

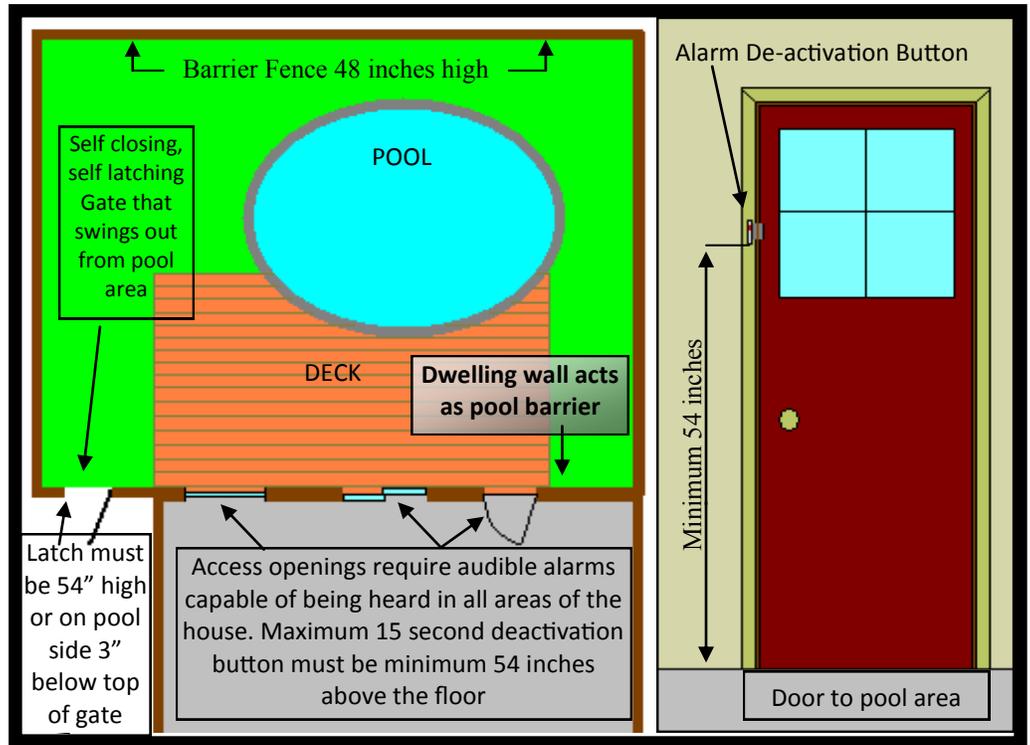
# Residential Swimming Pools Barriers and Electrical Basics

A **swimming pool** is any structure intended for swimming or recreational bathing that contains water over 18 inches deep. This includes In-ground and above ground pools.

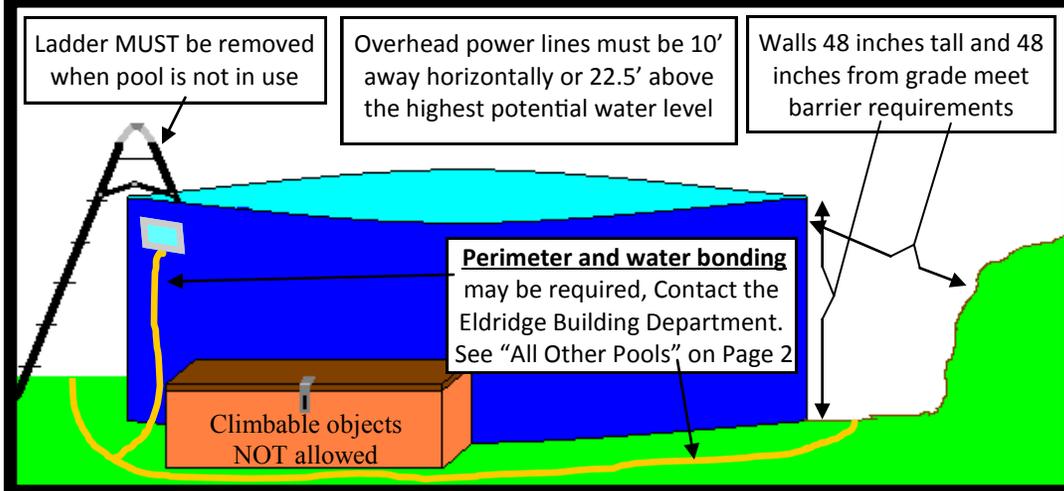
**NOTE:** The National Electric Safety Code requires clearances from all utility lines for pool locations. To verify that the pool will be far enough away from utilities, the utility provider must approve the location. See form "Review for Pool Clearances" on page 3 of this document.

