

Lightning Protection Specification

Lightning Protection System

- 1.1 General:
 - A. The Contractor shall provide and install a complete Lightning Protection System for all of the building(s) included in this project. This specification addresses the requirements of Lightning Protection Systems for buildings only.
 - B. Compliance Requirements
 1. System Design: NFPA 780, latest edition.
 2. Component Design: UL 96 Standard, latest edition, L.P.I. 175.
 3. Certification: Lightning Protection Institute Certified System and Underwriters' Laboratories 96A Master Label, Lightning Protection Institute certification.
 - C. Submittals
 1. Complete Shop Drawings
 - a) Layout
 - b) Details
 2. Catalog Data with complete description of material components.
- 1.2 Product:
 - A. Manufacturer:
 - B. Prior approved manufacturer, who is a Lightning Protection Institute Member in good standing.
 - C. Materials are to be listed and labeled in accordance with Underwriters' Laboratories 96A requirements.
- 1.3 System Design:
 - A. System to be designed and installed by a L.P.I. Certified Master Installer/Designer in good standing with the Lightning Protection Institute.
 - B. System to consist of groundings, down conductors, air terminals, interconnecting conductors and bonding, designed to appear as a part of the building.
 - C. Design to be complete per current NFPA 780 requirements.
 1. Class II Aluminum materials required.
 2. Class II Copper materials required.
 3. Aluminum Lightning Protection materials not to be embedded in concrete or masonry or installed on or below copper surfaces.
 4. Copper Lightning Protection materials not to be installed on aluminum surfaces.
 5. Grounding shall be suitable for the soil conditions per NFPA 780, this may include:
 - a) Ground loop only (full size cable) 2/0 buried 18 in. deep.
 - b) Ground loop combined with $\frac{3}{4}$ x 10 ft. rods buried 18 in. deep.

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6. Strike termination devices (air terminals) required as follows, unless the area in question is located under a zone of protection.
 - a) Minimum 10 in. projection above the object projected.
 - b) Maximum 20 ft. spacing on roof ridges or edges.
 - c) Maximum 24 in. distance from ridge ends or roof edges & outside corners.
 - d) Penthouses, Protrusions and Mechanical roof top equipment, same guidelines.
 - e) Strike termination devices required on eaves of sloping roofs, when the eave is over 50 ft. in height.
 - f) Mid-roof areas are to be provided with Strike termination devices at either 50 ft. spacing or provided with Strike termination devices of sufficient quantity & height, to ensure the entire roof area is covered by a “zone of protection” as afforded by a 150 ft. radius sphere (per NFPA 780).
 - g) Strike termination safety devices to be provided in mid-roof areas and high traffic areas. Material to be the same as, or an alloy of, the point and base and to be one of the following:
 - 1) Safety tipped point
7. Bonding is required in strict accordance with NFPA 780
 - a) Ground level potential equalization; below the 12 ft. elevation of the structure all grounded media to be interconnected.
 - b) Ground loop required for structures 60 ft. in height.
 - c) Lightning surge suppressors to be provided on electrical and communication service entrances and on communication antenna lead-ins.

1.4 Installation:

- A. L.P.I. Certified Master Installer required with a minimum of five (5) years experience.
- B. Complete per requirements of NFPA 780.
- C. Neat and inconspicuous manner.
- D. All mounting & penetration of roof surface shall be coordinated with roofing contractor to assure maximum roofing guarantee.
- E. All through-roof penetration flashings to be furnished, sealed and guaranteed by the roofing contractor.
- F. Fasteners:
 1. At 3 ft. centers, maximum, on exposed conductor runs.
 2. As necessary to maintain position and hold permanently in place on concealed runs of conductor.

1.5 Final Acceptance:

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- A. Procurement of L.P.I. Certification includes jobsite verification and completion of:
 - 1. Witness of Grounding System & Grade bonding (Stage I)
 - 2. Inspection of concealed equipment between roof & grade (Stage II)
 - 3. Final inspection of exposed equipment on roof (Stage III)
- B. Procurement of Underwriters' Laboratories Master Label indicating completion of;
 - 1. Show owner or his representative the type and manner of placing groundings and receiving his record of review.
 - 2. Completion of application form and submission to Underwriters' Laboratories for issuance of certification.
- C. Installation of Installer's Nameplate at location designated on UL application form.
- D. Any components or methods found to be not in accordance with this specification shall be repaired or replaced without cost to the owner.

1.6 Special consideration:

If this contract includes the construction of a building or buildings that are physically connected to an existing building or are additions to existing structures, then the Lightning Protection System(s) for the new construction shall comply with the standards stated above. The delivery of the L.P.I. Certification and the Underwriters' Laboratories Master Label shall not be required. In place of this certification or label the procedures of each program shall be followed to deliver partial or qualified certification outlined by either organization.