

What are the entrapment protection requirements?

Some pools may have circulation systems that may create hazardous entrapment situations for swimmers if not protected. The following are some of the entrapment protection requirements:

- Suction outlets are designed to produce circulation throughout the pool or spa. Single-outlet systems, such as automatic vacuum-cleaner systems, or multiple suction outlets, whether isolated by valves or otherwise, shall be protected against user entrapment.
- Pool and spa suction outlets shall have a minimum 8-inch by 23-inch drain grate or other approved system to protect against user entrapment.
- Single or multiple outlet circulation systems shall be equipped with an atmospheric vacuum relief should grate covers located therein become missing or broken.
- Single or multiple circulation systems shall have a minimum of two suction approved outlets at least 3 feet apart. These suction outlets shall be piped so that the water is drawn through them simultaneously through a vacuum-relief-protected line to the pump(s).
- Where provided, vacuum or pressure-cleaner fitting(s) shall be located in an accessible position(s) at least 6 inches and not more than 12 inches below the minimum operational water level or as an attachment to the simmer(s).

If you are not familiar or uncomfortable with these requirements, please seek a professional's service.

Call Miss Utility - Dial 811

Miss Utility is a free service that will locate all member utilities that may have facilities in your proposed area of excavation. Notification must be made a minimum of 48 hours prior to excavating.

What are the electrical requirements?

- Single-family swimming pool pump branch circuit outdoor and underground wiring must be installed in an approved conduit and must contain an insulated equipment grounding conductor. The interior portion of the circuit may be any wiring method recognized in Chapter 3 of the NEC. (NM, MC cable etc.) NEC 680.21(A)
- All pool pumps rated 120 or 240 volts, 15 or 20 amps must be GFCI protected. NEC 680.22 (B)
- Receptacle outlets for pool pumps must be located minimally 10 feet from the inside wall of the pool or minimally 6 feet from the pool wall under the following conditions: consist of a single, grounding type receptacle with a locking configuration and GFCI protected. NEC 680.22 (A)(1)
- At least one 120V, 15 or 20 amp GFCI protected receptacle on a general-purpose branch circuit shall be installed between 6 and 20 feet from the pool's inside wal. NEC 680.22 (A)(3)
- Branch circuits for underwater lighting of more than 15 volts must be GFCI protected per: NEC 680.23 (A)(3) and installed in an approved conduit per 680.23 (F). Type MC cable that contains an insulated equipment ground shall be permitted for the interior portion of the circuit. In all cases, an insulated equipment grounding conductor shall be installed.
- All switches and disconnects must be located a minimum of 5 feet from the wall of the pool. 680.22 (D)
- In outdoor pool areas, lights and paddle fans installed above the pool or within 5 feet horizontally from the inside wall of the pool shall be located a minimum in height of 12 feet above the maximum pool water level. Existing lights or fans may be located a minimum of 5 feet above water level if GFCI protected. 680.22 (C)
- All metal parts of equipment or fittings within 5 feet of the pool wall must be bonded with a minimum #8 solid copper conductor. NEC 680.26
- Conductive pool shells and reinforcing steel shall be connected to an equipotential bonding grid which shall extend 3 feet horizontally beyond the inside wall of the pool and shall include unpaved surfaces as well as concrete, pavers etc. Where reinforcing steel is not available, an alternate means shall be provided and consist of a min #8 bare solid copper conductor following the contour of the perimeter surface and installed 18 to 24 inches from the pool wall and within or under the perimeter surface 4 to 6 inches below subgrade. 680.26
- A bond of minimally 9 square inches of conductive surface in contact with the pool water shall be installed and shall be permitted to consist of parts already bonded per: 680.26 (B)

This bulleted list is a brief summary of electrical requirements involving swimming pools. A licensed electrical contractor familiar with pools should be consulted prior to attempting any wiring. All work must be permitted and inspected per the VA Uniform Statewide Building Code.

What inspections are required?

Swimming pools shall not be used until the inspection process assures that safety requirements have been met, including verifying the completion of all electrical wiring and that the barrier code requirements have been satisfied. The following inspections are typically required:

- Pool footings for in-ground pools
- Bonding-grounding for in-ground pools
- Rough-in and final gas inspection, if applicable
- Final electrical inspection
- Barrier inspection and final building inspection (May be performed together or separately)



Requirements for Outdoor Residential Swimming Pools

Your guide to the permit and inspection process

Building Safety and Permits

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Williamsburg, VA 23187
P: 757-253-6626
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When is a permit required?

