

Pool, Spa and Hot Tub Guidelines

Building codes establish the minimum health and safety requirements for pools, spas, hot tubs and whirlpools. The applicable code requirements for these installations (including above/under/semi-underground) are summarized in the guidelines below and must be indicated completely and accurately on the plans submitted for permit and included in the work. The list below only represents the most typical requirements and is not all inclusive of all potential requirements. The nature and extent of work may require additional compliance in plans not listed for permit plan approval. Please refer to the full text of the code sections (in parentheses) to insure that the proposed design is complete and accurate. *You can assist the Building Division and prevent delays in issuing your permit by submitting sufficient and correct information for each applicable item.*

Pool/Hot Tub/Spa Permit:

Required **PRIOR** to beginning construction or installation to ensure the location, size and materials used will be according to the health and safety requirements set forth in the building and Village codes. It is encouraged to thoroughly review all requirements, and ask any questions, before making any purchases.

Plat of Survey:

Required showing location, size of pool/spa/hot tub (length, width, depth) and the distance from all property lines/primary structure/ flood plains/pipeline easements/septic fields/B lots. Equipment location should also be indicated.

Pool/Hot Tub/Spa Brochure or Plan:

Attach brochures and plans indicating the material, size, framing, and design of the pool/hot tub/spa. Manufacturers specifications are required for review against the building code. Also provide specifications/brochures for the pool equipment, fold-up ladders, fence latching, pool topper/fencing, ASTM rated covers, and/or alarming mechanisms.

Homeowner's Association Approval:

Required in writing showing the approval of the proposed installation. Permits will not be released without it.

Set Back Requirements:

Pools must maintain a minimum of 6 feet from any rear or interior property line and not closer than 10 feet from the nearest wall of the principal building or structure, provided the property does not have any easements larger than 6 feet. Structures (i.e. decks or pools), surfaces (i.e. pavers or concrete) and equipment are not permissible in any easements/septic fields/flood plains/B lots and must maintain a minimum of 5 feet from property lines if there are not any easements showing along a property line.

Hot tubs/spas/whirlpools must maintain a minimum of 6 feet away from any rear or interior property line, but generally do not have a restriction on proximity to the principal building. It is suggested a minimum of 2 feet is allowed to perform any possible maintenance to the units. Windows within walls, enclosures or fences containing or facing hot tubs/spas/whirlpools where the bottom exposed edge of the window is less than 60 inches measured vertically above any standing or walking surface **and** that is less than 60 inches (5 feet) measured horizontally and in a straight line from the water's edge shall be considered a hazardous location and will require tempered glass. (R308.4.5)

Pool/spa/hot tubs must maintain a minimum of 5 feet from underground gas or electrical lines, with 18 inches between lines. The following parts of pools shall NOT be placed under existing electric service-drop conductors or any other open overhead wiring, nor shall such wiring be installed above the following:

pools and the area extending 10 feet horizontally from the inside of the walls of the pool, diving structure, observation stand, tower or platform. (High voltage lines may require an increase in the minimum distance horizontally from the pool wall and overhead line.) (2012 IRC, E4203.6)

If installing on a corner lot, pools/hot tubs/spas (or any structure or surface) cannot exceed the Building Setback Line (B.S.L.) as indicated on the plat of survey.

Lot Coverage:

Percentage Of Required Yard Occupied: Detached accessory buildings or structures shall not occupy more than twenty five percent (25%) of the area of a required rear yard. (Village Code, 10-3-11-E)

Easements:

Pool/hot tub/spas, equipment, structures/surfaces and fence gates shall **NOT** be located within any easement, including gas pipeline easements or designated flood routes/B lots.

Safety Barriers (Fencing):

A minimum of 4 foot fencing is required around pools, and must be located at least 6 feet away from pool walls. Fencing must be installed **PRIOR** to adding water to the pool. Protection guards/toppers around above ground pools are required **IF** no fence is installed around the yard. Protection guards/toppers must be adequate enough to assist in supplying an overall barrier 4 foot from grade. If a yard fence will not be in place, a fold up lockable ladder or gate is required for safety.

All fence gate swings must have an outward swing leaving from the backyard or pool. Gates must have a self-latching and self-closing mechanism. The latches must be placed on the pool side at least 3 inches from the top of the gate or 54 inches from the threshold of the gate or otherwise made inaccessible to small children. A dwelling house or accessory building may be used as part of such fence, however must have an audible warning/alarm (listed and labeled according to UL 2017) or powered safety cover in compliance with ASTM F 1346. Alarms shall be listed and labeled in accordance with UL 2017, and the deactivation switch must be located at least 54 inches above the threshold of the door.

