

**** SWIMMING POOL REQUIREMENTS – CITY OF MIDDLEBURG HEIGHTS ****

DEFINITION

“Outdoor swimming pool” shall mean any artificial water pool of steel, masonry, concrete, aluminum or plastic construction located out of doors, which has a square foot water surface area of three hundred square feet or more, or a depth at any point of more than two feet, or both.

DISTANCES

A distance of ten feet from each property side line, rear line and main building.

Corner Lot - Distance varies –check with the Division of Building.

BARRIER REQUIREMENT

Section 1325.04 of the Codified Ordinance states outdoor swimming pools, hot tubs and spas, containing water more than 24 inches in depth shall be completely surrounded by a fence or a structural barrier at least 4 feet in height above the finished ground level, measured on the outside of the structural barrier.

- Gates and doors in such barriers shall be self-closing and self-latching. Where the self-latching device is less than 54 inches above the bottom of the gate; the release mechanism shall be located on the pool side of the gate.

- Where an above-ground pool structure is used as a structural barrier or where the structural barrier is mounted on top of the pool structure and the means of access is a ladder or steps, then the ladder or steps shall be surrounded by a structural barrier or shall be capable of being secured, locked or removed to prevent access.

- Where a wall of a dwelling serves as part of the structural barrier, all doors with direct access to the pool through that wall shall be equipped with an alarm which produces an audible warning when the door and its screen, if present, are opened. (see Section 1325.04 for further alarm requirements)

- Pools, spas or hot tubs which use a safety cover for a structural barrier shall comply with the American Society for Testing and Materials-F 1346 Performance Specification for safety covers.

NATURAL GRADE

Every permanent swimming pool, constructed within an excavation in the ground, must substantially conform to the natural grade of the surrounding land, other than a diving board or similar equipment and the fence.

DRAINAGE

Every pool shall be so constructed that it can be drained into a Municipal storm sewer or shall have a sump located in its deepest part, for the purposes of pumping out all the water into a storm sewer opening. All drain water must be conducted to its proper discharge point by means of tightly sealed tile, pipe or hose. Under no circumstances shall any water from the pool or from its use be permitted to drain toward or onto adjoining properties.

ILLUMINATION

If flood or other artificial light is used to illuminate the pool at night, none of the lights shall be used after 10:30 P.M., local time; and all noise in conjunction with pool activity must cease, if the pool is located within two hundred feet of any building used for dwelling purposes. The lights shall also be shielded to direct light only on the pool.

