GEM
Ground Enhancement Material

TRENCH INSTALLATION

1. Mix GEM into a slurry form by using a standard cement mixer or mix in a bucket, mixing box, wheelbarrow, etc. Use 1.5 to 2 gallons (5.7 to 7.6 liters) of clean, potable water per bag or bucket of GEM. (See Note 1 on page 2) Do not mix GEM with salt water.
2. Spread out enough GEM to uniformly cover bottom of trench - about 2 in (5 cm) thick. Let the GEM harden to prevent the conductor from sinking to the bottom fo the trench.
3. Place conductor on top of the GEM (See Note 2 on page 2).
4. Spread more GEM on top of conductor to completely cover conductor - about 2 in (5 cm) thick. Allow GEM to harden before filling the trench with soil backfill.
5. Carefully cover the GEM with soil making sure not to expose the conductor.
6. Backfill the trench with soil.

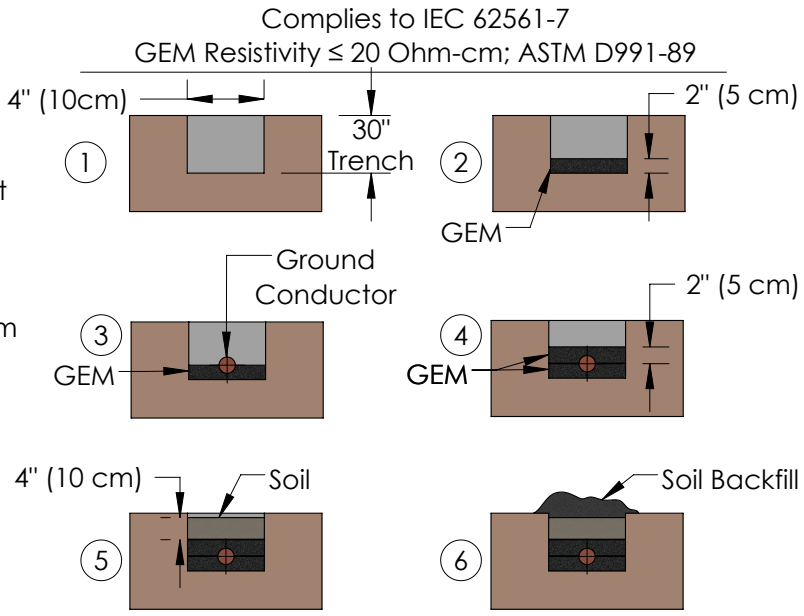


Table 1 - Estimated linear distance of ground conductor covered with each bag of GEM

	Total Thickness of GEM		
Trench Width	**4 inches (10.2 cm)**	**5 inches (12.7 cm)**	**6 inches (15.2 cm)**
4 inches (10.2 cm)	3.5 feet (1.0 m)	2.8 feet (0.8 m)	2.3 feet (0.7 m)
6 inches (15.2 cm)	2.3 feet (0.7 m)	1.8 feet (0.5 m)	1.5 feet (0.4 m)
8 inches (20.3 cm)	1.8 feet (0.5 m)	1.4 feet (0.4 m)	1.1 feet (0.3 m)
10 inches (25.4 cm)	1.4 feet (0.4 m)	1.1 feet (0.3 m)	0.9 feet (0.3 m)
12 inches (30.5 cm)	1.2 feet (0.3 m)	0.9 feet (0.3 m)	0.7 feet (0.2 m)

A 25 lb. bag of GEM will cover 2.5 linear feet (1.0 m) of conductor length for a 4" wide (10.2 cm), 4" thick (10.2 cm) convering [2" (5.1 cm) below and 2" (5.1 cm) above conductor], based on 63.5 lb/cu ft (1017 kg/m3)

WARNING

1. nVent ERICO products shall be installed and used only as indicated in the nVent ERICO product instruction sheets and training materials. Instruction sheets are available at www.erico.com and from your nVent ERICO customer service representative.
2. nVent ERICO products must never be used for a purpose other than the purpose for which they were designed.
3. All instructions must be **completely** followed to ensure proper and safe installation and performance.
4. Improper installation, misuse, misapplication or other failure to completely follow nVent ERICO's instructions and warnings may cause product malfunction, property damage, serious bodily injury or death.

SAFETY INSTRUCTIONS: All governing codes and regulations and those required by the job site must be observed. Always use appropriate safety equipment such as eye protection, hard hat, and gloves as appropriate to the application.

GEM contains hydraulic cements and should be handled with the same precautions as used with Portland Cement.

PLEASE OBSERVE THESE SAFETY PRECAUTIONS
KEEP OUT OF REACH OF CHILDREN

CAUTION

Contact with GEM is irritating to respiratory system and skin. Avoid contact, ingestion or breathing the product.

