



SOLUTIONS

from Grounding Experts



Proven, Innovative Grounding Technology that ensures Personnel Safety and Utility Reliability



saeinc.com

Designed to be
GROUNDED





What is Grounding and Why is it Important?

Grounding is arguably one of the least understood, yet most important elements of modern electrical systems and lightning protection designs. According to IEEE-142, grounded means ... "Connected to earth or to some extended conducting body that serves instead of the earth, whether the connection is intentional or accidental".



Without proper grounding, personnel and the general public are at higher risk of shock or electrocution and electrical equipment is at risk of malfunction and irreparable damage from voltage and current surges. It is a fact that lightning and power system ground faults will find a path to ground. The only question is what path the energy will follow. Whether it is a basic design or a fully customized system, SAE's deep experience will provide a solution, that will safely channel and dissipate any errant electrical energy to prevent personnel injury and equipment damage.

Your Grounding and Corrosion Experts

SAE is a North American best-in-class manufacturer that specializes in solutions for [Electrical Grounding, AC Mitigation, and Cathodic Protection](#). SAE's innovative design techniques and product technologies combined with the leading-edge expert knowledge and extensive field experience to get you what you need for reliable grounding and safety protocols.

SAE's [grounding products and electrodes](#) are designed for high performance, cost effective, maintenance free reliable operations and are inherently resistant to theft.

SAE further specializes in [engineering design and services](#) that integrates site geography, soil characteristics and soil resistivity data with advanced computer modeling tools to ensure our clients' electrical protection and ambient noise mitigation specifications are met or exceeded.

Why Choose SAE Products?

- Significantly improve personnel safety and reduce environmental damage
- Save money by improving your ROI on installed assets and dramatically reduce your installation expense
- Gain better performance with increased infrastructure reliability and performance
- Ensure happier consumers from lower risk of catastrophic failures and service outages

Protect your assets!



CONDU CRETE

Superior Ground Enhancement Material That Significantly Reduces Electrode Corrosion

ConduCrete is a conductive cementitious and carbonaceous material that dramatically enhances the performance, reliability and safety of grounding and cathodic protection systems.



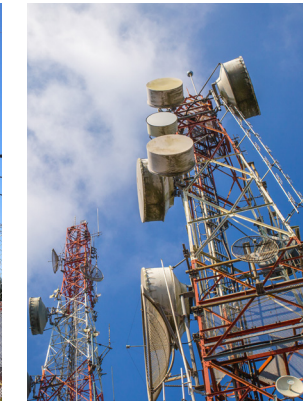
ConduCrete | The DEPENDABLE Solution

By using a ConduCrete grounding system compared to traditional methods in use today, you will benefit from:

- 1 Increased safety** by efficiently dissipating lightning or other surge energy
- 2 Better asset performance** through reduced ground resistance
- 3 Lower overall cost** by extending the life of the grounding system by up to 20x that of a traditional system
- 4 Decreased theft** as ConduCrete Pro can cure into a 4,000psi concrete state



ConduCrete ... Any application.
Any soil. Any climate.



Why Choose ConduCrete?

ConduCrete significantly improves grounding system performance and longevity alongside its superior lightning dissipation characteristics. An eco-friendly, maintenance free solution to your grounding needs.

Suitable for installation in any climate, at any time of the year.

Protect your assets!





The Corrosion Proof Ground Plate with Improved Safety Performance

ConduDisc is a fully **NEC compliant** conductive grounding plate that dramatically enhances the performance and longevity of utility grounding systems while virtually **eliminating electrode corrosion**.



No ground rod.
No torn up pavement.
No risk to buried lines.
No employee injuries.

