



BEFORE YOU BEGIN TO BUILD YOUR POOL

These items should be checked at the beginning of your project. They can affect the type, location, cost and length of time it takes to build your swimming pool.

Location - Above-ground and in-ground swimming pools cannot be located within any easement, above a septic field or tank, or water well. Overhead wires (electric, phone, cable) shall not be located over a pool or within 10 feet of the water's edge. All wires beyond 10 feet, but closer than 25 feet, must be at least 10 feet above the ground, deck, patio, or other walking surface below the wires. Verify the location of all underground utilities by calling Miss Dig at 1-800-482-7171.

Setbacks – All swimming pools shall be at least 5 feet from the side and rear property lines and shall not be located within any front yard. The setback distance is measured from the water's edge.

Drainage – Will the existing yard drainage be affected by the location of the pool? All changes to the existing drainage must be shown on the plot plans. If large grade changes and/or slopes are proposed, retaining walls or special grading may be required. See “Plot Plan Requirements” – pages 11-12.

Flood Plains – Flood plains are usually associated with lakes, streams, rivers and drainage courses. They are areas designated to flood during times of rain. Building in these areas is strictly regulated. If your swimming pool is built in a floodplain, it may require a Structural Engineer's design and a floodplain use permit prior to building permit approval.

Wetlands – These areas have been determined to be indispensable and are to be protected as a natural resource. They provide numerous beneficial functions such as wildlife habitat, water quality, flood control, pollution reduction, erosion control, open space, recreation areas and aesthetics. If your swimming pool will be close to or in regulated wetlands, additional paperwork, including permits, may be required from the City or State of Michigan prior to building permit approval.

Historic District – If your swimming pool will be built in a Historic District, it must be approved by the Historic Districts Commission. The Building Department can help you understand the process and explain what you need to provide.

Pool Enclosure – All private swimming pools shall be protected by an enclosure to make the pool area inaccessible to small children. Types of enclosures include approved fencing, the walls of above-ground pools, gates, door alarms and approved safety covers. See “Construction Requirements” – pages 7-10.

Permit Process – Please allow time for the permit process. Plan review time varies depending on the Building Department's work load.

These are some of the common items that may cause delays in the permit process. If your project is beyond the scope of this guidebook, additional requirements may be necessary. Please call the Building Department at (586) 293-3100 option #2 if you have any questions.

APPLICATION TO COMPLETION

Private Swimming Pool

A General Guide through the Complete Process

1. Information Required for Permit Application

A. Building Permit Application *

B. Application Fee

- See "Building Permit Fees"- page 5

C. Plot Plan – Three Sets

- See "Sample Plot Plan" – pages 13-14 and "Plot Plan Requirements" – pages 11-12.
- Plot plans containing all the necessary information will expedite the review process.

D. Construction Drawings – Two Sets

- Above-ground pools
- Provide two sets of manufacturer's drawings and specifications.
 - The plans submitted shall contain complete details of the pool enclosure. See "Construction Requirements" – pages 7-10.
- In-ground pools
 - Provide complete construction details showing the size, spacing and location of all structural members and reinforcement.
 - Provide pool sections with details.
 - Indicate the location and provide details of the steps and/or ladder.
 - The plans submitted shall contain complete details of the pool enclosure.
 - See "Construction Requirements" – pages 7-10.

E. Fence Details – Two sets

- See "Fence and Gate Details" – page 15 and "Construction Requirements" – pages 7-10.

F. Pool Information Form *

G. Owners may submit a permit application for work on property that is, or will be, on completion, their place of residence.

Note: All information noted above must be submitted *with* the building permit application.

2. Registration of Builder's License

- Builder shall be currently registered with the City of Fraser to submit a permit application.
- All registrations expire December 31.
- Builders not currently registered can register at the time of application by providing the following:
 - The original or a copy of your builder's license
 - The original or a copy of your driver license
 - Registration fee is \$15 for one year
 - Contractor registration form *
 - The form shall have an original signature by license holder
 - The form shall be notarized (if not presented by license holder)

* Forms available at our counter and online at www.ci.fraser.mi.us all forms must be filled out completely.

3. Plans Reviewed and Approved

- Construction drawings and plot plans will be reviewed for compliance with City Ordinances and the Michigan Residential Code (MRC).
- Plans are reviewed in the order they are received, based on the application date. Plan review time varies depending on the Building Department's work load.
- Plans that contain all the necessary information and details will expedite the review process.
- The permit applicant will be notified by mail if the plans do not meet Zoning Ordinance, grade, or Building Code requirements or if any additional information is necessary.

4. Permit Ready

- The permit applicant will be called when the building permit is ready to be picked up.
- Building permit fees are due at the time of issuance.
- Permit fee can be paid by cash, or check.
- The building permit shall be issued within 6 months of the application date or the application will be canceled.
- Permits that have no activity for more than 6 months will be canceled.

5. Plumbing and Electrical Permits

- These permits are required and can be obtained after the building permit has been issued.
- All items to be installed shall be listed on the appropriate permits.
- Items not listed shall be added to the appropriate permits prior to the final inspection.

6. Mechanical Permit

- This permit is required if the pool is heated.
- All work shall comply with the Michigan Residential Code

When all required permits are obtained, construction may begin. Revisions to the pool or grade after issuance of the building permit may require re-submittal and approval.

The following items shall be maintained throughout the construction process:

- Street address shall be posted on the house and visible from the street.
- Street shall be kept clean.
- All construction materials and debris shall be contained on your property.
- Temporary soil erosion control.

7. Plumbing Inspection

- All hose connections that may be used to fill pool with water require an inspected and approved vacuum breaker.
- All work shall comply with the Michigan Residential Code

8. Underground Electrical Inspection

- After grounding, bonding and all underground electrical work is completed.
- Shall be inspected before covering.
- Proper materials approved for pool installations shall be used. Contact the Electrical Inspector at (586) 293-3100 option #2 if you have questions.
- Wiring from house to pool shall be at least 18 inches below grade.
- All work must comply with the Michigan Residential Code

9. Steel or Structural Inspection- for in-ground pools only

- Required before backfill
- Approved plans shall be on site
- Structural steel and reinforcement shall be installed in accordance with the approved plans and the manufacturer's requirements.

10. Final Electrical Inspection

- After all electrical equipment, switches, plugs, covers and fixtures are installed and operational.
- All grounding and bonding shall be completed. See "Electrical Grounding Details" (page 16).
- Proper operation of ground fault circuit interrupters are checked, along with proper breaker size.
- The inspector may need access to the inside of the house to complete the inspection.
- An adult shall be present for the inspector to enter the house.

11. Final Building Inspection

- After Plumbing and electrical, and if pool is heated mechanical inspections are done and pool enclosure is completed.
- Final inspection is required for all pools.
- Common items the Inspector looks for are:
 - Door alarm on required doors*
 - An adult shall be home to allow access to check the alarm operation.
 - Proper type and installation of fencing and gates. * See "Sample Fence and Gate Details" – page 15
 - Swimming pool wall and floor slope **
 - Diving board requirements (if applicable) **
 - Grading done in accordance with approved plot plan.

