

## Swimming Pool Code Guidance

This document is intended to give guidance on the North Carolina Technical Building Codes in regards to pools. First, pools and associated other requirements have to be defined.

- **Swimming Pool:** *Any structure intended for swimming, recreational bathing, or wading that contains water over 24 inches deep. This includes in-ground, above ground, and on ground pools; hot tubs; spas and fixed in place wading pools.*
- **Barrier:** *A fence, wall, building wall, or combination thereof that completely surrounds the pool and obstructs access to the pool.*
- (Electrical) **Bonding:** *Connected to establish electrical continuity and conductivity.*
  - Note: Not all projects are the same but must comply with the North Carolina Electrical Code. In addition, all metal components and wiring must be bonded and inspected before covering!!
- (Electrical) **Equipotential Plane:** *Accessible conductive parts bonded together to reduce voltage gradients in a designate area.*

The first step when planning to have a pool constructed and/or moved (hot tub) is to contact the City of Fayetteville's Zoning Division. This is to ensure that the property and the planned pool project meets any state/ city zoning requirements.

Pools for residential and commercial properties will require a plan review. Plans must show the pool construction or manufacture's installation documents, site plan, the electrical bonding and electrical wiring for pool equipment (commercial projects only), plumbing for pool equipment and plumbing if water source is connected to a municipal water/ sewer service (i.e. connected to the building water supply), and gas piping, gas appliance, and/or geo thermo system (when applicable; commercial projects only). **This is an essential step as it is easier to correct any code violations on paper than during construction!**

Pools will require after plans are approved:

1. Building Permit: The building permit will cover construction of the pool (if not a factory-manufactured system), pool barrier, and alarm requirements.
2. Electrical Permit: The electrical permit covers all electrical wiring associated with the pool and the bonding. **All bonding must be inspected prior to covering!** Failure to have the pool bonding inspected will require the covering removed (concrete, dirt, etc.) to inspect. This cannot be inspected by a third-party electrical engineer.
3. Plumbing Permit: The plumbing permit covers the water and drainage piping associated with the pool connected to a municipal water/ sewer system. (When applicable).
4. Mechanical Permit: The mechanical permit covers any ventilation/ de-humidifier requirements (indoor pool), gas piping or geo-thermo system (heated pools that use other than electricity to heat the pool) and pool covering when pool is a heated pool. (When applicable).

**Field Built Pool:**



**Inspections:**

- Building Permit (**before concrete**):
  - ✓ Any concrete slab that is associated with pool.
- Electrical Permit (**before concrete/ covering**):
  - ✓ Electrical bonding
  - ✓ Any wiring and devices (i.e. pool lights)
- Mechanical/ Plumbing Permit (**before concrete**){when applicable}
  - ✓ Any work that will be covered
- Building Permit (after concrete):
  - ✓ Stairs and hand rail
  - ✓ Pool barrier (see *pool barrier*)
- Electrical Permit (after concrete):
  - ✓ Electrical bonding and wiring
  - ✓ Pool pump motor and branch circuit
- Mechanical/ Plumbing Permit (after concrete) {when applicable}
  - ✓ Any work associated with permitted scope

**Manufactured Pool System:**



**OR**



**Inspections:**

- Building Permit (**before concrete**):
  - ✓ Any concrete slab that is associated with pool.
- Electrical Permit (**before concrete/ covering**):
  - ✓ Electrical bonding
  - ✓ Any wiring and devices (i.e. pool lights)
- Mechanical/ Plumbing Permit (**before concrete/ covering**){when applicable}
  - ✓ Any work that will be covered
- Building Permit (after concrete):
  - ✓ Stairs and hand rail
  - ✓ Pool barrier (see *pool barrier*)
- Electrical Permit (after concrete):
  - ✓ Electrical bonding and wiring
  - ✓ Pool pump motor and branch circuit
- Mechanical/ Plumbing Permit (after concrete) {when applicable}
  - ✓ Any work associated with permitted scope

**(Permanent) Hot Tub/ Spa:**

Code regulates hot tub / spas that are not portable without a manufactured cord and plug electrical connection.