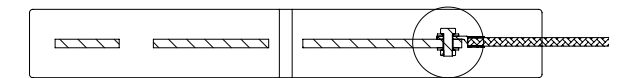
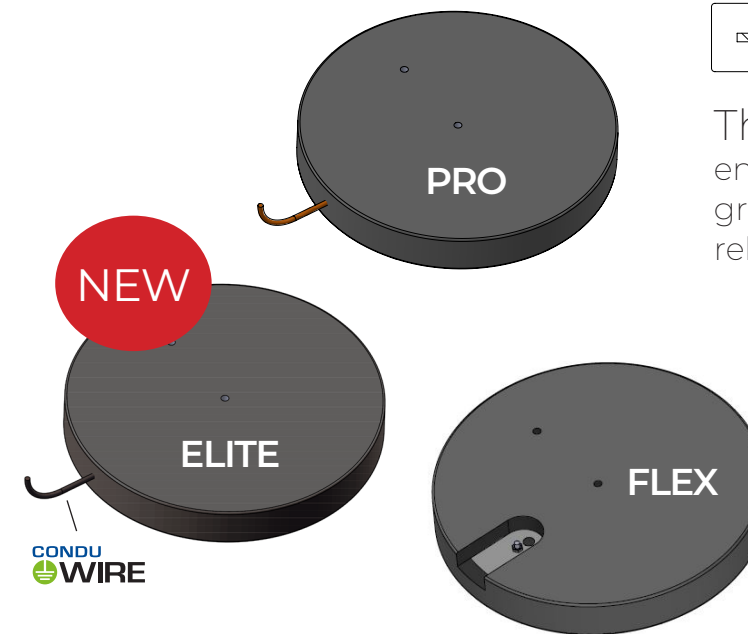
It's as easy as ...

1. Attach the ConduDisc to the pole base or place in the hole before pole is set
2. Install pole as usual

ConduDisc | The RELIABLE Solution

By using the corrosion-proof ConduDisc grounding electrode instead of a traditional ground rod, you will benefit from:

- 1 Improved safety** during installation and network maintenance and fault performance
- 2 Better asset protection and reliability** by ensuring protection devices function as designed and reduction in resistance to ground
- 3 Reduced installation time and costs** from a 90% time reduction
- 4 Lowest lifecycle cost** due to elimination of typical maintenance and replacement needs



The ConduDisc is a conductively encased galvanized metal plate that improves grounding performance and network reliability over existing traditional methods.





Conductively Jacket your Grounding Wire to Protect it from Theft and Corrosion while Maintaining your Needed Grounding Performance

ConduWire is an extruded, conductively coated grounding wire that dramatically extends the life of any grounding system by virtually eliminating conductor corrosion.



Why Choose ConduWire?

ConduWire maintains all aspects and performance expectations from your specified conductor, while significantly improving lifespan. This ensures your grounding system functions equally well at end of the design life as it did on the day of install.

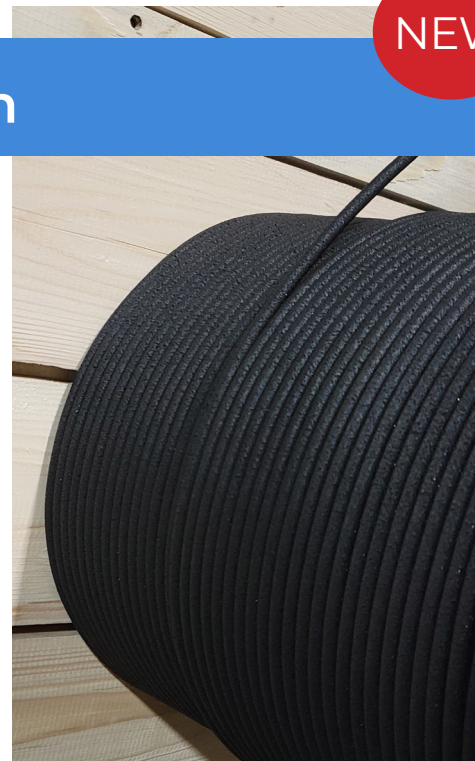
Suitable for installation in any climate, at any time of the year.

Protect your assets!

