

SECTION 26 41 13 - LIGHTNING PROTECTION FOR STRUCTURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Division 26 Section- "Grounding and Bonding for Electrical Systems".

1.2 SUMMARY

- A. This Section includes lightning protection for buildings and building elements.

1.3 DEFINITIONS

- A. LPI: Lightning Protection Institute.
- B. NRTL: National recognized testing laboratory.

1.4 SUBMITTALS

- A. Product Data: For air terminals, conductors and mounting accessories.
- B. Shop Drawings: Detail lightning protection system, including air-terminal locations, conductor routing and connections, and bonding and grounding provisions. Include indications for use of raceway, data on how concealment requirements will be met, and calculations required by NFPA 780 for bonding of grounded and isolated metal bodies.
- C. Qualification data for firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include data on listing or certification by an NRTL or LPI.
- D. Certification, signed by Contractor, that roof adhesive for air terminals is approved by manufacturers of both the terminal assembly and the single-ply membrane roofing material.
- E. Field inspection reports indicating compliance with specified requirements.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer who is an NRTL or who is certified by LPI as a Master Installer/Designer. Installer shall provide new work and connect to existing lighting protection system to provide one master label for the building.
- B. Listing and Labeling: As defined in NFPA 780, "Definitions" Article.
- C. Comply with UL 96 Standards.

1.6 COORDINATION

- A. Coordinate installation of lightning protection with installation of other building systems and components, including electrical wiring, supporting structures and building materials, metal bodies requiring bonding to lightning protection components, and building finishes.
- B. Coordinate installation of air terminals attached to roof systems with roofing manufacturer and Installer. Provide connections that comply with roofing material.
- C. All air terminals mounted on the roof parapet shall be installed on the inside face of the parapet wall not on the top of the parapet.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. System manufacturers listed below shall provide new work and connect to the existing lighting protection system to provide one master label for the entire building.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Automatic Lightning Protection.
 - 2. ERICO International Corporation.
 - 3. Harger Lightning Protection, Inc.
 - 4. Heary Bros. Lightning Protection Co. Inc.
 - 5. Independent Protection Co.
 - 6. Robbins Lightning Inc.
 - 7. Thompson Lightning Protection, Inc.

2.2 LIGHTNING PROTECTION SYSTEM COMPONENTS

- A. Comply with UL 96.

- B. Roof-Mounting Air Terminals: NFPA Class II, copper, solid.
 - 1. Single-Membrane, Roof-Mounting Air Terminals: Designed for single-membrane roof materials.
- C. Stack-Mounting Air Terminals: Solid copper, Monel metal.
- D. Ground Rods, Ground Loop Conductors, and Concrete-Encased Electrodes: Comply with Division 26 Section "Grounding and Bonding for Electrical Systems" and with standards referenced in this Section.
- E. Ground ring conductor shall be minimum 37 strands totaling 167,800 circular mils, copper.
- F. Down conductors shall be minimum 37 strands totaling 167,800 circular mils copper in 1" PVC conduit.
- G. Steel framing (minimum 3/16 inch thick) may be used for the lighting protection component if electrically continuous, or made so. Cable system shall be utilized if building construction is not structural steel columns.
- H. All materials shall be Class II.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install lightning protection components and systems according to UL 96A and NFPA 780.
- B. Install conductors with direct paths from air terminals to ground connections. Avoid sharp bends and narrow loops.
- C. Conceal the following conductors:
 - 1. System conductors.
 - 2. Down conductors and shall be in minimum 1" PVC conduit.
 - 3. Interior conductors.
 - 4. Conductors within normal view from exterior locations at grade within 200 feet (60 m) of building.
 - 5. Notify Architect at least 72 hours in advance of inspection before concealing lightning protection components.
- D. Cable Connections: Use approved exothermic-welded connections for all conductor splices and connections between conductors and other components, except those above single-ply membrane roofing.
- E. Air Terminals on Single-Ply Membrane Roofing: Comply with adhesive manufacturer's written instructions.

- F. Bond extremities of vertical metal bodies exceeding 60 feet (18 m) in length to lightning protection components.
- G. A ground ring based on requirements in Division 26 Section "Grounding and Bonding for Electrical Systems" shall be used as a ground loop required by NFPA 780.
- H. Bond lightning protection components with intermediate-level interconnection loop conductors to grounded metal bodies of building at 60-foot (18-m) intervals.

3.2 CORROSION PROTECTION

- A. Do not combine materials that can form an electrolytic couple that will accelerate corrosion in the presence of moisture unless moisture is permanently excluded from junction of such materials.
- B. Use conductors with protective coatings where conditions would cause deterioration or corrosion of conductors.

3.3 FIELD QUALITY CONTROL

- A. UL Inspection: Provide inspections as required to obtain a UL Master Label for system.
- B. Provide an inspection by an inspector certified by LPI to obtain an LPI certification.
- C. Install installer's nameplate at location designated on UL application form.
- D. Any components or methods found not to be in accordance with this specification shall be repaired or replaced without additional cost to the Owner.

END OF SECTION