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## WISCONSIN STATE LEGISLATURE ... PUBLIC HEARING - COMMITTEE RECORDS

2007-08

(session year)

Joint

(Assembly, Senate or Joint)

Committee for Review of Administrative Rules...

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- Miscellaneous ... **Misc**

\* Contents organized for archiving by: Stefanie Rose (LRB) (August 2012)

**Table 90.11-1**  
**Dimensions Related to Figure 90.11-1**

Type of Pool		Depths			Lengths						
		D-1 <sup>1</sup>	D-2	D-3	A <sup>2</sup>	B	C	D	E	F <sup>3</sup>	G <sup>3</sup>
With 26" (2/3 M) Diving Board	Min	5'0"	9'0"	8'6"	2'6"	**	10'0"	5'0"	10'0"	*	*
	Max	D-2	*	D-2	3'0"	*	*	*	*	10'0"	20'0"
With 30" (3/4 M) Diving Board	Min	5'0"	10'0"	9'6"	3'0"	**	12'0"	5'0"	10'0"	*	*
	Max	D-2	*	D-2	4'0"	*	*	*	*	10'0"	20'0"
With One Meter Diving Board	Min	5'0"	11'0"	10'6"	4'0"	**	15'0"	8'0"	10'0"	*	*
	Max	D-2	*	D-2	5'0"	*	*	*	*	10'0"	20'0"
With 3 Meter Diving Board	Min	5'0"	12'0"	11'6"	5'0"	**	18'0"	10'0"	15'0"	*	*
	Max	D-2	*	D-2	6'0"	*	*	*	*	10'0"	20'0"

\* No limiting dimension.

\*\* Distance is as required by the diving equipment manufacturer.

<sup>1</sup> The D-1 measurement shall be taken at the end wall or not more than 6 inches from the wall.

<sup>2</sup> The diving board length extending over the pool shall not be less than "A" and in accordance with the diving equipment manufacturer's installation instructions.

<sup>3</sup> This dimension is only applicable to pools with wall inlets.

**(4) BASIN OBSTRUCTIONS.** (a) 1. Protrusions, extensions and other functional elements within a basin may not create a safety hazard.

2. Protrusions, extension and other functional elements may not negatively impact the circulation system.

3. When an obstruction is a recreational object in water of 24 inches or more in depth, the obstruction shall be a color that contrasts with the color of the basin.

4. Basin obstructions in public swimming pools shall be no more than 2 feet in diameter, protrude undiminished in diameter to at least 5 feet above the pool floor and no less than 3 feet above the water level.

5. Obstructions including handrails, exercise equipment and therapy structures may only be installed in therapy pools.

(b) Stair and ladder handrails are not considered basin obstructions when installed in accordance with s. Comm 90.12.

**(5) WALLS AND BULKHEADS.** (a) *Basin walls.* 1. Basin walls shall be vertical.

2. Except for vanishing edge designs, basin walls shall extend above the highest water level at all times during operation.

3. Protruding corners shall be rounded so as to protect users from lacerations.

(b) *Interior walls and common walls.* In addition to the requirements in par. (a), interior walls and common walls may not exceed 18 inches in width.

(c) *Bulkheads.* Bulkheads may be installed only in pools with a department of health services-approved lifeguard staffing plan that addresses supervision of the bulkhead.

**(6) COLORS AND FINISHES.** (a) All pool interiors shall be light in color, having a value of 6.5 or greater on the Munsell color-order system.

(b) All colors, patterns or demarcation lines may not negatively impact observer's visualization of bathers.

(c) All demarcation lines shall be of contrasting color to the pool interior.

**(7) FLOOR SLOPE** (a) Basin floors shall slope to drain.

(b) Basin floor slopes may not exceed 1:12 in water depths less than 5 feet.

**(8) TRANSITIONAL RADIUS.** (a) Basin walls shall be joined to the floor with a tangent radius.

(b) For areas less than 5 feet in depth, the maximum radius between the floor and the basin wall shall be 6 inches.

**Note:** See the appendix for information on measuring the radius dimension.

**(9) WATER DEPTHS.** (a) Basin depths for diving areas shall comply with Table 90.11-1.

(b) Basin depths for slide installations shall comply with Table 90.31-1.

(c) Except as permitted for wading pools in s. Comm 90.20, the shallowest water depth of the shallow end of pools shall be a minimum of 30 inches and a maximum of 42 inches.

