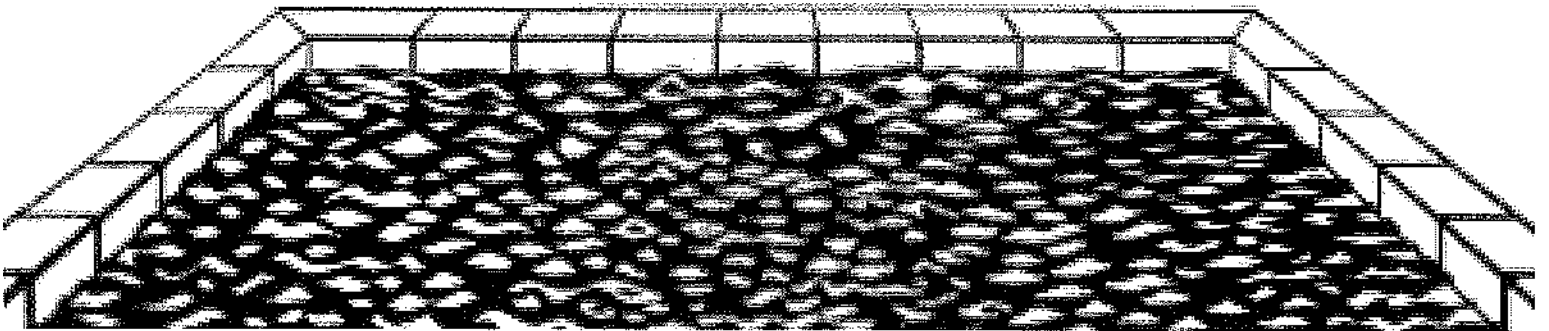


Building Department

740 Main Street
East Hartford, CT 06108
Phone: (860) 291-7340

Guide to Residential Pools



IMPORTANT NOTICE

No pool should be filled with water to a depth above twenty-four (24) inches until a *Certificate of Use* has been issued by the Building Department.

Any person who violates this provision of the Code could be subject to fines not less than two-hundred (200) nor more than one thousand dollars (1,000) or imprisoned not more than six (6) months or both, pursuant to Section 29-254a, Connecticut General Statutes.

POOL ALARM REQUIREMENT

EFFECTIVE OCTOBER 1, 1999: NO BUILDING OFFICIAL CAN ISSUE A PERMIT FOR CONSTRUCTION OR SUBSTANTIAL ALTERATION OF A RESIDENTIAL POOL FOR ONE OR MORE FAMILIES UNLESS A POOL ALARM IS INSTALLED WITH THE POOL. THE ALARM MUST EMIT A SOUND OF 50 DB WHENEVER A 15 LB OBJECT ENTERS THE WATER THIS REQUIREMENT DOES NOT TAKE THE PLACE OF BARRIER OR OTHER CODE OBLIGATIONS.

SEE PA99-140-POOL ALARMS

WHEN IS A PERMIT AND CODE COMPLIANCE REQUIRED?

These regulations are not applicable and a permit is not required to any pool less than twenty-four (24) inches deep or any pool having a surface area less than two-hundred and fifty (250) square feet, except when permanently equipped with a water recirculation system or built with structural materials. Permanently equipped systems typically penetrate the pool wall and blow-up walls or one-piece plastic shells are not considered structural materials. The pool depth is determined by the design height of the walls, not how much water is in the pool at any given time, or the amount of air in a blow-up pool. The definition of a private pool can include spas and hot tubs that are often less than two-hundred and fifty (250) square feet but always have permanent water-recirculation systems. A safety cover which complies with ASTM F1346-91 is considered a code compliant barrier.

APPLYING FOR THE POOL PERMIT

- 1.) Fill out a Building Permit Application on the website and I have attached one for your convenience.

Please provide the following information:

- a. A Plot plan showing the location of the proposed pool on your Property, the distance from applicable property lines and distance from your septic system (if you have one). Current Zoning Regulations require the pool to be a minimum of 10 feet behind your house and 6 feet from your rear and side property lines.

Be sure to indicate all safety or protective equipment (fences, gates, ladders, etc.) on your plan.

- 2.) After obtaining the necessary approvals from Zoning and Engineering Departments, the Building Official will review your application for Building Code compliance and, pending approval, issue you a permit.

APPLYING FOR THE ELECTRICAL PERMIT

If you choose to install the electrical system yourself, you may do so after applying for an electrical permit. All electrical work must comply with the requirements of Article 680 of the 2002 National Electrical Code. If you have obtained the services of a licensed electrician, they must apply for the permit online but I have attached an electrical permit for your convenience.

You are responsible for calling the Building Department to schedule these inspections at (860) 291-7340. Remember, **no pool should be used or occupied until approved by the Building Official.**

(This information is offered as a guide to help you meet current State and local regulations governing the installation of residential swimming pools. Although this document represents the author's best efforts to compile a comprehensive guide, it should not be considered all-inclusive or a substitute for State or local regulations. In addition, this document does not, for the sake of simplicity and brevity, detail all of the code requirements for the sections mentioned. Questions can be directed to the Building Department at (860) 291-7340.

Why the Swimming Pool Guidelines Were Developed

Each year, hundreds of young children die and thousands come close to death due to submersion in residential swimming pools. CPSC has estimated that each year about 300 children under 5 years old drown in swimming pools. The Commission estimates hospital emergency room treatment is required for more than 2,000 children under 5 years of age who were submerged in residential pools.

