



Massachusetts Department of Public Health

105 CMR 435.00 Minimum Standards For Swimming Pools (State Sanitary Code: Chapter V)

Current EEA Safety Standards for Public and Semi-Public Swimming Pools Phase IV, Step 1

MHOA Presentation
April 28, 2021

Nicholas Gale

Environmental Analyst, Community Sanitation Program

Nicholas.Gale@mass.gov

435.01: Definitions

- **Public Pool** means every swimming, wading or special purpose pool, admission to which maybe gained by the general public with or without the payment of a fee.
- **Swimming Pool** means and includes every artificial pool of water having a depth of two feet or more at any point and used for swimming or bathing, located indoors or outdoors, together with the bathhouses, equipment, and appurtenances used in connection with the pool. It does not include any special purpose pool or residential pool as herein defined nor does it include any pool used primarily for baptismal purposes or the healing arts.
- **Semi-Public Pool** means a swimming, wading or special purpose pool on the premises of, or used in connection with a hotel, motel, trailer court, apartment house, condominium, country club, youth club, school, camp, or similar establishment where the primary purpose of the establishment is not the operation of the swimming facilities, and where admission to the use of the pool is included in the fee or consideration paid or given for the primary use of the premises. Semi-public pool shall also mean a pool constructed and maintained by groups for the purposes of providing bathing facilities for members and guests only.
- **Special Purpose Pool** means a unit designed for recreational and therapeutic use which is shallow in depth and not meant for swimming or diving. These pools are not drained, cleaned or refilled for each user. It may include, but not be limited to hydrojet circulation, hot water/cold water mineral baths, air induction bubbles, or any combination thereof. Industry terminology for such a pool includes but is not limited to, therapeutic pool, hydrotherapy pool, whirlpool, hot spa, hot tubs, float tanks, etc. This standard excludes residential units and facilities used or under the direct supervision and control of licensed medical personnel.
- **Wading Pool** means a pool of water in a basin having a maximum depth of less than two feet intended chiefly as a wading place for children. It does not include any residential pool as herein defined.

General COVID-19 Overview

- According to the CDC:
 - There is currently no evidence that the virus that causes COVID-19 can be spread to people through the water in pools
 - Proper operation and maintenance (including turnover rates, as well as disinfection with chlorine and bromine) of these facilities should inactivate the virus in the water
 - Temporary shutdown or reduced operation of a building and reductions in normal water use can create hazards, including mold and Legionella. Operators must ensure the water system is safe to use.
(<https://www.cdc.gov/coronavirus/2019-ncov/php/building-water-system.html>)

What is allowed in Phase IV, Step 1?

Outdoor/Indoor Public and Semi-Public Pools

- May open in Phase IV, Step 1 in accordance with current reopening guidance
- Inspected and licensed by LBOH for compliance with 105 CMR 435.00
- Self-assess and attest that pool meets the current [EEA Guidance Standards](#)
- LBOH and state can ask to see attestation and review practices in response to a complaint

Indoor/Outdoor Special Purpose Pools

Special purpose pools (hot tubs, whirlpools, therapy pools) are **CLOSED in Phase IV, Step 1**

Social Distancing and Face Coverings

Social Distancing

- At least 6 feet is required for all individuals outside of a household group throughout the facility, including deck areas, bathrooms, or wading areas
- No congregating in the water or on the pool deck
- In order to manage capacity and allow for social distancing, operators may consider limiting the time individuals or groups are allowed to use pool facilities

Exceptions to social distancing:

- Rescuing a distressed swimmer, providing first aid, or performing CPR
- Evacuating a facility due to an emergency

Swimming lessons that require contact are allowed in Phase IV, Step 1. Prolonged close contact should be minimized to the extent it is possible and safe to do so

Face Coverings/Masks

- Masks/face coverings are required to be worn in accordance with the most recent COVID-19 masking order
- Masks should not be worn while swimming

Exceptions for wearing masks at this time:

- Under 2 years of age
- Medical condition/behavioral health diagnosis
- Rely on lip-reading

COVID-19 at Pools

What to do in the event a patron or staff presents with COVID-19 symptoms

- Immediately isolate individual from others and transport the individual to a healthcare facility or their home

What to do in the event a patron or staff tests positive for COVID-19.