PERMIT

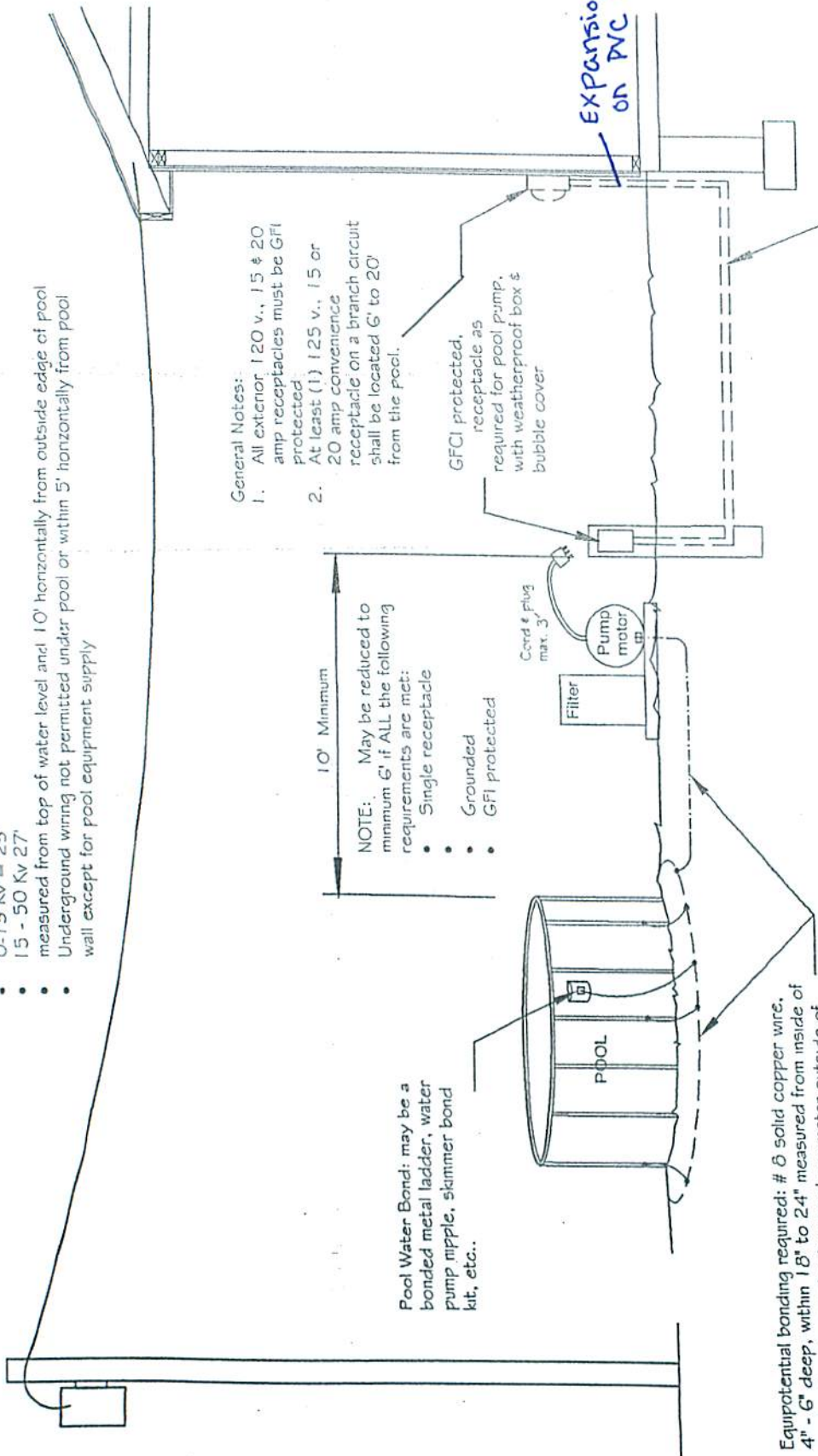
A permit is required for installation of a pool. In order to obtain a permit, the following must be submitted to the Division of Building with Building Permit Application:

- A site plan (drawing showing lot; location of house and pool; and setbacks)
- A copy of a construction drawing, or if above ground, a brochure describing construction detail

FEES

Permit fees are as follows: \$30.30 bldg permit + \$30.30 electric permit. A \$300.00 cash bond must be posted by contractor or owner until the **FINAL INSPECTION** is made. After the final inspection is approved, a request can be made to the Division of Building for the return of the \$300.00 bond.

- Utility & overhead wires - minimum clearance:
- 0-750 volt = 22'-6"
- 0-15 Kv = 25'
- 15 - 50 Kv 27'
- Measured from top of water level and 10' horizontally from outside edge of pool
- Underground wiring not permitted under pool or within 5' horizontally from pool wall except for pool equipment supply



General Notes:

1. All exterior 120 v., 15 & 20 amp receptacles must be GFI protected
2. At least (1) 125 v., 15 or 20 amp convenience receptacle on a branch circuit shall be located 6' to 20' from the pool.

10' Minimum

NOTE: May be reduced to minimum 6' if ALL the following requirements are met:

- Single receptacle
- Grounded
- GFI protected

Pool Water Bond: may be a bonded metal ladder, water pump nipple, skimmer bond kit, etc..

GFCI protected, receptacle as required for pool pump, with weatherproof box & bubble cover

Expansion Fitting on PVC Conduit

Wire listed for wet locations with green insulated equipment ground, not smaller than # 12 installed in listed non-metallic raceway 1/8" deep, or rigid metal conduit or intermediate metal conduit 6" deep.

NOTE: Romex or U.F. wiring is not permitted

Equipotential bonding required: # 8 solid copper wire, 4" - 6" deep, within 18" to 24" measured from inside of pool wall and around entire pool perimeter outside of pool, attached as follows: Start at MOTOR and connect to 4 points on POOL equally spaced around POOL, end at Pool Water Bond (see above). Use proper wire lug connectors.

