

City of Sandwich
Building Department
144 E. Railroad Street
Sandwich IL 60548
815-786-8802

POOLS, HOT TUBS AND SPAS

The installation of an above ground/ in ground pool, hot tub or spa within the city limits of Sandwich requires a pool permit issued by the Building Department. A pool permit is required when the pool has the capability of containing a water depth of 24- inches or greater. This includes hot tubs and spas. Additional items that are associated with pools such as enclosures (fences), decks, electrical service lines, electrical lines to pumps and or heaters, or light fixtures and gas lines to heaters also require permits.

Note: The term "pool" as used in this guideline, also applies to hot tubs and spas.

The guidelines listed below identify required submittals that will go along with permit applications; such as code issues you need to follow during design and construction, required inspections, fees, etc.

Associated Documents

1. Application for permit
2. Plat of survey

Application for Permit

Provide an Application for Permit that has been filled out and include all required information that is pertinent to the proposed scope of work such as site address, description of work, contractors to be used (including excavation and electric) on the job, total cost of work to be performed, complete applicant contact information, etc. Payment of \$60.00 must be submitted.

Plat of Survey

Provide a copy of plat of survey marked to identify the following:

- Location of pool including the dimensions of the pool
 - Show dimensions from the side yard (10' minimum) and rear property lines (3' minimum) to pool.
 - Dimensions from house (min 10'-0")
 - Location of a 4 ft. high pool enclosure (fence)
 - Location of any easements
 - Identify location of electrical outlets, overhead or underground electrical service line and any underground cables.
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- **Plan of in-ground pool**
Provide a plan of pool and section of in-ground pool that depicts pool construction, electrical grounding and bonding methods. Indicate the location, type, size and burial depth of the electrical or gas line supplying the pool and dimensions of lines from pool.

Also include:

- Removal of excavated materials; where are they disposed?
- Plan showing other improvements; concrete deck, patio, etc.)
- Grading (effect on adjacent properties and storm water conveyances)

Significant Codes- Barriers

Pool Construction shall conform to the adopted International Residential Code 2006 Edition Appendix G. Refer to Appendix G for complete listing of requirements.

1. The top of the barrier shall be at least 48 inches (1219 mm) above *grade* measured on the side of the barrier which faces away from the swimming pool. The maximum vertical clearance between grade and the bottom of the barrier shall be 2 inches (51 mm) measured on the side of the barrier which 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 shall be 4 inches (102 mm).
2. Openings in the barrier shall not allow passage of a 4-inch-diameter (102 mm) sphere.
3. Solid barriers which do not have openings, such as a masonry or stone wall, shall not contain indentations or protrusions except for normal construction tolerances and tooled masonry joints.
4. 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 shall be located on the swimming pool side of the fence. Spacing between vertical members shall not exceed 1³/₄ inches (44 mm) in width. Where there are decorative cutouts within vertical members, spacing within the cutouts shall not exceed 1³/₄ inches (44 mm) in width.
5. 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, spacing between vertical members shall not exceed 4 inches (102 mm). Where there are decorative cutouts within vertical members, spacing within the cutouts shall not exceed 1³/₄ inches (44 mm) in width.
6. Maximum mesh size for chain link fences shall be a 2¹/₄-inch (57 mm) square unless the fence has slats fastened at the top or the bottom which reduce the openings to not more than 1³/₄ inches (44 mm).
7. Where the barrier is composed of diagonal members, such as a lattice fence, the maximum opening formed by the diagonal members shall not be more than 1³/₄ inches (44 mm).
8. Access gates shall comply with the requirements of Section AG105.2, Items 1 through 7, and shall be equipped to accommodate a locking device. Pedestrian access gates shall open outward away from the pool and shall be self-closing and have a self-latching device. Gates other than pedestrian access gates shall 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 shall comply with the following:

8.1. The release mechanism shall be located on the pool side of the gate at least 3 inches (76 mm) below the top of the gate; and

8.2. The gate and barrier shall have no opening larger than 1/2 inch (12.7 mm) within 18 inches (457 mm) of the release mechanism.