ConduWire | The DURABLE Solution

By using a ConduWire as your grounding conductor compared to traditional materials in use today, you will benefit from:

- 1 Increased life-cycle** by significantly reducing electrode corrosion
- 2 Increased safety** by ensuring grounding systems remain functioning for their design life
- 3 Lower overall cost** by eliminating the need to replace grounding over time
- 4 Decreased theft** with optional galvanized wire core option



NEW



A Better Performing, Corrosion Proof Ground Rod

ConduRod is a conductively molded, increased surface area ground rod that dramatically enhances grounding performance while reducing installation costs and hazards associated with traditional methods.

ConduRod | The SUPERIOR Solution

By using the corrosion proof ConduRod grounding system compared to the traditional ground rod, you will benefit from:

- 1 Improved performance** with 5x the surface area of a standard ground rod
- 2 Better asset protection and reliability** by ensuring protection devices function as designed due to a reduction in resistance to ground
- 3 Lowest lifecycle cost** due to the elimination of corrosion
- 4 Improved safety** by eliminating the need to drive ground rods



NEW



The ConduRod is ideally suited for use in situations where traditional ground rods are failing to meet resistance targets, are corroding over time, and where hazards exist with buried infrastructure. The ConduRod can be installed in the pole hole or adjacent to, depending on the soil conditions and site restrictions.



Our PRODUCT SOLUTIONS

Our PRODUCT SOLUTIONS



Pourable Conductive Backfill for Grounding Protection of Networks and Assets

ConduFlow is the ideal long-term solution for utility pole, pad mount transformer and tower grounding applications where traditional dusty backfills are not acceptable. ConduFlow will protect the grounding conductor from theft and corrosion, while providing an in-service time that is up to 20x the industry standard.

ConduFlow | The STRONG Solution

By using ConduFlow or ConduForm grounding system compared to the non-conductive backfill system in traditional use today, you will benefit from:

- 1 Increased safety** with lightning and fault current surge protection to help prevent outages
- 2 Better asset performance** through reduced ground resistance
- 3 Save money** by extending the life of the grounding system by up to 20x that of a traditional system
- 4 Lowest lifecycle cost** due to lower labor costs with reduced installation time and no maintenance cost for the lifetime of the application



ConduForm | The ROCK SOLID Solution

ConduForm is a dust free, conductive carbonaceous backfill material that is installed as a liquid and cures as a solid. Designed for applications where overburden is shallow or non-existent, where it can be poured on exposed rock surfaces to protect conductors and improve grounding where trenching is not possible.



Formable Conductive Backfill for Challenging Bedrock and Shallow Applications



Designed to provide improved temporary grounding for your safety, easily replacing traditional pads / existing equipment

TPG System | The PROTECTED Solution

By using the extremely reliable TPG System compared to traditional methods in use today, you will benefit from:

- 1 Improved personnel safety** by efficiently dissipating lightning or other surge energy
- 2 Better asset protection and reliability** by ensuring protection devices function as designed
- 3 Easy to deploy** just swap and go!
- 4 Lowest lifecycle cost** due to reusability and durability of the high strength aluminum



Why Choose the TPG System?

Traditional insulated pads (wood or fiberglass) do not ground your vehicle. Simply swap out your existing outrigger pads and replace with the conductive TPG Outrigger Pads.

The TPG Grounding Screw is designed for both simple installation and simple removal. With up to 6 locations for temporary grounding clamp connections, the screw greatly improves safety vs. traditional methods used today.



Efficient for durable, reliable and reusable grounding where difficult soil conditions exist

Our PRODUCT SOLUTIONS

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Utilities & Direct Buried Metal Poles

Set. Ground. Protect.

SAE has engineered a method to improve the installation of direct buried metal poles. Structural stability, corrosion protection and grounding are simultaneously achieved when using ConduCrete, eliminating the need for commonly damaged insulated coatings, and the need for additional grounding. Create a ground electrode significantly larger than traditional grounding methods, while ensuring your asset lasts its expected lifetime.