(d) The water depth at the breakpoint in a combination pool shall be no less than 4.5 feet and no more than 5.5 feet.

**(10) VANISHING EDGES.** A single vanishing edge basin wall occupying a maximum of 50% of the basin perimeter may be included within a water attraction when all of the following are included in the design:

(a) The vanishing edge is located adjacent to water that is at least 5 feet deep.

(b) A catch ledge, a minimum of 3 feet in width or equivalent protection, is included on the dry side of the basin wall.

(c) The catch ledge shall be located outside of the basin within 3 feet vertically from the top of the basin wall.

(d) The catch ledge shall be designed to prevent a patron from rolling off the catch ledge.

(e) The catch ledge surface shall be constructed of materials that will not cause injury from abrasions or lacerations.

**Note:** See the appendix for further information on the design of vanishing edge basin walls.

**Comm 90.12 Entries and exits, stairs, ladders, swimouts and benches. (1) ENTRIES AND EXITS.** The minimum number, type and location of entries and exits shall be in accordance with Table 90.12-1.

**Table 90.12-1  
Entry and Exit Locations and Type**

Basin Type	Entry and Exit Requirements
<b>POOLS</b>	
Swimming Pools	Minimum of two exits Exits within 75 feet along perimeter
Therapy Pools	As approved by the Department
Wading Pools	Minimum of 50 percent of the pool
Whirlpools or Cold Soak Pools	Recessed stairs 25 feet from any point in the pool <sup>a</sup>
<b>WATER ATTRACTIONS</b>	
Wave Pools	Entry and exit at zero-depth entry, only <sup>b</sup>
Activity Pools	Exits within 50 feet from any point in the pool
Plunge Pools	Entry from slide, only Exits within 50 feet from any point in the pool <sup>a</sup>
Leisure Rivers	Minimum of one entry and exit
Vortex Pools	Minimum of one entry and exit
<b>DIVING AREAS as delineated in s. Comm 90.11 (3)</b>	
Diving Areas	On the perimeter of the pool within 50 feet of any point in the diving area <sup>a</sup>
<b>Other Basin Types</b>	Contact the department

<sup>a</sup> Travel to stairs is measured as the most direct path within the basin.

<sup>b</sup> Emergency exits may be permitted with written approval of the department.

**(2) ZERO-DEPTH AND SHALLOW ENTRIES.** (a) Except as permitted in par. (b) stairs, ladders, recessed treads and swimouts may serve as acceptable entries and exits.

(b) Where the distance from the pool floor to deck surface is 24 inches or less, such areas shall be considered as providing their own natural mode for entry and exit.

**(3) STAIRS AND HANDRAILS.** (a) *Stairways.* 1. Stairways shall be located only in areas of the basin with less than 5 feet of water depth.

2. Stairways shall be recessed so as not to protrude onto the basin floor.
3. All risers at the centerline shall have a maximum uniform height of 10 inches.
4. All treads shall have a minimum depth of 10 inches.
5. Stairways shall have a minimum width of 17 inches.
6. All treads shall have a minimum unobstructed surface area of 240 square inches.
7. Except as permitted in subd. 8., treads may not project beyond the face of the riser.

8. The maximum cantilevered coping at the deck level is one inch.

9. a. Except as required in subd. 9. b., stairways shall extend to the basin floor.

b. When stairways are located in a water depth over 4 feet, the lowest tread shall be not more than 4 feet below the deck.

10. The bottom riser height shall be allowed to vary from the other risers as may be required to meet the floor.

11 The leading edge of all steps shall be distinguished by a color contrasting with the color of the steps and pool floor.

12. All step corners shall be rounded to a radius of 1/2 inch.

(b) *Handrails.* 1. Handrails shall be provided for all stairways and ramps.

2. Handrails shall be located between 30 and 34 inches above the ramp surface or nosing of the stair treads.

3. Handrails shall be a maximum of 8 feet apart at deck level.

4. Handrails shall return to the pool wall, guard or deck or shall be continuous to the handrail of an adjacent stair.

5. Handrails shall be made of corrosion resistant materials.

6. Handrails shall be securely anchored.

7. Handrails shall be installed so they cannot be removed without the use of tools.

8. The leading edge of stair tread mounted handrails shall be located on the bottom tread.

9. The leading edge of entirely deck mounted handrails shall be located so as to extend to within 3 inches of the vertical plane of the bottom riser.

