CITY OF AUBURN HILLS

BATHING/SWIMMING POOL QUESTIONNAIRE

	YES	NO
Is pool 4 foot or higher from underlying ground?	❑	❑
Is filter U.L. listed?	❑	❑
Is ladder removed or locked up when not in use?	❑	❑
Is ladder up during unsupervised hours?	❑	❑
Does pool have a diving board?	❑	❑
Does ladder have slip resistant steps and hand rails on both sides?	❑	❑
Is fence around pool 4 foot or higher?	❑	❑
Have you pulled an electrical permit?	❑	❑

How do you drain the pool?_____

_____

What is maximum depth of pool?_____

Have you submitted a plot plan showing all setbacks, where pool is located, completed building application, and indicated if any overhead lines are within 10 feet of proposed pool? ❑ ❑

REQUIRED INSPECTIONS:

1. Call in and schedule your electrical inspection at 248.364.6949.
2. Call in and schedule your final pool inspection at 248.364.6949.

SUBMIT A COMPLETE COPY OF MANUFACTURER'S SPECIFICATIONS ON POOL.

_____ _____

Owner's Signature Date

CITY OF AUBURN HILLS
SWIMMING POOL REGULATIONS

Swimming pools shall be constructed in accordance with Appendix G of the 2003 Michigan Residential Code.

A building permit is required for all swimming pools with a depth of 24 inches or more.

Safety devices (including alarms, enclosures, fences, covers, etc.) shall conform to Sections AG105 of the 2003 Michigan Residential Code.

Plumbing, Electrical, and Heating Permits shall be obtained when applicable.

Swimming pools are considered structures; therefore, their locations would have to conform to the zoning ordinance. Pools would not be allowed in any yards except the rear.

Distance	In Ground	Above Ground
Side and rear lot lines	5' – 7.5' contact to check zoning	5' – 7.5' contact to check zoning
Corner lot – considered two front yards	Cannot be in front yard	Cannot be in front yard
From building (recommended)	10'	10'
Fence	Typically 4' high – see 2003 Michigan Residential Code	Typically 4' high – see 2003 Michigan Residential Code
Yearly Inspection	NO	YES, if relocated
Permit Fee	Based on cost of pool including labor	Based on cost of pool including labor

Pool permits will not be issued for new home sites that have not had final grading completed and approved by the City.

ELECTRICAL

NOTE: Each location will be judged on its own merits. Installation shall conform to Chapter 41 of the 2003 Michigan Residential Code.

THE BUILDING INSPECTOR PRIOR TO ISSUANCE MAY REQUIRE A SITE CHECK.

CITY OF AUBURN HILLS
BUILDING DEPARTMENT

POOL NOTES

In an effort to expedite the processing of building permits, this sheet is being attached rather that writing these notes directly on the drawings. **It shall be considered part of your approved building permit. Check drawings for any additional notes:**

1. Protect all excavated areas to 4 feet at all times.
2. Safety devices and enclosures must be in place before pool is in use.
3. Pool must comply with section AG105 of Appendix G of the 2003 Michigan Residential Code.
4. Electrical and Heating permits must be obtained for pool filter and heater.
5. Pool filters and pool heater shall not be located in required side yards.

Frequently Asked Questions
About Swimming Pools, Spas, And Hot Tubs

Q: Are permits required for the installation of a swimming pool, spa, or hot tub?

A: Yes. A Building Permit is required for the installation of any swimming pool spa, or hot tub that contains water over 24 inches deep. All pools, spas, or hot tubs that use pumps, filters, heaters, lights, or any other electrical devices, regardless of water depth, must have an Electrical Permit.

Q: Why are these permits required?

A: For your safety. A Building Permit allows for an inspection to make sure you have the proper enclosure around your pool, spa, or hot tub, and that the structure is properly located within your property. An Electrical Permit ensures that all electrical devices serving your structure are correctly installed to guard against any chance of electrocution.

Q: What information do I need to obtain permits for my swimming pool, spa, or hot tub?

A: You will need two copies of a "site plan" that clearly shows where you want to put the structure. This plan may be hand drawn or can be a copy of a mortgage survey of your property, or any other type of drawing that clearly shows all the dimensions of your property and any buildings on it, and where you want to place the pool, spa, or hot tub. This drawing must also indicate the approximate location of any overhead wires. You will also need to supply us with a copy of your manufacturer's installation instructions for the pool, spa, or hot tub. This information must be brought in to the Building Department and attached to an application form available at our counter.