***Before inspection: Pool must be complete & 18" ditch kept open**

Attention Homeowners: Due to significant changes in the National Electric Code, the requirements for pool installation can be complex. We suggest consulting a registered electrician if necessary. The Building Department is not responsible for owner's misunderstanding the code requirements.

All electrical work must meet the requirements of the 2023 edition of the National Electrical Code

1133.25 SWIMMING POOLS.

(a) **Definitions; Classifications.** For the purposes of this Zoning Code, swimming pools are defined and classified as follows:

- (1) "Swimming pool" means an open tank or any other structure, not located within a completely enclosed building, designed so as to contain at least three feet of water at any point, including the lounging and spectator areas and any accessory buildings, structures or equipment.
- (2) "Private swimming pool" means a pool maintained for the sole use of a household and guests, without charge for admission and located as an accessory use to a dwelling.
- (3) "Club swimming pool" means a pool maintained and operated by a private club or a neighborhood association, incorporated as a nonprofit organization, for the exclusive use of a limited number of members and their guests.
- (4) "Commercial swimming pool" means a pool operated for a profit and open to the public upon payment of a fee.

(b) **Regulations.** Swimming pools may be permitted and located in accordance with the following:

- (1) **Private pools.** Private pools may be located in a Residential District as an accessory use to a dwelling. No pool or accessory building, structure or equipment shall be located in a front yard nor side or rear yard less than ten feet from any lot line and main building.
- (2) **Club pools.** A club pool may be located in a Residential District, provided that the lot on which it is located is at least three acres in area and access to it is provided only from a major arterial or from a collector street. The pool, accessory buildings, structures and equipment shall be located at least seventy-five feet from any adjoining residential lot line. The premises or area occupied by the pool shall be fenced and lighting fixtures shall be designed and located in accordance with paragraph (b)(1) hereof.
- (3) **Commercial pools.** Commercial pools may be located in any zoning district except a Residential District, provided that such commercial pools comply with all the regulations of this Zoning Code pertaining to club pools.

(c) **Permits Required.** A swimming pool permit shall be required for each private pool. A conditional use permit shall be required for each club pool in a Residential District and each commercial pool. Conditional use permits shall be renewed each year for commercial pools. A detailed site plan shall be submitted with each application for a permit. The construction, plumbing and electrical requirements, inspection and other safety facilities, shall be regulated by other ordinances and codes of the Municipality. All permanent pools three feet or more in depth shall require the issuance of a building permit therefor. All permanent club and commercial pools three feet or more in depth shall require approval by the State Board of Health.

(Ord. 1982-170. Passed 3-22-83; Ord. 1990-173. Passed 4-23-91; Ord. 2009-30. Passed 9-22-09.)

680.26 Equipotential Bonding.

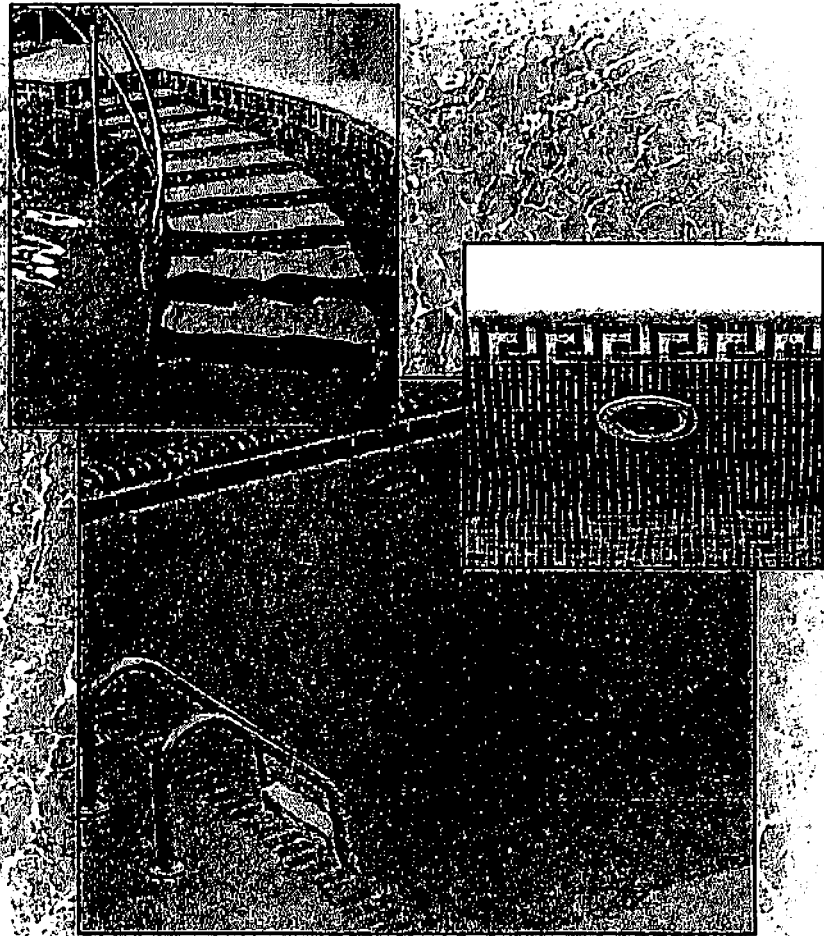
The perimeter bonding grid can be comprised of structural reinforcing metal (re-bar or welded wire mesh) that is conductive to the perimeter surface and installed in or under the perimeter surface. Where structural reinforcing steel is not available, a single, bare, solid 8 AWG or larger copper conductor can be installed around the perimeter of the pool in an area measuring between 18 in. and 24 in. from the inside pool walls. This 8 AWG bonding conductor can be installed in the paving material (i.e., in the concrete), or it can be buried in the material (subgrade) below the paving material. Where buried, the bonding conductor is to be not less than 4 in. and not more than 6 in. below the surface level of the subgrade material.