Spas/hot tubs with a safety cover which complies with ASTM F 1346 shall be exempt from providing extra barriers.

Temporary Barriers:

Temporary fencing, a minimum of 4 feet high, must be in place during construction and remain until the permanent fence/barrier is installed.

Weight Support:

All spas and hot tubs must be installed upon an approved surface designed to support the weight load per manufacturers specifications.

Electrical:

Rigid metal, non-corrosive/galvanized conduit or PVC is acceptable. 18 inches deep for PVC, or 6 inches for rigid metallic conduit. Schedule 80 is preferred/recommended, but schedule 40 is allowed if it is rated for underground. All conductors must be copper. Romex is **NOT** allowed. If electric is installed, please indicate so at the time of application. Grounding in conduit should include #12 AWG copper cable. (See below for additional information.) GFCI outlets should be located anywhere on the exterior of the

home. GFCI receptacles shall be located a minimum of 6 feet from and not more than 20 feet from the inside wall of pools and outdoor spas and hot tubs.

- Gas:** Anodeless Risers or corrosive resistance protective coating over metallic is acceptable. G2415.11.2 – Pipe protected coatings and wrappings shall be approved for the application and shall be factory applied. Uncoated threaded or socket welded joints may NOT be used where corrosion is known to occur. Minimum of 8” deep. One continuous length of PE Pipe, and two above ground joints. NO underground joints. Before any system of piping is put in service or concealed/backfilled, it shall be tested to ensure that it is gas tight. Testing, inspection and purging of piping systems shall comply with code G2417.
- Plumbing:** Suction outlets to be designed and installed in accordance with ANSI/APSP-7.
- Protection Against Corrosion:** Metallic piping or tubing exposed to corrosive action, such as soil condition or moisture, shall be protected in an approved manner.
- Bonding:** See attached diagram.
- Grounding:** NO ground rods are to be installed. The following equipment shall be grounded per code E4205.1:
1. Through-wall lighting assemblies and underwater luminaries other than those low-voltage lighting products listed for the application without a grounding conductor.
 2. All electrical equipment located within 5 feet of the inside wall of the pool, spa or hot tub.
 3. All electrical equipment associated with the recirculating system of the pool, spa or hot tub.
 4. Junction boxes.
 5. Transformer and power supply enclosures.
 6. Ground-fault circuit-interrupters.
 7. Panel boards that are not part of the service equipment and that supply any electrical equipment associated with the pool, spa or hot tub.
- Grading/Retaining Walls:** If being installed on a slope, stamped structural drawings by a design professional must be submitted. If there is a grade difference greater than 30 inches, a guardrail/handrail must be installed.
- Inspections:** A field verification of the physical pool location and J.U.L.I.E. lines/flags by the inspector is required **PRIOR** to release of any permits and starting any work to ensure location is compliant. J.U.L.I.E. must be called by either the resident or contractor so that each of the utility companies can flag their own lines. The resident or contractor will also need to somehow physically indicate the location of the pool prior to calling the Building Division to schedule the field verification.
- Once approved and the permit is released, inspections will be required prior to backfilling, prior to covering underground gas or electrical lines, prior to pouring any concrete, once bonding is complete, and in all cases, a final inspection is required. (Inspections will vary based on individual projects.) At final inspection it is required that all fencing and safety mechanisms are installed **PRIOR** to filling the pool, unless directed otherwise by manufacturers specifications, in order to receive an approval to occupy the pool.