1. Risk of serious damage to eyes. Wear eye protection. If GEM gets into eye, rinse immediately and repeatedly with water and seek prompt medical attention.
2. Do NOT breathe dust. Wear respiratory protection when exposed to GEM dust.
3. Protect skin with boots, gloves, clothing and eye/face protection.
4. Avoid prolonged contact of GEM with skin. Wash skin promptly after any contact with GEM.
5. If GEM is ingested, drink large quantities of water immediately and then induce vomiting. Get medical attention immediately.
6. Do NOT smoke when using GEM.
7. Do NOT expose GEM to an open flame.

WARNING:
1. nVent products shall be installed and used only as indicated in nVent product instruction sheets and training materials. Instruction sheets are available at www.nVent.com and from your nVent customer service representative.
2. nVent products must never be used for a purpose other than the purpose for which they were designed or in a manner that exceeds specified load ratings.
3. All instructions must be completely followed to ensure proper and safe installation and performance.
4. 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/or death, and void your warranty.

SAFETY INSTRUCTIONS:
All governing codes and regulations and those required by the job site must be observed.
Always use appropriate safety equipment such as eye protection, hard hat, and gloves as appropriate to the application.

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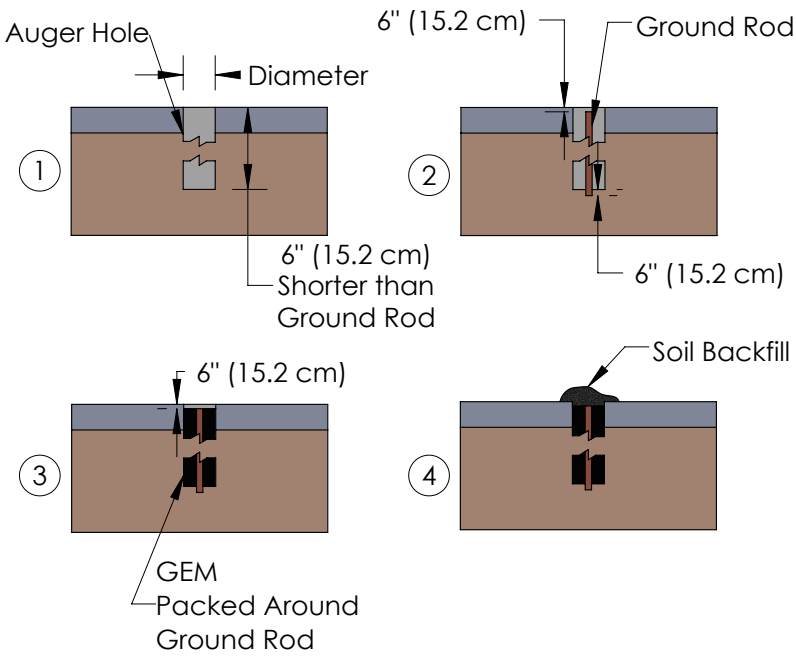
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VERTICAL CYLINDRICAL HOLE INSTALLATION

1. Auger a 4-inch (10 cm) or larger diameter hole to a depth of 6 inches (15 cm) shorter than the length of the ground rod.
2. Place ground rod into the augered hole and drive 6 inches (15.2 cm) into bottom of the hole. The top of the ground rod will be approximately 6 inches (15 cm) below grade. At this time, make connections to ground rod using nVent ERICO CADWELD connections (See note 2 on page 2).
3. Mix GEM into a slurry form by using a standard cement mixer or mix in a bucket, mixing box, wheelbarrow, etc. Use 1.5 to 2 gallons (5.7 to 7.6 liters) of clean, potable water per bag or bucket of GEM. (See Note 1 on page 2) Do not mix GEM with salt water. Installation of GEM in a dry state is acceptable for vertical ground rod applications.
4. Pour the appropriate amount of GEM (See Table 2) around the ground rod to ensure the GEM material completely fills the hole.
5. Let the GEM harden before covering the hole with soil or installing an inspection well.

Complies to IEC 62561-7
GEM Resistivity ≤ 20 Ohm-cm; ASTM D991-89



Note 1: Excess standing water must be removed from the trench or the augered hole before GEM installation.
Note 2: 4 inches (10 cm) of insulating material must be applied to the conductors and ground rods exiting the GEM, starting 2 inches (5 cm) inside the GEM.

Table 2 - Estimated number of bags to encase each ground rod in GEM

Diameter	Depth of Hole	No. of Bags
4 inches (10.2 cm)	5 feet (1.5 m)	2
	8 feet (2.4 m)	2
	10 feet (3.0 m)	3
8 inches (20.3 cm)	5 feet (1.5 m)	5
	8 feet (2.4 m)	8
	10 feet (3.0 m)	9
12 inches (30.5 cm)	5 feet (1.5 m)	10
	8 feet (2.4 m)	16
	10 feet (3.0 m)	20

*8' (2.4 m) minimum rod length required to be in contact with soil (or GEM). Per NEC® 250-52

Customer Support

Support representatives are available to answer any product or application questions you may have; visit www.erico.com to find a phone number for your nearest customer support respresentative.

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