city of Norton Shores fire department

Fire Prevention Bureau 231-799-6809
4814 Henry Street
Norton Shores, Michigan 49441

Building Division 231-799-6801
4814 Henry Street
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Norman S. Hosko, Fire Marshal
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Michael Reagan, Building Official
Steven Sheldon, Construction Inspector

Because of potential safety hazard concerns, the City of Norton Shores requires that a separate fencing permit be taken out by the person installing the fence before a swimming pool permit can be issued.

All swimming pools to be constructed shall be enclosed by a fence which shall be at least four (4) feet in height and which shall be of a type not readily climbed by children. The gates shall be self-closing and latching not readily available for children to open from the outside. Further, all doors with direct access to the pool shall be equipped with an approved alarm system or self-closing doors and latching doors approved by the Building Department. Additional restrictions will affect a corner lot.

If there is an existing fence, an inspection will be required to verify safety requirements for alarms on doors and gates.

Entrapment protection for swimming pool and spa suction outlets are required by code. 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.

For your convenience we have enclosed the code section for swimming pools and barrier requirements. Should you have further questions, a building inspector can be contacted between 8:00 a.m. - 9:00 a.m. and 4:00 pm - 5:00 pm weekdays at (231) 799-6801.

Michael E. Reagan
Building Official

MER/jb
Enclosure

(Committee)

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.

❖ This section describes the provisions for barriers around residential swimming pools, hot tubs, and spas. A swimming pool or similar facility creates an attractive temptation to children, including very young children and infants who do not know how to swim. The installation of an effective barrier can help reduce the number of children who die or are injured as the result of open access to a swimming pool, spa, or hot tub.

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 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.
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.

❖ This section provides prescriptive requirements for the construction of the swimming pool barrier.

1. The barrier height requirement of 48 inches (1219 mm) above the ground is based on reports that document the ability of children under the age of 5 to climb over barriers that are less than 48 inches (1219 mm) in height. The basis for the 4-inch (102 mm) criterion for an opening between the barrier and the top of the pool frame is the same as for guard construction as addressed in Section R312. Refer to Commentary Figure AG105.2(1).
2. The general provision is applicable only when one of the conditions addressed in Items 4, 5, 6, and 7 is not present. For example, a chain-link fence would be regulated by the requirements of Item 6, which reduces the general opening criterion of 4 inches (102 mm) to 2.25 inches (57 mm). The basis for the 4-inch (102 mm) criterion is the same as for guard construction per Section R312. It is based on studies of the body measurements of children 13 to 18 months old.
3. This provision reduces the potential for gaining a foothold and climbing the barrier.
4. The more stringent 1.75-inch (44 mm) provision for spacing between vertical members applies when the spacing between horizontal members is less than 45 inches (1143 mm). It acknowledges the potential for a child to gain both a handhold and a foothold on closely spaced horizontal members and reduces the potential for a child to gain a foothold by limiting the space between the vertical members on the same barrier. If the horizontal members are spaced less than 45 inches (1143 mm) apart, they must also be located on the swimming pool side of the fence as shown in Commentary Figure AG105.2(2) so that they are not available to be used to climb the barriers.
5. This requirement is the counterpart to Item 4 in that it permits the opening in the barrier to be 4 inches (102 mm) provided the vertical spacing of the horizontal members equals or exceeds 45 inches (1143 mm) as illustrated in Commentary Figure AG105.2(2). It is consistent with Item 2, which limits openings in the barrier to a 4-inch (102 mm) diameter. The spacing of horizontal members 45 inches (1143 mm) apart precludes them from being used by small children to climb the barrier.
6. The $2^1/_4$-inch (57 mm) dimension is intended to reduce the potential for a child to gain a foothold [see Figure AG105.2(3)]. The mesh size is permitted to be larger than $2^1/_4$-inches (57 mm) square if slats are used to reduce the mesh opening to $1^3/_4$ inches (44 mm) in order to decrease the potential for a child to obtain a foothold or handhold.
7. A slightly larger opening is permitted for barriers composed of diagonal members other than chain link fences, on the basis that such barriers would be more difficult to gain a foothold and handhold on than a chain link fence. The 1.75-inch (44 mm) dimension is consistent with Items 4, 5 and 6.
8. A gate represents the same potential hazard relative to climbing as do the other portions of the barrier; therefore, it must be constructed in accordance with applicable Items 1 through 7. Additionally, since the gate also represents a potential breech of the barrier because the gate can be opened, the code provides prescriptive details for the construction and operation of the gate. A self-closing pedestrian gate must open away from the pool because if the latch fails to operate, a child pushing on the gate will not gain immediate access to the pool. Pushing on the gate may also engage the latch. Large, nonpedestrian gates are not required to be self-closing because of prohibitive cost and maintenance concerns coupled with the fact that these gates are typically operated by persons other than small children. The 54-inch (1372 mm) latch height requirement limits the potential for small children to reach and activate the latch. If the latch is located lower than 54 inches (1372 mm), the code's prescriptive location requirements preclude the latch from being activated by small children who are not on the pool side of the gate.
9. Many residential settings with backyard pools use the dwelling as a portion of the barrier required around the pool, such as where the fence bounding the property terminates at the dwelling. This limits access to the pool by unsupervised children around the perimeter of the fence, but there is still a potential for children to access the pool from within the dwelling. Indeed, almost half the children involved in drowning or near-drowning accidents gained access to the pool from the dwelling.