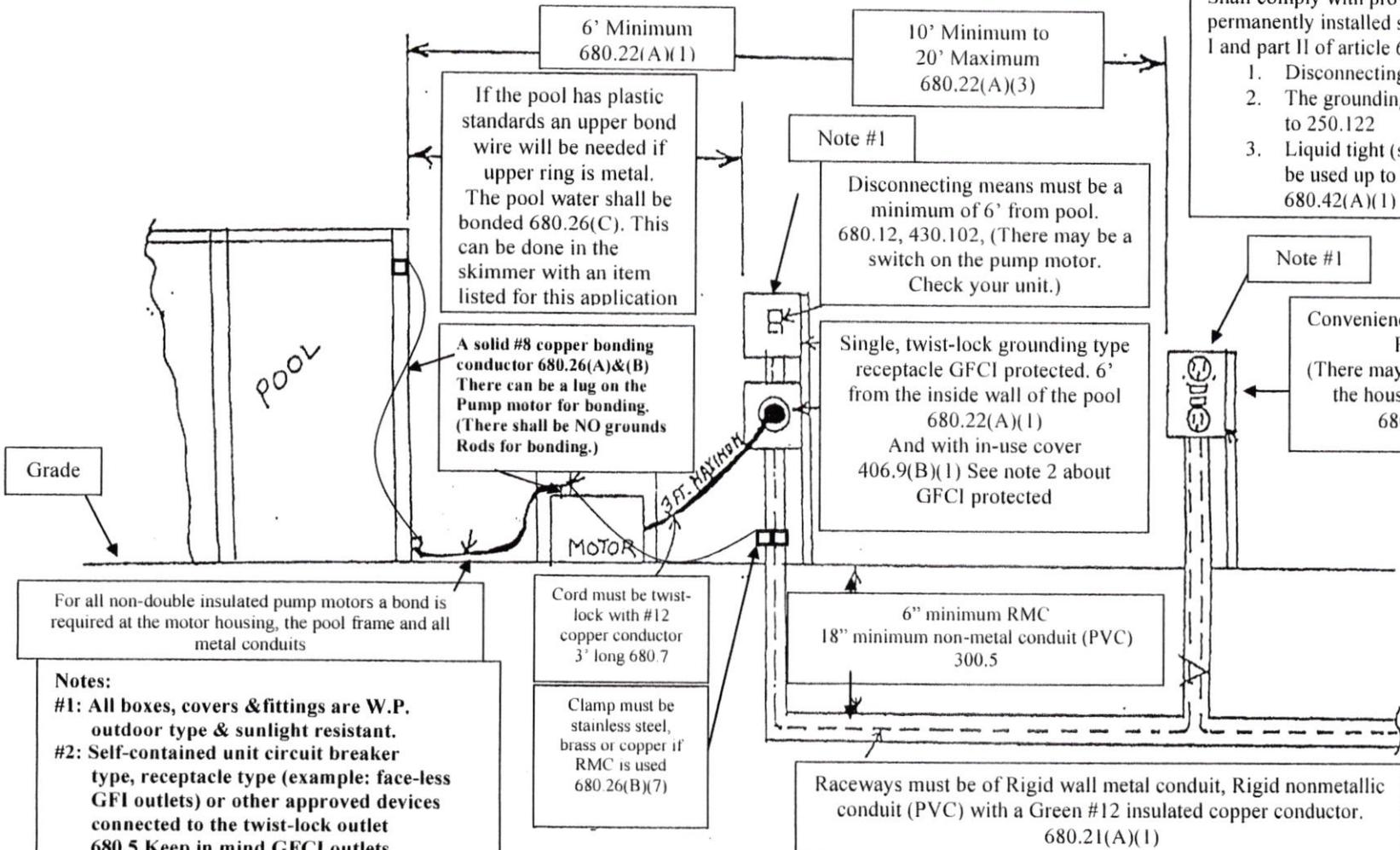
Damage Bond:

Any work requiring heavy equipment to travel over Village infrastructure (parkway, curbs and public walks) will require that a \$5,000 Damage Bond be posted, and the original & signed bond given to the Village, to protect against any possible damage to infrastructure. Once construction is finalized, and the Village Engineer can confirm the positive status of the infrastructure, the Damage Bond will be released back to the applicant.