- Notify the Local Health Authorities
- May not return until they have met the requirements for discontinuing isolation
- Work with LBOH or MDPH to identify close contacts
- Close off all areas visited by ill person, increase ventilation to area

Cleaning for Sick or Positive Individuals:

- If <24 hours have passed since the person who is sick or diagnosed with COVID-19 has been in the space, clean and disinfect the space.
- If >24 hours have passed since the person who is sick or diagnosed with COVID-19 has been in the space, only cleaning is required (may choose to disinfect)

Recommended Cleaning at Pools

- Clean and disinfect shared equipment
 - Personal equipment used by a patrons (e.g., goggles, snorkels, diving masks, and lifejackets) may not be shared
 - Other common objects and common furniture should be cleaned between use and a system should be in place to separate clean from contaminated items
- Intensify cleaning paying extra attention to frequently touched objects and surfaces (<https://www.cdc.gov/coronavirus/2019-ncov/community/disinfecting-building-facility.html>) (<https://www.cdc.gov/coronavirus/2019-ncov/community/parks-rec/aquatic-venues.html>)
 - Indoor and outdoor surfaces (e.g., door handles, sink faucets, grab rails, etc.)
- Train staff on proper chemical use and encourage glove use while cleaning and disinfecting

Bathhouse and Sanitary Facilities

435.00 Requirements

Current EEA Guidance

435.03: Bathhouse and Sanitary Facilities

At public swimming pools:

- Provide adequate and separate dressing and sanitary facilities of ample size and well lighted, drained, ventilated.
- Patrons should be routed through the bathhouse to minimize street shoes and wet barefoot traffic, as well as encourage patrons to shower before entering the pool
- Provide showers (with hot and cold water), water closets/toilets, and washbasins

- Locker rooms and changing areas can be open at 50% capacity
- Restroom and/or shower facilities can be accessed through a locker room
- Facilities must provide access to showers in compliance with 105 CMR 435.00. Both indoor and outdoor showers may be used with consideration to social distancing and capacity limits.
- Ensure that users can abide by capacity restrictions and social distancing standards and are encouraged to establish signage and visual guidelines
- Signage should remind users to limit time spent in enclosed areas
- All handwash sinks shall be fully stocked with soap and paper towels
- Water bubblers, fountains, and bottle filling stations can open. Managers are encouraged to install signs near any drinking equipment advising users to use for bottle refill only.

M.G.L. c. 140, § 206

Public and Semi-Public Outdoor Inground Swimming Pool Enclosures and Safety Equipment

Every public and semi-public outdoor inground swimming pool shall be enclosed by:

- A 5 foot stockade fence, or
- A 6 foot chain-link fence
- Gates shall be self-latching with latches placed 4 feet above ground
- No openings/gaps greater than 3 inches

Safety Equipment: Any such pool shall be equipped with at least one life ring and a rescue hook

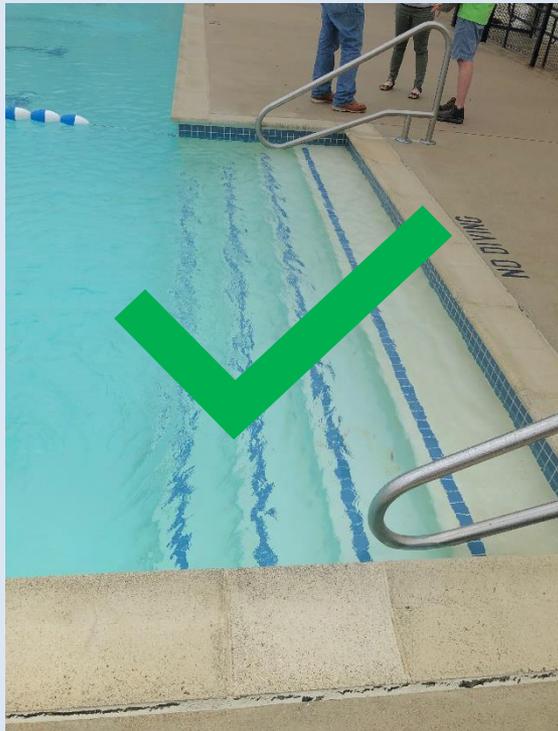
Every public and semi-public outdoor inground swimming pool shall be inspected annually by the inspector of buildings of each city and town in which said pool is located