****See "Construction Requirements" –pages 7-10 **See "Pool Section Detail" –page 16.***

12. Bond refund

- The building bond will be processed after all inspections are approved.
- Once all requirements have been met, allow 4-6 weeks for the bond refund.
- **The City shall pay no interest on cash bonds submitted to the City. The City shall not return any interest accrued on cash bonds.**

BUILDING PERMIT FEES
Private Swimming Pools

1. **Application Fee**\$30
 - Non- refundable and credited to approved permit fee.
 - Due when permit application is submitted.

2. **Building Permit Fee**
 - Based on the Construction valuation of the project excluding site work.

Construction Valuation

(A) \$1,000 and under \$50
\$1,001 to \$10,000- \$50 plus \$20 for each additional
\$1,000 or part thereof over \$1,001.

(B) \$10,001 and over – \$250 plus \$7 for each additional \$1,000 or part thereof
over \$10,001.

3. **Building Plan Review Fee**
 - 20% of the permit fee will be charged for plan reviews completed by Building
Department Staff.

4. **Bond**
 - Portable-Above Ground requires a \$100 bond.
 - In-Ground, Built in requires a \$250 bond.

5. **Registration Fee for Residential Builder Licenses**..... \$15

6. **Re-inspection Fee** \$30

INSPECTION REQUEST

Private Swimming Pool

24-hour Inspection Request Line (586) 293-3100 option #2

The Building Department will only accept inspection requests called in on the inspection line. The inspection line is for Building Department inspection requests only.

The telephone recorder will ask you the following information:

- The street address of the job site
- The permit number
- The type of inspection requested

Inspections called in before 8:00 A.M. that have been verified will be scheduled upon inspector availability. Inspections may be done earlier or later depending on the inspector's work load. Inspections will be done Monday through Friday.

A request to cancel inspections shall be called in to the Building Department at (586) 293-3100 option #2 before 8:30 A.M. on the day of the requested inspection.

Make sure your project is ready for the inspection. An inspection will not be done and a re-inspection fee will be charged if the following items are not completed or in place:

- Provide safe access to the job site and throughout the area to be inspected.
- Job shall be ready for inspection (see pages 3-4).
- Street address shall be posted on the house and visible from the street.
- All construction materials and debris shall be contained on your property.
- Approved plans shall be on site.

Inspection tags will be left on site after each inspection has been completed.

The inspection sheet will be checked with either APPROVED or REJECTED. The rejected inspection record will contain a list of items that shall be addressed before calling for a re-inspection. A re-inspection fee will be charged for items not corrected at the time of the second inspection. Inspections shall be approved before proceeding with the next phase of construction.

It is your responsibility as the permit holder to check the job site for the inspection results. Please read the information on all inspection reports. If you have any questions regarding this information call (586) 293-3100 option #2 between 8:00 A.M. – 4:30 P.M.

CONSTRUCTION REQUIREMENTS

Private Swimming Pools

This information is provided in a “user-friendly” format as a general guide to help you apply the common building code requirements to your project. It covers the most common types of projects. The actual Building Code language may contain additional requirements or exceptions that may apply if your project is beyond the scope of this guidebook.

Your swimming pool will be reviewed and inspected in accordance with the following codes:

Building Code:	Michigan Residential Code (MRC)
Mechanical Code:	Michigan Residential Code (MRC)
Plumbing Code:	Michigan Residential Code (MRC)
Electrical Code:	Michigan Residential Code (MRC)

1. Setbacks:

All swimming pools shall be at least 5 feet from the side and rear property lines and shall not be located in the front yard. The setback distance is measured from the water’s edge.

2. Pool Construction:

The pool shall be constructed in accordance with the manufacturer’s installation instructions, the approved construction drawings and plot plan.

Safety Precautions:

Shall be maintained throughout construction. The pool shall not be filled with water until the pool enclosure requirements of the Michigan Residential Code, Appendix G (MRC), are completed. See Pool Enclosure on pages 9-10.

Wall Slopes:

(Usually applies to in-ground pools only) The wall slopes around the pool shall not exceed one unit horizontal to five units vertical to a depth of 2 feet 9 inches from the top. Provide wall slope details on your pool sections. See “Pool Section Details” – page 16.

Floor Slopes:

(Usually applies to in-ground pools only) The slope of the floor on the shallow side of the transition point shall not exceed one unit vertical to seven units horizontal. Provide floor slope details on your pool sections. See “Pool Section Details” – page 16.

Surface Cleaning:

All swimming pools shall be provided with a re-circulating skimmer or overflow gutters. One skimming device shall be provided for every 800 square feet of water surface area or fraction thereof. Indicate the type of surface cleaning to be used on the “Pool Information Form” which is available at our counter or online at www.ci.fraser.mi.us/.

Steps and Ladders:

At least one way to get out of the pool shall be provided. Treads of steps and ladders shall have a slip resistant surface. Handrails are required on both sides when more than 4 steps are used or when the steps do not extend the full width of the side or end of the pool.

STEP TREADS shall have a minimum 10-inch depth and a minimum surface area of 240 square inches.

RISERS shall have a maximum uniform height of 12 inches. The height of the bottom riser shall not vary more than +/- 2 inches from the uniform riser height.

Construction plans shall show the location and details of the steps and/or ladder.

Water Treatment:

Private swimming pool filters shall have the capacity to filter the total volume of water in the pool at least once every 18 hours. Filters shall be in compliance with the National Sanitation Foundation Standard 50 entitled "Circulation System Components for Swimming Pools, Spas and Hot tubs." The pool owner shall be instructed in the care and maintenance of the pool by the supplier or builder, including treatment with high-test calcium hypochlorite (dry chlorine), sodium hypochlorite (liquid chlorine) and the importance of pH (alkalinity and acidity) control (ANSI/NSPI-5 1995 Appendix A). This information shall be included on the "Pool Information Form" which is available at our counter or online at www.ci.fraser.mi.us.

Diving Boards:

(Usually applies to in-ground pools only) The Building Code has specific water depths and distances required, depending on the height of the diving board above the water surface (Table taken from ANSI/NSPI-5, 1995) Refer to "Pool Section Details"- page 16 and the table below for details:

The maximum slope allowed between point B and the transition shall not exceed 1 unit vertical to 3 units horizontal (1:3).

3. Pool Enclosure

All private swimming pools shall be protected by an enclosure to make the pool area inaccessible to small children. Types of enclosures include approved fencing, walls of the pool, gates, door alarms and safety covers.

Pool enclosures shall meet the following requirements:

Fencing:

The barrier/fence shall be 48 inches above the ground measured on the side of the barrier that faces away from the swimming pool. *

Please note: If property within 4 feet of a barrier/fence slopes upward, or contains a retaining wall or some similar climbing feature, the barrier/fence will have to either be increased in height or moved back onto the property containing the pool to accommodate the height difference at the adjacent property. This requirement ensures that the 48" barrier/fence height is properly maintained around the entire pool.