PERMANENTLY INSTALLED SWIMMING POOL CHECK LIST TO THE 2011 NEC

1. ___ Are there any underground conductor within 5' horizontally from the inside wall at the pool?
680.10
2. ___ Are there any overhead Electrical Conductors in the area extending 10 ft. horizontally from the inside wall of the pool and 22.5' up from water level? 680.8
3. ___ Is the pump motor third party listed to U.S. standards with a label for a pool motor? (UL1081 is the standard) 110.3(B)
4. ___ Is the cord on the pump motor #12 wiring and no longer than 3' with a twist lock cord cap? 680.7
5. ___ Is the receptacle 6' from the inside pool wall? 680.22(A)(1)
6. ___ Is the receptacle a twist-lock and protected by GFCI? 680.5 This must be a GFCI breaker or GFCI face-less type outlet or GFCI outlet, rated for the h.p. at the pump. (GFCI outlets can only do up to 1 1/2 h.p. motors.)
7. ___ Is the cover for the receptacle an in-use cover? 406.9(B)(1)
8. ___ Is there a GFCI general purpose outlet on a general purpose circuit 10' from pool wall and not more than 20'? 680.22(A)(3)
9. ___ Is there a disconnecting switch located at least 5' from the inside wall of the pool? 680.12
10. ___ Is the raceway rigid heavy wall metal conduit, intermediate metal conduit or rigid nonmetallic conduit (PVC) and listed for electrical use? 680.21(A)(1) 110.3 (b) (Note: There shall be no plumber's putty (pipe dope) or plumber's Teflon tape (white tape) on the ends of the metal type conduit.)
11. ___ Is the raceway buried to the correct depth? RMC, IMC=6 inches and PVC 18inches from the top of the conduit to grade. 300.5 and Table 300.5
12. ___ There must be a minimum of a #12 green wire installed in the raceway. 680.21(A)(1) The wire must be green in color. 250.119
13. ___ The grounding conductor must pick up all junction boxes, light fixtures, pump motors, transformer enclosures, devices like switches, outlets, etc. 680.6
14. ___ Is there a grounding conductor between panel boards that are not part of the service equipment subpanels and that supply any electric equipment associates with the pool? 680.25(B) The wire shall be sized in accordance with table 250.122 and shall also be insulated.
15. ___ The bonding conductor must be a solid #8 copper wire. (Bare conductor is OK). This wire must pick up the pool frame (upper and lower ring if metal), water, pump motor, pool heater (if one), RMC or IMC piping, and any metallic part within 5' of the pool. 680.26(B)(1)(2)(3)(4)(5)(6) and (7)(C)
16. ___ Is the bonding conductor connection completed with a clamp which is of stainless steel, brass, or copper? (No zinc parts)
17. ___ Double insulated pump motors do not have to be bonded with the solid #8 but must have a #12 green wire to them. They shall have a #8 solid bonding wire in the vicinity of the pool pump motor for replacement motors.
18. ___ If RNC (PVC) is used with RNC PVC boxes, these items must be listed "electrical and sunlight" resistant. Support and expansion fitting may be needed. (Article 352) (No plumbing type pipes.)

Electrical Pool information to the 2011 N.E.C. For Permanently installed pools



Outdoor Spa or Hot tub 680.42

Shall comply with provisions of permanently installed swimming pools part I and part II of article 680

1. Disconnecting means is required.
2. The grounding wire must be sized to 250.122
3. Liquid tight (seal tight) can only be used up to 6 ft. in length. 680.42(A)(1)

Note #1

Disconnecting means must be a minimum of 6' from pool. 680.12, 430.102, (There may be a switch on the pump motor. Check your unit.)

Single, twist-lock grounding type receptacle GFCI protected. 6' from the inside wall of the pool 680.22(A)(1) And with in-use cover 406.9(B)(1) See note 2 about GFCI protected

Note #1

Convenience receptacle GFCI Protected (There may be a receptacle on the house close enough) 680.22(A)(3)

For all non-double insulated pump motors a bond is required at the motor housing, the pool frame and all metal conduits

Cord must be twist-lock with #12 copper conductor 3' long 680.7

Clamp must be stainless steel, brass or copper if RMC is used 680.26(B)(7)

6" minimum RMC
18" minimum non-metal conduit (PVC) 300.5

Raceways must be of Rigid wall metal conduit, Rigid nonmetallic conduit (PVC) with a Green #12 insulated copper conductor. 680.21(A)(1)

Notes:

- #1: All boxes, covers & fittings are W.P. outdoor type & sunlight resistant.
- #2: Self-contained unit circuit breaker type, receptacle type (example: face-less GFI outlets) or other approved devices connected to the twist-lock outlet 680.5 Keep in mind GFCI outlets can only protect up to 1.5 hp motors.
- #3: All PVC must be of the electrical type and be listed. (Conduit must be gray in color)
- #4: All pump motors shall be listed and labeled as per 110.3(B) UL or equivalent by an approved testing agency to U.S. standards.

Grounding. The following Equipment shall be grounded: (1) wet-niche and no-niche underwater lighting fixtures, (2) dry-niche underwater lighting fixtures, (3) all electric equipment located within 5ft of the inside wall of the pool, (4) all electric equipment associated with the recirculating system of the pool, (5) junction boxes, (6) transformer enclosures, (7) ground-fault circuit-interrupters, (8) panelboards that are not part of the service equipment and that supply any electric equipment associated with the pool. **680.6**

The equipment grounding conductor shall be sized in accordance with table 250.122 but not smaller than #12 AWG

This shall be a continuous green ground wire.