

Lightning Protection System
Section 16670

PART 1: GENERAL

1.1 Scope of work:

- A. Under this section of the specifications, the contractor shall furnish all materials required for the completion of a functional lightning protection system consisting of air terminals, conductors, grounds, and other component parts for protection against damage by lightning in strict accordance with this section of the specifications and any applicable contract drawings.
- B. The completed system shall bear the UL master label "C" at the option of the owner.

1.2 Standards:

- A. The following specifications and standards shall form a part of this specification
 - 1. NFPA 780 – Standard for the Installation of Lightning Protection Systems
 - 2. UL 96 – Lightning Protection Components
 - 3. UL 96A – Installation Requirements for Lightning Protection Systems
 - 4. LPI 175 – Standard of Practice for the Design – Installation – Inspection of Lightning Protection Systems

1.3 Submittals:

- A. Complete shop drawings indicating the location, size, and means of support for all equipment, grounds, cable routings, bonding connections, etc. shall be submitted to the architect and engineer for approval prior to start of work. Any changes to submitted design shall be approved by the lightning protection manufacturer before work is started.

PART 2: PRODUCTS

1.4 Manufacturers

- A. Robbins Lightning, Inc.
124 East Second Street
Maryville, Missouri, 64468
Phone: 660.582.3156
Fax: 660.582.3039
www.robbsinlightning.com
- B. Approved Equal.

1.5 Materials

- A. All components shall be new, and of a design and construction to suit the application. All components shall be the standard product of a manufacturer regularly engaged in the production of lightning protection systems.
- B. All components shall conform to the requirements of UL 96, UL 96A, and NFPA 780 for the specified structure, and shall be UL listed for lightning protection. All components shall

- bear proper UL labels.
- C. System materials shall be sized according to NFPA and UL requirements for Class I and Class II buildings as applicable
 - D. System components shall be aluminum and aluminum castings, and shall comply in weight, size and composition for the class of structure to be protected. Where aluminum cannot be used due to harmful electrolytic action, copper components shall be utilized.
 - E. Aluminum air terminals shall be UL listed, solid, 1/2" diameter round aluminum bar, blunt tipped, and of sufficient length to project at least 10" above the object to be protected.
 - F. Point bases shall be cast aluminum with bolt pressure cable connectors.
 - G. Ground rods shall be copper clad steel, 3/4" diameter by 10' long driven to a minimum of 10' deep.
 - H. All underground connections shall be of the bolted clamp type.
 - I. Bonding lugs, plates, and clamps shall be cast aluminum with bolt pressure cable connections with stainless steel hardware.
 - J. All connections between dissimilar metals shall be made with approved bimetallic connectors.
 - K. No aluminum components shall be installed within two feet of grade. The system shall transition to copper components a minimum of two feet above grade with approved bimetallic connectors. All components below grade shall be copper or copperclad, or tinned copper.

PART 3: EXECUTION

3.1 System Design:

- A. The lightning protection system shall be designed by an approved manufacturer with at least 5 years of experience in designing & manufacturing lightning protection systems and components.

3.2 Installation:

- A. The system shall be installed by a licensed electrical contractor, LPI certified Master Installer, or an installer with at least 5 years of experience as a UL Master Label Installer.
- B. All system components shall be cast metal of substantial construction suitable for the application. Cable holders shall be stamped or cast metal suitable for the application. Cable splicers shall be cast metal secured with bolted-pressure clamps. Stamped or cast crimp fittings shall *not* be acceptable. All bolts, screws and related hardware shall be stainless steel.
- C. Care shall be taken to prevent the installation of materials in locations where the presence of moisture will accelerate the corrosion of such materials. aluminum materials shall not be installed on aluminum, galvalum, or galvanized steel surfaces. Aluminum materials shall not be installed on aluminum surfaces, or in the runoff from aluminum surfaces or components.
- D. System components shall be concealed where practicable.
- E. System downleads shall be run in PVC conduit.
- F. The roofing contractor shall be responsible for installing and sealing all through-roof penetrations, and sealing all other roof penetrations.
- G. The system shall be installed in accordance with UL-96A, NFPA-780 and LPI-175, and with the design provided by the system manufacturer.
- H. The system installer shall coordinate the work with other trades to ensure that the system is installed in a neat and inconspicuous manner and that all components blend in with the

general building appearance.

- I. All required sealing, flashing, or other nonstandard items required for the Lightning Protection System to not void the roof warranty shall be furnished and installed by the roofing contractor.
- J. A common ground shall be provided between the lightning protection system, and the building electric and telephone service grounds. All underground metallic piping systems shall be bonded to the lightning protection system with main sized lightning protection conductor where they enter the building.
- K. All isolated metallic bodies on the structure within 6 feet of a lightning protection component shall be bonded to the lightning protection system if not inherently bonded through the building frame. Grounded metallic bodies on the structure shall be bonded to the lightning protection system according to the requirements of UL 96A and NFPA 780.

3.2 Field Quality Control:

- A. The lightning protection system shall be installed under the supervision of a LPI certified Master Installer, or an installer with at least 5 years of experience as a UL Master Label Installer.

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- bear proper UL labels.
- C. System materials shall be sized according to NFPA and UL requirements for Class I and Class II buildings as applicable
 - D. System components shall be copper and high copper-content bronze castings, and shall comply in weight, size and composition for the class of structure to be protected. Where copper cannot be used due to harmful electrolytic action, aluminum components shall be utilized.
 - E. Copper air terminals shall be UL listed, solid, 1/2" diameter round copper bar, full nickel plated, blunt tipped, and of sufficient length to project at least 10" above the object to be protected.
 - F. Point bases shall be cast bronze with bolt pressure cable connectors.
 - G. Ground rods shall be copper clad steel, 3/4" diameter by 10' long driven to a minimum of 10' deep.
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