The maximum vertical clearance between the barrier and ground shall be 2 inches measured on the side of the barrier that faces away from the pool. *

Openings in the barrier shall not allow the passage of a 4-inch diameter sphere. *

Solid barriers shall not contain indentations or protrusions that would create a toe-hold or make the barrier climbable.

When the barrier is composed of horizontal and vertical members (wrought iron, aluminum, picket, etc.), the distance between the tops of the horizontal members shall be 45 inches or more. *

Chain link fences shall have maximum mesh size of 2 ¼ inch square, unless the fence is provided with slats fastened at the top or bottom that reduce the openings to not more than 1 ¾ inches.

Gates: *

- Access gates shall comply with the fencing requirements.
- Gates 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.
- When the release mechanism of the self-latching device is located less than 54 inches from the bottom of the gate, the following requirements apply:
 - The release mechanism shall be located on the poolside of the gate at least 3 inches below the top of the gate.
 - The gate and barrier/fence shall not have an opening greater than 1 ½ inches within 18 inches of the release mechanism.

* See “Sample Fence and Gate Details” – page 15.

Above-ground pools:

The walls of the pool can be used as part of the enclosure if the top of the pool walls are at least 48 inches above the ground. However, the ladder used for access to the pool shall be enclosed by an approved fence and gate meeting the pool enclosure requirements on page 9, item 3.

BOARD HEIGHT	Minimum Depth At A ₁ Directly Under End of Board	Distance Between A and B	Minimum Depth At B
1'8"	6'0"	7'0"	7'6"
2'2"	6'10"	7'6"	8'0"
2'6"	7'8"	8'0"	8'6"
3'4"	8'6"	9'0"	9'0"

Doors:

Doors that form part of a pool enclosure and provide direct access to the pool area shall comply with the following requirements:

- Alarm shall produce an audible warning when the door and its screen, if present are opened.
- Audible warning shall start immediately after the door and door screen, if present, are opened.
- Audible warning shall sound continuously for at least 30 seconds.
- The alarm shall be heard throughout the house.
- Alarm shall automatically reset under all conditions.

- Alarm shall be equipped with a deactivation device such as a touch pad or switch.
- Deactivation device shall temporarily deactivate the alarm for not more than 15 seconds to allow a single opening of the door from either direction.
- Deactivation device shall be located at least 54 inches above the threshold of the door.

Entrapment Protection for swimming pool and spa. Section outlets shall be provided in accordance with the Michigan Residential Code.

Hot tubs and Spas are commonly provided with an approved lockable safety cover that has been tested in accordance with ASTM F-1346-91. All approved safety covers should have a tag indicating that the cover has passed the ASTM F-1346-91 test.

PLOT PLAN REQUIREMENTS

Private Swimming Pools

Three sets of plot plans containing all the information and details noted below must be submitted with the building permit application. See "Sample Plot Plans" – pages 13-14. The plot plans can be drawn by the homeowner, contractor, Land Surveyor, Engineer or Architect. Special circumstances may require plot plans to be drawn by a licensed Engineer, Architect or Land Surveyor. This will be determined during the review process.

The plot plans shall contain the following information:

General:

Builder's name, address, and telephone number.

The north arrow, street right-of-way and street name.

Plan scale is to be between 1" = 20' and 1" = 50'.

The preferred plan size is 8- ½ " x 14". If it is necessary to go to a larger size, do not exceed 18" x 24".

Temporary soil erosion control measures may be required based on the field inspection.

Permanent soil erosion control measures may be required for final grade approval.

Zoning and Building:

Show location and dimensions of the proposed swimming pool and ALL structures on the lot.

Show lot dimensions.

Indicate the distance from the water's edge to all property lines, easements and buildings.

Show the location of all fencing and gates.

Indicate the location of all above-ground and underground utilities. Include septic and well if applicable.

Show the location of all overhead wires. Include the distance between the wires and the water's edge, and the height of the wires above the ground, deck, patio, or other walking surface below the wires.

Overhead wires (electrical, phone or cable) shall not be located over the pool or within 10 feet of the water's edge. All wires beyond 10 feet, but closer than 25 feet, shall be at least 10 feet above the ground, deck, patio, or other walking surface below the wires.

The plot plan footprint and the construction drawings shall be consistent.

Grading and Drainage:

A minimum of 6 inches of fall away from the house in the first 10 feet and a minimum of 1% grade for the remainder of the property are required for drainage.

Indicate existing and proposed drainage patterns.

Show the location and elevations of all easements and utilities including manholes, gate wells, hydrants, phone, electric, gas, cable, etc.

The maximum slope allowed is 1 foot vertical to 3 feet horizontal (33%). All slopes exceeding 1 foot vertical to 3 feet horizontal will require retaining walls with details of construction. Additional information and details may be required for retaining walls. This will be determined during the review process.

Show the elevation of the in-ground pool in relationship to the house and yard.

Wetlands and Floodplain:

If there are flood plains or wetlands on your lot, a survey from a Licensed Land Surveyor or Engineer, (signed and sealed) may be required. This will be determined during plan review.

Show the wetlands limits, natural features setback and protective fencing. (Activity within 10 feet of the regulated wetlands will require a Wetlands Use Permit). Provide information as required by the Wetlands Protection Ordinance, Chapter 126.

Show the location and elevation of all watercourses and provide the flood plain elevation on the plan.

Provide a State of Michigan Department of Environmental Quality permit if the property has state-regulated wetlands.

The requirements noted above are taken from the following codes, ordinances and publications:

Michigan Residential Code (MRC)