AC Mitigation

Effective, Corrosion Free Solutions

Potent electromagnetic fields in shared utility corridors can cause serious corrosion and safety consequences. SAE offers a unique solution with ConduWire, a conductively jacketed wire that virtually eliminates corrosion and significantly outperforms traditional zinc ribbon or bare wire.



Renewables and EV Charging

Reduce Costs. Increase Lifespan.

SAE is at the forefront of design and implementation for renewable ground grids using both traditional technology and our revolutionary new ConduWire products. Building systems to simply protect while respecting our environment are cornerstones of the SAE commitment to our customers and our employees.

Cathodic Protection

Highly Effective. Environmentally Safe.

The EnvirAnode CP System for impressed current cathodic protection is a highly effective solution aimed at applications that demand superior performance, longlife and environmental compliance.



Telecom and Broadcast

Reliable System Protection

SAE has developed specific expertise in grounding high reliability mission critical telecommunications infrastructure. Utilizing a mix of computer aided modeling and deep practical experience, we have designed and installed full antenna and operations center grounding and lightning protection systems.



Temporary Protective Grounding

Safe. Reliable. Durable.

SAE has developed a TPG System consisting of TPG Outrigger Pads that are designed to provide improved temporary grounding for your safety, easily replacing traditional pads / existing equipment. The TPG Grounding Screws are efficient for durable, reliable and reusable grounding where difficult soil conditions exist.



SAE Engineering Design Services

Since 1990, SAE Inc. has provided our global clients with effective and innovative solutions to grounding challenges.

We offer a full range of Engineering services from soil resistivity measurements and grounding audits through to complete turnkey design, product installation and project management.

Our innovative grounding solutions are carefully engineered from detailed on-site soil resistivity data, analysis and computer modeling.



Survey / Audit

- System conditions
- Soil and geological assessments
- "Soft dig" verification
- Best practice review
- New / existing / expansions



Grounding Design

- Interior / exterior
- Fault current / Step & Touch / GPR
- CDEGS advanced software simulation and modelling
- Full design package for construction bid



Grounding System Installation

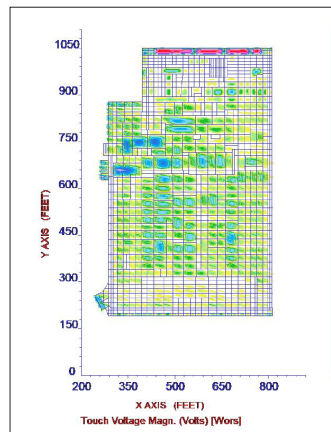
- Horizontal and vertical solutions
- Product management
- Post construction ground resistance testing

1. Survey / Audit

SAE offers a comprehensive range of engineering support to ensure safe, reliable and cost effective operations.

Typical Service Options

- Grounding audits
- System resistance (R-value) testing
- Soil resistivity testing and measurement
- Stray/contact voltage
- Circuit reliability issues
- Premature equipment failure
- Feasibility studies
- GPR (Ground Potential Rise) studies
- Step & Touch studies



2. Grounding Design

SAE utilizes cutting edge advanced software modelling to design grounding systems that will perform both during normal operations and under fault conditions.

Principle Activities

- Lightning and fault management
- AC Mitigation in utility corridors
- Transmission/distribution circuit grounding
- Substation grid design and remediation
- Padmount transformer grounding
- Communication facility grounding systems
- Call center facility grounding systems
- Tower grounding systems

3. Grounding System Installation

SAE offers a complete project management and construction supervision service to ensure designs are installed safely and efficiently.

Deployment Activities

- Complete sub contract management
- Sub contract drilling and ground well installation
- Project management and on-site review
- Post construction ground resistance testing



Why Choose SAE Services?

- Gain knowledge from inspections of grounding and lightning protection systems to determine areas where risk exists
- Benefit from testing the soil resistivity and R-value of existing systems
- Significantly improve grounding and lightning protection performance with fully engineered SAE designs
- Optimize grounding designs to ensure the installation meets the specific local soil characteristics and site restrictions
- Ensure optimal grounding and lightning protection system installation and final testing results



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