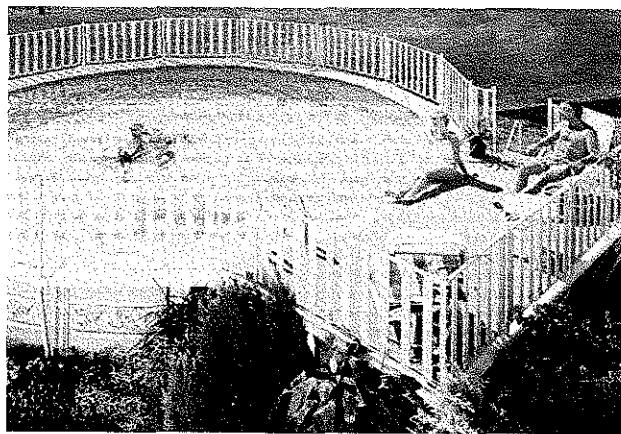
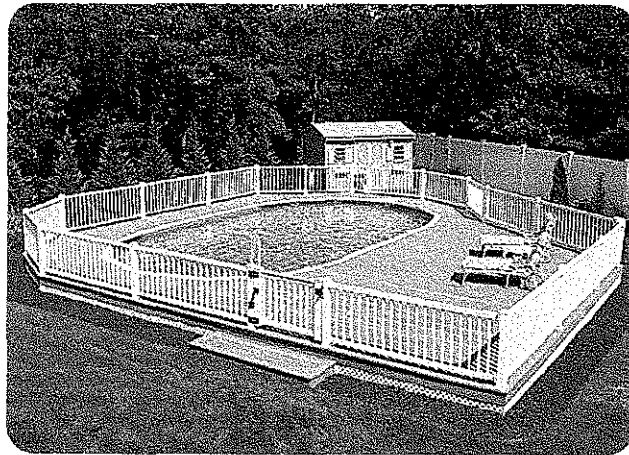


MA BUILDING CODES ON  
SWIMMING POOLS  
SECTION 780 CMR 120.M



**ABRIDGED GUIDELINES FOR MINIMUM  
REQUIREMENTS  
FOR ENCLOSURES FOR PRIVATE SWIMMING  
POOLS, SPAS AND HOT TUBS**

The following excerpt from the State Building Code (780 CMR) is provided as a public service to owners and Permittees. This is **NOT** to be considered as a substitute to the unabridged minimum requirements for enclosures for private swimming pools, spas and hot tubs as published in 780 CMR – Seventh Edition Massachusetts State Building Code.

**Please see the explanatory note at the end of the excerpt.  
780 CMR – 7th Edition Massachusetts State Building Code  
Please see the explanatory note at the end of the excerpt.**

**421.10 Enclosures for private swimming pools, spas and hot tubs:** *In lieu of any zoning laws or ordinances to the contrary*, private swimming pools, spas and hot tubs shall be enclosed in accordance with 780 CMR 421.10.1 through 421.10.4 or by other approved barriers.

**421.10.1 OUTDOOR PRIVATE SWIMMING POOL:** An outdoor private 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 finished ground level measured on the side of the barrier which faces away from the swimming pool. The maximum vertical clearance between finished ground level and the barrier shall be two 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 finished ground level, such as an above-ground pool, the barrier shall be at finished ground level, such as the pool structure, or shall be 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 four inches (102 mm).
2. Openings in the barrier shall not allow passage of a four-inch (102 mm) diameter sphere.
3. Solid barriers 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 1¼ inches (44 mm) in width. Decorative cutouts shall not exceed 1¼ 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 four inches (102 mm). Decorative cutouts shall not exceed 1¾ inches (44 mm) in width.

6. Maximum mesh size for chain link fences shall be a 1¼-inch (32 mm) square unless the fence is provided with 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 be not more than 1¾ inches (44 mm).