**Note:** See the appendix for further clarification of deck mounted hand rail installation.

10. The outside diameter of handrails shall be a minimum of 1-1/4 inches and may not exceed 1-15/16 inches.

11. There shall be at least 3 inches but not more than 6 inches clearance between the pool wall and the handrail.

**(4) LADDERS.** (a) Ladders shall be provided with two handrails.

(b) There shall be at least 3 but not more than 6 inches clearance between the basin wall and the ladder.

(c) The distance between ladder handrails shall be 17 inches minimum and 24 inches maximum.

(d) There shall be a uniform distance between ladder treads with a 7-inch minimum distance and 12-inch maximum distance.

(e) Ladder treads shall have a minimum horizontal uniform depth of 2 inches.

**(5) RECESSED TREADS.** (a) Recessed treads in a basin wall shall have a uniform vertical spacing of no less than 7 inches and no greater than 12 inches measured at the centerline.

(b) The vertical distance between the pool coping edge, deck or step surface and the uppermost recessed tread shall be 12 inches maximum.

(c) Recessed treads shall have a depth of no less than 5 inches and width of no less than 12 inches.

(d) Recessed treads shall drain into the pool.

(e) Recessed treads shall be provided with a handrail on each side of the treads.

**(6) SWIMOUTS.** (a) The horizontal surface of a swimout may not be greater than 20 inches below the waterline.

(b) A minimum unobstructed surface equal to that required for a stair under sub. (5) shall be provided in a swimout.

(c) The leading edge of a swimout shall be visually set apart with a marking color to contrast with the swimout.

(d) A swimout may occupy no more than 20 percent of the perimeter of the basin.

(e) The horizontal surface of a swimout may extend no further than 48 inches from the main basin wall.

**(7) UNDERWATER SEATS AND BENCHES.** (a) Underwater seats and benches shall be located in a recessed area to eliminate any protrusion beyond the main basin wall except in whirlpools and cold soak pools.

(b) 1. The width of the bench seat may not exceed 18 inches.

2. The depth of the water above the bench seat may not exceed 20 inches.

(c) The surface of all underwater seats and benches shall be of a color in distinct contrast to the color of the surrounding basin or have a 2-inch leading edge of contrasting boundary line.

(d) The words "bench below" shall be placed on the deck at the edge of the basin at the bench area in a color in distinct contrast to the deck background.

(e) Underwater seats and benches may not be considered an entry or exit.

**(8) LIFT CHAIRS.** Water supply outlets serving lift chairs shall terminate within 18 inches of the chair's support post.

**Comm 90.13 Deck. (1) MINIMUM DECK.** (a) Except as permitted in pars. (b) to (e), deck shall extend around the entire perimeter of all basins within the same enclosure.

(b) A water attractions shall be provided with deck immediately adjacent to a basin where patrons are allowed to walk.

(c) A wading pool shall be provided with deck around at least 50 percent of the basin perimeter.

(d) A whirlpool shall be provided with deck around at least 50 percent of the basin perimeter.

(e) A therapy pool shall be provided with deck at all entry and exit points.

**(2) DECK WIDTH.** (a) Except as required in pars. (b) to (e) deck shall extend for at least 6 feet from all basins.

(b) Deck shall extend for at least 5 feet from a whirlpool basin.

(c) Deck shall extend for at least 3 feet around deck obstructions and equipment.

(d) Deck shall extend for at least 12 feet from a basin with a water depth exceeding 24 inches to a basin with a water depth less than 30 inches or an interactive play attraction.

(e) Deck shall extend for a minimum 15 feet from a basin to locker or shower room doors where the basin meets all of the following criteria:

1. The basin consists of 3,500 square feet of water surface.
2. The basin has a water depth exceeding 24 inches.

(f) Deck required in par. (e) shall extend for at least 12 feet wide at all locker or shower room doors.

(g) Deck areas that do not provide the minimum deck required in pars. (b) to (f) shall be installed so as to permanently prohibit public access from the deck.

**Note:** See appendix for further information.

**(3) DECK OBSTRUCTIONS.** (a) Except as permitted in par. (c), deck obstructions, including roof support columns, may be no greater than 2 feet in diameter and of contrasting color so as to provide adequate clearance, safety, visibility and access where a department of health services- approved lifeguard staffing plan is not required.