9. Where a wall of a *dwelling* serves as part of the barrier, one of the following conditions shall be met:

9.1. The pool shall be equipped with a powered safety cover in compliance with ASTM F 1346; or

9.2. Doors with direct access to the pool through that wall shall be equipped with an alarm which produces an audible warning when the door and/or its screen, if present, are opened. The alarm shall be listed and *labeled* in accordance with UL 2017. The deactivation switch(es) shall be located at least 54 inches (1372 mm) above the threshold of the door; or

9.3. Other means of protection, such as self-closing doors with self-latching devices, which are *approved* by the governing body, shall be acceptable as long as the degree of protection afforded is not less than the protection afforded by Item 9.1 or 9.2 described above.

10. 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:

10.1. The ladder or steps shall be capable of being secured, locked or removed to prevent access; or

10.2. The ladder or steps shall be surrounded by a barrier which meets the requirements of 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 4-inch-diameter (102 mm) sphere.

Significant Codes- Electrical

Pool Construction shall conform to the adopted IRC 2006 Chapter 41 and NEC 2005 Article 680. It highly recommended that a licensed electrician perform the electrical installations. The following excerpts are the most commonly referenced sections and apply to pools, hot tubs and spas.

SECTION E4102 WIRING METHODS FOR POOLS, SPAS, HOT TUBS AND HYDROMASSAGE BATHTUBS

E4102.1 General.

Wiring methods used in conjunction with permanently installed swimming pools, spas, hot tubs or hydromassage bathtubs shall be installed in accordance with Table E4102.1 and Chapter 37 except as otherwise stated in this section. Storable swimming pools shall comply with Section E4107. E4102.2 Flexible cords. Flexible cords used in conjunction with a pool, spa, hot tub or hydromassage bathtub shall be installed in accordance with the following:

1. For other than underwater luminaires, fixed or stationary equipment, rated at 20 amperes or less shall be permitted to be connected with a flexible cord to facilitate the removal or

disconnection for maintenance or repair. For other than storable pools, the flexible cord shall not exceed 3 feet (914 mm) in length. Cords that supply swimming pool equipment, shall have a copper equipment grounding conductor not smaller than 12 AWG and shall be provided with a grounding-type attachment plug. 535 SWIMMING POOLS

2. Flexible cord that is supplied as part of a listed underwater swimming pool lighting luminaire shall be permitted to be installed in any of the permitted wiring methods from the luminaire to a deck box or other enclosure. Splices shall not be made within a raceway. The equipment grounding conductor shall be an insulated copper conductor that is not smaller than the supply conductors and not smaller than 16 AWG.

3. A listed packaged spa or hot tub installed outdoors that is GFCI protected, shall be permitted to be cord and plug connected provided that such cord does not exceed 15 feet (4572 mm) in length.

4. A listed packaged spa or hot tub rated at 20 amperes or less and installed indoors shall be permitted to be cord and plug connected to facilitate maintenance and repair.

5. For other than underwater and storable pool lighting A luminaire, the requirements of Item 1 shall apply to any - cord equipped luminaire that is located within 16 feet (4877 mm) radially from any point on the water surface. E4102.3 Double insulated pool pumps. A listed cord-and plug-connected pool pump incorporating an approved system of double insulation that provides a means for grounding only the internal and nonaccessible, noncurrent-carrying metal parts of the pump shall be connected to any wiring method recognized in Chapter 37 that is suitable for the location. Where the bonding grid is connected to the equipment grounding conductor of the motor circuit in accordance with Section E4104.2, Item 4, the branch circuit wiring shall comply with Sections E4102.1 and E4105.5.

SECTION E4103 EQUIPMENT LOCATION AND CLEARANCES

E4103.1 Receptacle outlets.

Receptacles outlets shall be installed and located in accordance with Sections E4103.1.1 through E4103.1.6. Distances shall be measured as the shortest path that an appliance supply cord connected to the receptacle would follow without penetrating a floor, wall, ceiling, doorway with hinged or sliding door, window opening, or other effective permanent barrier.

E4103.1.1 Location.

Receptacles that provide power for water-pump motors or other loads directly related to the circulation and sanitation system shall be permitted to be located between 5 feet and 10 feet (1524 mm and 3048 mm) from the inside walls of pools and outdoor spas and hot tubs, and, where so located, shall be single and of the locking and grounding type and shall be protected by ground-fault circuit interrupters.

Other receptacles on the property shall be located not less than 10 feet (3048 m) from the

inside walls of pools and outdoor spas and hot tubs except where permitted by Section E4103.1.3.

E4103.1.2 Where required.