8. Access gates shall comply with the requirements of 780 CMR 421.10.1 items 1 through 7, and shall be equipped to accommodate a locking device. Pedestrian access gates shall open outwards 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: (a) the release mechanism shall be located on the pool side of the gate at least three inches (76 mm) below the top of the gate; and (b) the gate and barrier shall not have vertical opening greater than ½ inch (13 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 shall apply:

9.1. 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. The alarm shall have a minimum sound pressure rating of 85 DBA at ten feet (3048 mm) and the sound of the alarm shall be distinctive from other household sounds such as smoke alarms, telephones and door bells. The alarm shall automatically reset under all conditions. The alarm shall be equipped with manual means, such as touch pads or switches, to deactivate temporarily the alarm for a single opening from either direction. Such deactivation shall last for not more than 15 seconds. The deactivation touchpads or switches shall be located at least 54 inches (1372 mm) above the threshold of the door.

9.2. The pool shall be equipped with an approved power safety cover.

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 fixed or removable ladder or steps, the ladder or steps shall be surrounded by a barrier which meets the requirements of 780 CMR 421.10.1 items 1 through 9. A removable ladder shall not constitute an acceptable alternative to enclosure requirements. See below BBRs Affirmation.

**SEPTEMBER 17, 2007 BBR'S AFFIRMATION TO  
UTILIZE A RETRACTABLE, LOCKABLE LADDER IN  
LIEU OF FENCING OR OTHER BARRIER AROUND THE  
LADDER**

**GUIDANCE REGARDING OUTDOOR, ABOVE-GROUND SWIMMING POOLS**

There has been much discussion regarding whether or not an outdoor, above-ground swimming pool may be able to utilize a retractable, lockable ladder in lieu of fencing or other barrier around the ladder. (see the current 6<sup>th</sup> Edition Building Code, Section 421 or the new 7<sup>th</sup> Edition Building Code for One- and Two-Family Dwellings, Appendix 120.M).

After measured deliberation, the BBR's affirms the following:

1. The pool wall of an outdoor, above-ground pool (with pool walls extending at least 48 inches above grade at all points along the pool), substitutes for a fence or other barrier around the pool with the exception of the ladder area of the pool.
2. A retractable, lockable ladder, that cannot be removed (without tools or special knowledge available to a small child), which retracts, by hinge or sliding mechanism, to 48 inches or more above the finished grade level and has provision for securing in the retracted mode with a locking device, shall be considered an acceptable alternative to the applicable required enclosure (fence or other gate barrier) of the current 6<sup>th</sup> Edition Building Code, Section 421 or the new 7<sup>th</sup> Edition Building Code for One- and Two-Family Dwellings, Appendix 120.M.
3. The retractable ladder locking/release device must be located at least 54 inches above the finished grade level in immediate vicinity of the retractable ladder or such locking/release mechanism shall be located on the pool side of the ladder (forcing "reach around") and located at least three (3) inches below the top of the ladder and the ladder shall not have an opening greater than ½ inch within 18 inches of the locking/release mechanism.

**421.10.2 Indoor private swimming pool:** All walls surrounding an indoor private swimming pool shall comply with 780 CMR 421.10.1, item 9.

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

**421.10.4 Exemptions:** The following shall be exempt from the provisions of 780 CMR 421.0.

1. A spa or hot tub with an approved safety cover.
2. Fixtures which are drained after each use.

**421.11 Diving boards:** Minimum water depths and distances for diving hoppers for pools, based on board height above water, shall comply with Table FOR PRIVATE POOLS.

780 CMR 120.M

SWIMMING POOLS, SPAS AND HOT TUBS

780 CMR 120.M101 GENERAL

120.M101.1 General. The provisions of 780 CMR 120.M shall control the design and construction of swimming pools, spas and hot tubs.

*Note 1: Public and semi-public outdoor in-ground swimming pool enclosures shall conform to the requirements of M.G.L. c. 140, § 206.*

*Note 2: Also see 521 CMR 19.00: Recreational Facilities.*

*Note 3: Also see 105 CMR 430.000 and 435.000 as such regulates swimming pool requirements.*

*Note 4: Installation of electrical wiring and electrical devices shall be in accordance with 527 CMR 12.00: Massachusetts Electrical Code.*

*Note 5: Installation of gas-fired pool heaters shall be in accordance with 248 CMR (the Massachusetts Fuel Gas and Plumbing Code).*

780 CMR 120.M102 DEFINITIONS

120.M102.1 General. For the purposes of 780 CMR 120.M, the terms used shall be defined as follows and as set forth in 780 CMR 52.00.

