

PRIVATE IN-GROUND SWIMMING POOLS **PERMIT REQUIREMENTS**

This guideline is intended to provide the homeowner/contractor with the basic information needed to apply for a swimming pool permit to construct most private in-ground swimming pools. A permit is required for all swimming and bathing pools which the water depth equals or exceeds 24" or the pool wall depth equals or exceeds 26".

1. Fill out and sign application for a swimming pool permit. Indicate on the application if electrical, plumbing, and/or mechanical work is included in the project. Refer to page 6 for additional signatures needed before permit issuance.
2. Submit four (4) separate copies of your plot (site) plan showing existing structures with new in-ground pool and its perpendicular distances to the lot lines and from other structures on the lot, if any.
3. Obtain zoning approval from the St. Louis County Department of Public Works (if unincorporated) or from municipality. In municipalities site plans must be marked "Approved" and the Municipal Zoning Approval Form submitted prior to permit issuance.
4. One of the following must be filed with your application request:

Provide Master Plan number for pool. Many local pool contractors/suppliers have had their pool plans and specifications reviewed and pre-approved so that the homeowner/contractor can obtain their permits easier. Pre-approved pools have been assigned a Master Plan number by the County. Consult your pool contractor/supplier for this number, or

Provide four (4) complete sets of detailed pool plans and specifications, prepared, sealed and signed by a Missouri Licensed Architect or Professional Engineer. The plans must be drawn to scale, properly dimensioned, and contain the following:

- a) Foundation/Structural Wall Plan.
- b) Cross sections through the pool indicating slope of sidewalls and floor and water depth throughout.
- c) Sections and/or details of the ladders, steps, drains, diving boards, filters, structural supports and reinforcing, skimmers or gutters.
- d) Water supply system, drainage and water disposal system, and filtering/recirculating system diagrams.
- e) Specification notes.

Pool drawings having the affixed seal of more than one registered design professional will not be accepted without written explanation signed by both professionals describing the working relationship between the professionals. Multiple seals from different states of the same professional is acceptable. Each sheet of the swimming pool construction plans must be sealed by the Missouri Registered Design Professional with an original seal, handwritten signature, and date affixed to the cover sheet of each of the four (4) submittal sets after printing.

Refer to attached drawings for typical information and requirements that need to be shown on your site plan and fence/gate elevation and section drawings.

5. Indicate type, location, and height of pool enclosure barrier on your site plan. When fences/gates are provided to meet the pool enclosure barrier requirements submit four (4) separate copies of an elevation drawing (showing both gate and fence) and a sectional drawing (fence) of the fence/gate enclosure with your application request.

The pool must be protected on all sides by an enclosure barrier to prevent small children from entering the pool area unsupervised, as well as make it more difficult for unauthorized use by others. The barrier must be at least 48" in height above finished ground level measured on the side of the barrier which faces away from the swimming pool. A 2" maximum clearance from ground level to bottom of the barrier shall be maintained. Openings in barriers shall prohibit the passage of a 4" diameter sphere and be designed to prevent the barrier from being readily climbed by children.

For fences having horizontal and vertical members where the distance between the tops of the horizontal members is 45" or more the spacing between the vertical members shall not exceed 4 inches. When the distance between the tops of any horizontal members of the fence is less than 45", the horizontal members shall be on the pool side of the fence and the spacing between the vertical members shall not exceed 1 3/4". Maximum mesh size for chain link fences shall be 2 1/4" square.

Gates in fences shall open outward away from the pool, be self-closing and self-latching. Where the release mechanism of the self-latching device is located less than 54" from the bottom of the gate: a) the release mechanism shall be located on the pool side of the gate at least 3" below the top of the gate; and b) the gate and barrier shall not have an opening greater than 1/2" within 18" of the release mechanism.