CPSC did an extensive study of SWIMMIN pool accidents, both fatal drownings and near-fatal submersions, in California, Arizona and Florida, states in which home swimming pools are very popular and in use during much of the year. The findings from that study led Commission staff to develop the guidelines in this handbook.

- In California, Arizona and Florida, drowning was the leading cause of accidental death in and around the home for children under the age of 5 years.
- 75 percent of the children involved in swimming pool submersion or drowning accidents were between 1 and 3 years old.
- Boys between 1 and 3 years old were the most likely victims of fatal drownings and near-fatal submersions in residential swimming pools.
- Most of the victims were being supervised by one or both parents when the swimming pool accident occurred.
- Nearly half of the child victims were last seen in the house before the pool accident occurred. In addition, 23 percent of the accident victims were last seen on the porch or patio, or in the yard.
- This means that fully 69 percent of the children who became victims in swimming pool accidents were not expected to be

in or at the pool, but were found drowned or submerged in the water.

- 65 percent of the accidents occurred in a pool owned by the victim's immediate family, and 33 percent of the accidents occurred in pools owned by relatives or friends.
- Fewer than 2 percent of the pool accidents were a result of children trespassing on property where they didn't live or belong.
- 77 percent of the swimming pool accident victims had been missing for five minutes or less when they were found in the pool drowned or submerged.

The speed with which swimming pool drownings and submersions can occur is a special concern: by the time a child's absence is noted, the child may have drowned. Anyone who has cared for a toddler knows how fast young children can move. Toddlers are inquisitive and impulsive and lack a realistic sense of danger. These behaviors, coupled with a child's ability to move quickly and unpredictably make swimming pools particularly hazardous for households with young children. Swimming pool drownings of young children have another particularly insidious feature: these are silent deaths. It is unlikely that splashing or screaming will occur to alert a parent or caregiver that a child is in trouble.

CPSC staff have reviewed a great deal of data on drownings and child behavior, as well as information on pool and pool barrier construction. The staff concluded that the best way to reduce child drownings in residential pools was for pool owners to construct and maintain barriers that would prevent young children from gaining access to pools.

However, there are no substitutes for diligent supervision.



A successful pool barrier prevents a child from getting OVER, UNDER, or THROUGH and keeps the child from gaining access to the pool except when supervising adults are present.

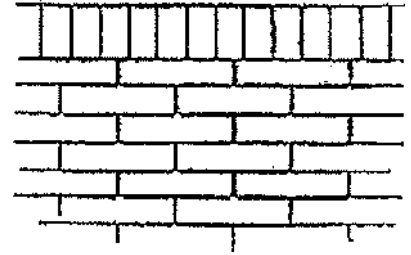
How to Prevent a Child from Getting OVER A Pool Barrier

A young child can get over a pool barrier if the barrier is too low or if the barrier has handholds or footholds for the child to use when climbing.

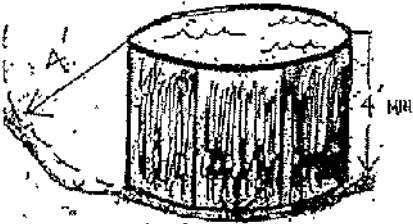
The regulations state that the top of a pool barrier be at least 48 inches above grade, measured on the side of the barrier which faces away from the swimming pool.

For a Solid Barrier:

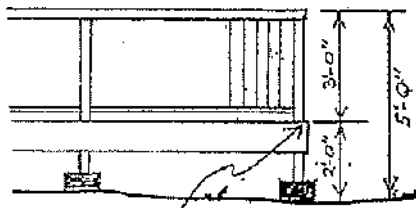
No indentations or protrusions should be present, other than normal construction tolerances and masonry joints.



The acroptailo swimming pool barrier provided for an above ground swimming pool is a minimum of 4 feet above the ground. Remove any ground within a 4 foot radius that does not provide the 4 foot minimum height.

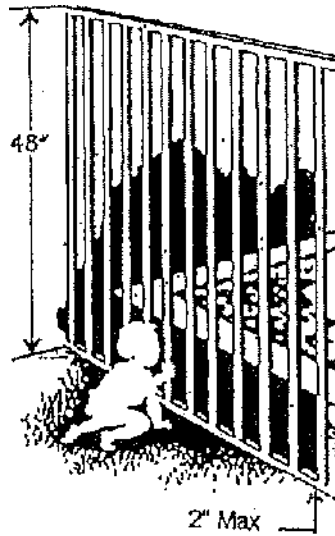


AREA 2-0 Violation



note. (Foot: 'net0)

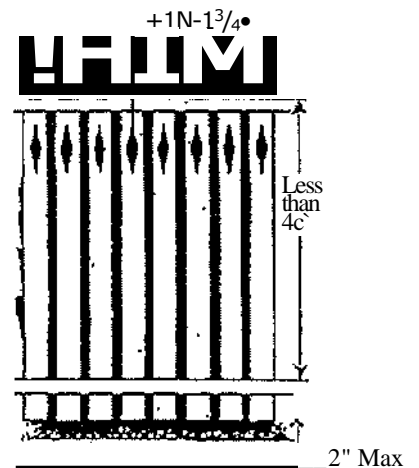
NOT an acceptable barrier. The deck, when finished in this manner, provides a ledge (foothold) on the outside of the barrier. In these situations, the code compliant barrier should be measured from the top of the deck to the railing.



