CONNECT AND PROTECT

Lightning Protection Solutions
Protection Solutions from the Ground Up
LIGHTNING ACCOUNTS FOR
MORE THAN
ONE BILLION DOLLARS
ANNUALLY
IN STRUCTURAL DAMAGE
to buildings in the U.S.
– UL

LIGHTNING OFTEN STRIKES
THE SAME PLACE
REPEATEDLY
IF IT IS A TALL, ISOLATED OBJECT
– National Oceanic and Atmospheric Administration (NOAA)

LIGHTNING IS THE
MOST DANGEROUS
+ FREQUENTLY ENCOUNTERED
WEATHER HAZARD
THAT MOST PEOPLE EXPERIENCE
EACH YEAR
– National Severe Storm Laboratory

ARE YOU AT RISK?

THE PROBLEM

While lightning itself cannot practically be prevented, a lightning protection system is intended to control the passage of a discharge in such a manner that minimizes personal injury, property damage or system disruption. In a world of increasingly complex and sophisticated buildings and equipment, lightning is a constant risk. A single direct strike can result in physical damage to buildings and catastrophic failure of electrical equipment. It can start fires, cause major breakdowns to electrical, communications and utility installations and simultaneously cause substantial loss of revenue.

Achieving an adequate level of protection results in prevention of costly downtime. Proper protection of structures, operations and personnel demands a systematic and comprehensive approach. A lightning protection system or expensive surge protective device (SPD) will not function properly without a good grounding system. A low-impedance grounding system may create hazards to personnel and equipment without proper bonding. These interdependent disciplines are best applied when considering a total facility, rather than an individual portion.
WHAT WE DO

Risk must be assessed in the early stages of structure design to select the level of protection and methodology best suited for each application. Having more than one option in lightning protection methodology, technology and design helps overcome common obstacles to lightning protection system installation such as:

1. Capture the lightning strike to a preferred point.
2. Convey this energy to the ground.
3. Dissipate the energy into the grounding system.
4. Bond all ground points together.
5. Protect incoming AC power feeders.
6. Safeguard low voltage data/telecommunications circuits.

The methodology embraces all aspects of potential damage, from the obvious direct strike to the more subtle mechanisms of differential Earth potential rises and voltage induction at service entry points.

Based on our Six Point Plan of Protection, we evaluate a site and provide customized recommendations for a system and installation design.

SUPPORT SOLUTIONS

With more than a century of experience in grounding, bonding, surge and lightning protection, nVent ERICO can provide complete electrical protection from the ground up for any application or worldwide location.

With a dedicated application engineering support team, nVent ERICO:

- Evaluates risk, on- or off-site
- Recommends systems and project specifications
- Designs systems compliant with global standards
- Offers technical support
- Provides training
- Commissions and recommends qualified installation

Today, nVent ERICO has designed and installed lightning protection systems for:

- Airports • Amusement Parks • Churches • Commercial Facilities • Data Centers • Education and Research Buildings
- Government Buildings • Historic Structures • Hospitals • Hotels • Manufacturing and Industrial Plants
- Mining Facilities • Military Structures • Museums • Oil and Gas Facilities • Railways • Water Treatment Plants
- Stadiums • Telecommunications Facilities • University Buildings • Utility Substations

THE SIX POINT SOLUTION

Our entire range of products systemically works to create complete facility electrical protection: The nVent ERICO Six Point Plan of Protection. This provides a coordinated approach to grounding, bonding, lightning protection and surge protection. Lightning protection makes up the first two steps in this system.

Want to learn more about facility electrical protection and our Six Point Plan of Protection? CLICK HERE or visit us at nVent.com/ERICO

GEOGRAPHICAL LOCATION
ARCHITECTURAL CONSIDERATIONS
HISTORICAL SIGNIFICANCE
CRITICAL EQUIPMENT
LOCAL BUILDING REQUIREMENTS

CRITICAL LOCAL BUILDING REQUIREMENTS

ABOUT ERICO

ERICO is a leading global designer, manufacturer and marketer of precision-engineered specialty metal products to serve niche markets in a diverse range of applications. The company is headquartered in Solon, Ohio, USA with a network of sales locations serving more than 25 countries worldwide.

Want to learn more about facility electrical protection and our Six Point Plan of Protection? CLICK HERE or visit us at nVent.com/ERICO

GEOGRAPHICAL LOCATION + LIGHTNING DENSITY

ERICO Six Point Plan of Protection: 1. Capture the lightning strike to a preferred point.
2. Convey this energy to the ground.
3. Dissipate the energy into the grounding system.
4. Bond all ground points together.
5. Protect incoming AC power feeders.
6. Safeguard low voltage data/telecommunications circuits.
HOW WE DO IT

nVent ERICO has robust lightning protection system expertise with a diverse product offering that utilizes a variety of protection methodologies to provide the best, application-specific solution. With decades of research into the phenomena of a lightning strike, pioneering isolated downconductor technology and wind turbine lightning protection systems, **nVent ERICO is committed to the development of lightning protection standards around the world, including:**

- Institute of Electrical and Electronics Engineers (IEEE)
- International Electrotechnical Commission (IEC)
- Standards Australia (AS)
- National Fire Protection Association (NFPA)
- Normes Françaises (NF)
- INERIS Qualifoudre

Our expertise of global standards enables us to design the most appropriate lightning protection system for each application with the most applicable terminal placement methodology, technology and standards such as:

- Collection Volume Method (CVM)
- Rolling Sphere Method (RSM) based on the Electro-Geometric Model (EGM)
- Early Streamer Emission terminal and Protection Radius (ESE \(R_s\))

DESIGN SUPPORT

The placement of air terminals in a lightning protection system is critical for optimal protection. Our dedicated teams of engineers are available around the world to provide support for all major lightning protection standards.