Where a wall of the house serves as part of the enclosure barrier then a) all doors into the enclosure shall be equipped with a UL2017-listed automatically resetting audible alarm with the deactivation switch installed at least 54" above the threshold, OR b) those doors shall be self-closing, self-latching, not swing toward the pool and have the release mechanism for the latch installed at least 54" above the threshold, OR c) the pool shall be equipped with an approved power safety cover.

Caution: Homeowner's are advised that fences erected within a utility easement may be required to be removed, at any time, at the sole discretion of the easement holder. Homeowner's should obtain easement holder's approval before erecting fences in close proximity to the utility structures (storm water inlets, manholes, electrical and cable TV boxes, etc.) located within the easement area.

6. Issuance of a swimming pool permit for the project does not authorize construction access to the work site. If the existing driveway entrance to the site is unavailable for construction access, the owner/contractor shall apply for a permit to construct a temporary entrance from the owner of the Right-of-Way.

For additional information regarding the criteria in this handout, please contact:

	<u>Contact</u>
General Information	(314) 615-5184
Permit Processing	(314) 615-7155
Zoning Review	(314) 615-3763
Building Plan Review	(314) 615-5485
Right-of-Way Owner	
State	(888) 275-6636
County	(314) 615-8517
Municipality	Municipality

Plan Preparation and Common Code Requirements Pertaining to Most Projects

Wall Slopes

To a depth up to 2 feet 9 inches from the top, the wall slope shall not be more than one unit horizontal in five units vertical (1:5).

Floor Slopes

The slope of the floor on the shallow side of the transition point shall not exceed one unit vertical to seven units horizontal (1:7). The transition point between shallow and deep water shall not be more than 4 feet deep.

Surface Cleaning

All swimming pools shall be provided with a recirculating skimming device or overflow gutters to remove scum and foreign matter from the surface of the water. Where skimmers are used for private pools, there shall be at least one skimming device for each 800 square feet of surface area or fraction thereof. The equipment shall be sized to provide a turnover of the pool water at least once every 12 hours. The system shall be designed to give the proper turnover rate based on the manufacturer's specified maximum flow rate of the filter, in clean media condition of the filter.

Water Velocity

Water velocity in branch piping serving a minimum of 2 suction outlets shall be designed for a maximum of 3 feet per second. This will result in a maximum velocity of 6 feet per second if 1 of the 2 suction outlets is blocked. The water velocity between the tee of the branch piping and the pump shall not exceed 8 feet per second. The tee serving the branch piping between 2 or more suction outlets on a pump system shall be located between the suction outlets so the head loss in each branch run is essentially equal.

Walkways (if provided)

Curbs or sidewalks (if provided) around any swimming pool shall have a slip-resistant surface for a width of not less than 1 foot at the edge of the in-ground pool, and shall be so arranged as to prevent return of surface water to the pool. The perimeter surface (paved, concrete or unpaved surfaces) extending out from the edge of the pool measured 3' horizontally from the inside face-of-wall of the in-ground pool shall be bonded in accordance with Section 680.26(B)(2)(a) or (2)(b) of

the National Electric Code (NEC)/2008.

Steps and Ladders

At least one entry/exit shall be provided from the shallow area of the pool. Two entries/exits, one from the shallow area and one from the deep area, are required from pools with a depth of water equaling or exceeding 5'. Pools with a deep area equaling or exceeding 5' and a width exceeding 30', shall have an entry/exit on each side of the deep area in addition to the entry/exit in the shallow area. Step treads must have a minimum horizontal depth of 8 inches and a minimum unobstructed surface area of 240 square inches. Risers can have a maximum height of 12 inches. Treads of steps and ladders shall have slip-resistant surfaces. A minimum of one handrail, 1" to 1 3/4" in diameter, is required to serve a stair with a tread depth of 10". When stairs are located in water depth over 48", the lowest tread shall be no less than 48" below the deck and visually set apart and located outside the wall of the pool.

Stairs recessed into the sidewall of the pool may be constructed with a tread depth of 5" and a tread width of 12". Handrails, grabrails, or handholds are required on each side of a recessed stair.