**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 town-house not more than three stories in height.

**SPA, NONPORTABLE.** See "Swimming Pool."

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

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

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

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

780 CMR 120.M103 SWIMMING POOLS

120.M103.1 In-ground Pools. In-ground pools shall be designed and constructed in conformance with ANSI/NSPI-5 as listed in 780 CMR 120.M107.

120.M103.2 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 780 CMR 120.M107.

780 CMR 120.M104 SPAS AND HOT TUBS

120.M104.1 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 780 CMR 120.M107.

120.M104.2 Portable Spas and Hot Tubs. Portable spas and hot tubs shall be designed and constructed in conformance with ANSI/NSPI-6 as listed in 780 CMR 120.M107.

780 CMR 120.M105 BARRIER REQUIREMENTS

120.M105.1 Application. The provisions of 780 CMR 120.M shall control the design of barriers for residential swimming pools, spas and hot tubs. These design controls are intended to provide protection against potential drowning and near-drowning by restricting access to swimming pools, spas and hot tubs.

120.M105.2 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 two 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 four inches (102 mm).

780 CMR: STATE BOARD OF BUILDING REGULATIONS AND STANDARDS  
THE MASSACHUSETTS STATE BUILDING CODE

2. Openings in the barrier shall not allow passage of a four-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 four 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 dimensional members, such as a lattice fence, the maximum opening formed by the dimensional members shall not be more than 1.75 inches (44 mm).
8. Access gates shall comply with the requirements of 780 CMR 120.M105.2, 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 three 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 house-hold 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 780 CMR 120.M105.2., Item 9.1 or 9.2.

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 780 CMR 120.M105.2., Items 1 through 9. When the ladder or steps are secured, locked or removed, any opening created shall not allow the pass 120.Me of a four-inch-diameter (102 mm) sphere.

*Note that for private, above ground pools:*

1. *The pool wall of an outdoor, above-ground pool (with pool walls extending at least 48 inches above grade at all points along the pool), substitutes for a fence or other barrier around the pool with the exception of the ladder area of the pool.*
2. *A retractable, lockable ladder, that cannot be removed (without tools or special knowledge available to a small child), which retracts, by hinge or sliding mechanism, to 48 inches or more above the finished grade level and has provision for securing in the retracted mode with a locking device, shall be considered an acceptable alternative to the applicable required enclosure (fence or other gate barrier) of the 780 CMR 421 (6<sup>th</sup> Edition Building Code), or 780 CMR 120.M (7<sup>th</sup> Edition Building Code for One- and Two-Family Dwellings).*
3. *The retractable ladder locking/release device must be located at least 54 inches above the finished grade level in immediate vicinity of the retractable ladder or such locking/release mechanism shall be located on the pool side of the ladder (forcing*

*"reach around") and located at least three inches below the top of the ladder and the ladder shall not have an opening greater than 1/2 inch within 18 inches of the locking/release mechanism.*

*Exception: Public and semi-public outdoor in-ground swimming pool enclosures shall conform to the requirements of M.G.L. c. 140, § 206.*

**120.M105.3 Indoor Swimming Pool.** All walls surrounding an indoor swimming pool shall comply with 780 CMR 120.M105.2, Item 9.

**120.M105.4 Prohibited Locations.** Barriers shall be located so as to prohibit permanent structures, equipment or similar objects from being used to climb the barriers.

**120.M105.5 Barrier Exceptions.** Spas or hot tubs with a safety cover which complies with ASTM F 1346, as listed in 780 CMR 120.M107, shall be exempt from the provisions of 780 CMR 120.M.