At least one 125-volt, 15- or 20-ampere receptacle supplied by a general-purpose branch circuit shall be located a minimum of 10 feet (3048 mm) from and not more than 20 feet (6096 mm) from the inside wall of pools and outdoor spas and hot tubs except as permitted by Section E4103.1.3. This receptacle shall be located not more than 6 feet, 6 inches (1981 mm) above the floor, platform or grade level serving the pool, spa or hot tub.

E4103.1.3 Restricted space.

Where a pool is within 10 feet (3.0 m) of a dwelling and the dimensions of the lot preclude meeting the required distances of Sections E4103.1.1 and E4103.1.2, not more than one receptacle outlet shall be permitted provided that such outlet is not less than 5 feet (1.5 m) measured horizontally from the inside wall of the pool.

E4103.1.4 GFCI protection.

All 15- and 20-ampere, single phase, 125-volt receptacles located within 20 feet (6096 mm) of the inside walls of pools and outdoor spas and hot tubs shall be protected by a ground-fault circuit-interrupter. Receptacles that supply pool pump motors and that are rated 15 or 20 amperes, 125 volts through 250 volts, single phase, shall be provided with GFCI protection.

E4103.1.5 Indoor locations.

Receptacles shall be located not less than 5 feet (1524 mm) from the inside walls of indoor spas and hot tubs. A minimum of one 125-volt receptacle shall be located between 5 feet (1524 mm) and 10 feet (3048 mm) from the inside walls of indoor spas or hot tubs.

E4103.1.6 Indoor GFCI protection.

All 125-volt receptacles rated 30 amperes or less and located within 10 feet (3048 mm) of the inside walls of spas and hot tubs installed indoors, shall be protected by ground-fault circuit-interrupters.

E4103.2 Switching devices.

Switching devices shall be located not less than 5 feet (1.5 m) horizontally from the inside walls of pools, spas and hot tubs except where separated from the pool, spa or hot tub by a solid fence, wall, or other permanent barrier. Switching devices located in a room or area containing a hydromassage bathtub shall be located in accordance with the general requirements of this code.

E4103.3 Disconnecting means.

One or more means to disconnect all ungrounded conductors for all utilization equipment, other than lighting, shall be provided. Each of such means shall be readily accessible and within sight from the equipment it serves.

E4103.4 Luminaires and ceiling fans.

Lighting outlets, luminaires, and ceiling-suspended paddle fans shall be installed and located in accordance with Sections E4103.4.1 through E4103.4.5.

E4103.4.1 Outdoor location.

In outdoor pool, outdoor spas and outdoor hot tubs areas, luminaires, lighting outlets, and ceiling-suspended paddle fans shall not be installed over the pool or over the area extending 5 feet (1524 mm) horizontally from the inside walls of a pool except where no part of the luminaire or ceiling-suspended paddle fan is less than 12 feet (3658 mm) above the maximum water level.

E4103.4.2 Indoor locations.

In indoor pool areas, the limitations of Section E4103.4.1 shall apply except where the luminaires, lighting outlets and ceiling-suspended paddle fans comply with all of the following conditions:

1. The luminaires are of a totally enclosed type;
2. A ground-fault circuit interrupter is installed in the branch circuit supplying the luminaires or ceiling-suspended (paddle) fans; and
3. The distance from the bottom of the luminaire or ceiling-suspended (paddle) fan to the maximum water level is not less than 7 feet, 6 inches (2286 mm).

E4103.4.3 Existing lighting outlets and luminaires.

Existing lighting outlets and luminaires that are located within 5 feet (1524 mm) horizontally from the inside walls of pools and outdoor spas and hot tubs shall be permitted to be located not less than 5 feet (1524 mm) vertically above the maximum water level, provided that such luminaires and outlets are rigidly attached to the existing structure and are protected by a ground-fault circuit-interrupter.

E4103.4.4 Indoor spas and hot tubs.

1. Luminaires, lighting outlets, and ceiling-suspended paddle fans located over the spa or hot tub or within 5 feet (1524 mm) from the inside walls of the spa or hot tub shall be a minimum of 7 feet, 6 inches (2286 mm) above the maximum water level and shall be protected by a ground-fault circuit interrupter.

Luminaires, lighting outlets, and ceiling-suspended paddle fans that are located 12 feet (3658 mm) or more above the maximum water level shall not require ground-fault circuit interrupter protection.