Q: Who can obtain the permits for my pool, spa, or hot tub?

A: State law allows you as the homeowner/occupant of a dwelling to obtain your own permits for the installation of a pool, spa, or hot tub. In the event that someone else is going to do the work for you, State Licensed Contractors must secure their own permits to perform the installation. Any Contractor you are considering hiring for the installation of your structure should be familiar with the permitting process.

Q: What kind of enclosure do I need around my pool, spa, or hot tub?

A: There are strict rules governing enclosures, referred to in the 2003 Michigan Residential Code as "barriers", around swimming pools, spas, or hot tubs. As mentioned above, these rules were designed with safety in mind. By following these provisions, you reduce the chance for accidental drowning or electrocution. Please refer to Appendix G of the 2003 Michigan Residential Code for specific Code language about barrier requirements. The electrical requirements for swimming pools, spas, and hot tubs are outlined in Chapter 41 of the 2003 Michigan Residential Code.

Q: Can you explain the barrier requirements?

A: While the requirements are numerous and some situations may occur that require further discussion, there are basic rules. All outdoor swimming pools, including in-ground pools, spas, and hot tubs, must be completely enclosed with barriers that comply with these rules:

1. Barriers (fences, etc.) surrounding the pool, spa, or hot tub must be at least 48" tall, measured on the outside of the barrier, away from the pool, spa, or hot tub. The barrier cannot have a gap between it and the ground that is any bigger than 2" anywhere. **Note: This rule could affect existing stockade type fences.**

2. The pool, spa, or hot tub itself can act as its own barrier if it is at least 48" above the ground.
3. If the pool, spa, or hot tub itself is not at least 48" above the ground, barriers may be installed on top of the pool, spa, or hot tub to raise the height to at least 48". If barriers (wall, etc.) are installed on top of the pool, spa, or hot tub, any gaps between the pool, spa, or hot tub and the bottom of the barrier cannot be any bigger than 4".
4. No openings in any barrier can be big enough to allow the passage of a 4" ball or other type of sphere.
5. Concrete block walls, brick walls, stone walls, etc., can be used as barrier walls as long as there aren't any projections other than normal mortar joints that could be used for climbing.
6. If you have a wooden fence that has top and bottom rails that are less than 45" apart from one another, then those rails must be on the poolside of the fence. Spacing between spindles or vertical slats in that barrier cannot be any more than 1 ¾". Any holes or other cutouts in the fence cannot be any bigger than 1 ¾" in any direction, regardless of the shape of the cutout.
7. If you have a wooden fence that has top and bottom rails that are spaced farther apart than 45" from one another, then the distance between spindles or vertical slats can be 4". Any hole or other cutouts cannot be any bigger than 1 ¾" as mentioned above.
8. The maximum mesh size for a chain link fence used as a barrier around a pool, spa, or hot tub is 1 ¼". **Note: This could be a problem with existing chain link fences if you are trying to use them as the barrier.**
9. If you use lattice as part of the barrier, the openings in the lattice cannot be any bigger than 1 ¾".

Remember: These requirements are in place to make sure no fence, wall, or any other kind of "barrier" surrounding your pool, spa, or hot tub can be used as a ladder to get into the area. Every effort must be made to discourage any "unwanted" guests from visiting your structure and getting hurt.

Q: What about gates to the fenced-in area?

A: Any gates leading to the pool, spa, or hot tub area have to comply with all the rules stated above as far as height, spacing of members, hole size, etc., and must be built to hold a locking device. Pedestrian gates must open outward, away from the pool, spa, or hot tub, and must have self-closing and self-latching devices. In other words, when you leave the area of the pool, spa, or hot tub, the gate you walk through has to swing out and then close and latch by itself when you let go of it.

Gates other than pedestrian gates (automobile gates, etc.) must have self-latching devices. See the Code for the requirements for those kinds of devices. (Please note that it is assumed that these kinds of gates will remain closed when not in use so that the barrier is always in place around the pool, spa, or hot tub.)

Q: Can the back of my house be used as part of the barrier?