Ladders shall have slip resistant treads with a minimum tread depth of 2" and a uniform height between ladder treads of a minimum 7" and a maximum of 12". The clear distance between the ladder handrails located on both sides of the ladder shall be a minimum of 17" and a maximum of 24".

Stairs for decks and pool area access outside the pool basin shall have a maximum riser height of 8 1/4", a minimum horizontal tread depth of 9" measured from nosing to nosing, and proper handrails/guardrails.

Handholds

Handholds shall be provided 8' on center around the pool edge in any area where the water depth exceeds 4 feet. A handhold is decking, coping, ledge, rocks, etc. within 12" of the waterline. Ladders, stairs and underwater seats and ledges are also considered a handhold.

Underwater Seats, Benches, and Swimmouts

Underwater seats, benches and swimmouts, when provided, shall be located at a maximum depth below of 20" below the waterline. They shall be visually set apart and located outside of the required minimum water surface shape if the pool is designed for use with diving equipment. See Section 5.3.3 of ANSI/NSPI-5-2003 for the details on the minimum water surface shape.

Diving Boards

Minimum water depths, slopes, and distances for diving hoppers for pools with diving boards, based on board height above water, shall comply with ANSI/NSPI-5 2003 (Figure 3 and Table 1). The Missouri Registered Design Professional shall provide sectional views of the pool addressing the pool type, minimum depths, minimum widths at points, and the minimum lengths between points.

Entries, exits, pool stairs, ladders, underwater benches, and other accessories shall be located outside the minimum window envelope detailed in Figure 6 ANSI/NSPI-5 2003 when the pool is designed for diving equipment.

Grades

Surrounding grades shall be such as to prevent surface water from entering the pool. No alteration of the existing stormwater drainage pattern of the area is permitted without the prior approval of the Department of Highways and Traffic and Public Works.

Discharge Water

The pool shall be constructed and equipped to allow the pool to be completely emptied of water. All discharged water must be to an approved location so as not to create a nuisance to adjoining property. Connection to the sanitary sewer system is not permitted.

Entrapment Protection

This section shall only apply to pools with submerged suction outlets. This guideline promotes the use of skimmers and gutters as the sole means of returning surface water to the pump for recirculation.

All submerged outlet covers/grates shall comply with ASME/ANSI A112.19.8-2007 and be labeled as such or labeled "VGB 2008".

Submerged suction outlets and piping shall be installed in accordance with ANSI/APSP 7-2006. A single unblockable submerged suction outlet is permitted if installed per Section 5.5 of this standard. Two submerged suction outlets piped in parallel to a single suction line shall be located 3 feet apart (measured center to center from the suction pipes) or be located on separate planes. Refer to Section 4.4 of this standard for maximum water velocity in the piping. See Section 4.6 of this standard for minimum flow ratings for each submerged cover/grate.

Water Supply

The hose bibb used for filling the pool, spa, or hot tub shall be protected by either an approved back flow prevention device (vacuum breaker) or an air gap between the filling hose and pool. Installation of an approved backflow prevention device on the supply piping must be done by a Licensed Master Plumber.

Electrical

The installation must comply with Article 680 of the 2008 National Electrical Code. All electrical work must be done by a licensed Electrical Contractor in accordance with St. Louis County Ordinances.

- All overhead wires must be a minimum of 10' horizontally away from the edge of the pool or 22.5' vertically above the water level. Certain Ameren Electric lines have greater clearances, check with Ameren Electric.
- Underground wiring is not permitted under the pool or within 5' of the pool wall. If space limitations prevent wiring from being re-routed beyond 5', wiring may be permitted if installed by a method listed in Article 680.