**Note:** Deck obstructions include pillars, play equipment and themeing. Equipment includes but is not limited to ladders, life guard chairs, lift chairs and handrails.

(b) Deck obstructions shall extend a minimum of 3 feet above the deck so as not to create a tripping hazard.

(c) Deck obstructions may occupy a maximum of 10 percent of the pool perimeter for basins where a lifeguard staffing plan is not required.

**(4) IN-DECK VENTILATION SYSTEMS.** (a) Ventilation registers in decks shall be installed so that water flowing from the surrounding pool deck will not enter the registers, but will flow to the deck drains serving the deck.

(b). Ventilation registers in decks shall be installed so that the registers are one inch higher than the deck drain grating.

(c) Where ventilation registers are installed in decks, the owner of the facility shall obtain approval from the Department of Health Services for their means of deck maintenance.

**(5) DECK SLOPES.** (a) Except as permitted in subds. 2. and 3., interior decks shall be sloped so as to effectively drain to deck drains.

1. The maximum slope of interior decks shall be ½ inch per foot.

2. A maximum of 6 feet of deck adjacent to a plunge pool exit, stairway or runout slide terminal section may discharge to the surge tank.

3. A maximum width of 20 inches of deck between a wall and a basin may discharge to the basin.

(b) 1. Except as permitted in subd. 2., exterior decks shall be sloped a maximum of ½ inch per foot as to effectively drain to deck drains, perimeter areas or to the plumbing storm system.

**Note:** See s. Comm 82.36 for plumbing storm system design information.

2. Exterior elevated decks may be drained to underlying soils to infiltrate.

(c) Decks shall be constructed so that standing water shall be no deeper than 1/8 inch, 20 minutes after the cessation of the addition of water to the deck.

**Note:** Two USA quarters may be stacked in order to test the standing water depth.

**(6) DECKS, RAMPS AND WALKING AND STEP SURFACES.** (a) 1. Decks, ramps walking and step surfaces shall be nontoxic.

2. Surfaces shall be slip resistant.

3. Surfaces shall be easily cleanable.

4. Surfaces shall not cause injury to user's feet under normal conditions.

(b) The deck edge that pool patrons may come in contact with shall be radiused, tapered or otherwise relieved to minimize sharpness.

**(7) JOINTS.** (a) The maximum joint width between pool decks and other decks or walkways, including joint material, shall be 3/8 inch of horizontal clearance with a maximum difference in vertical elevation of ¼ inch.



**Note:** This section refers to joint widths between the pool deck and other adjacent decks.

(b) Construction joints between pools and concrete decks shall be watertight.

**(8) DECK STAIRS.** (a) Exterior deck stair risers shall be uniform and have a minimum height of 4 inches and a maximum height of 7 inches.

(b) Exterior deck stair treads shall be uniform and have a minimum depth of 11 inches.

(c) A handrail shall be provided along both sides of stairs having more than one riser including the riser to the deck.

(d) The height of the handrail shall be at least 34 but not more than 38 inches above the nosing of the tread.

(e) Handrails shall return to the pool wall, guard or deck or shall be continuous to the handrail of an adjacent stair.

(e) Handrails shall be located at the outside edge of stairs.

**Note:** Interior deck stairs shall comply with the requirements in the chs. Comm 60 to 66, the Commercial Building Code.

**(9) SERVICE EQUIPMENT.** (a) *Access to valves.* 1. Valves installed in or under any deck shall have access provided for operation, service and maintenance.

2. Access covers shall be provided for valve pits.

(b) *Cleaning.* 1. One hose bibb shall be provided in each public swimming pool or water attraction equipment room.

2. Additional hose bibbs shall be provided as necessary, and at intervals so as to permit adequate cleaning of the deck and toilet facilities using a maximum of 100 feet of hose when laid across the deck surface.

**(10) LANDSCAPING.** (a) Landscaping within the barrier required in s. Comm 90.18 (4) shall comply with at least one of the following:

1. Organic material and inorganic pervious material shall be separated from the otherwise required deck by an additional 5 feet of deck.

2. Organic material and inorganic pervious material shall be installed in a 4-inch depression surrounded by a 42 inch high barrier.