A: Yes. However, you must have one of the following: A powered cover over the pool, spa, or hot tub, that is in place when not in use, **or**

All doors in that wall must have an alarm that can be heard anywhere in the house and sounds for at least 30 seconds after the door has been open (this includes screen doors). This alarm has to be able to reset itself, and have some way to temporarily be shut off for no more than 15 seconds, **or**

All doors in that wall must be self-closing and have self-latching devices as approved by the Building Department.

Q: If the pool, spa, or hot tub is tall enough to use as its own barrier, what about the ladder?

A: If your pool, spa, or hot tub is at least 48" tall and you want to use it as its own required barrier, any ladder leading to the water must be able to be removed, secured in some fashion, or locked so it can't be used when the pool, spa, or hot tub is not being used. Or, if you want, you can permanently secure the ladder or steps and put up a barrier around the ladder or steps that matches all the barrier requirements listed above, including the rules for gates.

Remember: The idea is to make sure no one can easily get into the pool, spa, or hot tub when you are not around. Every effort must be made to make sure children don't find a way to get to the water while no one is around.

Q: I have a spa or hot tub. Do all the rules for a swimming pool apply?

A: If your spa or hot tub is equipped with a safety cover (make sure the manufacturer says it complies with ASTM F 1346), then the requirements for barriers as outlined above are not needed. Only when your spa or hot tub does not have the approved safety cover will all of the above rules apply. While the choice is yours, it may be less expensive to purchase an approved cover as a means of protection than to comply with all the barrier requirements listed above.

Q: Where can I install my pool, spa, or hot tub?

A: A wall of a swimming pool shall not be located less than 6 feet from any rear or side property line. A wall of a swimming pool that has a capacity greater than 600 gallons shall not be located less than 6 feet from the main building or other accessory building or structure. Swimming pools that have a capacity of 600 or fewer gallons may be excepted from this setback requirement.

Q: Speaking of electricity, what do I need to know about the electrical connections for my pool, spa, or hot tub?

A: The rules that apply to the hook up of any electrical part needed for a swimming pool, spa, or hot tub are quite extensive, as outlined in the 2003 Michigan Residential Code, Chapter 41. Unless you have had a lot of experience with electrical work, you are much better off hiring a competent Electrical Contractor to install all the wiring, outlets, and devices you might need. Regardless, as mentioned above, an Electrical Permit is required for all the work involved, and final approval from the Electrical Inspector is required before the pool, spa, or hot tub is used.

APPENDIX G

SWIMMING POOLS, SPAS AND HOT TUBS

SECTION AG101
GENERAL

AG101.1 General. The provisions of this appendix shall control the design and construction of swimming pools, spas and hot tubs installed in or on the lot of a one- and two-family dwelling.

SECTION AG102
DEFINITIONS

AG102.1 General. For the purposes of these requirements, the terms used shall be defined as follows and as set forth in Chapter 2.

ABOVE-GROUND/ON-GROUND POOL. See "Swimming pool."

BARRIER. A fence, wall, building wall or combination thereof which completely surrounds the swimming pool and obstructs access to the swimming pool.

HOT TUB. See "Swimming pool."

IN-GROUND POOL. See "Swimming pool."

RESIDENTIAL. That which is situated on the premises of a detached one- or two-family dwelling or a one-family townhouse not more than three stories in height.

SPA, NONPORTABLE. See "Swimming pool."

SPA, PORTABLE. A nonpermanent structure intended for recreational bathing, in which all controls, water-heating and water-circulating equipment are an integral part of the product.

SWIMMING POOL. Any structure intended for swimming or recreational bathing that contains water over 24 inches (610 mm) deep. This includes in-ground, aboveground and on-ground swimming pools, hot tubs and spas.

SWIMMING POOL, INDOOR. A swimming pool which is totally contained within a structure and surrounded on all four sides by walls of said structure.

SWIMMING POOL, OUTDOOR. Any swimming pool which is not an indoor pool.

SECTION AG103
SWIMMING POOLS

AG103.1 In-ground pools. In-ground pools shall be designed and constructed in conformance with ANSI/NSPI-5 as listed in Section AG108.

AG103.2 Above-ground and on-ground pools. Above-ground and on-ground pools shall be designed and constructed in conformance with ANSI/NSPI-4 as listed in Section AG108.

