



## **Cold Plunge Guidance Document**

### **Indiana Environmental Health Association**

**March 20<sup>th</sup>, 2025**

**Purpose:** To outline code requirements and best practices for operation and inspection of low-volume, prefabricated, single-user cold plunge or cold immersion therapy units that are not drained and refilled before each use and plug into a 110V wall outlet.

**Overview:** Cold water immersion or a cold plunge involves submerging the body in cold water, typically ranging from 50°F (10°C) to as low as 32°F (0°C), for a brief period of time. This practice has been around since 3500 BCE (Allan, 2022) but has gained popularity in recent years for its potential benefits in recovery, wellness, and mental clarity. As a result, many personal service establishments have increased the demand for cold plunge services.

Current studies focus on the positive physiological responses to cold water immersion, such as reduced muscle soreness, enhanced circulation, and mental resilience. However, the scientific community has also raised concerns regarding potential risk factors. Some of the predominant issues that arise with cold plunges are the potential risk factor of infection from shared use of the vessel, the reduced effectiveness of disinfection in colder temperatures, improper disinfection practices, and cleaning of the vessel (Mundy, 2018). There are also physical risks of cold water on skin and organs, including hypothermia and cardiovascular stress.

**Code Requirements:** Both the Indiana Swimming Pool Code (675 IAC 20) and the Indiana Public and Semi-Public Swimming Pools Rule (410 IAC 6-2.1) apply to both prefabricated and built-in-place cold plunge units that are not drained and refilled between each user. Additionally, the federal Virginia Grame Baker Pool and Spa Safety Act would apply to any units with submerged suction outlets.

#### **Swimming Pool Code (675 IAC 20)**

The Indiana Department of Homeland Security has determined that when these are put into place for public or semi-public use, they are to be regulated as public spas, as defined in 675 IAC 20-1.1-18(h). This means that the requirements of 675 IAC 20-3 apply to these

units. While the code applies to prefabricated cold plunge units, the Indiana Department of Homeland Security has taken the position that these specific prefabricated units, designed for one user at a time, of relatively low water volume (less than 200 gallons) and which plug into an existing 110V wall outlet do not need to obtain the required Design Release that all other spas must obtain. Highlighted portions of the code that apply to cold plunge units are listed below.

1. "Spa" means any basin that incorporates hot water jets, cold water jets, aeration systems, or any combination of the same for hydromassage. 675 IAC 20-1.1-18 (f)
2. "Spa, public" means any spa that is neither for the sole residential use of two (2) or less owner families and their guests nor spas that are operated for medical treatment or physical therapy under medical supervision. 675 IAC 20-1.1-18 (h)
3. Electrical equipment, system wiring, and grounding of all spa equipment and appurtenances shall be in accordance with 675 IAC 17, the Indiana Electrical Code. Refer to manufacturer's requirements. 675 IAC 20-3-5 (b)
4. Main drains shall conform to the requirements of ASME A112.19.8 (2007). Dual main drains (36" separation) are needed IF main drains are utilized. 675 IAC 20-3-6.1 (f)
5. Every spa shall be provided with an approved type of circulation system capable of turning over the entire spa water capacity in not less than thirty (30) minutes. 675 IAC 20-3-7 (a).
6. All circulation shall:
  - a. go through the spa filtration system; and
  - b. be chemically treated prior to injection into the spa. 675 IAC 20-3-7 (b)
7. Wastewater shall be discharged to a point in accordance with 327 IAC, the rules of the water pollution control board, through an approved airgap or other means in accordance with 675 IAC 16, the Indiana Plumbing Code. 675 IAC 20-3-8
8. Disinfectant equipment and chemical feeders shall be as follows:
  - a. Capable of automatically providing a continuous residual chemical effect in accordance with 410 IAC, the rules of the Indiana state department of health. 675 IAC 20-3-10(1)
  - b. Of an approved type. 675 IAC 20-3-10(2)

While 675 IAC 20 applies to all prefabricated and built-in-place cold plunge units, there are code requirements that are challenging if not impossible for these units to meet. The IEHA cold plunge committee has recommended that the code requirements below not be enforced on recirculating, low-volume, prefabricated, single-user cold plunge or cold immersion therapy units that plug into a 110V wall outlet.

1. Plans and specifications of all public spas shall be submitted under 675 IAC 12-6 for design release prior to the construction, rehabilitation, or alteration of any public spa. 675 IAC 20-3-0.5 (a)
2. Public spas shall not be less than one thousand (1,000) gallons in volume. 675 IAC 20-3-2 (c)
3. Spas shall be provided with not less than one (1) handrail or ladder for every fifty (50) feet of perimeter or portion thereof. 675 IAC 20-3-3 (a)
4. A deck not less than four (4) feet in width shall surround not less than fifty percent (50%) of the perimeter of a spa. 675 IAC 20-3-4 (a)
5. An emergency shutdown device shall be installed that will immediately cut power to the pump serving the main outlets. 675 IAC 20-3-5 (c)
6. All spas shall have a surface skimming (overflow) system AND dual drain outlets at the lowest point on the spa floor. 675 IAC 20-3-6 (c)  
*(Note: These small, prefabricated units will usually have a surface skimming system OR a pair of main drains separated by three feet, but not both. It is not practically necessary to have both main drains AND a surface skimming system on such a small basin of water. However, they DO need to comply with the requirements for whichever water removal system they have – skimmers, main drains, or both.)*
7. Note: sanitary facilities are not required for public and semi-public spas.

#### **Public and Semi-Public Swimming Pools Rule (410 IAC 6-2.1)**

Requirements in the public and semi-public swimming pools rule for a spa should be met by cold plunge units, but the codes below are particularly important for patron health and safety.

