

Pool and Spa

Pools and spas may leak. This may become apparent from secondary evidence during our inspection, but the owner or the occupant of a property would be aware that the water level drops regularly and must be topped off, and this should be disclosed. Unusually high water bills could reveal this, but only a pressure test of the pipes, a dye test of cracks, or a geophone test of specific areas would confirm it, and any such specialized test is beyond the scope of our service. Therefore, you should ask the sellers to guarantee that the pool or spa does not leak, request to review the water bills for a twelve month period, or obtain comprehensive insurance to cover such an eventuality. However, there are other equally significant issues regarding pools and spas, and particularly those having to do with electricity.

Electrical standards governing pools and spas vary, and have changed significantly through time. Regardless, because of the dangers inherent in the proximity of water to electricity, we recommend that all metal equipment in the vicinity of the pool or spa, including fences and post straps, be bonded and that pool and spa lights should not be used unless they are confirmed to have groundfault protection.

Pool and spa enclosures are an equally important safety feature that are not necessarily uniform. However, we recommend that any pool or spa property should have a fiftyfour inch enclosure, measured on the side facing away from the water, and that all access gates should selfclose and include a latch at fiftyfour inches. Ideally, all such gates should open away from the pool or spa so that a child cannot simply push them open if they should happen to be unlatched. However, standards in some regions are even more stringent, and require that the doors on residences be equipped with an automatic alarm. Nevertheless, it would be prudent for you to review the pool safety regulations in this community, and to conform to that standard or to whatever personal standard suits your needs.

1. General Comments

- 1.1. The mere fact that the presence of a swimming pool does not automatically suggest the structure was constructed with building permits. We suggest the buyer contact the local building and safety department to see if the work was performed under their jurisdiction and with permits.
- 1.2. The safety markers and / or signage which display pool safety are suggested to be installed as a precautionary measure.
- 1.3. When observing the swimming pool from opposite ends, we observed one side lower than the other side by as much as 1 to 1/2". The reason for this can be many and is beyond our scope to attempt to troubleshoot, however, it suffices to say the buyer is suggested to contact a professional engineer who may offer a detailed explanation.



pool out of level south side of pool



pool out of level north side of pool

2. Salt Disinfectant System

This pool is a salt water pool that utilizes a form of generation system which produces chlorine. A chlorine generator makes chlorine gas from ordinary salt (sodium chloride). The salt mixes with water to make a brine solution. An electric current is then passed through the brine solution within a cell to make chlorine. This the basic process from which all chlorine is made in the world.

2.1. A saltwater pool is a sodium hypochlorite chlorine pool rather than calcium hypochlorite pool. The difference is that you make the chlorine yourself. Technically, a salt water chlorinator works by using electrolysis to release chlorine gas from the salt in your pool water. Two to five hundred pounds of salt is added to the pool water to achieve a saturation of approximately 3200 parts per million. The salt water is then passed through a chlorinator cell that is electronically charged and this process releases chlorine gas from the salt. The chlorine gas then combines with the pool water to create liquid sodium hypochlorite chlorine.

2.2. The cell component of the salt system may need to be cleaned.

3. Pool Coping

Materials: The pool coping material is concrete.

3.1. The pool coping is functional.

4. Pool Deck

Materials: The pool decking material is concrete.

4.1. The pool deck is in acceptable condition.

4.2. Cracks were observed in the pool decking material. This implies that movement has occurred, which is typical with concrete slabs. Sealant is recommended to prevent further damage and performed on a regular basis to prevent extended wear. We recommend that this condition be monitored and further evaluated by a qualified contractor if any sign of significant movement is observed.

5. Pool Tile

5.1. The pool tiles are in acceptable condition with what is considered normal wear and tear.

5.2. There is scaling, or a buildup of minerals, on the pool tiles. This is common and somewhat unavoidable, but periodical tile cleaning will inhibit the scaling.

6. Pool Interior Finish

Materials: The interior pool finish is plaster.

6.1. We are unable to determine the age of the pool plaster, however, the pool plaster appears somewhat discolored and mottled with visible pitting and / or chipping and possibly small cracks. This may be an indication of high PH or excess in acidity or calcium or other minerals leeching through to the surface, which is not uncommon with such finishes. The age of the plaster may also be a cause of the mottling and surface cracks observed. In any case, the material may be brittle and not suggested to be heavily acid washed, so we suggest that a professional pool contractor further inspect the material.