SECTION AG104
SPAS AND HOT TUBS

AG104.1 Permanently installed spas and hot tubs. Permanently installed spas and hot tubs shall be designed and constructed in conformance with ANSI/NSPI-3 as listed in Section AG108.

AG104.2 Portable spas and hot tubs. Portable spas and hot tubs shall be designed and constructed in conformance with ANSI/NSPI-6 as listed in Section AG108.

SECTION AG105
BARRIER REQUIREMENTS

AG105.1 Application. The provisions of this chapter shall control the design of barriers for residential swimming pools, spas and hot tubs. These design controls are intended to provide protection against potential drownings and near-drownings by restricting access to swimming pools, spas and hot tubs.

AG105.2 Outdoor swimming pool. An outdoor swimming pool, including an in-ground, aboveground or on-ground pool, hot tub or spa shall be provided with a barrier which shall comply with the following:

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 aboveground 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 1.75 inches (44 mm) in width. Where there are decorative cutouts within vertical members, spacing within the cutouts shall not exceed 1.75 inches (44 mm) in width.
5. Where the barrier is composed of horizontal and vertical members and the distance between the tops of the hori-

zontal 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 1.75 inches (44 mm) in width.

6. Maximum mesh size for chain link fences shall be a 2.25-inch (57 mm) square unless the fence is provided with slats fastened at the top or the bottom which reduce the openings to not more than 1.75 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 1.75 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 greater than 0.5 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 F1346; or
   9.2. All 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 its screen, if present, are opened. The alarm shall sound continuously for a minimum of 30 seconds immediately after the door is opened and be capable of being heard throughout the house during normal household activities. The alarm shall automatically reset under all conditions. The alarm system shall be equipped with a manual means, such as touchpad or switch, to temporarily deactivate the alarm for a single opening. Such deactivation shall last for not more than 15 seconds. 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 so 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 aboveground 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:
    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.

AG105.3 Indoor swimming pool. All walls surrounding an indoor swimming pool shall comply with Section AG105.2, Item 9.

AG105.4 Prohibited locations. Barriers shall be located so as to prohibit permanent structures, equipment or similar objects from being used to climb the barriers.

AG105.5 Barrier exceptions. Spas or hot tubs with a safety cover which complies with ASTM F 1346, as listed in Section AG107, shall be exempt from the provisions of this appendix.

SECTION AG106
ENTRAPMENT PROTECTION FOR SWIMMING POOL AND SPA SUCTION OUTLETS

AG106.1 General. Suction outlets shall be designed to produce circulation throughout the pool or spa. Single outlet systems, such as automatic vacuum cleaner systems, or other such multiple suction outlets whether isolated by valves or otherwise shall be protected against user entrapment.

AG106.2 Suction fittings. All Pool and Spa suction outlets shall be provided with a cover that conforms with ANSI/ASME A112.19.8M, or a 12″ × 12″ drain grate or larger, or an approved channel drain system.

Exception: Surface skimmers

AG106.3 Atmospheric vacuum relief system required. All pool and spa single or multiple outlet circulation systems shall be equipped with atmospheric vacuum relief should grate covers located therein become missing or broken. Such vacuum relief systems shall include at least one approved or engineered method of the type specified herein, as follows:

1. Safety vacuum release system conforming to ASME A112.19.17, or
2. An approved gravity drainage system

AG106.4 Dual drain separation. Single or multiple pump circulation systems shall be provided with a minimum of two (2) suction outlets of the approved type. A minimum horizontal or vertical distance of three (3) feet shall separate such outlets. These suction outlets shall be piped so that water is drawn through them simultaneously through a vacuum relief-protected line to the pump or pumps.

AG106.5 Pool cleaner fittings. Where provided, vacuum or pressure cleaner fitting(s) shall be located in an accessible position(s) at least (6) inches and not greater than twelve (12) inches below the minimum operational water level or as an attachment to the skimmer(s).

SECTION 3106
MARQUEES

3106.1 General. Marquees shall comply with this section and other applicable sections of this code.

3106.2 Thickness. The maximum height or thickness of a marquee measured vertically from its lowest to its highest point shall not exceed 3 feet (914 mm) where the marquee projects more than two-thirds of the distance from the property line to the curb line, and shall not exceed 9 feet (2743 mm) where the marquee is less than two-thirds of the distance from the property line to the curb line.