The perimeter surface bonding medium has to be connected, at four evenly spaced points around the pool perimeter, to either the structural steel of a conductive pool shell or to the copper bonding grid provided for the conductive pool shell that has encapsulated re-bar or no re-bar at all. Connection between the perimeter bonding medium and nonconductive pool shells is not required.

ERITECH

Equipotential Bonding

of Permanently Installed Swimming Pools



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Equipotential Bonding of Permanently Installed Swimming Pools

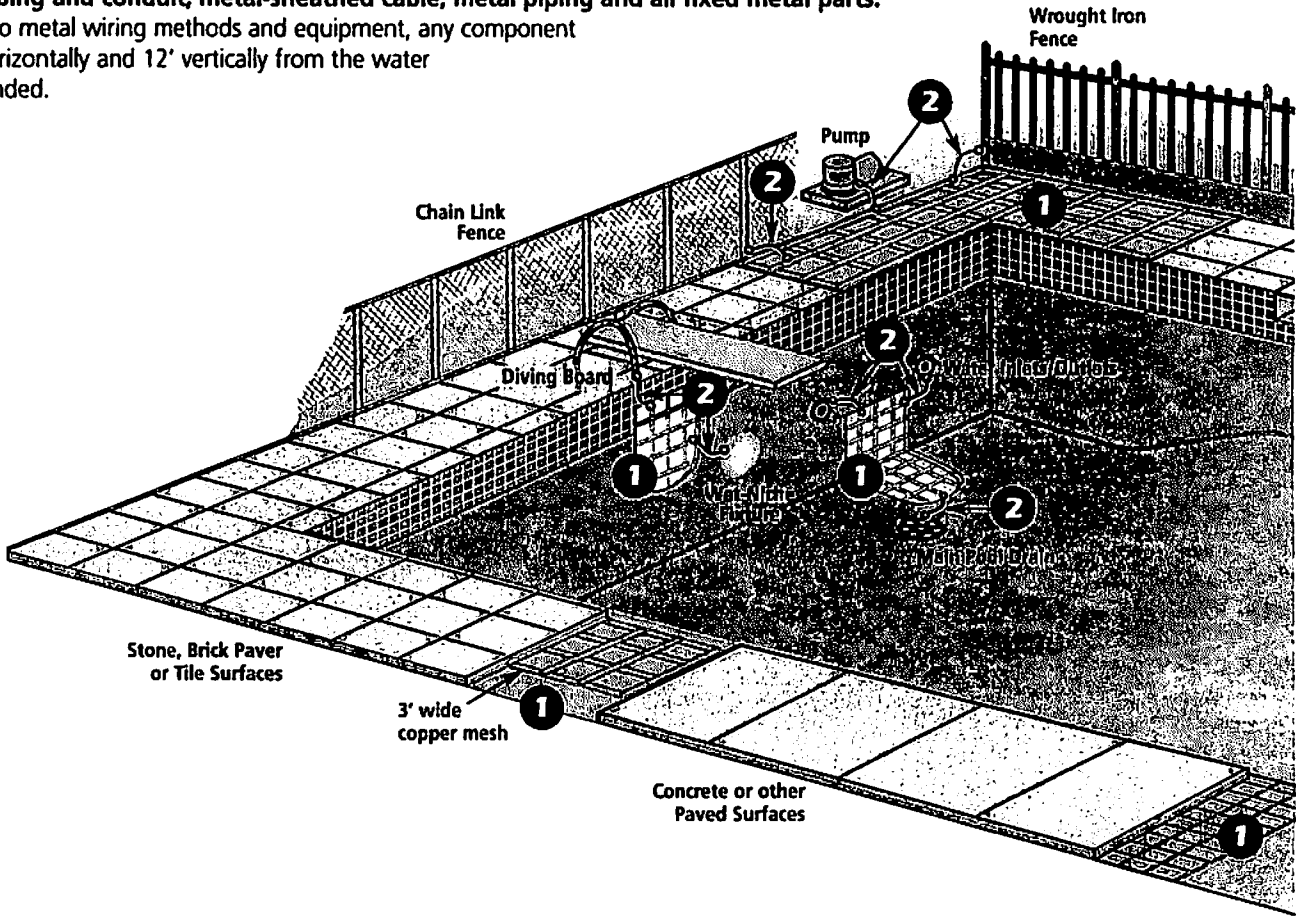
The requirements for bonding and grounding permanently installed indoor and outdoor swimming pools are provided in Article 680 "Swimming Pools, Fountains and Similar Installations" of the 2005 Edition of the National Electrical Code (NEC®).