7. Water Fill Method

Type: The fill method for the pool is manual.

7.1. The pool is filled manually via hose bib faucet.

8. Skimmer

- 8.1. The skimmer box and its cover are functional.
- 8.2. The connection of the skimmer box to the concrete deck is in need of sealant.



sealant is suggested within skimmer

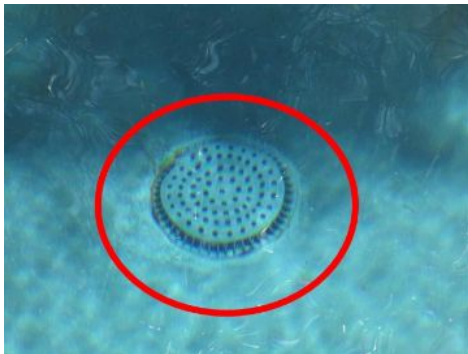
9. Weir Gate

- 9.1. The weir gate that keeps debris from entering the pool was missing or is not visible or accessible to verify.

10. Drain Covers

Type: The pool drain cover is a non antientrapment type.

- 10.1. These drain covers installed have been recalled by CMP Inc. Removal and replacement of these drain covers is suggested. <http://www.cmp.com/DrainCoverRecall2.htm>



"recalled" drain cover

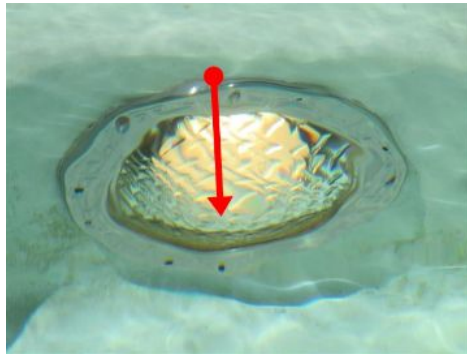


recalled drain covers

11. Pool Light

- 11.1. The pool light was functional when tested, and was groundfault protected. The GFI is recommended to be tested every six months.

11.2. At the time of the inspection we observed stains or discoloration or, what appeared to be water within the wet niche light bucket. We suggest inspecting the light fixture for possible moisture entry and if water is in fact present, we therefore suggest removing the bucket and replacing the niche or servicing the seal if possible.



water in light niche

12. Diving Board

12.1. Diving boards are inherently dangerous and responsible for serious injuries every year, and we recommend removing them.

13. Slide

13.1. The water slide and its components are functional. However, they are inherently dangerous, and directly responsible for serious injuries every year, therefore, they must be used responsibly.

14. Ladder and Rails

14.1. The pool ladder rails are functional.

14.2. The pool ladder rails are too loose and should be more securely mounted, for safety reasons.

14.3. The ladder and or railing did not appear to be visibly "bonded" as per building standard.



loose railing / no visible equipotential bonding conductor

15. Circulation Pump

15.1. The pool pump is functional.

15.2. This pool circulation motor is not bonded. A bond wire is recommended to be connected to all metal components within the pool equipment then back to a ground source.

15.3. There is a leak at the pump / motor connection or main seal on the circulation pump, which should be serviced.

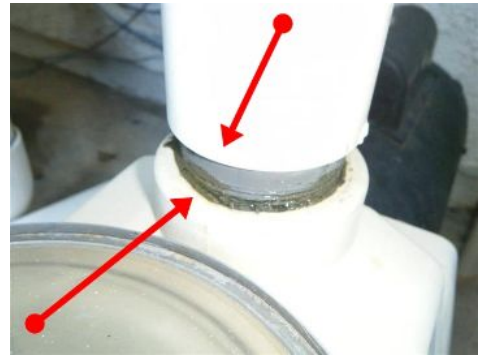
15.4. Leaking was observed at the top nipple or return side of the pump. The leaking appears to be somewhat minimal, however, as a precautionary measure we suggest a pool professional inspect the pipes and repair as necessary.



no bond observed at the pool motor



disconnected pool equipotential bonding conductor



leak at the top pipe connection into pump

16. Piping

16.1. The supply lines and return lines are in acceptable condition, no leaking noted.

17. Valves

17.1. There is a leak at a valve on the return side in the equipment area, which should be repaired.

17.2. The "check" valve installed was leaking and may allow the spa to backdrain.



valve is leaking



bad "check valve" causing the spa to drain out

18. Filtration

Type: The pool filter appears to be a D.E. filter (diatomaceous earth).