- M.G.L. c. 140, § 206 now included in 780 CMR (Building Code)

No Projections!

105 CMR 435.05: Location; Structural Stability, Finish

(3) No projection except ladders and grab rails shall be permitted from any pool wall or floor surface, provided that a fill-spout may be constructed under the diving stand, rounded fittings projecting not more than two inches from the wall may be installed. **A recessed stairway shall not be considered a projection for the purposes of 310 CMR 12.00.** A safety ledge as described in 105 CMR 435.11(4) shall not be considered a projection for the purposes of 105 CMR 435.00.



Turnover Rates

435.06: Water Circulation and Filtration Systems

All swimming, wading and special purpose pools shall be equipped and operated with a system for recirculation and purification of the pool water. This system shall be capable of maintaining the water quality standards of 105 CMR 435.28 through 435.31. The over-all recirculation and purification system shall be so designed and constructed that the entire volume of the pool can be recirculated and filtered as follows:

Swimming pools: once every 8 hours

Wading pools: once every 4 hours

Special purpose pools: once every ½ hour

Water slide flumes: once every hour

$$\text{Turnover Rate} = \frac{\text{Pool Volume (gallons)}}{\text{Flow Rate (gallons/min)} \times 60 \text{ (minutes in hour)}}$$

Main Drains

435.08: Inlets and Outlets

- A main drain suction outlet(s) shall be provided in the lowest point of the pool floor
- At least two main drains shall be provided for every swimming or wading pool more than 30 feet wide
- The spacing of the main drain(s) or suction outlet(s) shall not be greater than 20 feet apart across from the deepest section of the pool nor more than 15 feet from the nearest side wall
- All outlets shall be covered with suitable protective covers or grates which have been tested and approved by a nationally recognized testing laboratory
- The main drain suction outlet(s) and outlet drain cover(s) shall, except skimmers, be installed in a way that they cannot be removed without the use of tools; the total velocity through grate openings shall not exceed two feet per second; the open area in the grates shall be of such design as to prevent physical entrapment of fingers, toes, etc.
- The system shall provide at least one anti-vortex main drain outlet. In depths of 4 feet 6 inches or less, the anti-vortex drain shall not provide a tripping or stubbing hazard to the feet

The *Federal Virginia Graeme Baker (VGB) Pool and Spa Safety Act*

- Main Drain and Equalizer Line covers must comply with federal law
- Covers have expiration dates
- Pool operator should maintain confirmation from manufacturer/installer that covers meet applicable standards, which includes the install and expiration dates

Water Depth Markings

435.12: Water Depth Markings

(1) The water depth of every swimming pool shall be plainly marked on **the pool deck** at the edge of the pool **and** on the **vertical pool walls**, at or above the water surface. Where depth markings cannot be placed on the vertical walls above the water level, other means shall be used so that the markings are clearly visible to persons in the pool. Markings shall be in dark colors, a minimum of 4 inches high, spaced at one-foot depth intervals in the shallow portion of the pool to a depth of five feet, and then at appropriate places of not more than 25 foot intervals around the deep portion of the pool.

* When non-swimmers use a pool, a polyethylene line with floats shall separate the non-swimmer area from deeper water (5 foot



Water Depth Markings (cont)

435.12: Water Depth Markings

(2) All painted swimming, wading and special purpose pools constructed, or drained after the effective date of these regulations shall have the boundary line between the shallow and deep areas marked with a 4 inch stripe of contrasting color on the floor and walls of the pool. Ledges and step edges shall also be marked with a 4 inch stripe of contrasting color.