3106.3 Roof construction. Where the roof or any part thereof is a skylight, the skylight shall comply with the requirements of Chapter 24. Every roof and skylight of a marquee shall be sloped to downspouts that shall conduct any drainage from the marquee in such a manner so as not to spill over the sidewalk.

3106.4 Location prohibited. Every marquee shall be so located as not to interfere with the operation of any exterior standpipe, and such that the marquee does not obstruct the clear passage of stairways or exit discharge from the building or the installation or maintenance of street lighting.

3106.5 Construction. A marquee shall be supported entirely from the building and constructed of noncombustible materials. Marquees shall be designed as required in Chapter 16. Structural members shall be protected to prevent deterioration.

SECTION 3107
SIGNS

3107.1 General. Signs shall be designed, constructed and maintained in accordance with this code.

SECTION 3108
RADIO AND TELEVISION TOWERS

3108.1 General. Subject to the provisions of Chapter 16 and the requirements of Chapter 15 governing the fire-resistance ratings of buildings for the support of roof structures, radio and television towers shall be designed and constructed as herein provided.

3108.2 Location and access. Towers shall be located and equipped with step bolts and ladders so as to provide ready access for inspection purposes. Guy wires or other accessories shall not cross or encroach upon any street or other public space, or over above-ground electric utility lines, or encroach upon any privately owned property without written consent of the owner of the encroached-upon property, space or above-ground electric utility lines.

3108.3 Construction. Towers shall be constructed of approved corrosion-resistant noncombustible material. The minimum type of construction of isolated radio towers not more than 100 feet (30 480 mm) in height shall be Type IIB.

3108.4 Loads. Towers shall be designed to resist wind loads in accordance with TIA/EIA-222. Consideration shall be given to conditions involving wind load on ice-covered sections in localities subject to sustained freezing temperatures.

3108.4.1 Dead load. Towers shall be designed for the dead load plus the ice load in regions where ice formation occurs.

3108.4.2 Wind load. Adequate foundations and anchorage shall be provided to resist two times the calculated wind load.

3108.5 Grounding. Towers shall be permanently and effectively grounded.

SECTION 3109
SWIMMING POOL ENCLOSURES AND SAFETY DEVICES

3109.1 General. Swimming pools shall comply with the requirements of this section and other applicable sections of this code.

3109.2 Definition. The following word and term shall, for the purposes of this section and as used elsewhere in this code, have the meaning shown herein.

SWIMMING POOLS. Any structure intended for swimming, recreational bathing or wading that contains water over 24 inches (610 mm) deep. This includes in-ground, above-ground and on-ground pools; hot tubs; spas and fixed-in-place wading pools.

3109.3 Public swimming pools. Public swimming pools shall be completely enclosed by a fence at least 4 feet (1290 mm) in height or a screen enclosure. Openings in the fence shall not permit the passage of a 4-inch-diameter (102 mm) sphere. The fence or screen enclosure shall be equipped with self-closing and self-latching gates.

3109.4 Residential swimming pools. Residential swimming pools shall comply with Sections 3109.4.1 through 3109.4.3.

Exception: A swimming pool with a power safety cover or a spa with a safety cover complying with ASTM F 1346.

3109.4.1 Barrier height and clearances. The top of the barrier shall 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 grade and the bottom of the barrier shall be 2 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, the barrier is authorized to be at ground level or 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).

3109.4.1.1 Openings. Openings in the barrier shall not allow passage of a 4-inch-diameter (102 mm) sphere.

3109.4.1.2 Solid barrier surfaces. Solid barriers which do not have openings shall not contain indentations or protrusions except for normal construction tolerances and tooled masonry joints.

3109.4.1.3 Closely spaced horizontal members. 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 mem-

bers shall not exceed 1.75 inches (44 mm) in width. Where there are decorative cutouts within vertical members, spacing within the cutouts shall not exceed 1.75 inches (44 mm) in width.

3109.4.1.4 Widely spaced horizontal members. 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 1.75 inches (44 mm) in width.

3109.4.1.5 Chain link dimensions. Maximum mesh size for chain link fences shall be a 2.25 inch square (57 mm square) unless the fence is provided with slats fastened at the top or the bottom which reduce the openings to no more than 1.75 inches (44 mm).

3109.4.1.6 Diagonal members. Where the barrier is composed of diagonal members, the maximum opening formed by the diagonal members shall be no more than 1.75 inches (44 mm).