Note: a) The D.E. filter must be closely maintained as the grids, with time, become brittle and subject to damage internally. b) Because the grids are internal, we cannot inspect them, but they are suggested to be. c) The backwash plumber / valve is not tested (if applicable).

Size: The estimated filter size is 60 SQ FT.

18.1. The pool filter is functional.

18.2. The filter grids and backwash valve (if present) are suggested to be inspected prior to the close of this escrow.

18.3. Diatomaceous earth has settled within the pool and / or spa. When DE enters into the pool, this is typically an indication that either the lower/upper grid manifolds, or grids within the filter are damaged, allowing debris and DE materials to pass through the filter and re enter the pool. Repairs for this can, in some cases, be significant, so we suggest the buyer have a pool professional inspect the filter, grids and grid manifolds for any damage.

18.4. The pool filter has a bandgasket leak, which should be serviced.

19. Heater

19.1. The pool heater is functional, but should be kept clean and serviced seasonally. The unit is old and beyond its useful serviceable life and is suggested to be monitored on a regular basis.

19.2. The fireman's switch in the heater was tested when water circulation to the heater was terminated and the heating unit shut down.

19.3. The heater has been installed in an area with insufficient clearance from combustible materials (wood) according to current building standards and is considered a fire hazard. Heaters must not be installed under an overhang of less than three (3) feet from the top of the heater. Three (3) sides must be open in the area under the overhang. Roof water drainage must be diverted away from the heaters installed under overhangs with the use of gutters.



heater clearance to wood is substandard



heater clearance to wood is substandard

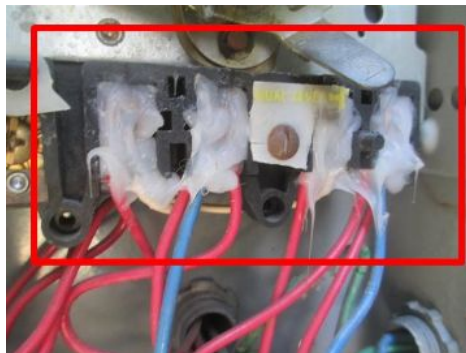
20. Electrical Panel

20.1. The groundfault disconnect at the pool equipment area is defective, or will not trip on test, and should be serviced.

21. Timer Box

21.1. The timer was in operational condition.

21.2. There is a material, which appears to be silicone, that has been applied to the connections / screw terminals in the timer box. This is not a suggested application and may be considered a hazard. Removal is recommended and any repairs necessary as a result of the removal.



silicone material on screw terminals

22. Other Electrical

22.1. A flexible metal conduit for the pool equipment is loose and not secured properly. Securing this attachment is recommended.

22.2. The pool equipment is too close to the pool body per current building standards.

CEC Article 680.27(B) (1)

The electric motors, controllers, and wiring shall be located at least 5 feet from the inside wall of the pool unless separated from the pool or spa by a wall, cover, or other permanent barrier.

22.3. The overhead conductor lines that convey power to the house are too low over the swimming pool. However, if you do not wish to have them rerouted, they should be raised to a minimum of 22.5 feet from the waters surface, within 10 feet of the water.



conduit is not secured in accordance to building standard



pool equipment is too close to water



electrical service conductors too close to pool surface

23. Equipotential Bonding to grid

23.1. What is an Equipotential Bonding Grid?

Establishing an electrically safe environment in and around permanently installed swimming pools requires the creation of an equipotential grid. The sole purpose of an equipotential grid is to create an area where there is no significant difference in voltage between objects that can be touched simultaneously. Examples of objects at a pool that can be touched simultaneously include the concrete decking, ladders, hand rails, light fixtures, drains, and the pool water. An equipotential grid is created by intentionally connecting all these objects together electrically, otherwise known as bonding them together. Equipotential bonding is intended to reduce voltage gradients in the area around permanently installed pools, outdoor spas, or outdoor hot tubs by the use of a common bonding grid in accordance with 680.26(B) and (C).

23.2. An equipotential bonding grid shall extend 3 ft horizontally beyond the inside walls of a pool, outdoor spa, or outdoor hot tub, including unpaved, paved, and poured concrete surfaces. The bonding grid shall comply with (a) or (b) and be attached to the conductive pool reinforcing steel at a minimum of four points uniformly spaced around the perimeter of the walls of a pool, outdoor spa, or outdoor hot tub.