   The provisions of this section restrict such access by small children and are applicable to all doors in walls that form a portion of the barrier required around swimming pools.

   Protection of such door openings to pool areas can be achieved in any one of the methods described in Items 9.1 through 9.3. The first alternative does not require protection of the exterior door itself but limits access to the pool by means of a power safety cover. The performance criteria specified when this option is selected assures that the power safety cover is an adequate and

reliable barrier to the pool. In item 9.2, the alarm is configured to allow adults who are accessing the house to open the door, enter the house, and deactivate the system to prevent a false alarm. The touchpad permitted to deactivate the system is required to be mounted 54 inches (1372 mm) above the floor, which is presumed to be beyond the reach of small children.

Item 9.3 permits doors to pool areas to be protected by devices that render the door self-closing and self-latching. Any other requirements would be performance based, as the code only requires equivalency with Items 9.1 or 9.2. One possible criterion could require the release mechanism for the latching device to be located a minimum of 54 inches (1372 mm) above the floor, which is presumed to be beyond the reach of small children. In addition, doors protected by the method specified in Item 9.3 should probably open away from the pool area. This is so that if the door failed to latch, a child outside the pool area pushing against the door would cause it to close and not swing to an open position.

10. The code permits the wall of the pool itself to serve as the barrier to the pool, provided that the wall extends at least 48 inches (1219 mm) above the finished ground level around the perimeter of the pool. Unless capable of being secured, locked, or removed, the ladder must be surrounded by a complying barrier to limit access to the ladder.

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

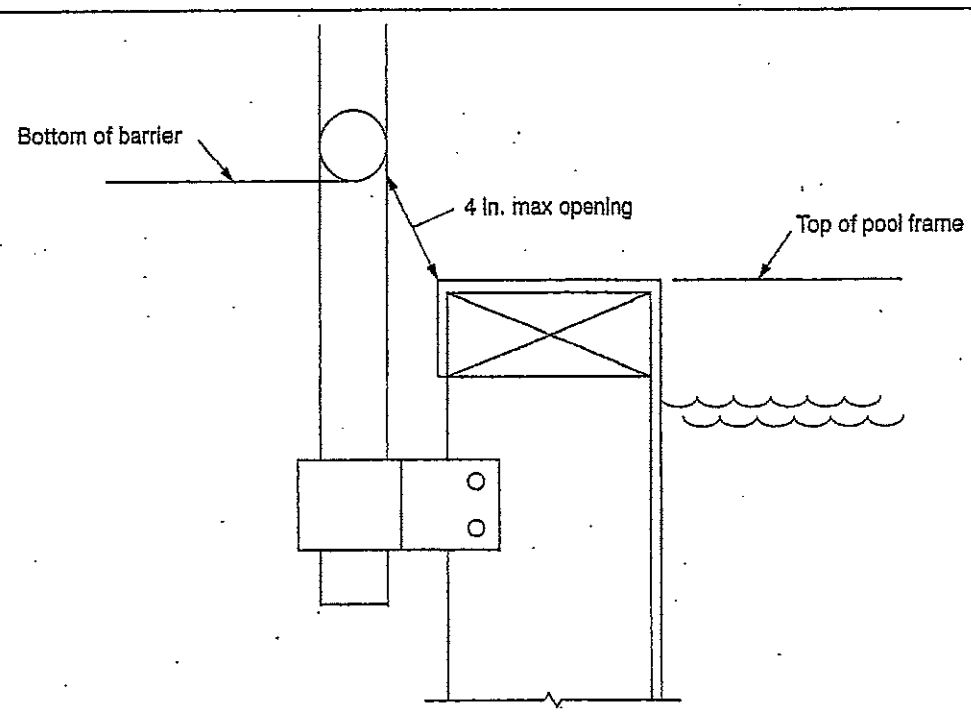
❖ Indoor pools represent the same hazards as outdoor pools. For this reason, the walls and doors surrounding an indoor swimming pool are regulated in the same manner as an exterior wall of a dwelling where the wall is used as a barrier for an outdoor pool. The provisions of Section AG105.2, Item 9 apply in their entirety.