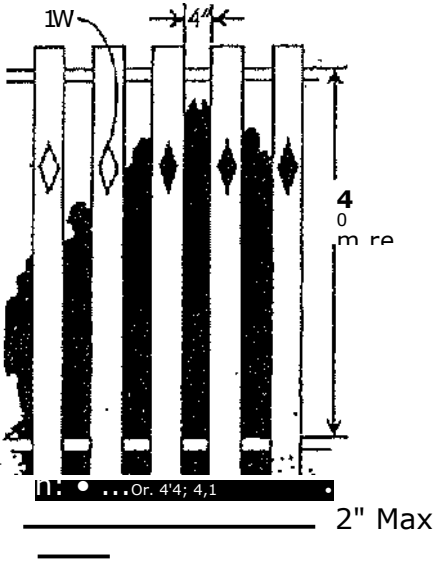
The regulations state that handholds and footholds should be eliminated and the size of openings in a barrier be minimized.

For a Barrier (Fence) Made Up of Horizontal and Vertical Members:

If the distance between the tops of the horizontal members is less than 45 inches, the horizontal members should be on the swimming pool side of the fence. The spacing of the vertical members should not exceed 13/4 inches. This size is based on the foot width of a young child and is intended to reduce the potential for a child to gain a foothold. If there are any decorative cutouts in the fence, the space within the cutouts should not exceed 1-3/4 inches.

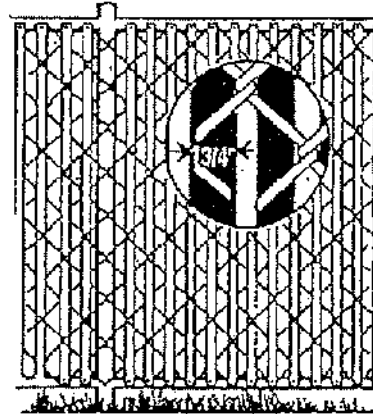


If the distance between the tops of the horizontal members is more than 45 inches, the horizontal members can be on the side of the fence facing away from the pool. The spacing between vertical members should not exceed 4 inches. This size is based on the chest depth of a young child and is intended to prevent a child from passing through an opening. Again, if there are any decorative cutouts in the fence, the space within the cutouts should not exceed 1-3/4 inches.



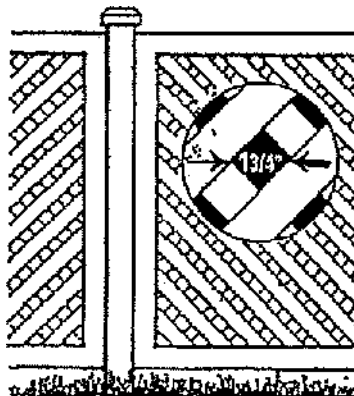
For a Chain Link Fence:

The mesh size should not exceed 1-1/4 inches square unless slats, fastened at the top or bottom of the fence, are used to reduce mesh openings to no more than 1-3/4 inches.



For a Fence Made Up of Diagonal Members (Latticework):

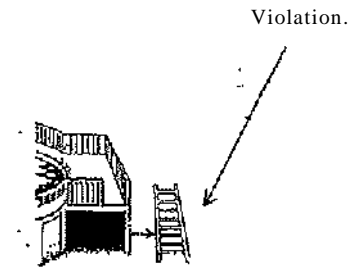
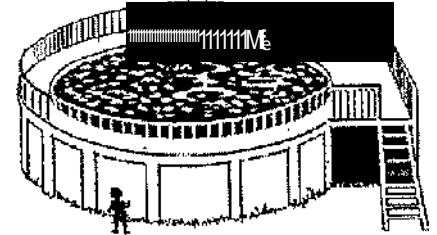
The maximum opening in the lattice should not exceed 1-3/4 inches.



For Aboveground Pools:

Aboveground pools should have barriers. The pool structure itself serves as a barrier or a barrier is mounted on top of the pool structure.

The step ladder must be designed to be secured, locked or removed to prevent access, or the steps or ladder can be surrounded by a barrier such as those described above.

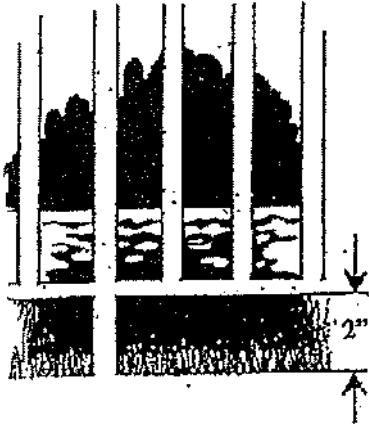


Step treads must have a minimum unobstructed horizontal depth of 10 inches and a minimum unobstructed surface of 240 square inches. Risers must have a maximum uniform height of 12 inches as measured at the centerline of the tread and the height of the bottom riser cannot vary more than plus or minus 2 inches from the uniform riser height.



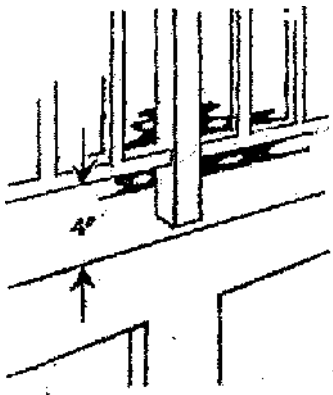
How to Prevent a Child from Getting UNDER A Pool Barrier

For any pool barrier, the maximum clearance at the bottom of wall should not exceed 2 inches above grade, when the measurement is done on the side of the barrier facing away from the pool.