**BARRIER BASICS:** A barrier to restrict access is required for all swimming pools. Barriers (fences or other access restrictions) must be 48 inches high and the bottom must be within 2 inches of grade. Access gates must be self closing, self latching and gate latches must be 54" high or on the pool side more than 3" below the top of the gate.

If an exterior wall of the home is used as part of the safety barrier around the pool, doors that open into the pool area must be equipped with an alarm that sounds when the doors are opened. The alarm may be disarmed for a maximum of 15 seconds. Alarms with an on/off switch do not meet code safety requirements.



## Additional considerations for Permanent Above Ground Pools



**ABOVE GROUND POOLS** may use the sides of the pool as the barrier provided the sides are 48" above the adjacent grade. The ladder must be secured, locked or removed when the pool is not in use. **Free standing decks to access the pool must have guards, rails and gates meeting the barrier requirements.**

**For All Pools:** Luminaires within 5' of the waters edge must be 12' above the highest potential water surface.

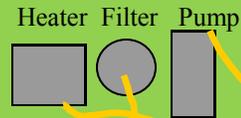
- Power lines must be 5' away if underground, 10' away or 22.5' above the water surface if overhead.
- No receptacles are allowed within 6' of the waters edge.
- From 6' to 20', at least one GFCI receptacle is required, usually used for the pump/filter/heat mechanisms.
- From 6' to 20' indoors or any place outdoors, all receptacles must be GFCI protected.
- Wiring must be run in RMC, IMC or PVC. #12 copper for equipment ground or larger required— cannot use raceway.

**Storable Pools:** For outdoor pools completely above grade and 42 inches deep or less, or non-metallic above ground pools of any depth, the pump/heat cords must be supplied by a GFCI protected, dedicated outlet more than 6' from the waters edge.

**All Other Pools:** The pool perimeter, all metal components and the water must be bonded with #8 copper or equivalent. If on bare ground, a #8 copper buried 4" to 6" deep between 18" and 24" outside the pool walls is required. If paved, #8 copper must be concrete imbedded. Both systems require connection to all metal parts larger than 4" in any dimension and covered by less than 1" of water. This bonding system includes any concrete reinforcement, the pool itself in 4 equidistant places, metal shells of underwater lights, brackets, no-niche luminaires, ladders, handholds, scuppers, diving board and slide brackets and all electrical equipment. The water must be bonded with a conductive mass of 9 square inches or more. Bonded metal parts that are in contact with the water for more than 9 square inches may count for the water bond.