- On-site assessments and evaluations
- Design assistance
- Installation drawings
- Manufacturer certified installations
- Regional support teams
- Lightning Protection System Design (LPSD) software

nVent ERICO application engineers are UL Lightning Protection System Installer Certified and Lightning Protection Institute (LPI) Master Installer/Designer certified to help you select and custom-build a lightning protection system for your specific needs.

**Click here to get started with our system selector**

or visit nVent.com/ERICO to learn more
NVENT ERICO SYSTEM 3000

System 3000 is our premium, proprietary system for applications where other systems cannot be installed due to the type of structure, where a high level of performance certainty is needed and where there is a need to provide a known path to ground via an insulated conductor.

IDEAL FOR:

- Complex architecture that does not allow for application of a standard installation method.
- Protecting substations in compliance with IEEE 998.
- Applications without a conventional installation method specified and an enhanced solution is advantageous.

FEATURES:

- Large coverage area
- 84% to 99% strike interception efficiency
- Manufacturer-certified installation inspection available
- Single route to ground with nVent ERICO Ericore insulated conductor
- Field-validated
- Single grounding location
- Measureable strike quantity, magnitude, hour and date
- Easy to maintain
- Can withstand multiple strikes

System 3000 is backed by an unprecedented field-validation study that confirms the interception efficiency levels of a CVM-based lightning system.

CLICK HERE to download the Interception Efficiency Study for more details.
NVENT ERICO SYSTEM 2000

System 2000 is ideal when a conventional system is required by the design specification to comply with a specific standard (e.g. NFPA, IEC, AS) that prescribes this design method.

**IDEAL FOR:**
- Designing for simple architecture.
- Compliance to global standards utilizing the RSM.
- Third-party inspection.

**FEATURES:**
- Standards compliant
- Third-party inspections and certifications available
- Multiple materials available for components
- Regional design support available
- Flat tape, round or stranded conductors
- Based on RSM and EGM
- Insulated down conductors for isolated systems

nVent ERICO application engineers hold certifications for installation and design of lightning protection systems with expertise in global standards, including:

- International Electrotechnical Commission (IEC)/CENELEC (EN)/British National Standard (BS) 62305 Series of Lightning Protection Standards
- Standards Australia / Standards New Zealand AS/NZS 1768:2007
- National Fire Protection Institute (NFPA) 780 Standard for the Installation of Lightning Protection Systems
- UL 96A Standard for Installation Requirements for Lightning Protection Systems
- Lightning Protection Institute (LPI) 175 Standard for the Design – Installation – Inspection of Lightning Protection Systems
NVENT ERICO SYSTEM 1000

System 1000 is offered to complete the nVent range so compliance with standards that call for ESE systems can be achieved.

IDEAL FOR:
• Compliance to NF C 17-102.
• Low-lying, sprawling structures where conventional methods would be cost-prohibitive.
• Applications without a conventional installation method specified and an enhanced solution is advantageous.

FEATURES:
• NF C 17-102 compliant
• Third-party tested – test reports upon request
• Third-party inspections and certifications available
• Manufacturer certified installation inspection available
• Large coverage area
• As few as two paths to ground and two grounding locations
• Multiple materials available for components
• Flat tape, round or stranded conductors

WANT TO LEARN MORE?
For more about how nVent ERICO can assist with your projects or applications, visit the link below. From design capabilities and system resources to product information and educational tools, nVent ERICO has you covered (from the ground up).

nVent.com/ERICO
WARNING nVent products shall be installed and used only as indicated in nVent’s product instruction sheets and training materials. Instruction sheets are available at www.nVent.com/ERICO and from your nVent customer service representative. Improper installation, misuse, misapplication or other failure to completely follow nVent’s instructions and warnings may cause product malfunction, property damage, serious bodily injury and death and/or void your warranty.

©2018 nVent. All nVent marks and logos are owned or licensed by nVent Services GmbH or its affiliates. All other trademarks are the property of their respective owners. nVent reserves the right to change specifications without notice.

ERICO-SB-P43002-LightningProtection-USEN-1903

Our powerful portfolio of brands:

CADDY  ERICO  HOFFMAN  RAYCHEM  SCHROFF  TRACER

Global Customers

400+ Patents

9,000 Global Workforce

Positioned to Serve Fast-Growing Economies

Local Capabilities + Localized Solutions

80+ Manufacturing, service, sales and distribution centers

Global Workforce

Manufacturing, service, sales and distribution centers

Our powerful portfolio of brands:

CADDY  ERICO  HOFFMAN  RAYCHEM  SCHROFF  TRACER