**Inspections:**

- Building Permit (**before concrete**) {when applicable}:
  - ✓ Any concrete slab that is associated with hot tub/ spa.
- Electrical Permit (**before concrete/ covering**){when applicable}:
  - ✓ Electrical bonding
  - ✓ Any wiring and devices
- Mechanical/ Plumbing Permit (**before concrete/ covering**){when applicable}
  - ✓ Any work that will be covered
- Building Permit:
  - ✓ Pool barrier (see *pool barrier*)
- Electrical Permit:
  - ✓ Electrical bonding and wiring
  - ✓ Pump motor and branch circuit
- Mechanical/ Plumbing Permit {when applicable}:
  - ✓ Any work associated with permitted scope

**Pool Barrier:**

Outdoor swimming pools including in-ground, above-ground, or on-ground pools, hot tubs, and spas, must have a barrier that complies with the following:

- The top of the barrier must be at least 48 inches (1219 mm) above grade, measured on the side of the barrier that faces away from the swimming pool. The maximum vertical clearance between the grade and the bottom of the barrier must be two inches (51 mm), measured on the side of the barrier that faces away from the swimming pool. Where the top of the pool structure is above grade, such as an above-ground pool, the barrier may be at ground level, such as the pool structure, or mounted on top of the pool structure. Where the barrier is mounted on top of the pool structure, the maximum vertical clearance between the top of the pool structure and the bottom of the barrier must be four inches (102 mm).
- Openings in the barrier must not allow passage of a four-inch diameter (102 mm) sphere.
- Solid barriers that do not have openings, such as masonry or stone walls, must not contain indentations or protrusions except for normal construction tolerances and tooled masonry joints.
- Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is less than 45 inches (1143 mm), the horizontal members must be located on the swimming pool side of the fence. Spacing between vertical members must not exceed 1.75 inches (44 mm) in width. Where there are decorative cutouts within vertical members, spacing within the cutouts must not exceed 1.75 inches (44 mm) in width.
- Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is 45 inches (1143 mm) or more, the spacing between vertical members must not exceed 4 inches (102 mm). Where there are decorative cutouts within vertical members, spacing within the cutouts must not exceed 1.75 inches (44 mm) in width.
- The maximum mesh size for chain link fences must be a 2.25-inch (57 mm) square unless the fence is provided with slats fastened at the top or the bottom that reduce the openings to not more than 1.75 inches (44 mm).
- Where the barrier is composed of diagonal members, such as a lattice fence, the maximum opening formed by the diagonal members must not be more than 1.75 inches (44 mm).
- Access gates must be equipped to accommodate a locking device. Pedestrian access gates must open outward away from the pool and be self-closing and have a self-latching device.

- Gates other than pedestrian access gates must have a self-latching device. Where the release mechanism of the self-latching device is located less than 54 inches (1372 mm) from the bottom of the gate, the release mechanism and openings must comply with the following:
  - The release mechanism must be located on the poolside of the gate at least three inches (76 mm) below the top of the gate.
  - The gate and barrier must have no opening greater than 0.5 inches (12.7 mm) within 18 inches (457 mm) of the release mechanism.
- Where a wall of a dwelling serves as part of the barrier, one of the following conditions shall be met:
  - The pool must be equipped with a powered safety cover in compliance with ASTM F1346; or
  - All doors with direct access to the pool through that wall must be equipped with an alarm that produces an audible warning when the door or its screen is opened. The alarm must be listed in accordance with UL 2017. The audible alarm must activate within 7 seconds and sound continuously for a minimum of 30 seconds after the door or its screen is opened and be capable of being heard throughout the house during normal household activities. The alarm must automatically reset under all conditions. The alarm system must be equipped with a manual means, such as a touchpad or switch, to temporarily deactivate the alarm for a single opening. Such deactivation must last for not more than 15 seconds. The deactivation switch must be located at least 54 inches (1372 mm) above the threshold of the door; or
- Where an above-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 must be surrounded by a barrier that meets the requirements of NCRC Appendix G, Section AG105.2, items 1 through 9. When the ladder or steps are secured, locked, or removed, any opening created shall not allow the passage of a four-inch-diameter (102 mm) sphere.
  - Barriers must be located so as to prohibit permanent structures, equipment, or similar objects from being used to climb the barriers.