Aboveground Pool with Barrier on Top of Pool:

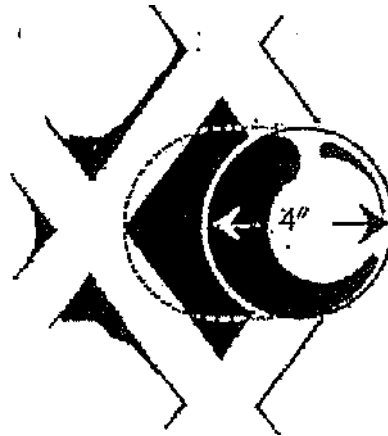
If an aboveground pool has a barrier on the top of the pool, the maximum vertical clearance between the top of the pool and the bottom of the barrier should not exceed 4 inches.



How to Prevent a Child from Getting THROUGH A Pool Barrier

Preventing a child from getting through a pool barrier can be done by restricting the sizes of openings in a barrier and by using self-closing and self-latching gates.

To prevent a young child from getting through a fence or other barrier, all openings should be small enough so that a 4-inch diameter sphere cannot pass through. This size is based on the head breadth and chest depth of a young child.



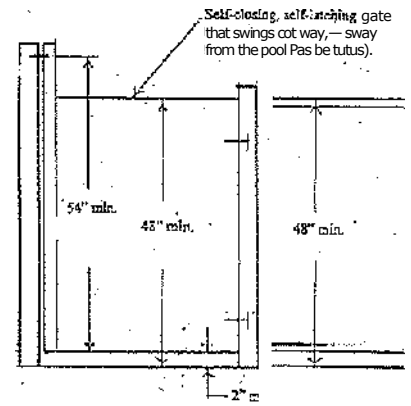
Gates:

There are two kinds of gates which might be found on a residential property. Both can play a part in the design of a swimming pool barrier.

Pedestrian Gates:

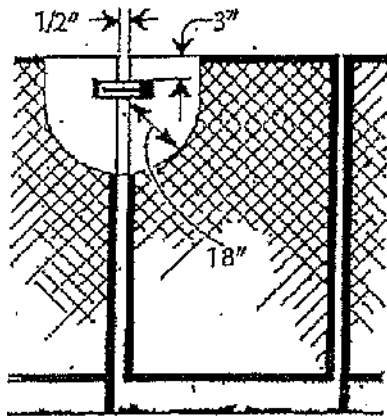
These are the gates people walk through. Swimming pool barriers should be equipped with a gate or gates which restrict access to the pool. A locking device should be included in the gate design. Gates should open out from the pool and should be self-closing and self-latching. If a gate is properly designed, even if the gate is not completely latched, a young child pushing on the gate in order to

enter the pool area will at least close the gate and may actually engage the latch.



How to Prevent a Child from Getting THROUGH A Pool Barrier

When the release mechanism of the self-latching device is less than 54 inches from the bottom of the gate, the release mechanism for the gate should be at least 3 inches below the top of the gate on the side facing the pool. Placing the release mechanism at this height prevents a young child from reaching over the top of a gate and releasing the latch



Also, the gate and barrier should have no opening greater than 1/2 inch within 18 inches of the latch release mechanism. This prevents a young child from reaching through the gate and releasing the latch.

All Other Gates (Vehicle Entrances, Etc.):

Other gates should be equipped with self-latching devices. The self-latching devices should be installed as described for pedestrian gates.

When the House Wall Forms Part of the Pool Barrier:

In many homes, doors open directly onto the pool area or onto a patio which leads to the pool.



In such cases, the wall of the house is an important part of the pool barrier, and passage through any doors in the house wall should be controlled by security measures. The importance of controlling a young child's movement from house to pool is demonstrated by the statistics obtained during CPSC's study of pool incidents in California, Arizona and Florida: almost half (46 percent) of the children who became victims of pool accidents were last seen in the house just before they were found in the pool.

All doors which give access to a swimming pool should be equipped with an audible alarm which sounds when the door and/or screen are opened. The alarm should sound for 30 seconds or more within 7 seconds after the door is opened. *Alarms should meet the requirements of UL 2017 General-Purpose Signaling Devices and Systems, Section 77.*

The alarm should be loud: at least 85 dBA (decibels) when measured 10 feet away from the alarm mechanism. The alarm sound should be distinct from other sounds in the house, such as the telephone, doorbell and smoke alarm. The alarm should have an automatic reset feature.

Because adults will want to pass through house doors in the pool barrier without setting off the alarm, the alarm should have a switch that allows adults to temporarily deactivate the alarm for up to 15 seconds. The deactivation switch could be a touchpad (keypad) or a manual switch, and should be located at least 54 inches above the threshold of the door covered by the alarm. This height was selected based on the reaching ability of young children.

Power safety covers can be installed on pools to serve as security barriers. Power safety covers should conform to the specifications in ASTM F 1346-91. This standard specifies safety performance requirements for pool covers to protect young children from drowning. If you wish further information on this standard, contact ASTM, Inc., Philadelphia, PA (formerly the American Society for Testing & Materials) directly.

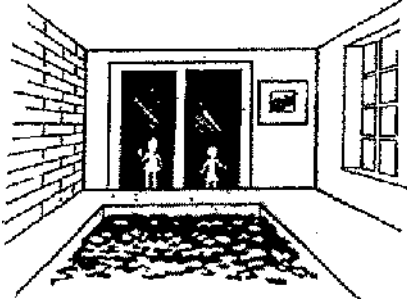
Self-closing doors with self-latching devices could also be used to safeguard doors which give ready access to a swimming pool.