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.

❖ The purpose of a swimming pool barrier would be defeated if children could climb on benches, planters, pumps, and similar permanent features adjacent to the barrier and gain access to the pool area. Therefore, the area adjacent to the barrier must be carefully designed and constructed to avoid such a condition. This provision is performance in character and must be reviewed on a case-by-case basis.

AG105.5 Barrier exceptions. Spas or hot tubs with a safety cover which complies with ASTM F 1346, as listed in Section AG108, shall be exempt from the provisions of this appendix.

❖ The provisions of this appendix chapter are not applicable to spas and hot tubs where an approved safety cover serves as the protective barrier. The requirements of ASTM F 1346 contain a number of criteria so that the safety cover can provide an equivalent level of

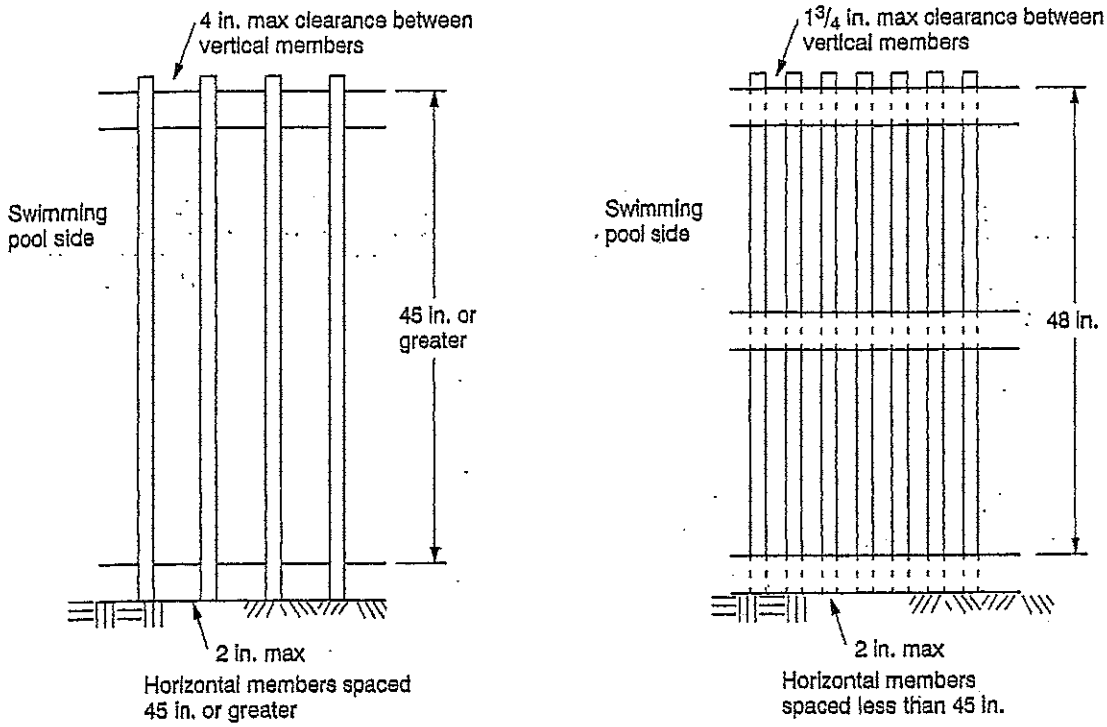


For SI: 1 inch = 25.4 mm.