(a) Structural Reinforcing Steel. Structural reinforcing steel [680.26(B)(1)(a)]. Author's Comment: The 2008 NEC does not provide any guidance on the installation requirements for structural reinforcing steel when used as a perimeter equipotential bonding grid.

(b) Alternate Means. Equipotential bonding conductor meeting the following:

(1) 8 AWG bare solid copper bonding conductor.

(2) The bonding conductor shall follow the contour of the perimeter surface.

(3) Listed splicing devices.

(4) Bonding conductor shall be 18 to 24 in. from the inside walls of the pool.

(5) Bonding conductor shall be secured within or under the perimeter surface 4 to 6 in. below the subgrade.

(3) Metallic Components. Metallic parts of the pool, outdoor spa, or outdoor hot tub structure shall be bonded to the equipotential grid.

(4) Underwater Metal Forming Shells. Metal forming shells and mounting brackets for luminaires and speakers shall be bonded to the equipotential grid.

(5) Metal Fittings. Metal fittings sized 4 in. and larger that penetrate into the pool, outdoor spa, or outdoor hot tub structure, such as ladders and handrails shall be bonded to the equipotential grid.

(6) Electrical Equipment. Metal parts of electrical equipment associated with the pool, outdoor spa, or outdoor hot tub water circulating system, such as water heaters, pump motors, and metal parts of pool covers shall be bonded to the equipotential grid. (see Figure)

Exception: Metal parts of listed equipment incorporating an approved system of double insulation is not required to be bonded to the equipotential grid.

(a) DoubleInsulated Water Pump Motors. Where a doubleinsulated waterpump motor is installed, a solid 8 AWG copper conductor from the bonding grid shall be provided for a replacement motor.

(b) Pool Water Heaters. Pool water heaters shall be grounded and bonded in accordance with equipment instructions.

(7) Metal Wiring Methods and Equipment. Metalsheathed cables and raceways, metal piping, and all fixed metal parts shall be bonded to the equipotential grid.

(8) Pool Water. The pool water is required to be bonded.

23.3. It is important to remember that if you can feel the annoying shock from NEV while in your pool, then your pool is not properly bonded. While NEV isn't dangerous, an improperly bonded pool can be dangerous. Your local "Authority Having Jurisdiction" (AHJ), usually a local electrical inspector or pool inspector, should be able to help you find qualified electricians to test and repair deteriorating pool bonding. However, if you have a pool that was built without complete and proper bonding, significant renovation may be necessary to establish an adequate equipotential grid. It can be especially difficult to bond concrete decking after the initial construction.

23.4. If the wrought iron fencing is closer than 5 feet to the swimming pool the fencing must then be

bonded in accordance to building code.

23.5. At the time of this inspection we did not observe an equipotential bond at any metal component associated with the pool in accordance to the NEC, local building standards. In light of this condition, we suggest the buyer have an electrician familiar with bonding and the bonding grid perform repairs as necessary.



wrought iron fence too close to pool water

24. Gates

Gate Location: The gate is located at the side of the house.

Materials: The gate is constructed in wrought iron.

24.1. The gate(s) that lead into the rear yard where there is a pool, pond (greater than 18 inches deep) or spa, (including spas with locking covers) should be equipped with a selfclosing device that completely latches the gate when shut as per local building standards (we test at 12" away). Gates should close completely and latch and open outward away from the rear yard.

NOTE: a) An uncovered spa may represent a potential hazard when subjected to rain for extended periods of time. b.) If a pool barrier exists, such as Guardian® fencing system, we still suggest the yard be protected by self closing gates at the yard entrances.



gates to pool yard do not self latch



gates do not self close



pool gate standards

25. Barrier

25.1. The pool barrier is short. The barrier should be maintained at the local minimum building standard height of 4860 inches (depending on code in jurisdiction) but this figure should be verified with the local building authority.



pool barrier is short

Estimate for Repair

1. Estimate for Repair

Approximate Estimates for Repair

Replace drain cover

Install new light

Circulation Pump Install new main seal and repair top nipple and bond

Repair return valve

Repair check valve

Build barrier at equipment

Install selfclosers on gates

Approximate Repair / Replacement Costs \$2850

Increase height of barrier where its low General or Fencing Contractor estimate recommended.

Service drop and pool bonding Licensed Electrical Contractor estimate recommended.