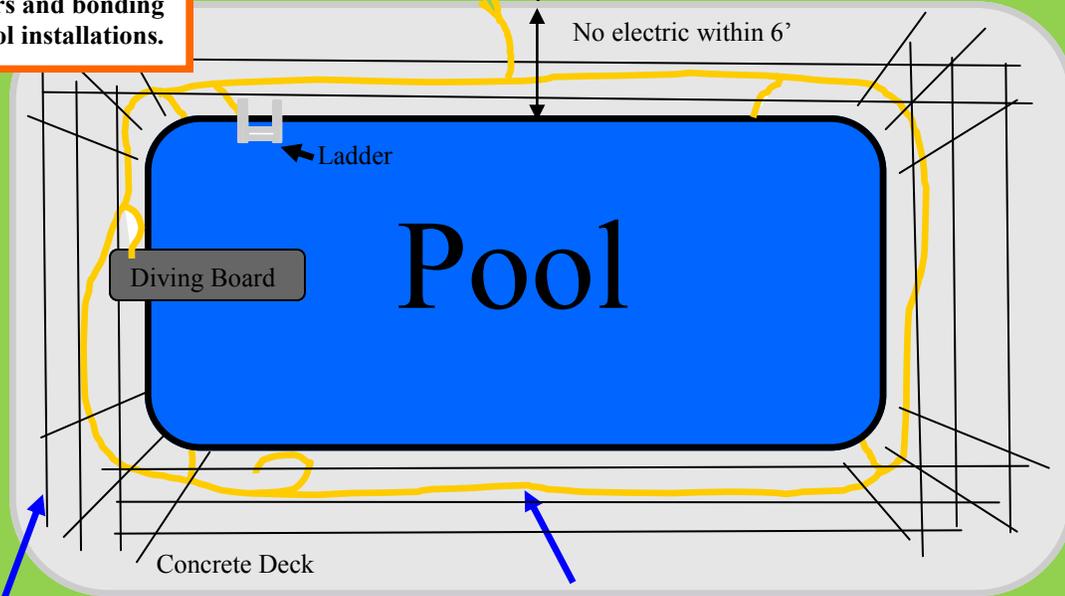
**Pool installers must be registered with the City. It is a violation of law for a homeowner to take out a permit for an unregistered pool installer.**

**It is the homeowners responsibility to ensure proper barriers and bonding are present for all pool installations.**



One GFCI protected receptacle required between 6' and 20' from pool. Other receptacles are allowed and must be GFCI protected if between 6' and 20' or anywhere out of doors.

No electric within 6'



Reinforcement bars tied at intersections.  
(Reinforcement location shown for visual purposes only- actual designs will vary)

#8 solid bare copper bonding wire connected to the metal pool shell a minimum of 4 equidistant places, to the concrete reinforcement grid, ladders, handrails, diving board and slide brackets, metal lights, pumps, heaters, covers, filters, metal fencing and all metal parts closer than 5' to waters edge with a dimension larger than 4" **and the water** must be bonded.

**DISCLAIMER:** This informational handout has been created to assist with pool safety requirements and it is not intended to cover all circumstances. The persons performing the work are responsible for understanding and compliance with all required laws. While inspectors try to be informative and helpful, the teaching of Construction techniques or designing a project opens the jurisdiction to legal liabilities and is beyond the scope of responsibilities for Building Safety Department personnel.



**CLEARANCE FOR CONDUCTORS INSTALLED  
OVER OR NEAR SWIMMING AREAS  
(REFERENCE NESC 234E)**

**Swimming Pools**

Conductors installed within 10' horizontally from the pool edge or diving platform must maintain basic vertical clearances as depicted in the following table.

This rule does not apply to a pool fully enclosed by a solid or screened permanent structure.

**Beaches and Waterways Restricted to Swimming**

Where rescue poles are used by lifeguards at supervised swimming beaches, the required basic vertical and horizontal clearances shall be as shown on the following table.

CLEARANCES TO SWIMMING AREAS	UNGUARDED RIGID LIVE PARTS, 0-750V; SECONDARY CABLE	GROUNDED OR INSULATED GUYS; NEUTRAL COND.	OPEN SUPPLY CONDUCTORS		
			0-750V	750V-15kV	ALL 34.5kV
(1) CLEARANCE IN ANY DIRECTION FROM THE EDGE OF POOL, BASE OF DIVING PLATFORM, OR ANCHORED RAFT	22'-6"	22'-0"	23'-0"	25'-0"	25'-6"
(2) CLEARANCE IN ANY DIRECTION TO THE DIVING PLATFORM OR TOWER	14'-6"	14'-0"	15'-0"	17'-0"	17'-6"
(3) VERTICAL CLEARANCE OVER ADJACENT LAND	AS REQUIRED IN CLEARANCES ABOVE GROUND OR ROADWAYS (REF. NESC 232)				
(4) UNDERGROUND DIRECT BURIED CABLE	5' FROM POOL OR AUXILLARY EQUIPMENT (REF. NESC 351C1)				