City of Fraser Zoning Ordinance, Chapter 32

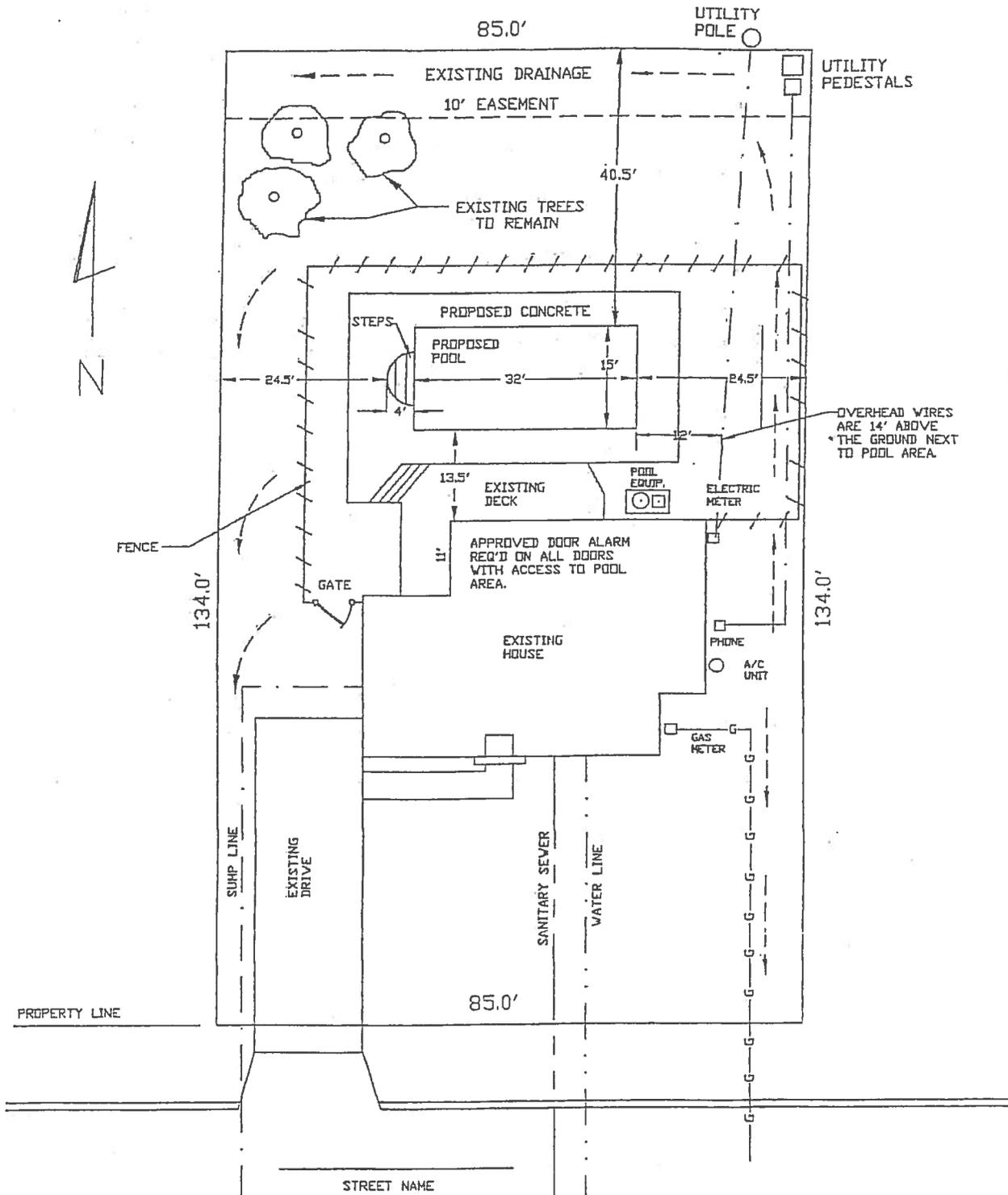
Macomb County Soil Erosion Control Manual

Macomb County Standards-Procedures for Plat Development, Standards & Specifications

This information is provided in a “user friendly” format as a general guide to help you apply the common code and ordinance requirements to your project. It covers the most common types of projects. The actual code and ordinance language may contain additional requirements or exceptions that may apply if your project is beyond the scope of this guidebook.

Need to add illustrations.

EXAMPLE : SAMPLE POT PLAN #2



SAMPLE PLOT PLAN

PRIVATE IN GROUND POOL

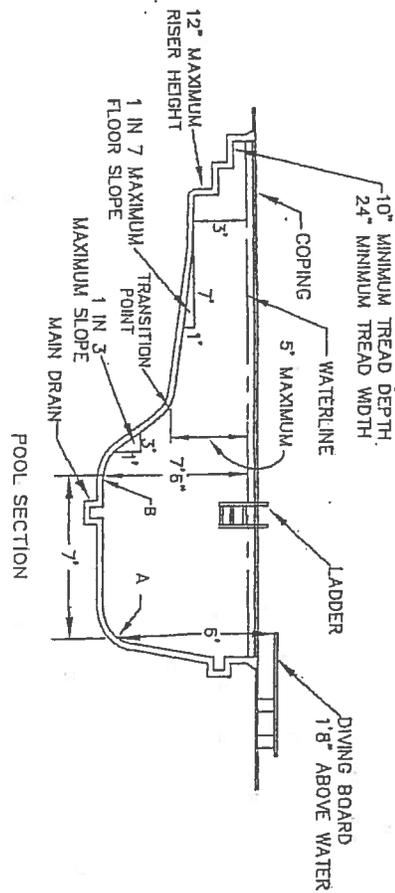
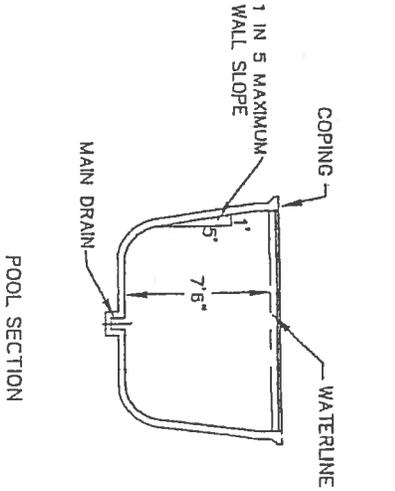
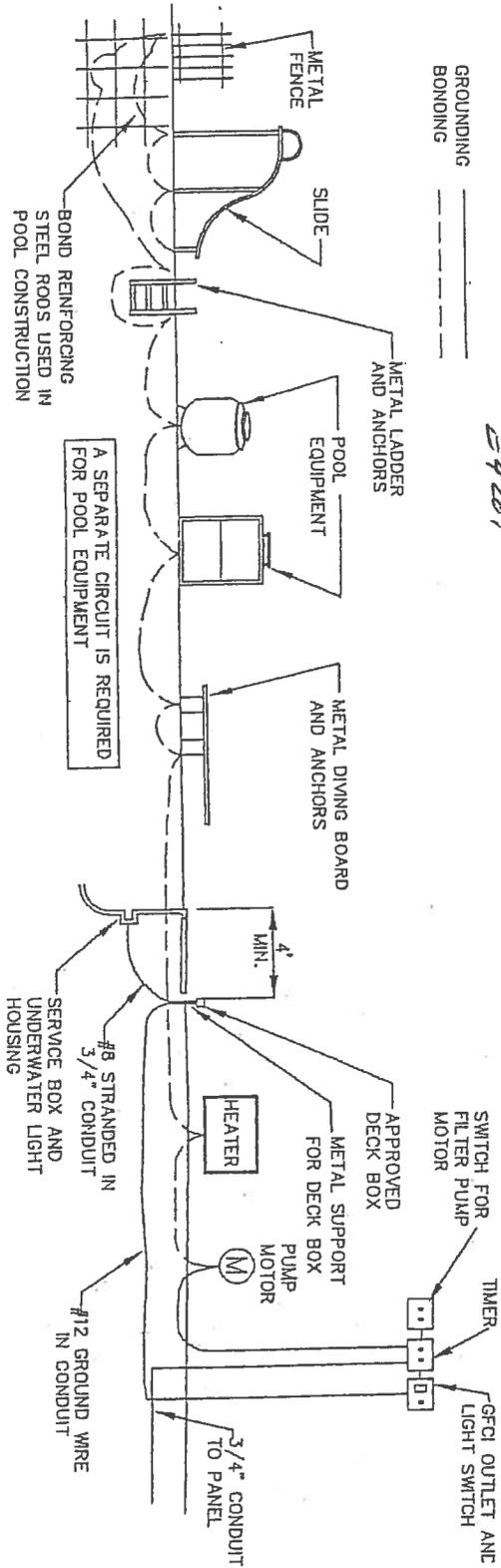
SHOW THE UTILITY LOCATIONS BOTH ABOVE AND BELOW GROUND.
 SHOW THE LOCATION OF THE ELECTRIC METER, GAS METER AND A/C UNIT.
 SHOW THE LOCATION OF THE WATER, SANITARY, AND SUMP LINES.