Pool Alarms:

Any new or substantial alteration of a residential pool in CT triggers the requirement for a "pool alarm" that is defined as a device which emits a sound of at least 50 decibels when a person or object weighing 15 pounds or more enters the water in the pool.

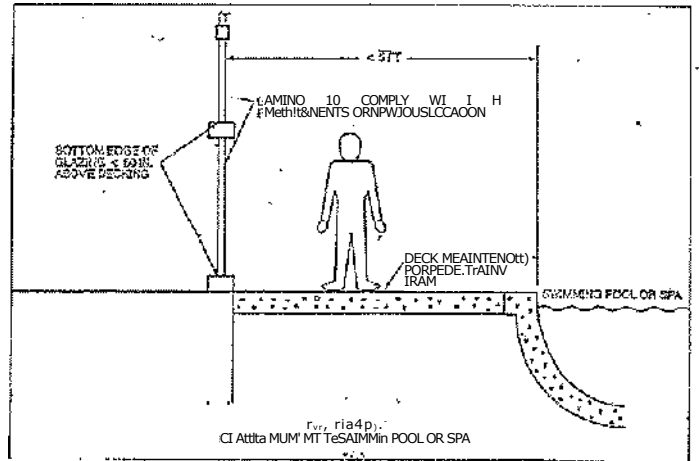
Indoor Pools:

When a pool is located completely within a house, the walls that surround the pool should be equipped to serve as pool safety barriers. Measures recommended above where a house wall serves as part of a safety barrier also apply for all the walls surrounding an indoor pool.



When Safety Glazing Is Required:

Glass adjacent to pools can be hazardous, so safety glazing is required.



Date:		RESIDENTIAL POOL CHECKLIST				Code Section	
		Inspector:		I Address:			
OK	NG	NA	#		App. G-CT Sup.	Page At	
BARRIER							
			1.	Barrier (fence, pool wall, etc.) shall be not less than 48" above grade and start 2" max above grade	AG 105.1 #1	2 & 4	
			2.	Openings shall not allow passage of a 4" diameter sphere	AG 105.2 #2	4	
			3.	No indentations/protrusions in solid barriers, such as masonry or stone wall	AG 105.2 #3	2	
			4.	When the barrier is composed of horizontal and vertical members <45" apart:	AG '105.2 #4	2	
				a. The horizontal members shall be located on the pool side and the spacing between vertical members shall not exceed 1-3/4" in width			
				b. If there are vertical cutouts within the vertical members, the width of the cutouts shall not exceed 1-3/4".			
			5.	When the barrier is composed of horizontal and vertical members and the distance between the tops of the members is 45" or more:	AG 105.2 #5	3	
				a. Spacing between vertical members shall not exceed 4".			
				b. Same as 4b above.			
			6.	Maximum mesh size for chain link fences shall be 2-1/4" square unless the fence is provided with slats fastened at the top and bottom which reduce the openings to not more than 1-3/4".	AG 105.2 #6	3	
			7.	Maximum diagonal openings (lattice w/ slats, etc.) are 1-3/4".	AG 105.2 #7	3	
			8.	Safety glazing (on pool side) is required in walls and fences enclosing pools that are built within b' horizontal and b' vertical of a walking surface (INC 2003)	R 308.4 #9	6	
			9.	Removable or fixed ladder or steps require a barrier which meets items 1-8 above. Where an aboveground, on-ground or in-ground pool structure is used as a barrier or where the 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 barrier which meets the requirements of Items 1-9 above.	AG 105.6 #10 CT Sup. AG 105.2	3	
			10.	Barriers mounted on top of pool structures require < or = 4" from bottom of barrier to top of pool.	AG 105.2 #1	4	
ACCESS GATES							
			11.	Gate material shall comply with Items 1-8 above.	AG 105.2 #8		
			12.	All gates shall be equipped to accommodate a locking device.		4	
			13.	Pedestrian access gates shall open outward, away from pool.		4 & 5	
			14.	Pedestrian access gates shall be self-closing and self-latching.		4	
			15.	Other access gates shall have a self-latching device.		4	
			16.	When the release mechanism or the self-latching device is located < 54" from the bottom of the gate, the release mechanism shall be located on the pool side, at least 3" below the top of the gate, and the gate and barrier shall have no openings > 1/2" within 18" of the release mechanism.		5	
Doors Providing Direct Access To The Pool Enclose (Use one option)							
			17.	Option 1 - Be equipped with an audible alarm that operates when the door and its screen, if present, are opened. The alarm shall:	AG 105.2.9 #9.2	5 & 6	
				c. Commence < 7 seconds after the door/screen is opened and shall sound continuously for a minimum of 30 seconds.			
				c. Be capable of being heard throughout the house during normal activities.			
				d. Automatically reset under all conditions.			
				e. Be equipped with manual means (touchpads, switches) located at least 54" above the door threshold to deactivate the alarm for not more than 15 seconds when opening the door/screen from either direction.		5 & 6	
			18.	Option 2 - Be equipped with a power safety cover capable, when closed, or holding 485 pounds and shall:	AG 105.2.9 #9.1 (ASTM F1346-91)	5 & 6	
				f. Not have openings > 4-1/2" and shall drain standing water.			
				d. Have a permanently installed, key operated, control switch (spring loaded or momentary contact type) that, when released, changes direction immediately. The switch shall be in the line of sight of the complete pool cover.			
			19.	Option 3 - Be equipped with a self-closing and self-latching device with the release mechanism located a minimum of 54" inches above the door threshold. Swinging doors must open away from the pool area.	AG 105.2.9 #9.3	5 & 6	
POOL ALARMS							
			20.	Any new or substantial alteration or a residential pool must have an alarm that emits a sound of at least 50 decibels when a person or an object weighing 15 pounds or more enters the water in a pool.	CT Sup. AG 105.7	5	