Figure AG105.2(1)
OPENING LIMITATIONS

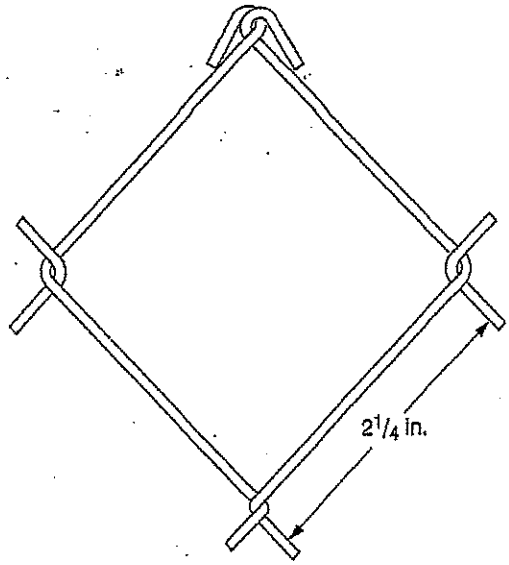
protection as that provided by a swimming pool enclosure barrier. The following requirements are representative of several of the specifications found in the standard:

1. There should be a means of fastening the safety cover to the hot tub or spa, such as key locks, combination locks, special tools or similar devices that will prohibit children from removing operating the cover. The fastening mechanism design, and location are vital components th help prevent a child's entry to the water.
2. The safety cover should have a label that pr vides a warning and message regarding the ris of drowning. The label is also very important f



For SI: 1 inch = 25.4 mm.

Figure AG105.2(2)
PRIVATE SWIMMING POOL BARRIER CONSTRUCTION



For SI: 1 inch = 25.4 mm.

Figure AG105.2(3)
CHAIN-LINK FENCE MESH FOR PRIVATE SWIMMING POOLS

ABOVE GROUND SWIMMING POOL CHECK LIST.

BASED ON THE 2009 M.R.C.

E4201.1 APPLIES TO BOTH PERMANT OR STORABLE

E4201.2 DEFINITIONS

PERMANENTLY INSTALLED. POOLS THAT ARE CAPABLE OF HOLDING WATER GREATER THAN 42 INCHES

STORABLE. CAPABLE OF HOLDING WATER WITH A MAX. DEPTH OF 42 INCHES. OR WITH NO METALLIC WALLS OR INFLATABLE FABRIC WALLS REGARDLESS OF DIMENSION.

E4207.1
STORABLE POOL PUMPS - CORD AND PLUG CONNECTED, DOUBLE INSULATED, FILTER PUMP, WITH A GROUNDING TYPE CORD.

E4207.2 GROUND-FAULT PROTECTED EQUIPMENT, INCLUDING POWER-SUPPLY CORDS.

E4207.4 RECEPTACLES SHALL BE LOCATED NOT LESS THAN 6 FEET FROM INSIDE WALL

E4202.1 GENERAL.
PERMANENTLY INSTALLED POOL WIRING METHODS TABLE E4202.1 AND CHAPTER 38 WITH EXCEPTIONS. NOTE: "NM" AND "UF" CABLES NOT PERMITTED TO BE USED OUTSIDE A BUILDING

E4202.2 FLEXIBLE CORDS

CORDS OTHER THAN FOR LIGHTING FIXTURES SHALL NOT BE LONGER THAN 3 FEET.

CORD CONDUCTORS NOT SMALLER THAN 12AWG.

E4203.1 RECEPTACLE OUTLET LOCATION.

RECEPTACLES THAT PROVIDE POWER FOR PUMP MOTORS SHALL BE LOCATED BETWEEN 6 FEET AND 10 FEET, SHALL BE A SINGLE AND LOCKING AND GROUND FAULT PROTECTED.

ALL OTHER RECEPTACLES NOT LESS 6 FEET FROM INSIDE WALL.

E 4203.1.2. GENERAL-PURPOSE RECEPTACLE OUTLET REQUIRED MIN. 6 FEET - MAX. 20 FROM POOL REQUIRED

E4203.1.3. ALL ~~[illegible]~~ 125 VOLT OR 240 VOLT RECEPTACLES OR DIRECTLY CONNECTED PUMP MOTOR REQUIRE GROUND FAULT PROTECTION.