What is Equipotential Bonding?

Article 680.26 details the bonding requirements for permanently installed swimming pools in order to "eliminate voltage gradients in the pool area as prescribed." Bonding the metallic parts in and around the pool area prevents differences of potential from developing in the event of an electrical equipment fault and reduces the possibility of electric shock. The area created by bonding the metallic parts together is known as an equipotential plane.

The NEC requires bonding all of the following metallic parts in a permanently installed swimming pool with a #8 AWG solid or larger conductor.

- **Concrete reinforcing steel and all metallic structural components.** Uncoated reinforcing steel and all other metallic structures.
- **Underwater lighting.** All metallic parts (housings and mounting brackets).
- **Metal fittings.** Metal fittings for pipes, drains and water inlets.
- **Electrical equipment.** All metal parts of any electrical equipment associated with the pool including pumps and recirculating equipment, heaters and blowers and automatic covers.
- **Metallic tubing and conduit, metal-sheathed cable, metal piping and all fixed metal parts.** In addition to metal wiring methods and equipment, any component within 5' horizontally and 12' vertically from the water must be bonded.



Equipotential Bonding Grid

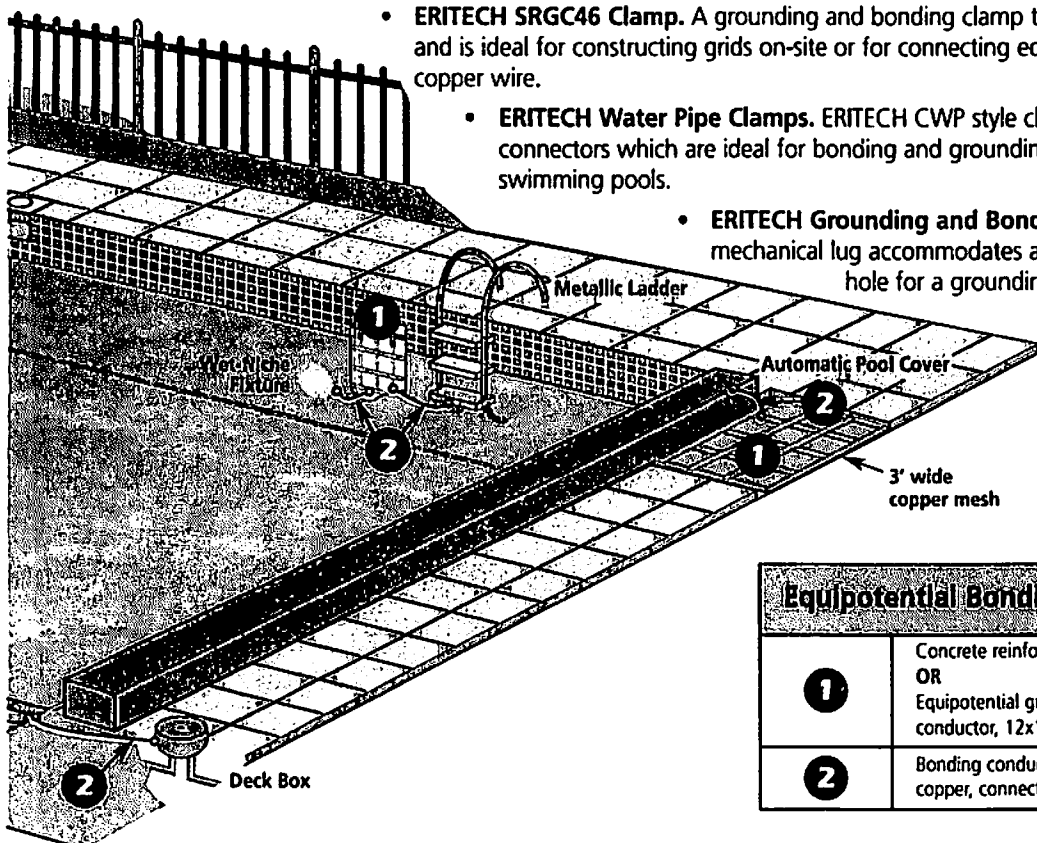
All of the bonded parts in or around the swimming pool must be attached to an equipotential bonding grid. This grid must extend 3' beyond the inside surface of the pool under concrete, stone or other paved walking surfaces. This grid can consist of the following:

- **Reinforcing Steel.** Uncoated reinforcing steel of a concrete pool (poured or sprayed, with painted or plaster coatings) can be used as the equipotential bonding grid.
- **Copper Grid.** A grid constructed with a minimum of #8 AWG bare solid copper conductors with 12" x 12" spacing.