BUILDER: XYZ CONST.	
ADDRESS XXX	PHONE XXX
OWNER: RESIDENT	
ADDRESS XXX	PHONE XXX

ELECTRICAL GROUNDING & POOL SECTION DETAILS

ELECTRICAL BONDING AND GROUNDING:
 BONDING - #8 SOLID WIRE SHALL BE USED TO BOND ALL EQUIPMENT TOGETHER WITH APPROVED PRESSURE CONNECTORS.
 GROUNDING - ALL ELECTRICAL EQUIPMENT LOCATED WITHIN 5' OF THE WATER'S EDGE MUST BE GROUNDED, I.E. JUNCTION BOXES, TRANSFORMERS, PANELBOARDS, WET AND DRY NICHE LIGHTS, MOTORS, ETC. ALL ELECTRICAL WORK MUST COMPLY TO SECTION 54201 OF M.R.C.

54201



ELECTRICAL GROUNDING AND POOL SECTION DETAILS

NOT TO SCALE

EXAMPLE: PLAN REVIEW

NO.	DESCRIPTION	SECTION
1.	A separate Electrical Permit is required.	2009 MRC
2.	A separate Mechanical Permit is required if the pool is heated.	2009 MRC
3.	A separate Plumbing Permit is required. All hose connections that may be used to fill pool with water require an inspected and approved vacuum breaker.	2009 MRC P2902.3
4.	Above-ground swimming pools must be located at least five (5) feet from the principal residence or any accessory structures.	Fraser Zoning Ord. Section 32-75
5.	Provide an approved pool barrier (if chain link fence used, must be maximum 2 ¼" square mesh size.) NOTE: Minimum 4-foot high, pool walls or pool walls with top-mounted barrier, may be an acceptable barrier providing ladder is approved and securable, lockable, or removable.	2009 MRC AG105
6.	Access gates , when required, must swing away from the pool area and be self-closing and self-latching with latch mechanism properly placed at least 54" above the bottom of the gate. (If less than 54", the release mechanism must be located on the pool side of the gate at least 3" below the top of the gate, and the gate and barrier must not have an opening greater than ½" within 18" of the release mechanism)	AG105
7.	If wall of a dwelling serves as part of the barrier, all doors with direct access require an approved door alarm .	AG105
8.	A fence permit would be required for any new fence work or modifications to existing.	Fraser Code Chapter 9
9.	Provide 10 foot clearance from a vertical line below overhead electrical lines and 5 foot clearance from underground electrical.	
10.	Placement of new pool may not obstruct any existing engineered drainage without making city-approved provisions for.	City Code
11.	A final building department inspection is required with final approval of all pertinent permits needed before releasing bond.	
<p>24-HOUR INSPECTION LINE: (586) 293-3100 option 2</p>		

I, the undersigned, have received a copy of the approved plans and correction list for the project addressed above. I certify that the proposed work will be in compliance with all applicable codes.

2009 MICHIGAN RESIDENTIAL CODE SWIMMING POOL ELECTRICAL REQUIREMENTS

CHAPTER 42 SWIMMING POOLS

SECTION E4201 GENERAL

E4201.1 Scope. The provisions of this chapter shall apply to the construction and installation of electric wiring and equipment associated with all swimming pools, wading pools, decorative pools, fountains, hot tubs and spas, and hydromassage bathtubs, whether permanently installed or storable, and shall apply to metallic auxiliary equipment, such as pumps, filters and similar equipment. Sections E4202 through E4206 provide general rules for permanent pools, spas and hot tubs. Section E4207 provides specific rules for storable pools. Section E4208 provides specific rules for spas and hot tubs. Section E4209 provides specific rules for hydromassage bathtubs.

E4201.2 Definitions.

CORD-AND-PLUG-CONNECTED LIGHTING ASSEMBLY. A lighting assembly consisting of a cord-and-plug-connected transformer and a luminaire intended for installation in the wall of a spa, hot tub, or storable pool.

DRY-NICHE LUMINAIRE. A luminaire intended for installation in the wall of a pool or fountain in a niche that is sealed against the entry of pool water.

FORMING SHELL. A structure designed to support a wet-niche luminaire assembly and intended for mounting in a pool or fountain structure.

FOUNTAIN. Fountains, ornamental pools, display pools, and reflection pools. The definition does not include drinking fountains.

HYDROMASSAGE BATHTUB. A permanently installed bathtub equipped with a recirculating piping system, pump, and associated equipment. It is designed so it can accept, circulate and discharge water upon each use.

MAXIMUM WATER LEVEL. The highest level that water can reach before it spills out.

NO-NICHE LUMINAIRE. A luminaire intended for installation above or below the water without a niche.

PACKAGED SPA OR HOT TUB EQUIPMENT ASSEMBLY. A factory-fabricated unit consisting of water-circulating, heating and control equipment mounted on a common base, intended to operate a spa or hot tub. Equipment may include pumps, air blowers, heaters, luminaires, controls and sanitizer generators.

PERMANENTLY INSTALLED SWIMMING, WADING, IMMERSION AND THERAPEUTIC POOLS. Those that are constructed in the ground or partially in the ground, and all others capable of holding water with a depth greater than 42 inches (1067 mm), and all pools installed inside of a building, regardless of water depth, whether or not served by electrical circuits of any nature.

POOL. Manufactured or field-constructed equipment designed to contain water on a permanent or semipermanent

basis and used for swimming, wading, immersion, or therapeutic purposes.

POOL COVER, ELECTRICALLY OPERATED. Motor-driven equipment designed to cover and uncover the water surface of a pool by means of a flexible sheet or rigid frame.

SELF-CONTAINED SPA OR HOT TUB. A factory-fabricated unit consisting of a spa or hot tub vessel with all water-circulating, heating and control equipment integral to the unit. Equipment may include pumps, air blowers, heaters, luminaires, controls and sanitizer generators.

SPA OR HOT TUB. A hydromassage pool, or tub for recreational or therapeutic use, not located in health care facilities, designed for immersion of users, and usually having a filter, heater, and motor-driven blower. They are installed indoors or outdoors, on the ground or supporting structure, or in the ground or supporting structure. Generally, a spa or hot tub is not designed or intended to have its contents drained or discharged after each use.

STORABLE SWIMMING OR WADING POOL. Those that are constructed on or above the ground and are capable of holding water with a maximum depth of 42 inches (1067 mm), or a pool with nonmetallic, molded polymeric walls or inflatable fabric walls regardless of dimension.

THROUGH-WALL LIGHTING ASSEMBLY. A lighting assembly intended for installation above grade, on or through the wall of a pool, consisting of two interconnected groups of components separated by the pool wall.

