Lightning Protection Installation Training Course Outline

Number of Participants: Up to Maximum of 25 *(First-come, first-served)*

Number of Course Hours: 12

Course/Presentation Description: To review lightning protection design and installation requirements compliant with nationally recognized standards NFPA 780 and UL 96A.


Section 2: Ground Work: Ground work aspect of a lighting protection system, Key Definitions; Grounding, Loop conductor, Ground Ring, Ground Rod Electrodes, Grounding Requirements, System Components; Copper Clad, Solid Copper, Stainless Steel, Sectionals, Ground Rod Terminations, Mechanical Connections, Suggested Tools and Understanding Critical Points

Section 3: Down Conductors & Bonding: Down conductors and related bonding aspects of a lightning protection system, Bonding Conductors, Metal Clad/Metal Frame Structures, Key Definitions and Requirements, Techniques and Installation Practices; Thru Roof, EDPM Roofing, Thru-Wall Connectors, Bonding Plates, Exothermic Connections, Suggested Tools, Requirements of Down Conductors and Critical Points

Section 4: Rooftops: Requirements for Roof Types; Flat, Mansard, Gambrel, Gable, Hip and Broken Gable, Zone of Protection, Components used on rooftops; Air Terminals & Bases, Cable Connectors, Pipe Clamps, Strike Termination Devices, Conductors, Understanding Zone of Protection, Requirements of Installed Components, Critical Points, Bad Installation Examples of Down Conductors, Incorrect Cable Fasteners, Air Terminals, Corrected Versions of Poor Installations,
(how to correct) Understanding Requirements of Installing Roof Top System, Suggested Tools

**Section 5: Concealed Systems**: Concealed Systems Installation Guidelines and Examples; Under Roof, Behind Exterior Façade, Copper Conductor in Concrete or Masonry, Structural Steel Systems Installation Guidelines and Examples; Using the structure as a Down Conductor, 3 Ways to Connect Conductor to Structural Metal: Mechanically, Welding, or Brazing, Bad Installation Examples

**Section 6: Bonding Requirements & Potential Equalization**: Bonding of Metal Bodies, Understanding the Distance Requirements, Understanding NFPA 780 Formula for Bonding Requirements, Isolated (Non-Grounded) Metallic Bodies, Achieving Potential Equalization

**Section 7: Surge Protection Devices**: Definitions, Understanding Surge, Transient, Voltage Protection Rating, Maximum Discharge Current, Power Service Entrances Requirements, Communications Surge Protection Requirements, NFPA 70, National Electrical Code, Installation Requirements,

**Section 8: Project Management**: Bidding Process; Creating or Obtaining Layout of LP System, Required Specs & Why, Elevations, Roofing Types, Construction Drawings, What’s Included; Height, Roof Top Details, Building Sections, Electrical Drawings, LP Drawings, Obtaining Materials Estimates, Pricing (list) Submittal Process, Installation, Certification Process, Common Installation Errors, Maintenance Programs; Visual Inspection, Continuity Tests, Ground Resistance Testing, New additions to Building

**Section 9: UL Listed LP Installer**: What it means to be a UL Listed Installer, Companies & Products are Listed, Not People, UL Master Label Certificate, How to Become a UL Listed Installer, Requirements, Fees, Benefits to Using Harger, Harger Materials, Shop Drawings, Field Support