(3) All tiled swimming, wading and special purpose pools constructed or drained after the effective date of these regulations for routine re-grouting or tile work shall have a boundary line between the shallow and deep areas installed with a 4 inch stripe of contrasting color on the floor and walls of the pool. Ledges and step edges shall also be marked with a 4 inch stripe of contrasting color.



Walkways and Decks

435.00 Requirements

Current EEA Guidance

435.13: Walkways and Decks

- Walkways shall be continuous around the pool with a minimum width of 4 feet of unobstructed clear distance including a curb at the pool edge, if such a curb is used
- Walkways with a width of 8 feet are desirable
- A minimum of 3 feet of walkway around any piece of diving equipment

- Consider using one-way signs on walkways and pool deck or visual guidelines for maintaining 6 feet distance in all restroom facilities to support social distancing and control flow of traffic
- Facilities should limit the number and spacing of items of pool deck furniture on premises to maintain social distancing
- Make regular announcements or post clear signage to remind pool staff and patrons to follow social distancing guidelines

A recommended method of maintaining social distancing could be using physical barriers such as plastic partitions, orange cones, rubber mats, tape and other easily cleanable products

Training

435.00 Requirements

Some necessary trainings for pool staff:

- Certified Pool Operator (CPO)
- Lifeguard
- CPR and First aid

DPH and LBOH cannot waive the certification/licensing requirements in the regulations. However, certifying organizations may have provided provisional certificates or extensions. If the individual or facility can provide record of a valid provisional or extension certificate from the certifying body, LBOH should accept the certification.

Current EEA Guidance

Plans and Training Requirements:

These may be incorporated into existing plans

- Establish protocols to ensure that employees can practice adequate social distancing
- Establish and maintain cleaning protocols specific to the business
- Provide training for employees regarding hygiene protocols
- Establish a plan for employees getting ill from COVID-19 at work, and a return-to-work plan

Pool Oversight

435.00 Requirements

Current EEA Guidance

435.17 – Pool Supervision

- All public and semi-public swimming pools in use, must have a pool supervisor
- The pool supervisor must:
 - Be at least 21 years of age
 - Versed in the 105 CMR 435.00
 - Be responsible for all phases of pool operation
 - Be a Certified Pool Operator (CPO)
 - Make sure on-site pool personnel are trained in pool operations and its equipment
 - Conduct a site visit at least once a week to ensure all operations and equipment are functioning correctly. These findings should be documented.
- If required by the LBOH, a pool supervisor, a lifeguard, a pool attendant, or any other trained person shall be on the premises at all times while the pool is open.

Pool Operators should:

- Be knowledgeable of the current EEA Safety Standards Guidance
- Train staff about social distancing and general sanitation best practices
- Develop protocols to assess staff at the beginning of each shift concerning COVID-19 symptoms
- Require frequent handwashing by staff, with soap and warm water for at least 20 seconds or the use of alcohol-based hand sanitizers or disinfecting wipes
- Operators must log visitors with appropriate contact information and make that information available upon request by state officials, LBOHs or their authorized agents

Signage

435.22: Health Regulations; Signs

The operator shall cause a sign to be placed at the entrance of the pool enclosure, or on a wall of the dressing room where one is provided, which reads substantially as follows:

"All persons are required to take a cleansing shower bath before entering the pool."

"No person with a communicable disease is allowed to use the pool."