WET-NICHE LUMINAIRE. A luminaire intended for installation in a forming shell mounted in a pool or fountain structure where the luminaire will be completely surrounded by water.

SECTION E4202 WIRING METHODS FOR POOLS, SPAS, HOT TUBS AND HYDROMASSAGE BATHTUBS

E4202.1 General. Wiring methods used in conjunction with permanently installed swimming pools, spas, hot tubs or hydromassage bathtubs shall be installed in accordance with Table E4202.1 and Chapter 38 except as otherwise stated in this section. Storable swimming pools shall comply with Section E4207.

E4202.2 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 shall be permitted to be connected with a flexible cord to facilitate 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

SECTION E4203 EQUIPMENT LOCATION AND CLEARANCES

E4203.1 Receptacle outlets. Receptacles outlets shall be installed and located in accordance with Sections E4203.1.1 through E4203.1.5. 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.

E4203.1.1 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 6 feet and 10 feet (1829 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 6 feet (1829 mm) from the inside walls of pools and outdoor spas and hot tubs.

E4203.1.2 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 6 feet (1829 mm) from and not more than 20 feet (6096 mm) from the inside wall of pools and outdoor spas and hot tubs. 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.

E4203.1.3 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. Outlets supplying pool pump motors from branch circuits with short-circuit and ground-fault protection rated 15 or 20 amperes, 125 volt or 240 volt, single phase, whether by receptacle or direct connection, shall be provided with ground-fault circuit-interrupter protection for personnel.

E4203.1.4 Indoor locations. Receptacles shall be located not less than 6 feet (1829 mm) from the inside walls of indoor spas and hot tubs. A minimum of one 125-volt receptacle shall be located between 6 feet (1829 mm) and 10 feet (3048 mm) from the inside walls of indoor spas or hot tubs.

E4203.1.5 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.

E4203.2 Switching devices. Switching devices shall be located not less than 5 feet (1524 mm) 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 or the switches are listed for use within 5 feet (1524 mm). Switching devices located in a room or area containing a hydromassage bathtub shall be located in accordance with the general requirements of this code.

E4203.3 Disconnecting means. One or more means to simultaneously 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 and shall be located at least 5 feet (1524 mm) horizontally from the inside walls of a pool, spa, or hot tub unless separated from the open water by a permanently installed barrier that provides a 5 foot (1524 mm) or greater reach path. This horizontal distance shall be measured from the water's edge along the shortest path required to reach the disconnect.

E4203.4 Luminaires and ceiling fans. Lighting outlets, luminaires, and ceiling-suspended paddle fans shall be installed and located in accordance with Sections E4203.4.1 through E4203.4.5.

E4203.4.1 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.

E4203.4.2 Indoor locations. In indoor pool areas, the limitations of Section E4203.4.1 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).

E4203.4.3 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.

E4203.4.4 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.

E4204.2 Bonded parts. The parts of pools, spas, and hot tubs specified in Items 1 through 7 shall be bonded together using insulated, covered or bare solid copper conductors not smaller than 8 AWG or using rigid metal conduit of brass or other identified corrosion-resistant metal. An 8 AWG or larger solid copper bonding conductor provided to reduce voltage gradients in the pool, spa, or hot tub area shall not be required to be extended or attached to remote panelboards, service equipment, or electrodes. Connections shall be made by exothermic welding or by listed pressure connectors or clamps that are labeled as being suitable for the purpose and that are made of stainless steel, brass, copper or copper alloy. Connection devices or fittings that depend solely on solder shall not be used. Sheet metal screws shall not be used to connect bonding conductors or connection devices:

1. Conductive pool shells. Bonding to conductive pool shells shall be provided as specified in Item 1.1 or 1.2. Poured concrete, pneumatically applied or sprayed concrete, and concrete block with painted or plastered coatings shall be considered to be conductive materials because of their water permeability and porosity. Vinyl liners and fiberglass composite shells shall be considered to be nonconductive materials.
 - 1.1. Structural Reinforcing Steel. Unencapsulated structural reinforcing steel shall be bonded together by steel tie wires or the equivalent. Where structural reinforcing steel is encapsulated in a nonconductive compound, a copper conductor grid shall be installed in accordance with Item 1.2.
 - 1.2. Copper Conductor Grid. A copper conductor grid shall be provided and shall comply with Items 1.2.1 through 1.2.4:
 - 1.2.1. It shall be constructed of minimum 8 AWG bare solid copper conductors bonded to each other at all points of crossing.
 - 1.2.2. It shall conform to the contour of the pool and the pool deck.
 - 1.2.3. It shall be arranged in a 12 inch (305 mm) by 12 inch (305 mm) network of conductors in a uniformly spaced perpendicular grid pattern with a tolerance of 4 inches (102 mm).
 - 1.2.4. It shall be secured within or under the pool not more than 6 inches (152 mm) from the outer contour of the pool shell.
2. Perimeter surfaces. The perimeter surface shall extend for 3 feet (914 mm) horizontally beyond the inside walls of the pool and shall include unpaved surfaces, poured concrete and other types of paving. Bonding to perimeter surfaces shall be provided as specified in Item 2.1 or 2.2 and shall be attached to the pool, spa, or hot tub reinforcing steel or copper conductor grid at a minimum of four points uniformly spaced around the perimeter of the

pool, spa, or hot tub. For nonconductive pool shells, bonding at four points shall not be required.

- 2.1. Structural Reinforcing Steel. Structural reinforcing steel shall be bonded in accordance with Item 1.1.
- 2.2. Alternate Means. Where structural reinforcing steel is not available or is encapsulated in a nonconductive compound, a copper conductor(s) shall be used in accordance with Items 2.2.1 through 2.2.5:
 - 2.2.1. At least one minimum 8 AWG bare solid copper conductor shall be provided.
 - 2.2.2. The conductors shall follow the contour of the perimeter surface.
 - 2.2.3. Splices shall be listed.
 - 2.2.4. The required conductor shall be 18 to 24 inches (457 to 610 mm) from the inside walls of the pool.
 - 2.2.5. The required conductor shall be secured within or under the perimeter surface 4 to 6 inches (102 mm to 152 mm) below the subgrade.
3. Metallic components. All metallic parts of the pool structure, including reinforcing metal not addressed in Item 1.1, shall be bonded. Where reinforcing steel is encapsulated with a nonconductive compound, the reinforcing steel shall not be required to be bonded.
4. Underwater lighting. All metal forming shells and mounting brackets of no-niche luminaires shall be bonded.

Exception: Listed low-voltage lighting systems with nonmetallic forming shells shall not require bonding.
5. Metal fittings. All metal fittings within or attached to the pool structure shall be bonded. Isolated parts that are not over 4 inches (102 mm) in any dimension and do not penetrate into the pool structure more than 1 inch (25.4 mm) shall not require bonding.
6. Electrical equipment. Metal parts of electrical equipment associated with the pool water circulating system, including pump motors and metal parts of equipment associated with pool covers, including electric motors, shall be bonded.

