criteria

 Qualifications of Manufacturing and Designing/Installing Firms

 Submittals

 Guarantee

PART 2 - PRODUCTS

 Materials

PART 3 - EXECUTION

 Installation

 System Test

RELATED WORK

Applicable provisions of Division 1 shall govern work under this Section.

Section 07 63 00 – Sheet Metal Roofing Specialties

Section 26 05 26 – Grounding and Bonding for Electrical Systems

**reference STANDARDs**

NFPA 780 - Standard for the Installation of Lightning Protection Systems

UL 96A - Standard for Installation Requirements for Lightning Protection Systems

UL 96 – Standard for Lightning Protection Components

## **DESIGN AND INSTALLATION CRITERIA**

Lightning protection system shall be designed, furnished and installed in compliance with the specifications and standards of the most current editions of NFPA 780, UL 96 and UL 96A, and shall meet the materials, design and installation requirements of the Underwriters Laboratories, Inc. Master Label Program for lightning protection systems. Note: The UL Master Label Certification process is NOT required for this project.

If any departures from the contract documents are deemed necessary by the Contractor, details of such departures and the reasons therefore shall be submitted as soon as practicable to the Architect/Engineer for approval. No such departures shall be made without the prior written approval of the contracting officer and the DFD Representative.

After installation, submit a written report certifying that the lightning protection system is up to the indicated current standards.

## **QUALIFICATIONS OF EQUIPMENT MANUFACTURER AND DESIGNING/INSTALLING FIRM**

Manufacturer: Equipment manufacturer shall be listed with Underwriters Laboratories, Inc. as a lightning protection equipment manufacturer. Minimum 10 years experience.

Designer/Installer: Lightning protection system shall be designed and installed by a contractor that is listed with Underwriters Laboratories for lightning protection. Minimum 10 years experience.

**submittals**

**Shop Drawings:**

Shop drawings shall be submitted for all materials provided under this Section.

Submit installation drawings showing the type, size and location of all equipment, ground connections and cable routings, etc.

Samples shall be submitted to Architect/Engineer for approval upon request.

After the completion of the project, and prior to final payment, submit:

Written statement from the Installer that the roof level portion of the installation would qualify for a UL “Master Label”, if other portions of the lightning protection system, not disturbed under this project, were eligible for such certification. Statement shall be provided on Installer’s letterhead stationery.

## **GUARANTEE**

Guarantee for one year after acceptance by the DFD Representative all equipment, materials and workmanship to be free from defect.

Provide replacement parts for components found defective at no extra cost to the Owner.

part 2 - PRODUCTS

**MATERIALS**

All components shall be listed and labeled for compliance with UL 96 – Standard for Lightning Protection Components.

Installer shall provide and install any new components necessary to replace existing damaged or missing components, and components to upgrade system as required.

New products shall be as follows for all new work except over existing or new aluminum metal flashing. Installation over new aluminum or to connect to existing aluminum lightning protection cabling shall comply with acceptable products and methods for such installations.

Air Terminals: [3/8”][½”] x [12”][18”] solid copper, blunt tip with copper or cast copper/bronze bases and stainless steel bolt-pressure cable connectors.

Main and Down Conductors: UL listed, Class I or Class II Copper. Main conductors shall have cross-sectional area of 65,000 circular mils minimum.

Cable Connectors: Cast copper/bronze with bolt-pressure type stainless steel bolts and nuts. Cast or stamped crimp fittings are unacceptable.

Fasteners: Non-corrosive, sizes and lengths to suit conditions.

Other products, not specifically described, but required for a complete and proper installation of the work in this section shall be selected by the Contractor subject to the approval of the Architect/Engineer.

part 3 - EXECUTION

**INSTALLATION**

Install all components in accordance with NFPA 780 and UL 96 and 96A requirements, and the following:

Equipment/objects to be bonded include, but are not limited to, the following:

Rooftop structural steel, access ladders, raised platforms and handrails.

Sheet metal and flashing, louvers, grilles, equipment screens.

Exhaust fans, other HVAC equipment, rooftop ductwork, piping, plumbing vents.

Primary bonds shall be made with appropriate fittings and full-size secondary conductors. Secondary conductors must pass continuously horizontally, or down from point of bond to point of connection to main conductor. Connections between dissimilar metals shall be made with approved bimetallic connectors.

All conductors shall be fastened at 3’- 0” O.C., maximum, using appropriate methods.

Air terminals shall be mounted in such a way that they project a minimum of 10” above the object being protected.

Bond roof level main conductors to existing down conductors.

**[SYSTEM TEST]**

[Provide a Ground Loop Conductor (GLC) continuity test, wire to wire to test resistance. Submit written results of the test. Statement shall be provided on Installer’s letterhead stationery.]

[If the existing system was installed as an individual Ground Rod System, perform an Ohm test at each down conductor. Submit written results of the test. Statement shall be provided on Installer’s letterhead stationery.]

END OF SECTION