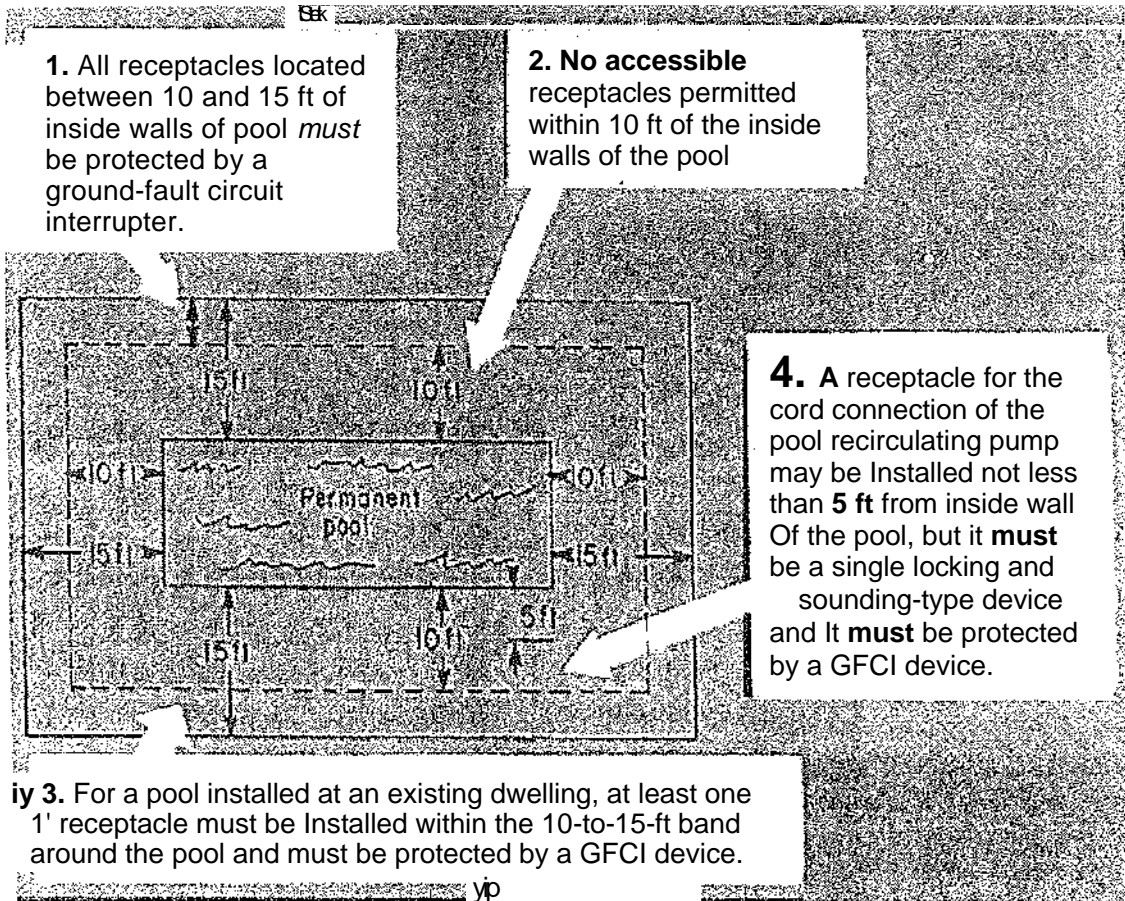
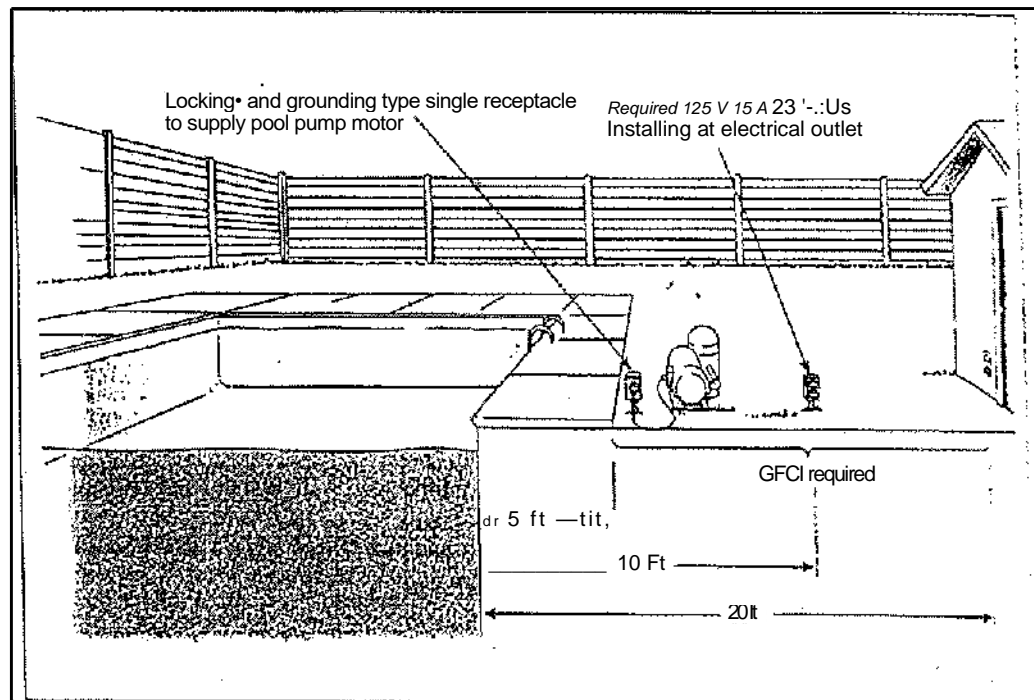


FIG. 7. RULES cover all receptacles within 15 ft of the pool's edge.