Exception: Metal parts of listed equipment incorporating an approved system of double insulation shall not be bonded.
- 6.1. Double-Insulated Water Pump Motors. Where a double-insulated water pump motor is installed under the provisions of this item, a solid 8 AWG copper conductor of sufficient length to make a bonding connection to a replacement motor shall be extended from the bonding grid to an accessible point in the vicinity of the pool pump motor.

E3908.12 but not smaller than 12 AWG. The equipment grounding conductor between the wiring chamber of the secondary winding of a transformer and a junction box shall be sized in accordance with the overcurrent device in such circuit. The junction box, transformer enclosure, or other enclosure in the supply circuit to a wet-niche or no-niche luminaire and the field-wiring chamber of a dry-niche luminaire shall be grounded to the equipment grounding terminal of the panelboard. The equipment grounding terminal shall be directly connected to the panelboard enclosure. The equipment grounding conductor shall be installed without joint or splice.

Exceptions:

1. Where more than one underwater luminaire is supplied by the same branch circuit, the equipment grounding conductor, installed between the junction boxes, transformer enclosures, or other enclosures in the supply circuit to wet-niche luminaires, or between the field-wiring compartments of dry-niche luminaires, shall be permitted to be terminated on grounding terminals.
2. Where an underwater luminaire is supplied from a transformer, ground-fault circuit-interrupter, clock-operated switch, or a manual snap switch that is located between the panelboard and a junction box connected to the conduit that extends directly to the underwater luminaire, the equipment grounding conductor shall be permitted to terminate on grounding terminals on the transformer, ground-fault circuit-interrupter, clock-operated switch enclosure, or an outlet box used to enclose a snap switch.

E4205.3 Nonmetallic conduit. Where a nonmetallic conduit is installed between a forming shell and a junction box, transformer enclosure, or other enclosure, a 8 AWG insulated copper bonding jumper shall be installed in this conduit except where a listed low-voltage lighting system not requiring grounding is used. The bonding jumper shall be terminated in the forming shell, junction box or transformer enclosure, or ground-fault circuit-interrupter enclosure. The termination of the 8 AWG bonding jumper in the forming shell shall be covered with, or encapsulated in, a listed potting compound to protect such connection from the possible deteriorating effect of pool water.

E4205.4 Flexible cords. Wet-niche luminaires that are supplied by a flexible cord or cable shall have all exposed noncurrent-carrying metal parts grounded by an insulated copper equipment grounding conductor that is an integral part of the cord or cable. This grounding conductor shall be connected to a grounding terminal in the supply junction box, transformer enclosure, or other enclosure. The grounding conductor shall not be smaller than the supply conductors and not smaller than 16 AWG.

E4205.5 Motors. Pool-associated motors shall be connected to an insulated copper equipment grounding conductor sized in accordance with Table E3908.12, but not smaller than 12 AWG. Where the branch circuit supplying the motor is installed in the interior of a one-family dwelling or in the interior of accessory buildings associated with a one-family dwelling, using a cable wiring method permitted by Table E4202.1,

an uninsulated equipment grounding conductor shall be permitted provided that it is enclosed within the outer sheath of the cable assembly.

E4205.6 Feeders. An equipment grounding conductor shall be installed with the feeder conductors between the grounding terminal of the pool equipment panelboard and the grounding terminal of the applicable service equipment or source of a separately derived system. The equipment grounding conductor shall be insulated, shall be sized in accordance with Table E3908.12, and shall be not smaller than 12 AWG.

Exception: An existing feeder between an existing remote panelboard and service equipment shall be permitted to run in flexible metal conduit or an approved cable assembly that includes an equipment grounding conductor within its outer sheath. The equipment grounding conductor shall not be connected to the grounded conductor in the remote panelboard.

E4205.6.1 Separate buildings. A feeder to a separate building or structure shall be permitted to supply swimming pool equipment branch circuits, or feeders supplying swimming pool equipment branch circuits, provided that the grounding arrangements in the separate building meet the requirements of Section E3607.3. Where installed in other than existing feeders covered in the exception to Section E4205.6, a separate equipment grounding conductor shall be an insulated conductor.

E4205.7 Cord-connected equipment. Where fixed or stationary equipment is connected with a flexible cord to facilitate removal or disconnection for maintenance, repair, or storage, as provided in Section E4202.2, the equipment grounding conductors shall be connected to a fixed metal part of the assembly. The removable part shall be mounted on or bonded to the fixed metal part.

E4205.8 Other equipment. Other electrical equipment shall be grounded in accordance with Section E3908.

SECTION E4206 EQUIPMENT INSTALLATION

E4206.1 Transformers. Transformers used for the supply of underwater luminaires, together with the transformer enclosure, shall be listed as a swimming pool and spa transformer. Such transformers shall be of an isolated winding type with an ungrounded secondary that has a grounded metal barrier between the primary and secondary windings.

E4206.2 Ground-fault circuit-interrupters. Ground-fault circuit-interrupters shall be self-contained units, circuit-breaker types, receptacle types or other approved types.

E4206.3 Wiring on load side of ground-fault circuit-interrupters and transformers. For other than grounding conductors, conductors installed on the load side of a ground-fault circuit-interrupter or transformer used to comply with the provisions of Section E4206.4, shall not occupy raceways, boxes, or enclosures containing other conductors except where the other conductors are protected by ground-fault circuit interrupters or are grounding conductors. Supply conductors to a feed-through type ground-fault circuit interrupter shall be per-

E4206.9.2 Other enclosures. An enclosure for a transformer, ground-fault circuit-interrupter or a similar device connected to a conduit that extends directly to a forming shell or mounting bracket of a no-niche luminaire shall be:

1. Listed and labeled for the purpose, comprised of copper, brass, suitable plastic, or other approved corrosion-resistant material;
2. Equipped with threaded entries or hubs or a nonmetallic hub;
3. Provided with an approved seal, such as duct seal at the conduit connection, that prevents circulation of air between the conduit and the enclosures;
4. Provided with electrical continuity between every connected metal conduit and the grounding terminals by means of copper, brass or other approved corrosion-resistant metal that is integral with the enclosures; and
5. Located not less than 4 inches (102 mm), measured from the inside bottom of the enclosure, above the ground level or pool deck, or not less than 8 inches (203 mm) above the maximum pool water level, whichever provides the greater elevation, and shall be located not less than 4 feet (1219 mm) from the inside wall of the pool, except where separated from the pool by a solid fence, wall or other permanent barrier.

E4206.9.3 Protection of junction boxes and enclosures. Junction boxes and enclosures mounted above the grade of the finished walkway around the pool shall not be located in the walkway unless afforded additional protection, such as by location under diving boards or adjacent to fixed structures.

E4206.9.4 Grounding terminals. Junction boxes, transformer enclosures, and ground-fault circuit-interrupter enclosures connected to a conduit that extends directly to a forming shell or mounting bracket of a no-niche luminaire shall be provided with grounding terminals in a quantity not less than the number of conduit entries plus one.