3109.4.1.7 Gates. Access gates shall comply with the requirements of Sections 3109.4.1.1 through 3109.4.1.6 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 shall be located on the pool side of the gate at least 3 inches (76 mm) below the top of the gate, and the gate and barrier shall have no opening greater than 0.5 inch (12.7 mm) within 18 inches (457 mm) of the release mechanism.

3109.4.1.8 Dwelling wall as a barrier. Where a wall of a dwelling serves as part of the barrier, one of the following shall apply:

1. 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 its screen are opened. The alarm shall sound continuously for a minimum of 30 seconds immediately after the door is opened and be capable of being heard throughout the house during normal household activities. The alarm shall automatically reset under all conditions. The alarm shall be equipped with a manual means to temporarily deactivate the alarm for a single opening. Such deactivation shall last no more than 15 seconds. The deactivation switch shall be located at least 54 inches (1372 mm) above the threshold of the door.
2. The pool shall be equipped with a power safety cover which complies with ASTM F 1346.
3. Other means of protection, such as self-closing doors with self-latching devices, which are approved by the administrative authority, shall be accepted so long as the degree of protection afforded is not less than the protection afforded by Section 3109.4.1.8, Item 1 or 2.

3109.4.1.9 Pool structure as barrier. Where an aboveground 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 either shall be capable of being secured, locked or removed to prevent access, or the ladder or steps shall be surrounded by a barrier which meets the requirements of Sections 3109.4.1.1 through 3109.4.1.8. 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.

3109.4.2 Indoor swimming pools. Walls surrounding indoor swimming pools shall not be required to comply with Section 3109.4.1.8.

3109.4.3 Prohibited locations. Barriers shall be located so as to prohibit permanent structures, equipment or similar objects from being used to climb the barriers.

3109.5 Entrapment avoidance. Where the suction inlet system, such as an automatic cleaning system, is a vacuum cleaner system which has a single suction inlet, or multiple suction inlets which can be isolated by valves, each suction inlet shall protect against user entrapment by an approved antivortex cover, a 12-inch by 12-inch (304 mm by 304 mm) or larger grate, or other approved means.

In addition, all pools and spas shall be equipped with an alternative backup system which shall provide vacuum relief should grate covers be missing. Alternative vacuum relief devices shall include one of the following:

1. Approved vacuum release system.
2. Approved vent piping.
3. Other approved devices or means.

ABOVE GROUND SWIMMING POOL ELECTRICAL WIRING REQUIREMENTS
2003 MICHIGAN RESIDENTIAL CODE

CHAPTER 41 - SWIMMING POOLS

ARTICLE 4101.1 The provisions of this article shall apply to the construction and installation of electrical wiring for and equipment in or adjacent to all swimming, wading, therapeutic, and decorative pools, fountains, hot tubs and spas, whether permanently installed or storable, and to metallic auxiliary equipment, such as pumps, filters, and similar equipment.

E4101.2 - DEFINITIONS:

1. Permanently installed swimming, wading and therapeutic pools. Those that are constructed in the ground, on the ground, or in a building in such a manner that the pool cannot be readily disassembled for storage whether or not served by electrical circuits of any nature.

2. Storable swimming or wading pool. A pool with a maximum dimension of 18 feet and a maximum wall height of 42 inches and so constructed that it may be readily disassembled for storage or reassembled to its original integrity.

E4103 – EQUIPMENT LOCATIONS AND CLEARANCES

1. **Receptacles on the property shall be located at least 10 feet from the inside wall of the pool**

   E4103.1.1 Receptacle(s) that provide power for water-pump motor(s) for a permanently installed pool, shall be permitted between 5 and 10 feet (1.52 and 3.05m) from the inside walls of the pool, shall be single and of the locking and grounding types, and shall be protected by ground-fault interrupter(s).

2. E4103.1.2 Where permanently installed pool is installed in a dwelling unit(s), at least one 125-volt convenience receptacle shall be located a minimum of 10 feet from and not more than 20 feet from the inside wall of the pool

3. All 125-volt receptacles located within 20 feet of the inside walls of a pool shall be protected by a ground fault circuit-interrupter. (Proper receptacle covers for damp and wet locations)

E4103.1.2 - LIGHTING FIXTURES AND OUTLETS

1. Lighting fixtures and lighting outlets, and ceiling fans shall not be installed over the pool or the area extending 5 feet horizontally from the inside walls of a pool unless 12 feet above the maximum water level.