Pools made of non-conductive materials (fiberglass composite, vinyl lined polymer or other non-conductive materials) do not require an equipotential grid that covers the full contour of the bottom and sides of the pool, however an equipotential grid is still required around the perimeter of the pool extending 3' beyond the sides of the pool.

EQUIPOTENTIAL BONDING SOLUTIONS FROM ERICO® INCLUDE THE FOLLOWING:

- **ERITECH® Prefabricated Mesh.** Convenient, efficient and economical for equipotential bonding grids. Prefabricated mesh is constructed with #8 AWG solid copper conductor with 12" x 12" spacing and is available in 3' x 100' rolls and other convenient sizes.
- **CADWELD® Welded Electrical Connections.** For connecting the bonding conductor to rebar and to the copper grid. CADWELD provides a permanent, low-resistance connection needed to create a long-lasting, reliable bonding network. CADWELD connections will not deteriorate with age, cannot loosen and are made with inexpensive, lightweight and portable equipment.
- **ERITECH® Direct-Burial Grounding Clamps.** EK16 / EK17 - a timesaving, cost-effective, versatile product that combines four clamps into one. The bronze-alloy clamp consolidates separate rebar clamps, ground rod clamps, water pipe clamps and direct-burial water pipe clamps into one product.
 - **ERITECH SRGC46 Clamp.** A grounding and bonding clamp that is UL® listed for direct burial in concrete and is ideal for constructing grids on-site or for connecting equipotential bonding mesh to #8 AWG copper wire.
 - **ERITECH Water Pipe Clamps.** ERITECH CWP style clamps are UL-listed mechanical connectors which are ideal for bonding and grounding the metallic pipes and conduit of swimming pools.
 - **ERITECH Grounding and Bonding Lug.** The EL4 bronze single hole mechanical lug accommodates a #8 AWG solid conductor and has a 1/4" hole for a grounding stud.



Equipotential Bonding	
1	Concrete reinforcing steel per NEC 680.26 (B)(1) OR Equipotential grid, #8 AWG or larger solid copper conductor, 12x12 spacing per NEC 680.26(C)(3)
2	Bonding conductor, #8 AWG or larger solid copper, connected per NEC 250.8