Current EEA Guidance

Post signage at each public entrance to inform all pool staff and patrons that they should:

- Stay home if sick or in quarantine. Avoid entering the premises if symptomatic, e.g., a fever of 100.0 degrees Fahrenheit or above, unusual coughing, shortness of breath, headaches, chills, shaking chills, sore throat, muscle aches or pains, new loss of taste or smell, or whether they have felt feverish.
- Maintain 6 feet separation between individuals, except for household groups
- Sneeze/cough into cloth, tissue, elbow or sleeve. Discard tissue in trash cans
- Avoid hand shaking or physical contact except among household members
- Wash hands often with soap and warm water, and for at least 20 seconds
- Wear a face covering while not in the water

Lifeguards

435.00 Requirements

435.23: Lifeguards

- Lifeguard may be provided, if determined necessary by LBOH, for the safe use of the swimming pool
- As a guideline, it is suggested that 1 lifeguard be provided for each 25 bathers
- All lifeguards shall direct their attention to all persons in their assigned areas while on duty

Lifeguards should have:

- A red or orange bathing suit
- A red or orange shirt w/ GUARD in 4" lettering
- Sunblock
- Whistle, bull horn, or other voice amplification device
- Rescue tube

Current EEA Guidance

- Lifeguard staff who are actively monitoring pool safety **should not** be asked to monitor handwashing, use of face coverings, or social distancing of others. Other staff should be assigned this task
- Lifeguards must wear a face covering while out of the water if social distancing cannot be maintained and limit any close contact with other people to emergency situations

Safety! Safety! Safety!

435.24: Safety Equipment

- For each 2000 square feet of water surface area or fraction thereof, the operator shall provide, in readily accessible locations, at least 1 Ring Buoy:
 - U.S. Coast Guard approved
 - ¼ inch polyethylene rope attached
 - no less in length than 1½ times the width of the pool
- At those swimming pools that are staffed by lifeguards, there shall also be 1 Rescue Tube located at each lifeguard station
- A backboard with straps shall be readily available at each swimming pool which is attended by a lifeguard
- All outdoor, inground swimming pools shall be equipped with a rescue hook

435.25 : First Aid Equipment and Emergency Communication

First-Aid Kit: The operator shall provide a first-aid kit consisting of the following items and such other additional items or quantities of items as may be deemed necessary by the Board of Health: 35 1" band-aids; ten 3" x 3" sterile gauze pads; two 5" x 5" surgipads; one 8" x 10" surgipad; two 2" soft roller bandages; two 3" soft roller bandages; one ½" roll of hypoallergenic tape; one triangular bandage; one scissors; one tweezers; one rescue blanket; 12 antiseptic wipes; two disposable instant ice packs; one sterile isotonic buffered eye wash; two pairs of one-size-fits-all latex gloves; and one micro-shield or pocket mask with a one way valve.

Emergency Phone:

- Convenient, immediate and toll-free communication with emergency medical services, local police, state police and the local fire department, must be in working order and available at each pool
- Emergency telephone numbers and instructions necessary to operate the communication system, shall be posted in a conspicuous place near the communication device or station
- The location of the emergency communication device must be in an area that is unlocked and available to both the staff and the public at all times

Capacity Management

According to current EEA standards:

- Pool capacity must be managed to allow for social distancing
- Pool operators should set a maximum number of individuals that can be in a pool facility or pool area at one time
 - Maximum occupancy should be based on bather load or any building occupancy limits
 - **Should not exceed 50% of normal operating capacity**
- In order to manage capacity operators may consider:
 - Limiting the time individuals or groups are allowed to use pool facilities.
 - Instituting an online reservation system

Calculating Bather Load (435.27)

- **15 square feet** of pool water surface area in the non-swimmer area for each non-swimmer
- **20 square feet** in the swimming area for each swimmer expected at time of maximum load.
- **300 square feet** of pool water surface area reserved around each diving board or diving platform.
- **100 square feet** of pool water surface area reserved around each slide.