E4103.1.3 SWITCHING DEVICES. Switching devices on the property shall be located at least 5 feet from the inside walls of a pool unless separated from the pool by a solid fence, wall, or other permanent barrier.

E4102.2.1 CORD- AND PLUG-CONNECTED EQUIPMENT. Fixed or stationary equipment rated 20 amperes or less, other than an underwater lighting fixture for a permanently installed pool, 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 in length and shall have a copper equipment-grounding conductor not smaller than No. 12 with a grounding-type attachment plug.

E4103.5 OVERHEAD CONDUCTOR CLEARANCES. The following parts of pools shall not be placed under existing service-drop conductors or any other open overhead wiring; nor shall wiring be installed above the following:

(1) pools and the area extending 10 feet (3.05m) horizontally from the inside of the walls of the pool;
(2) diving structure;
(3) observation stands, towers or platforms. (Underground wiring not allowed under pools or within 5 feet horizontally from pool walls).

E4104 The following parts shall be bonded together:

1. All metallic parts of the pool structure, including the reinforcing metal of the pool shell, copingstones, and deck.
2. All forming shells.
3. All metal fittings within or attached to the pool structure.
4. Metal parts of electrical equipment associated with the pool water circulating system including pump motor.
5. Metal parts of equipment associated with pool covers, including electric motors.
6. Metal-sheathed cables and raceways, metal piping, and all fixed metal parts that are within 5 feet (1.52m) horizontally of the inside walls of the pool and within 12 feet (3.66m) above the maximum water level of the pool or any observation stands, towers, or platforms, or from diving structures, and that are not separated from the pool by a permanent barrier.

E4104.3.1 COMMON BONDING GRID. These parts shall be connected to a common bonding grid with a solid copper conductor, insulated, covered, or bare, not smaller than No. 8. Connections shall be made by pressure connectors or clamps of stainless steel, copper, or copper alloy. The common bonding grid may be of any of the following:

(1) The structural reinforcing steel of a concrete pool where the reinforcing rods are bonded together by the usual steel tie wires or the equivalent ; or
(2) The wall of a bolted or welded metal pool; or
(3) A solid copper conductor, insulated, covered, or bare, not smaller than No. 8.

CHAPTER 37 WIRING METHODS. Rigid metal conduit or intermediate metal conduit of brass or other identified corrosion-resistant metal or rigid nonmetallic conduit shall extend from the forming shell to a suitable junction box or other enclosure as provided for in CHAPTER 37. Where rigid nonmetallic conduit is used, a No. 8 insulated copper conductor shall be installed in this conduit with provisions for terminating in the forming shell and the junction box. The termination of the No. 8 conductor in the forming shell shall be covered with, or encapsulated in, a suitable potting compound to protect such connection from the possible deteriorating effect of pool water

4105.1 METHODS OF GROUNDING:

(a) General. The following provisions shall apply to the grounding of underwater lighting fixtures, junction boxes, metal transformer enclosures, panelboards, motors or other electrical equipment.
(b) 4105.2 Pool Lighting Fixtures and Related Equipment.

(1) Wet-niche, dry-niche, or no-niche lighting fixtures shall be connected to an equipment grounding conductor sized in accordance with Table 3808.12 but not smaller than No. 12. It shall be an insulated copper conductor and shall be installed with the circuit conductor in rigid metal conduit, intermediate metal conduit, or rigid nonmetallic conduit.
(2) The junction box, transformer enclosure, or other enclosure in the supply circuit to a wet-niche or no-niche lighting fixture and the field-equipment grounding terminal or the panelboard. This terminal shall be directly connected to the panelboard enclosure. The equipment grounding conductor shall be installed without joint or splice.

4105.5 Motors. Pool-associated motors shall be connected to an equipment-grounding conductor sized in accordance with Table 3808.12 but not smaller than No. 12. It shall be an insulated copper conductor and shall be installed with the circuit conductors in rigid metal conduit, intermediate metal conduit , or rigid non-metallic conduit.

Table 41036 requires nonmetallic raceways listed for direct burial shall be 18 inches below the top surface of the finished grade.