2. Luminaires protected by a ground-fault circuit interrupter and complying with Item 2.1 or 2.2 shall be permitted to be installed less than 7 feet, 6 inches (2286 mm) over a spa or hot tub.

2.1. Recessed luminaires shall have a glass or plastic lens and nonmetallic or electrically isolated metal trim, and shall be suitable for use in damp locations.

2.2. Surface-mounted luminaires shall have a glass or plastic globe and a nonmetallic body or a metallic body isolated from contact. Such luminaires shall be suitable for use in damp locations.

E4103.4.5 GFCI protection in adjacent areas.

Luminaires and outlets that are installed in the area extending between 5 feet (1524 mm) and

10 feet (3048 mm) from the inside walls of pools and outdoor spas and hot tubs shall be protected by ground-fault circuit-interrupters except where such fixtures and outlets are installed not less than 5 feet (1524 mm) above the maximum water level and are rigidly attached to the structure.

E4103.5 Overhead conductor clearances.

Except where installed with the clearances specified in Table E4103.5, the following parts of pools and outdoor spas and hot tubs shall not be placed under existing service-drop conductors or any other open overhead wiring; nor shall such wiring be installed above the following:

1. Pools and the areas extending 10 feet (3048 mm) horizontally from the inside of the walls of the pool;
2. Diving structures; or
3. Observation stands, towers, and platforms.

Utility-owned, -operated and -maintained communications conductors, community antenna system coaxial cables and the supporting messengers shall be permitted at a height of not less than 10 feet (3048 mm) above swimming and wading pools, diving structures, and observation stands, towers, and platforms.

TABLE E4103.5 OVERHEAD CONDUCTOR CLEARANCES

	INSULATED SUPPLY OR SERVICE DROP CABLES, 0-750 VOLTS TO GROUND, SUPPORTED ON AND CABLED TOGETHER WITH AN EFFECTIVELY GROUNDED BARE MESSENGER OR EFFECTIVELY GROUNDED NEUTRAL CONDUCTOR (feet)	ALL OTHER SUPPLY OR SERVICE DROP CONDUCTORS (feet)	
		Voltage to ground	
		0-15 kV	Greater than 15 to 50 kV
A. Clearance in any direction to the water level, edge of water surface, base of diving platform, or permanently-anchored raft	22.5	25	27
B. Clearance in any direction to the diving platform	14.5	17	18

For SI: 1 foot = 304.8 mm.

E4103.6 Underground wiring.

Underground wiring shall not be installed under or within the area extending 5 feet (1524 mm) horizontally from the inside walls of pools and outdoor hot tubs and spas except where the wiring is installed to supply pool, spa or hot tub equipment or where space limitations prevent wiring from being routed 5 feet (1524 mm) or more horizontally from the inside walls. Where installed within 5 feet (1524 mm) of the inside walls, the wiring method shall be rigid metal conduit, intermediate metal conduit or a nonmetallic raceway system. Metal conduit shall be corrosion resistant and suitable for the location. The minimum raceway burial depth shall be in accordance with Table E4103.6.

TABLE E4103.6 MINIMUM BURIAL DEPTHS WIRING METHOD	UNDERGROUND WIRING (inches)
Rigid metal conduit	6
Intermediate metal conduit	6
Nonmetallic raceways listed for direct burial without concrete encasement	18
Other approved raceways ^a	18

For SI: 1 inch = 25.4 mm.

a. Raceways approved for burial only where concrete-encased shall require a concrete envelope not less than 2 inches in thickness.

Pools Notes

1. This information package will answer most of the questions concerning an above pool, but is not meant to answer all questions. In-ground pools and indoor pools may/ will have different and more varied requirements. Please check with the Building Department with any questions not answered in this packet.
2. No pool water shall be allowed to become stagnant. It must be drained and stored safely or removed.
3. When filling a pool, your water bill will reflect both water and sewer usage. There is no sewer credit for pool fills. To avoid that cost, you can install a second water meter. Please call for current charges for hookup.
4. Depending on the property location there are limitations to lot coverage area. This includes all improvements (house, accessory structures, paving, decks etc.) on the property.
5. It is applicant's duty to ensure their Homeowners Association (if applicable) approval before starting work. This is not performed by the City of Sandwich.
6. Hours of construction are 7:00am until 9:00pm
7. State law requires you to call J.U.L.I.E. (811 or 800-892-0123) before any digging project.
8. **DO NOT USE POOL PRIOR TO FINAL INSPECTION**