#### **780 CMR 120.M106 ENTRAPMENT PROTECTION FOR SWIMMING POOL AND SPA SUCTION OUTLETS**

**120.M106.1 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.

*Note: Also refer to 105 CMR 430.000 and 435.000.*

**120.M106.2 Suction Fittings.** All Pool and Spa suction outlets shall be provided with a cover that conforms with ANSI/ASME A112.19.8M, or a 12I 12I drain grate or larger, or an approved channel drain system.

**Exception:** Surface skimmers

**120.M106.3 Atmospheric Vacuum Relief System Required.** All pool and spa single or multiple outlet circulation systems shall be equipped with atmospheric vacuum relief should grate covers located therein become missing or broken. Such vacuum relief systems shall include at least one approved or engineered method of the type specified herein, as follows:

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

**120.M106.4 Dual Drain Separation.** Single or multiple pump circulation systems shall be provided with a minimum of two suction outlets of the approved type. A minimum horizontal or vertical distance of three feet shall separate such outlets. These suction outlets shall be piped so that water is drawn through them simultaneously through a vacuum relief-protected line to the pump or pumps.

**120.M106.5 Pool Cleaner Fittings.** Where provided, vacuum or pressure cleaner fitting(s) shall be located in an accessible position(s) at least six inches and not greater than twelve inches below the minimum operational water level or as an attachment to the skimmer(s).

#### **780 CMR 120.M107 ABBREVIATIONS**

##### **120.M107.1 General.**

ANSI—American National Standards Institute  
11 West 42nd Street, New York, NY 10036  
ASTM—American Society for Testing and Materials  
1916 Race Street, Philadelphia, PA 19103  
NSPI—National Spa and Pool Institute  
2111 Eisenhower Avenue, Alexandria, VA  
22314

#### **780 CMR 120.M108 STANDARDS**

##### **120.M108.1 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-5-99 Standard for Residential In-ground Swimming Pools AG103.1

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

ANSI/ASME A112.19.8M-1987 Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, Hot Tubs and Whirlpool Bathing Appliances AG106.2

###### **ASTM**

ASTM F 1346-91 (1996) Performance Specification for Safety Covers and Labeling Requirements for All Covers for Swimming Pools, Spas and Hot Tubs AG105.2, AG105.5

###### **ASME**

ASME A112.19.17 Manufacturers Safety Vacuum Release Systems (SVRS) for Residential and Commercial Swimming Pool, Spa, Hot Tub and Wading Pool AG106.3

## Department of Inspections and Enforcement

*Development and Enforcement Center, 253 Main St., Greenfield, Mass, 01301*  
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FOR IMMEDIATE RELEASE

April 22, 2010

### TIPS AND RULES FOR SAFE SWIMMING POOLS

GREENFIELD – As Memorial Day approaches, many families are looking forward to a home swimming pool to keep cool this summer. In Massachusetts, certain rules exist to prevent tragic drownings and other accidents.

According to Building Commissioner Mark A. Snow, the Massachusetts State Building Code regulates swimming pools and bathing structures, including hot tubs, inflatable pools, temporary pools, on-ground pools, and above-ground pools. A building permit is required for any of these structures if its water depth is greater than two feet.

“If it is used for swimming or bathing and holds 24 inches or more of water, it’s a ‘real pool’. Many consumers buy do-it-yourself or temporary pools without realizing that they must comply with the same regulations as professionally-installed pools,” said Snow.

The most important factor in safe pool construction is preventing unauthorized access. To prevent accidental drowning, pools must have a 48” tall barrier around them, plus an approved gate latch. An above-ground pool must be 48” tall at all points for its walls to satisfy the barrier requirement. Their ladders must be retractable and locking. Hot tubs can use approved covers as a barrier.

“Every year, children and family pets needlessly die because proper precautions were not taken. Homeowners can be held liable if a neighbor dies in their unsecured pool or hot tub,” said Snow. Electrocutation can also occur if pool filtering equipment is improperly wired.

Snow cited adult supervision and vigilant use of safety features as extremely important.

The Building Department can guide Greenfield residents through the pool permitting/inspection process. Their office at 253 Main St. is open Monday-Friday, 8:30am to 5pm. Building applications are available at [www.greenfield-ma.gov](http://www.greenfield-ma.gov)