- No lighting shall be located closer than 5' from the edge of the pool. All lighting within 10' of the edge of the pool must be ground fault circuit interrupter protected.
- A ground fault circuit interrupter must be installed in the electrical system for underwater lighting fixtures or cord connected pumps.
- Receptacle(s) supplying water pump or loads directly related to circulation and the sanitary system shall be located between 6' and 10' from the edge of the pool. This receptacle(s) must be the single, locking and grounding type and be protected by a G.F.C.I.
- At least one general purpose receptacle that is ground fault protected must be located a minimum of 6' from the edge of the pool but not more than 20'. All receptacles located within 20' of the edge of the pool must be G.F.C.I. protected.
- All metal parts of the pool, structural reinforcing steel and electrical equipment associated with the pool shall be bonded and grounded in accordance with NEC Article 680. In addition, the perimeter walking surface (unpaved surfaces as well as poured concrete and other types of paved surfaces) within 3 feet of the inside wall of all pools, regardless of the method of pool construction, shall be bonded as specified in NEC Article 680 Section 26.

Mechanical

Pool heating systems and gas line installations must comply with the manufacturer's installation instructions Sections G2410 through G2424, and Section G2441 of the 2009 International Residential Code. All mechanical work must be done by a licensed contractor authorized to do mechanical work.

Required Signatures

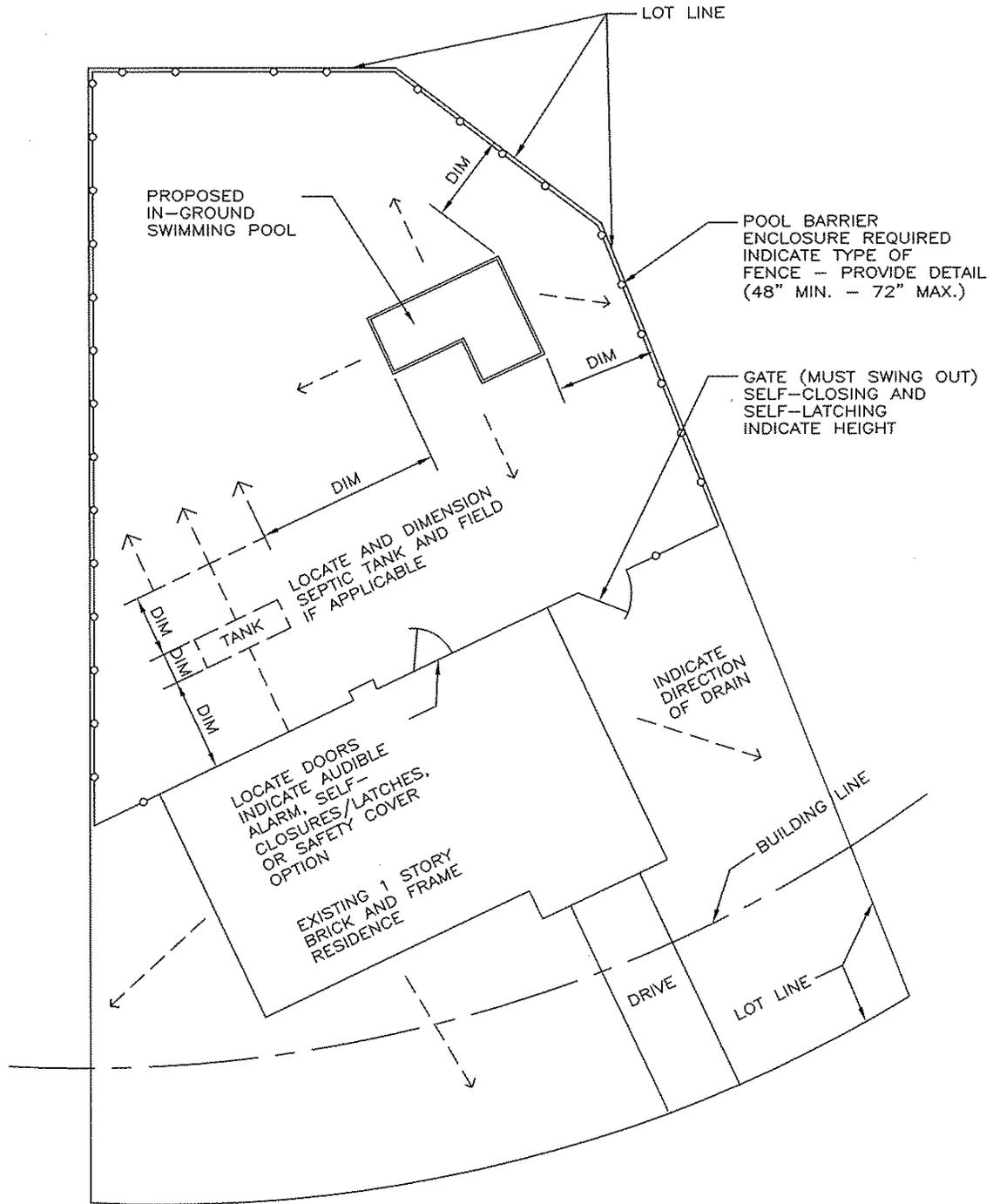
All electrical, plumbing, and mechanical work must be performed by licensed and bonded electrical contractors, master plumbers, and licensed contractors authorized to do mechanical work. Each contractor must also sign the application form in the appropriate location. All signatures must be furnished to Public Works before the permit can be issued.