Exhibit 680.3 An example of a receptacle installed according to 680.22(A). For permanently installed pools at a dwelling (see 680.22(A)), it is mandatory installing a 125-volt receptacle at 10 ft and 20 ft from the inside wall of the pool.



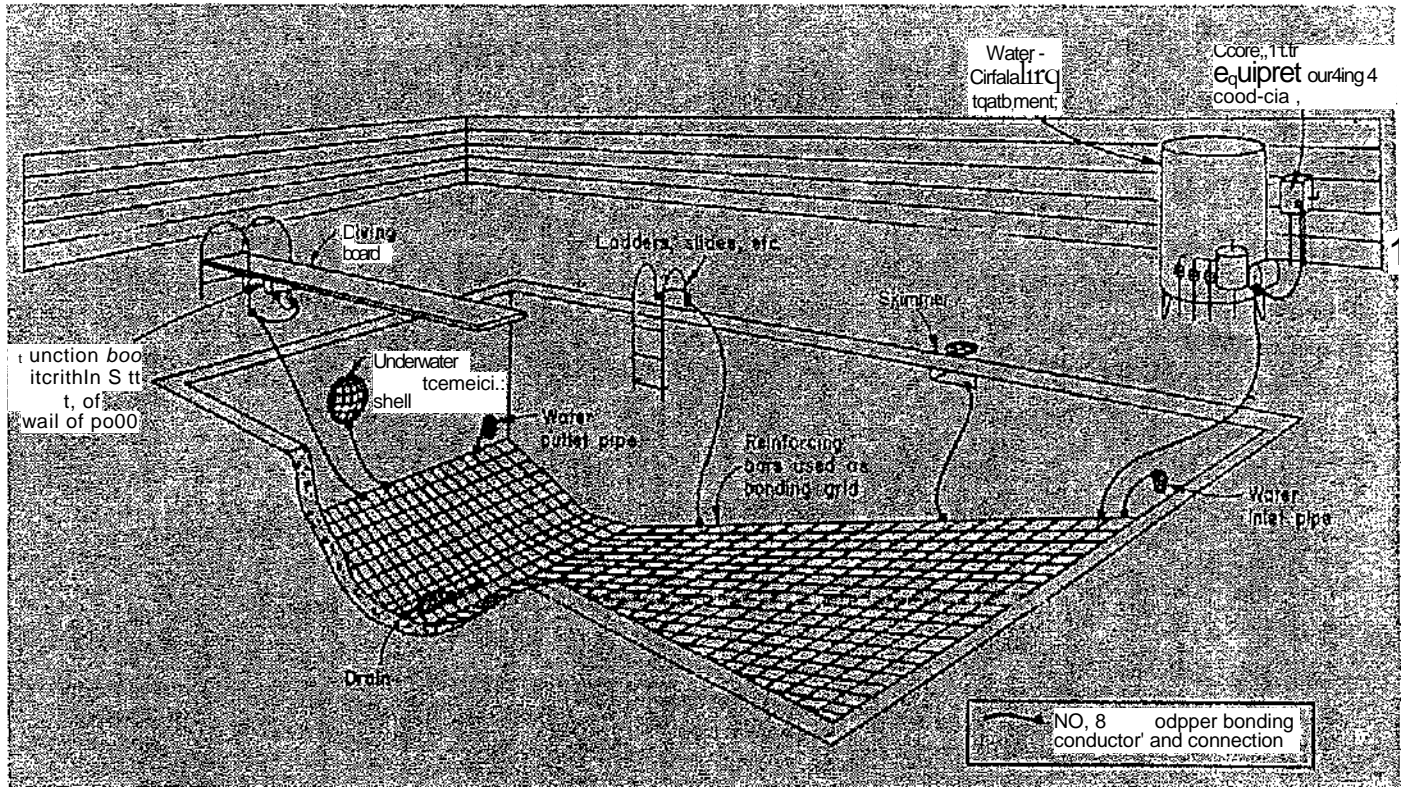
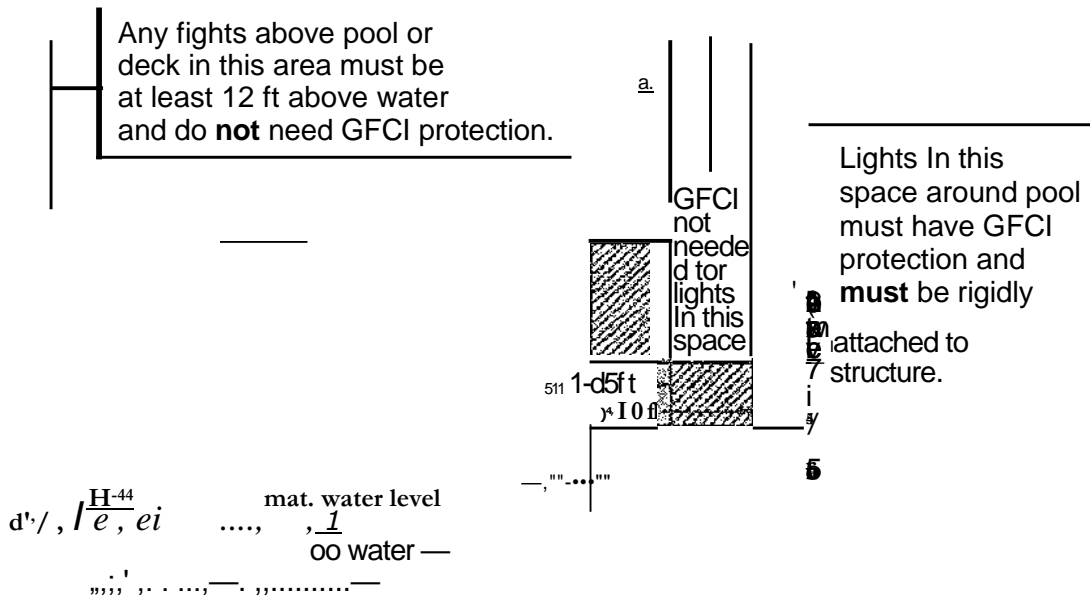