E4206.9.5 Strain relief. The termination of a flexible cord of an underwater luminaire within a junction box, transformer enclosure, ground-fault circuit-interrupter, or other enclosure shall be provided with a strain relief.

E4206.10 Underwater audio equipment. Underwater audio equipment shall be identified for the purpose.

E4206.10.1 Speakers. Each speaker shall be mounted in an approved metal forming shell, the front of which is enclosed by a captive metal screen, or equivalent, that is bonded to and secured to the forming shell by a positive locking device that ensures a low-resistance contact and requires a tool to open for installation or servicing of the speaker. The forming shell shall be installed in a recess in the wall or floor of the pool.

E4206.10.2 Wiring methods. Rigid metal conduit or intermediate metal conduit of brass or other identified corrosion-resistant metal, rigid nonmetallic conduit, or liquid tight flexible nonmetallic conduit (LFNC-B) shall extend from the forming shell to a suitable junction box or other

enclosure as provided in Section E4206.9. Where rigid non-metallic conduit or liquid tight flexible nonmetallic conduit is used, an 8 AWG solid or stranded insulated copper bonding jumper shall be installed in this conduit with provisions for terminating in the forming shell and the junction box. The termination of the 8 AWG bonding jumper 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.

E4206.10.3 Forming shell and metal screen. The forming shell and metal screen shall be of brass or other approved corrosion-resistant metal. All forming shells shall include provisions for terminating an 8 AWG copper conductor.

E4206.11 Electrically operated pool covers. The electric motors, controllers, and wiring for pool covers shall be located not less than 5 feet (1524 mm) from the inside wall of the pool except where separated from the pool by a wall, cover, or other permanent barrier. Electric motors installed below grade level shall be of the totally enclosed type. The electric motor and controller shall be connected to a circuit protected by a ground-fault circuit-interrupter. The device that controls the operation of the motor for an electrically operated pool cover shall be located so that the operator has full view of the pool.

E4206.12 Electric pool water heaters. All electric pool water heaters shall have the heating elements subdivided into loads not exceeding 48 amperes and protected at not more than 60 amperes. The ampacity of the branch-circuit conductors and the rating or setting of overcurrent protective devices shall be not less than 125 percent of the total nameplate load rating.

E4206.13 Pool area heating. The provisions of Sections E4206.13.1 through E4206.13.3 shall apply to all pool deck areas, including a covered pool, where electrically operated comfort heating units are installed within 20 feet (6096 mm) of the inside wall of the pool.

E4206.13.1 Unit heaters. Unit heaters shall be rigidly mounted to the structure and shall be of the totally enclosed or guarded types. Unit heaters shall not be mounted over the pool or within the area extending 5 feet (1524 mm) horizontally from the inside walls of a pool.

E4206.13.2 Permanently wired radiant heaters. Electric radiant heaters shall be suitably guarded and securely fastened to their mounting devices. Heaters shall not be installed over a pool or within the area extending 5 feet (1524 mm) horizontally from the inside walls of the pool and shall be mounted not less than 12 feet (3658 mm) vertically above the pool deck.

E4206.13.3 Radiant heating cables prohibited. Radiant heating cables embedded in or below the deck shall be prohibited.

SECTION E4207 STORABLE SWIMMING POOLS

E4207.1 Pumps. A cord and plug-connected pool filter pump for use with storable pools shall incorporate an approved system of double insulation or its equivalent and shall be provided

this code relative to the installation of electrical equipment in bathrooms.

E4209.3 Accessibility. Hydromassage bathtub electrical equipment shall be accessible without damaging the building structure or building finish.

E4209.4 Bonding. All metal piping systems and all grounded metal parts in contact with the circulating water shall be bonded together using an insulated, covered or bare solid copper bonding jumper not smaller than 8 AWG. The bonding jumper shall be connected to the terminal on the circulating pump motor that is intended for this purpose. The bonding jumper shall not be required to be connected to a double insulated circulating pump motor. The 8 AWG or larger solid copper bonding jumper shall be required for equipotential bonding in the area of the hydromassage bathtub and shall not be required to be extended or attached to any remote panelboard, service equipment, or any electrode.

APPENDIX G

SWIMMING POOLS, SPAS AND HOT TUBS

(The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.)

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- or two-family dwelling.

AG101.2 Pools in flood hazard areas. Pools that are located in flood hazard areas established by Table R301.2(1), including above-ground pools, on-ground pools and in-ground pools that involve placement of fill, shall comply with Sections AG101.2.1 or AG101.2.2.

Exception: Pools located in riverine flood hazard areas which are outside of designated floodways.

AG101.2.1 Pools located in designated floodways. Where pools are located in designated floodways, documentation shall be submitted to the *building official*, which demonstrates that the construction of the pool will not increase the design flood elevation at any point within the *jurisdiction*.

AG101.2.2 Pools located where floodways have not been designated. Where pools are located where design flood elevations are specified but floodways have not been designated, the applicant shall provide a floodway analysis that demonstrates that the proposed pool will not increase the design flood elevation more than 1 foot (305 mm) at any point within the *jurisdiction*.

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, above-ground 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 the walls of the enclosing 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.

AG103.3 Pools in flood hazard areas. In flood hazard areas established by Table R301.2(1), pools in coastal high hazard areas shall be designed and constructed in conformance with ASCE 24.

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, above-ground or on-ground pool, hot tub or spa shall be surrounded by 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

**SECTION AG107
ABBREVIATIONS**

AG107.1 General.

ANSI—American National Standards Institute
11 West 42nd Street
New York, NY 10036

APSP—Association of Pool and Spa Professionals
NSPI—National Spa and Pool Institute
2111 Eisenhower Avenue
Alexandria, VA 22314

ASCE—American Society of Civil Engineers
1801 Alexander Bell Drive
Reston, VA 98411-0700

ASTM—ASTM International
100 Barr Harbor Drive,
West Conshohocken, PA 19428

UL—Underwriters Laboratories, Inc.
333 Pfingsten Road
Northbrook, IL 60062-2096

**SECTION AG108
STANDARDS**

AG108.1 General.

ANSI/NSPI

ANSI/NSPI-3-99 Standard for
Permanently Installed Residential Spas AG104.1

ANSI/NSPI-4-99 Standard for Above-ground/
On-ground Residential Swimming Pools AG103.2

ANSI/NSPI-5-2003 Standard for
Residential In-ground Swimming Pools AG103.1

ANSI/NSPI-6-99 Standard for
Residential Portable Spas AG104.2

ANSI/APSP

ANSI/APSP-7-06 Standard for Suction Entrapment
avoidance in Swimming Pools, Wading Pools, Spas,
Hot Tubs and Catch Basins AG106.1

ASCE

ASCE/SEI-24-05 Flood Resistant
Design and Construction AG103.3

ASTM

ASTM F 1346-91 (2003) Performance
Specification for Safety Covers and Labeling
Requirements for All Covers for Swimming Pools,
Spas and Hot Tubs AG105.2, AG105.5

UL

UL 2017-2000 Standard for General-purpose
Signaling Devices and Systems—with Revisions
through June 2004 AG105.2