The Virginia Uniform Statewide Building Code requires a building permit for any swimming pool that is larger than 150 square feet in surface area, holds over 5,000 gallons of water, or is 24 inches or more in depth. The code makes no distinction between in-ground, above-ground, or inflatable pool, hot tubs, or spas.

What is the process?

The process is simple but requires some coordination:

1. If applicable, check with your homeowners association to verify if a pool is permitted in your community.
2. Gather all of the necessary documents.
3. Submit the required permit applications.
4. Wait for the permit to be issued.
5. Construct the pool and barrier and any required electrical installations.
6. Call for the required inspections.

What documents do I need?

Three documents must accompany your permit application:

1. **Plot Plan** – Shows the proposed distances from the pool to all property lines and the house. It is required to show compliance with the Planning Division's setback requirements. A survey plat with the pool location or a hand sketch showing the pool location with respect to the property lines and house is acceptable.
2. **Construction Drawings** – Two sets are required. Drawings for in-ground pools must include wall sections with size and spacing of reinforcing steel and be sealed by a Virginia registered design professional. Drawings for

above-ground pools must include copies of the assembly instructions.

3. **Affidavit** (if permit obtained by homeowner or property owner) – You will be required to sign an affidavit acknowledging you understand all the requirements involved with installing a pool.

What permits do I need?

The following permits are required:

1. **Pool Permit**
2. **Barrier Permit** (may be included with the pool permit if obtained together)
3. **Electrical Permit**
4. **Gas Permit** (if the pool, hot tub, or spa will be heated by gas)

Existing barriers and electrical equipment are required to be code compliant. If they are not, a permit will be required to bring them into compliance. Be sure to check with Planning (757-253-6685) for setback and easement requirements for your property.

Who should apply for a permit?

Applying for a permit is an important decision, because the permit holder(s) bears the responsibility for complying with the code. We recommend that licensed contractors get the permits, but homeowners or property owners are allowed to do so.

What are the fees for the permits?

Information concerning fees is available on our website or by calling Building Safety and Permits. Fees are subject to change.

How long does it take to get a permit?

It generally takes 3-5 working days unless there are extenuating circumstances. Outdoor swimming pools are required to have a barrier around them that complies with, but is not limited to, these general provisions (see the actual code for the definitive provisions):

Minimum Height

- 48 inches above grade measured from the outside face of the barrier
- For above-ground pools, the side of the pool may qualify as the barrier if the pool is 48 inches tall, or the barrier may mount on top of the pool structure. In each case, the ladder must be removable when not in use or have a gate that meets requirements listed under "Access Gates."

Maximum Opening Size

- 2 inches between grade and bottom of barrier
- 4 inches between top of above-ground pool wall and bottom of barrier when barrier is attached to the top of pool wall
- All other openings shall not allow the passage of a 4-inch diameter sphere.

Climbability

- Solid barriers (stone walls, etc.) must have no protrusions or indentations.
- Horizontal members less than 45 inches apart must be located on the inside face of the barrier. In such cases, the space between corresponding vertical members must be 1.75 inches or less.
- Chain-link or lattice-type barriers with diagonal members must have openings less than 1.75 inches measured horizontally or 1.25 inches measured diagonally. Slats may be placed in openings to reduce size to the required dimension.
- Decorative cutouts within a vertical member must not have openings greater than 1.75 inches.

Access Gates

- Must meet height, opening, and climbability requirements for barriers.
- Must be self-closing and self-latching, and must open outward away from pool.
- Latches less than 54 inches from the bottom of the gate must be located on pool side at least 3 inches from the top of the gate. There shall be no openings ½ inch or greater within 18 inches of the latch
- Latches located greater than 54 inches from the bottom of the gate may be located on both sides.
- For above-ground pools where the side of the pool is the barrier, the ladder shall be capable of being removed or secured to prevent access, or be surrounded by a barrier that meets the above requirements.

Door Alarms

Only applies where the house serves as part of the barrier:

- Must sound immediately and continuously for 30 seconds.
- Must be heard throughout the house.
- Must reset automatically.
- Must be able to be temporarily, but not permanently, deactivated. Mechanism to deactivate must be 54 inches above the door threshold.
- Must be listed in accordance with UL 2017.

Spas and Hot Tubs

- Safety covers may be substituted for barriers provided such covers meet standard ASTM F1346.