Chemical Standards

435.29: Chemical Standards

Chemical Test	Allowable Range (ppm)	Frequency (min. requirements)
pH	7.2–7.8	4 times daily
Alkalinity	50–150	Once per week
Calcium Hardness	150–1000 (Recommended)	Once per week
Free Chlorine (used as a disinfectant)	1.0–3.0	4 times daily
Combined Chlorine	0.0–0.2	4 times daily
Bromine (used as a disinfectant)	2.0–6.0	4 times daily

- Tests for residual disinfectant shall be made 4 times daily, once during the peak load by the pool operator, or more often if required by the Board of Health.
- Hydrogen-Ion Concentration (pH): Tests for hydrogen-ion concentration (pH) shall be made simultaneously with the residual disinfectant test by the pool operator of each swimming pool, and whenever else the Board of Health considers it necessary.
- Alkalinity and calcium hardness: Tests for alkalinity and calcium hardness shall be made weekly by the pool operator of each pool and whenever else the Board of Health considers it necessary.
- When electronic monitoring devices are used in conjunction with chlorine or bromine disinfection at a swimming, wading or special purpose pool, the operator shall check the disinfectant, pH and alkalinity levels manually at least once every 24 hours.
***The operator must still check and log both electronic and manual readings in the chemical log book at least 4 times daily!**

Chemical Standards

435.00 Requirements

Current EEA Guidance

435.29: Chemical Standards

- Tests for residual disinfectant shall be made 4 times daily, once during the peak load by the pool operator, or more often if required by the Board of Health
- If pool water does not conform with the requirements set forth in 105 CMR 435.28 through 435.31, the operator shall immediately close the pool until the pool water conforms with those standards

- Increasing the frequency of water chemistry testing during peak bather load periods
- If electronic and automated water chemistry testing monitors are used at the facility, conduct annual calibration to ensure accuracy
- Increasing pool shocking frequency each week during hours of pool closure
- Close immediately for maintenance and correction if the water chemistry does not meet minimum standards. All closures, maintenance, and corrections must be documented.

Water Circulation

Ensuring facilities meet the minimum turnover requirement specified in 105 CMR 435.00.

Water Testing Equipment

435.30: Water Testing Equipment

The operator shall provide and use a DPD test kit for measuring the concentration of chlorine or bromine and an appropriate test kit for measuring pH, alkalinity, and cyanuric acid levels at each swimming, wading and special purpose pool. The test kit shall be maintained in good repair together with an adequate supply of reagents that are no more than one year old. The requirements of 105 CMR 435.29 will not be superseded by the use of automatic equipment.

Recommended Test Kit: Taylor FAS-DPD K-2006 – allows user to test within the required ranges of 105 CMR 435.29

435.31: Water Clarity

At all times any swimming, wading or special purpose pool is in use, the water shall be sufficiently clear to permit a black disc six inches in diameter on a white field, when placed on the bottom of the pool at the deepest point, to be clearly visible from the sidewalks of the pool at all distances up to ten yards measured from a line drawn across the pool through said disc.

Chemical Log Book

Should Include:

- Date and times all tests are conducted
- Daily test results of Free Chlorine, Combined Chlorine, and pH (4 or more tests daily)
- Weekly test results of Alkalinity and Calcium Hardness (min. of 1 test per week)
- Water Clarity Assessment
- Notes which include, but not limited to:
 - Daily attendance
 - Daily chemicals used
 - Results of chemical and bacteriological tests
 - Pool emptying and cleaning, including backwashing of filters
 - Corrective action for test results found not to be within compliance, including pool closures and re-openings
 - Any other notes request by the Local Board of Health

*Records should be initialed by the person making the required tests

Other recommended items to include:

- Automatic equipment calibration/service
- Documents related to VGB main drain and equalizer line covers (expiration date)
- Emergency communication system checks
- Water chemistry test kit reagent information

Filter Room

Storage

- Chemicals should be stored off the ground, separately, and in secondary containment
- Clean and dry
- Chemical handling equipment available wherever chemicals are handled
- Exterior door labeled appropriately
- Area kept locked
- Mechanical ventilation

Filtration

- All pipes labeled with direction of flow
- Flow meters should be checked
- Free of leaks/no standing water

Other:

- Automatic disinfecting system, no manually adding chemicals into pool (could lead to areas with high chlorine concentration)
- The pool operator should walk you through their system, test their knowledge of their own system!

Conclusion

Questions??

Links

[Community Sanitation | Mass.gov](#)

[Executive Office of Energy and Environmental Affairs \(EEA\) COVID-19 Guidance Documents | Mass.gov](#)