1. "Spa" means a pool designed for recreational or therapeutic, or both, use, commonly known as a hot tub or therapy pool, that is not drained, cleaned, and refilled after each use. 410 IAC 6-2.1-18
2. All pools, when open for use, shall be continuously and automatically disinfected with a chemical that imparts an easily measured, free residual. 410 IAC 6-2.1-30 (a). Note: This must be an EPA registered disinfectant.
3. A free residual of the disinfectant chemical shall be maintained throughout the pool at concentrations in accordance with the following:  
     [Minimum for spa pools 2.0 ppm chlorine or 4.0 ppm bromine].  
     [Maximum for spa pools 7.0 ppm chlorine or 10.0 ppm bromine].  
     410 IAC 6-2.1-30 (b)

4. The pool water shall be superchlorinated to breakpoint or superoxidized with a nonchlorine oxidizer when the pool test kit reveals a combined chlorine (chloramine) concentration of five-tenths (0.5) parts per million (ppm) or greater. *410 IAC 6-2.1-30 (e).*
5. The water in a pool shall have a pH of not less than seven and two-tenths (7.2) and not more than seven and eight-tenths (7.8). *410 IAC 6-2.-30 (k)*
6. Chlorinated isocyanurates and cyanuric acid stabilizers shall not be used in any indoor pool. This includes all trichlor and dichlor. *410 IAC 6-2.1-30 (k)*
7. A test kit shall be readily available for use by the pool operator, with reagents replaced according to manufacturer's requirements. *410 IAC 6-2.1-30 (i)*
8. Spa water shall be tested for pH and disinfectant residuals daily before the spa is open for use and at least two (2) other times during the hours of spa use. The following testing is also required:
  - (1) Combined chlorine at least twice a week when chlorine is used.
  - (2) Total alkalinity at least once a week. *410 IAC 6-2.1-30 (p)*
9. All results shall be recorded. *410 IAC 6-2.1-30 (q)*
10. Operating records shall be logged daily, kept for a minimum of one (1) year, and be available upon request by the department. *410 IAC 6-2.1-38 (a)*
11. A bacteriological sample must be taken weekly from each unit. A satisfactory sample result must be obtained before a unit opens for use. Bacteriological examinations performed on each sample shall include the heterotrophic thirty-five (35) degree Centigrade plate count, and a total coliform test using either the:
  - (1) multiple tube fermentation test;
  - (2) membrane filter test; or
  - (3) one hundred (100) milliliter presence/absence test.Tests shall be performed by a state-approved laboratory in accordance with the procedures outlined in Standard Methods. *410 IAC 6-2.1-31 (c)-(f)*
12. The turnover rate for spas shall be once every half hour. *410 IAC 6-2.1-32 (a)*
13. A suitable means shall be provided to measure the flow of water through the pool water recirculation system. *410 IAC 6-2.1-32 (c)*

While 410 IAC 6-2.1 applies to all prefabricated and built-in-place cold plunge units, there are code requirements that are unreasonable to require, and so the IEHA cold plunge committee has recommended that these code requirements below not be enforced on recirculating, low-volume, prefabricated, single-user cold plunge or cold emersion therapy units that are not drained and refilled before each use and plug into a 110V wall outlet.

1. Pool and spa signage required under 410 IAC 6-2.1-36
2. Depth markers required under 410 IAC 6-2.1-34

3. *Note: lifesaving and safety equipment (i.e. shepherd's crook, ring buoy, and spine board) are not required for public and semi-public spas. See 410 IAC 6-2.1-34*  
First aid kits with blankets are still recommended. See 410 IAC 6-2.1-34(d)

### **Best Management Practices:**

The following are recommended best management practices but are not enforceable laws.

1. Testing before each use. The cold-water temperature may affect the efficacy of chemical test results. Consult with your test kit manufacturer for further guidance. Letting the water sample taken sit for a few minutes at room temperature prior to testing may improve the accuracy of test results. The chemicals tests are most accurate when the water temperature is between 54-91 degrees.
2. Facility should provide educational information for all users on the risks of cold-water immersion.
3. Water replacement should take place at least weekly or more frequently when bather load is high. This is the best way to address high Chloramines.
4. Facility should establish a policy on age limits and use. Use by anyone under 18 should be approved by physician and supervised at all times.
5. Facility should establish a policy for users who are pregnant and/or have certain health conditions that may put them at an increased risk for adverse outcomes such as hypothermia.
6. Certified Pool Operator (CPO) certification is recommended. Local health departments should ensure operators understand the basics of water chemistry and spa operations.
7. Facility should comply with the manufacturer recommendations except where they may conflict with state and local rules or regulations.

### **References:**

Allan, R., Malone, J., Alexander, J., Vorajee, S., Ihsan, M., Gregson, W., Kwiecien, S., & Mawhinney, C. (2022). Cold for centuries: a brief history of cryotherapies to improve health, injury and post-exercise recovery. *European journal of applied physiology*, 122(5), 1153–1162. <https://doi.org/10.1007/s00421-022-04915-5>

Mundy L. Microbiological risks of ice baths and hot/cold immersion therapy used for post-exercise recovery. Queensland: Gold Coast Public Health Unit; 2018. Available from: <https://www.ehaqlld.org.au/documents/item/1076>.

675 IAC 20 Indiana Swimming Pool Construction Code:

<https://www.in.gov/health/eph/files/675-IAC-20-Swimming-Pool-Code.pdf>

410 IAC 6-2.1 Indiana Public and Semi-Public Pool Rule:

<https://www.in.gov/health/eph/laws-rules-and-forms/410-iac-6-21-public-and-semi-public-pools>

Virginia Graeme Baker Pool and Spa Safety Act (VGBA):

<https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/2020-01/wmb-entrapment-vgb-act.pdf>