
SECTION 260923 – ADD ALTERNATE
LIGHTNING PROTECTION SYSTEM - CLASS [I | II]

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide a lightning protection system of the [**exposed | concealed**] type for protection of concrete block buildings and conforming to Underwriters Laboratories, Inc. Standard UL 96A, Master Labeled Lightning Protection Systems.
- B. As an additional add alternate, provide a fully functioning Prevelectron 3 system by Indelec

1.02 SUBMITTALS

- A. Provide manufacturer's product specification sheets on the following:
 - 1. Each type of device.
 - 2. Conductors.
 - 3. Ground rods.
 - 4. Connectors.
- B. Provide layout roof plan showing the locations and sizes of all air terminals, roof conductors, downlead conductors, ground rods and all associated equipment.

1.03 CERTIFICATES

- A. Submit certification of authorized installer's experience and a list of similar buildings on which personnel have installed Master Label lightning protection systems as specified herein.
- B. Submit Underwriters Laboratories form, Application for Master Label, for Architect/Engineer's approval after installation is complete.

PART 2 PRODUCTS

2.01 FABRICATION AND MANUFACTURE

- A. Devices
 - 1. Ground Rods: As specified in Section 260526.
 - 2. Cable to Ground Rod Connector: Heavy duty cast bronze, two bolt clamp.
 - 3. Downlead Conductors: From roof to ground shall be Class [I | II] copper.
 - 4. Main Roof Conductors: shall be class [I | II] [copper | aluminum].
 - 5. Cable Fasteners: Shall be substantial in construction, electrolytically compatible with the conducting and mounting surface for which they are to be used.
 - 6. Bonding Devices: Cable splicers and connectors shall be of cast [bronze | aluminum] with bolt pressure connection to cable. Cast or stamped crimp fittings are not acceptable.
 - 7. Bimetal Transition Fittings: Shall be used to change from aluminum roof conductors to copper downlead cable. [and any other aluminum to copper connection]
 - 8. Air Terminals: Shall be solid round [copper or bronze | aluminum] having a minimum diameter of [3/8" | 1/2"] and of sufficient length to extend above the object to be protected not less than 10 inches nor more than 36 inches. Provide suitable braces located at a point not less than one-half the height of the air terminal for support of air terminals exceeding 24 inches in height.

9. Air Terminal Bases: Shall be of cast [bronze | aluminum] with bolt pressure cable connections and shall be securely mounted with stainless steel screws or bolts. Crimp type connectors at base are not acceptable.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install all equipment and conductors as required by Underwriters Laboratories Standard UL 96A for building configurations as indicated, and as required.
- B. Place air terminals on ridges, around the perimeter of flat roof, and on the corners and edges of gently sloping roofs at intervals not exceeding 20 feet, except that where air terminals are 24 inches or higher, place them at intervals not exceeding 25 feet. Place air terminals at or within 2 feet of the ends of the ridges, corners, or edges of main roofs or prominent dormers. Where flat or gently sloping roofs exceed 50 feet in width, install additional air terminals and place them on the roof conductor at intervals not exceeding 50 feet. Install air terminals on metallic elevations where the metal strength and conductivity do not approximate that of a standard air terminal, and on nonconducting material elevations as required.
- C. Bond air terminals to the structural steel framework of the building by means of main conductors, "through the roof connectors" and bonding plates as specified, or connect air terminals together with roof conductors on the roof of the building. If roof conductors are to be used, bond conductor to the structural steel framework in not less than the same number of places as there are groundings for the building, using "through the roof connectors" and bonding plates as specified.
- D. Where roof conductors are to be used, course roof conductors along ridges of gable, gambrel, and hip roofs and around the perimeter of flat and gently sloping roofs. Interconnect all air terminals with roof conductors and afford a two-way path to ground from each except as permitted by the referenced Standard. Course conductors over flat or gently sloping roofs that exceed 50 feet in width to inter-connect air terminals required in the previous paragraph. Provide cross runs inter-connecting these runs and the perimeter conductor at intervals of at least 150 feet. Bond metal elevations, air conditioning equipment, exhaust fans and antenna to a main roof conductor. Install conductors such that no bend is less than 90 degrees and the minimum bending radius is not less than 8 inches. Provide fasteners and conductor guards as required by the referenced Standard. Use approved connection fittings of a non-corrosive type for splices and connections.
- E. Provide ground connections at approximately every 100'.
- F. Bond metallic bodies of conductance and inductance as required by the referenced Standard.
- G. Do not install copper lightning protection materials on aluminum roofing or siding material or other aluminum surfaces.
- H. Do not install aluminum lightning protection equipment on copper roofing materials or other copper surfaces. Do not use aluminum conductors lower than one foot above grade level. Do not attach aluminum conductors to a surface coated with alkaline-base paint, or embed them in concrete or masonry, or install them in a location subject to excessive moisture.
- I. Wherever system components pass through built-up roofing, install "through the roof connectors" in pitch pots. Furnish pitch pots for installation under other sections.
- J. Provide at least four Class I copper conductor inter-connections between each building protection grounding system and the associated building system. Make connections below grade and at approximately equal intervals around the buildings.

END OF SECTION