The preceding requirements apply to most private in-ground pool installations; however, the plan reviewer may determine that unusual circumstances dictate the need for additional information on any particular project.

Pool Barriers

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 the barrier shall be 2 inches (51 mm) measured on the side of the barrier which faces away from the swimming pool. Where the top of the pool structure is above grade, such as an above-ground pool, the barrier may be at ground level, such as the pool structure, or mounted on top of the pool structure. Where the barrier is mounted on top of the pool structure, the maximum vertical clearance between the top of the pool structure and the bottom of the barrier shall be 4 inches (102 mm).
2. Openings in the barrier shall not allow passage of a 4-inch-diameter (102 mm) sphere.
3. Solid barriers which do not have openings, such as a masonry or stone wall, shall not contain indentations or protrusions except for normal construction tolerances and tooled masonry joints.
4. Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is less than 45 inches (1143 mm), the horizontal members shall be located on the swimming pool side of the fence. Spacing between vertical members shall not exceed 1¾ inches (44 mm) in width. Where there are decorative cutouts within vertical members, spacing within the cutouts shall not exceed 1¾ inches (44 mm) in width.
5. Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is 45 inches (1143 mm) or more, spacing between vertical members shall not exceed 4 inches (102 mm). Where there are decorative cutouts within vertical members, spacing within the cutouts shall not exceed 1¾ inches (44 mm) in width.
6. Maximum mesh size for chain link fences shall be a 2¼-inch (57 mm) square unless the fence has slats fastened at the top or the bottom which reduce the openings to not more than 1¾ 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 1¾ inches (44 mm).
8. Access gates shall comply with the requirements of Section AG105.2, Items 1 through 7, and shall be equipped to accommodate a locking device. Pedestrian access gates shall open outward away from the pool and shall be self-closing and have a self-latching device. Gates other than pedestrian access gates shall have a self-latching device. Where the release mechanism of the self-latching device is located less than 54 inches (1372 mm) from the bottom of the gate, the release mechanism and openings shall comply with the following:
 - 8.1. The release mechanism shall be located on the pool side of the gate at least 3 inches (76 mm) below the top of the gate; and
 - 8.2. The gate and barrier shall have no opening larger than ½ inch (12.7 mm) within 18 inches (457 mm) of the release mechanism.
9. Where a wall of a dwelling serves as part of the barrier, one of the following conditions shall be met:
 - 9.1. The pool shall be equipped with a powered safety cover in compliance with ASTM F 1346; or
 - 9.2. Doors with direct access to the pool through that wall shall be equipped with an alarm which produces an audible warning when the door and/or its screen, if present, are opened. The alarm shall be listed and labeled in accordance with UL 2017. The deactivation switch(es) shall be located at least 54 inches (1372 mm) above the threshold of the door; or
 - 9.3. Other means of protection, such as self-closing doors with self-latching devices, which are approved by the governing body, shall be acceptable as long as the degree of protection afforded is not less than the protection afforded by Item 9.1 or 9.2 described above.
10. Where an above-ground pool structure is used as a barrier or where the barrier is mounted on top of the pool structure, and the means of access is a ladder or steps, then the ladder or steps shall be surrounded by a barrier which meets the requirements of Section AG105.2, Items 1 through 9.
11. There shall be a clear zone of at least 4 feet (1219 mm) between the barrier for or on a pool, spa, or hot tub and any permanent structures or pool equipment that can be used to climb the barrier.