FIG. 19. A NO.6 bonding jumper lies each of the indicated parts to the rebar grid, completing the bonding.



Exception:
 Any existing lighting fixtures or lighting outlets are permitted in this space around the pool if rigidly attached to the existing structure and protected by a GFCI in the branch circuit supplying the fixtures. But new-not "existing") lights are not permitted in this space around a pool.

FIG. 18. LIGHTING LOCATIONS are governed by space bands around pool perimeter.

Date:			RESIDENTIAL POOL CHECKLIST— ELECTRICAL				I Code	
Inspector:			J Address:					
OK	NG	NA	#		NEC 2002	IRC 2003	Draw	
				WIRING	Article 680	Chp. 41		
			1.	No receptacles within 10' of the pool edge (5' for pool equip. receptacle).	680.22.A.1	E 4103.1.1	7	
			2.	At least one GFCI convenience receptacle between 10'-20' from pool.	680.22.A.3	E 4103.1.2	7	
			3.	Convenience receptacle and pump cannot be on same circuit.	210.23.A.2	E 3602.3		
			4.	Pump receptacle within 10' from pool edge shall be GFCI, locking ground type (except II I tarclwli ed).	680.22.A.1	E 4103.1.1	7	
			5.	Pump receptacle grounding conductor not less than #12 AWG, insulated.	680.22.A.1	E 4105.5		
			6.	All 125V/15-20A receptacles less than 78' above ground to be GFCI:	000.22.A.3	E 4103.1.2		
			7.	a. Existing light fixtures < 5' from pool shall be 5' above water and GFCI.	680.22.8.3	E 4103.4.3	8	
				b. All light fixtures 5'10' from pool shall be GFCI unless 5' above water.	680.22.8.4	E 4103.4.5		
			8.	Switches shall be not less than 5' horizontally from pool except when located behind a solid barrier.	680.22.0	E 4103.2		
			9.	Maximum pool equipment flex cord length is 3' (20A or less) with #12 equipment bonding conductor except underwater lighting fixtures.	680.21	E4102.2.1		
			10.	Wiring Method	Type	Burial Depths	Table 680.10	E 4102.2.2
				Rigid metal conduit	MC	Not less than 6"		Tbl. E 4103.6
				Intermediate metal conduit	IMC	Not less than 6"		
				Ridge non-metallic conduit	NMC	Not less than 18"		
			11.	Bonding required; #8 solid AWG copper for the following:	680 26 C	E 4104.1.4	8	
				g. Structural reinforcing (rubber) of Lilo concrete pool.				
				h. Walls of bolted or welded metal pools.				
				i. All metallic parts of pool structure.				
				j. All fixed metal parts within 5' horizontally from pool edge.				
				k. All pump motors, filter casings and other metal electrical equipment associated with the pool				
				DOORS PROVIDING DIRECT ACCESS TO IRE POOL				
			12.	Option 1 — Be equipped with an audible alarm that operates when the door and its screen, if present, are opened. The alarm shall:	AG 105.2.9		5 & 6	
				e. Commence < 7 seconds after the door/screen is opened and shall sound continuously for a minimum of 30 seconds.	#9.2			
				f. Be capable of being heard throughout the house during normal activities.				
				l. Automatically reset under all conditions.				
				g. Be equipped with manual means (touchpads, switches) located at least 54" above the door threshold to deactivate the alarm for not more than 15 seconds when opening the door/screen from either direction.			5 & 6	
			13.	Option 2 — Be equipped with a power safety cover capable, when closed, or holding 485 pounds and shall:	AG 105.2.9		5 & 6	
				m. Not have openings > 4-1/2" and shall drain standing water.	#9.1			
				h. Have a permanently installed, key operated control switch (spring loaded or momentary contact type) that, when released, changes direction immediately. The switch shall be in the line of sight of the complete pool cover.	(ASTM F3416-91)			
			14.	Option 3 — Be equipped with a self-closing and self-latching device with the release mechanism located a minimum of 54" above the door threshold. Swinging doors must open away from the pool area.	AG 105.2.9		5 & 6	
					#9.2			
				POOL ALARM				
			15.	Any new or substantial alteration of a residential pool must have an alarm that emits a sound of at least 50 decibels when a person or an object weighing 15 pounds or more enters the water in a pool.	CT Sup.		5	
					AG 105.7			