









rotation. Hence, 100 pounds applied to a 1 foot wrench equals 100 foot-pounds. The same force applied using a 2 foot wrench equals 200 foot-pounds.

**Mooring** – with reference to a helical pile, a marine anchoring system utilizing a helical pile embedded into the soil beneath a body of water with a line made of chain, cable or other material hooked to a floating buoy, to which a boat or other floating vessel is tethered.

**NEMA** - National Electrical Manufacturers Association, which sets the standards for manufacturers of electrical utility-type products.

**Overturning or Overturning Moment** – a term generally used when discussing wind or other lateral loads applied to the top of a pile that tend to cause a helical pile to exhibit translation (tip it over). *See also Moment.*

**PAPI and NAVID** - FAA (Federal Aviation Administration) acronyms for landing and navigational control systems.

**Pile Cap** – a term used to define a terminator or connection mechanism for connecting the top end of a helical pile to another object for the purpose of transferring a load or force. Examples include grade beam *pile caps*, wall caps, tieback caps, guy wire caps, etc.

**Pile** – In the building codes, the term pile refers to a foundation with a depth greater than ten times the diameter. Foundations not meeting this criterion are called piles. In some textbooks, a pier is a foundation element that extends above ground some distance, whereas a pile is fully embedded in the ground. In the Western United States, the term pier is used to mean a drilled foundation and a pile is a driven foundation. In the Eastern United States, the term pile is used generically to represent any deep foundation.

**Powder Coating** – a process that causes a resin powder to adhere (kind of an advanced paint) to a helical pile using spraying, electrostatics, heating, and curing.

**Refusal** – with respect to helical piles, it can mean rotation without forward advancement or achieving maximum installation torque.

**Resistance Bar** – also referred to as a Torsion Bar; used as a counter resistance to the torsional force of a portable, hand-operated, free-standing torque motor during helical pile installation. The *resistance bar* is attached to a torque motor at one end, and the

other end is braced against an immovable structure, thus serving as a counter force or resistance for the torque motor.

**Resistivity or Soil Resistivity** – is the opposite of electrical conductivity. Soil is generally given a *resistivity* rating, which is expressed in ohm-cm. A *resistivity* rating is then used to calculate the rate at which a helical pile will corrode – taking into consideration the thickness of the steel and any corrosion protection that has been applied.

**SBCCI** - The Southern Building Code Congress International also called the Standard Building Code. This group sets the minimum building codes for the southeast section of the USA from the Mississippi River east and north to the 36.5 degree parallel. Some states, Arkansas, Delaware, Indiana, Texas, and West Virginia, have two codes or different codes. Not all counties or municipals adopt building codes.

**Shear** – with respect to a helical pile, it is basically the same as lateral load or transverse load. In structural engineering and mechanics, it is a force acting on a plane in that plane. A good example of a shear failure is caused by scissors or shears.

**Slender Shaft Pile** – a term sometimes used to define deep foundation piles with a shaft diameter or 6” or less. Most, but not all, helical piles installed around the world today are *slender shaft piles* except for light pole bases and the like.

**Slide** – a device that (usually) attaches to the boom of an excavator. The *slide* is used to hold and control the forward and backward movements of a torque motor during the process of installing a helical pile – usually in horizontal applications like tiebacks and retaining walls.

**Soil Nail** – another term for helical anchors when multiple anchors with multiple blades are being used to stabilize soils on a hillside or slope. *Soil nails* are also used to construct retaining walls. In a *soil nail* application, all extension sections, as well as the lead section, are configured with helix blades or bearing plates – typically all with the same diameter. The helical blades along the upper length of shaft resist movement of the soils within the active zone and the deeper helical blades prevent movement of the helical shaft.

**SPT** – Acronym for Standard Penetration Test; a commonly used soil density test. A split spoon sampler is hammered into the ground using a controlled weight and distance device. Each impact of the weight is called a “blow”, and the number of blows required

to move the split spoon sampler 12” in depth is called the “blow count”. Engineers who specify helical piles and contractors who install them refer to “blow counts” when determining the blade configurations for helical pile projects.

**Tension Load** – often referred to as Tensile Load, it is a force or load pulling on a helical pile. A helical pile is said to be “in tension”, when forces or loads applied to the pile tend to cause pile lengthening or pull-out. Forces that produce tension loads are wind, expansive soil, water buoyancy, frost, and earthquakes.

**Torque** – force x moment arm = torque; or the force applied to a helical pile by a gear motor that causes the pile to rotate and advance into the soil. *See also Moment.*