TYPICAL PLOT PLAN

FOR: IN-GROUND POOL

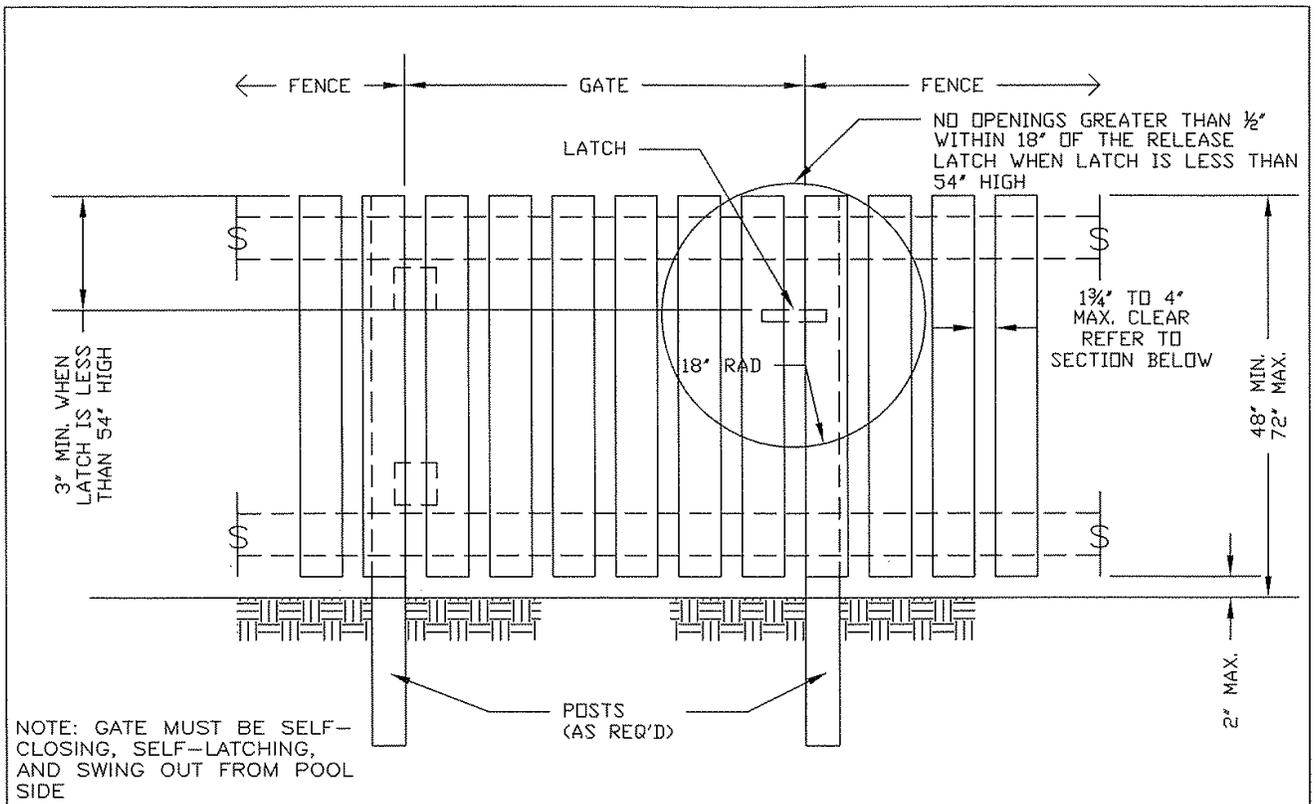
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OWNER:

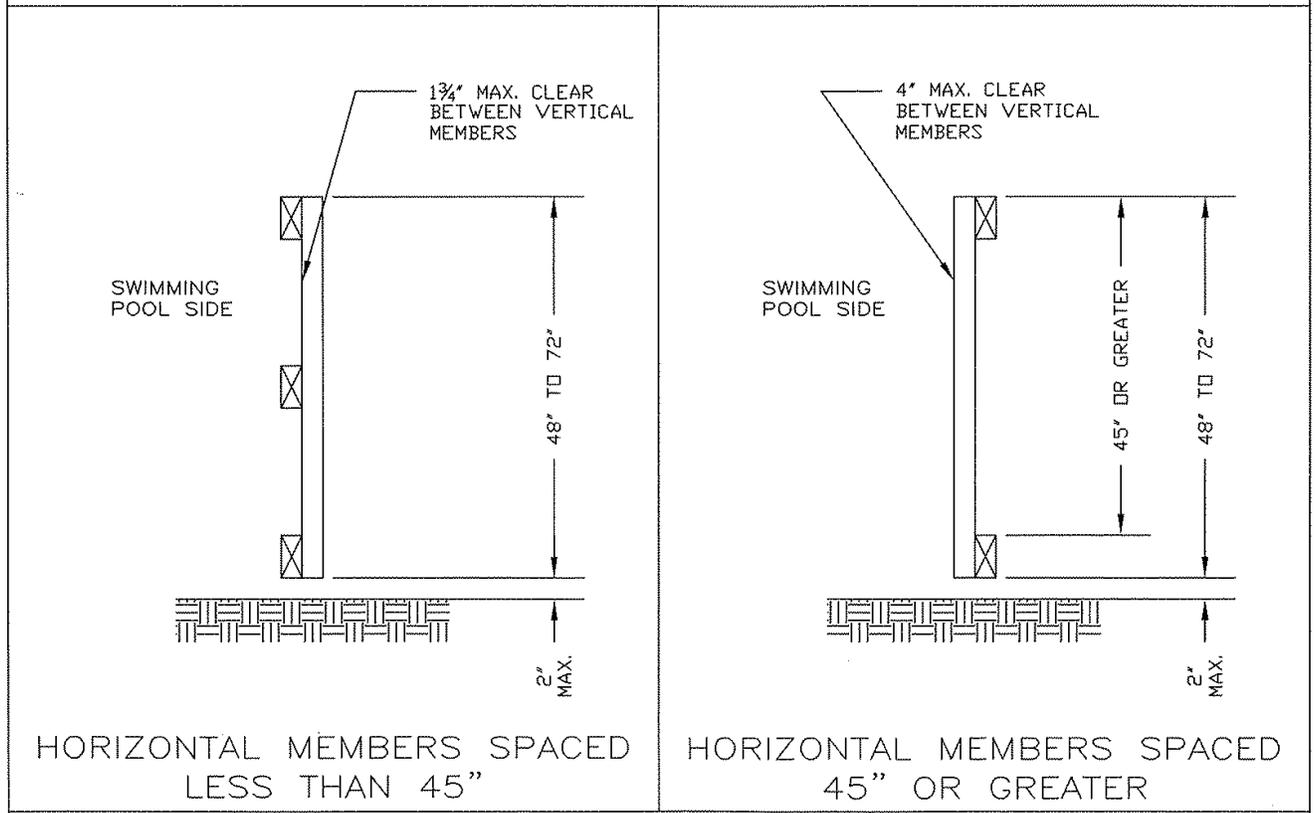
ADDRESS:

SUBDIVISION:

LOT NO.:



POOL GATE AND BARRIER ELEVATION



POOL BARRIER SECTIONS