(b) Sand play areas may not be located within a pool enclosure unless all of the following are met:

1. The sand play area is separated from the deck by a 42 inch high rope and bollard or other fence barrier.

2. Foot or body showers shall be provided at any entrances to the deck from the sand play area.

3. Sand play areas shall be located outside the deck required in subd. (2).

**Comm 90.14 Circulation systems.** A water circulation system consisting of pumps, piping return inlets and suction outlets, filters and other necessary equipment shall be provided that complies with all of the following requirements:

(1) **TURNOVER RATE.** Circulation system equipment shall be designed to produce a turnover rate as specified in Table 90.14-1 or Table 90.14-2.

Note: See the appendix for further information.

**Table 90.14-1  
Maximum Turnover Rates<sup>a</sup>**

Area/Basin Type <sup>b</sup>	Maximum Turnover Rate (hours) <sup>c</sup>
Swimming/Diving Activity	6
Interactive Play Attraction	2 <sup>d</sup>
Lap Lanes	0.5
Leisure River	6
Plunge	2
Runout Slide	1
Vortex	1
Wave	1
Cold Soak	2
Wading Pool	4
Whirlpool	1
	0.5

<sup>a</sup> Calculate an average turnover time for multi-sectional basins.

<sup>b</sup> For pool types not listed herein, contact the department.

<sup>c</sup> Based on flow and pressure drop with a clean filter condition.

<sup>d</sup> Or as otherwise approved by the department.

**Table 90.14-2  
Therapy/Exercise Turnover Times**

Temperature in °F	Load <sup>a</sup> (gals/person)	Maximum Turnover Time (hours)
< 72 – 93	≥ 2,500	4
< 72 – 93	≥ 450	2
< 72 – 93	< 450	1
> 93 – 104	N/A	0.5

N/A Not applicable

<sup>a</sup> The number of persons is equal to the posted patron load.

Note: A therapy area within a multi-section pool having a temperature of ≤ 93°F is considered to be an activity pool.

**(2) SEPARATE SYSTEMS.** The circulation system shall be separate for each public swimming pool or water attraction.

**(3) SEPARATION FROM SLIDES AND PLAY FEATURES.** (a) Except as provided in pars. (b) and (c), public swimming pool or water attraction circulation systems may not serve slide or spray features.

(b) A maximum of 10 percent of the required circulation system rate may be provided for the lubrication of slides or to spray features.

(c) Flow in excess of the required circulation rate may serve slides and spray features.

**(4) ACCESSIBILITY.** Circulation system equipment including but not limited to pumps, skimmers, filters, gauges, meters and thermometers shall be readily accessible for inspection, repair or replacement.

**(5) COMPONENT STANDARDS.** Equipment that is within the scope of ANSI/NSF 50, circulation system components and related materials, shall be listed by an acceptable listing agency to meet ANSI/NSF 50 or equivalent.

**(6) INSTALLATION.** (a) Pool equipment and related piping shall be supported to prevent damage from misalignment and settling.

(b) Pool equipment shall be installed in accordance with manufacturer's printed instructions and as specified in this chapter. If there is a conflict between the manufacturer's printed instructions and requirements of this chapter, the requirements of this chapter shall take precedence.

**(7) VELOCITIES AND PIPE SIZING REQUIREMENTS.** (a) Velocities in the circulation system may not exceed:

1. Ten feet per second in discharge piping other than copper.
2. Eight feet per second in copper discharge piping.
3. Six feet per second in suction piping.
4. One and one-half feet per second through suction grates.

(b) Pool piping shall be sized to permit the rated flows for filtering and cleaning without exceeding the maximum design head of the pump.

**(8) GAUGES AND FLOW METERS.** (a) A pump suction compound gauge shall be included in all circulation systems.

(b) A pump discharge gauge shall be located upstream of all throttling valves.

(c) A filter pressure gauge shall be included serving all filters in circulation systems.

(d) A flow meter capable of displaying flow during filtration shall be included in all circulation systems.

**(9) TESTING.** Circulation system piping that is installed onsite shall be subjected to an induced static hydraulic pressure test at 25 pounds per square inch for at least one hour.

**(10) FILTERS.** (a) *Design.* Filters shall be specified so that when operated and maintained in accordance with the manufacturer's printed instructions, the system provides the water clarity required in ch. HFS 172.

(b) *Maximum Flow Rate.* 1. Filters other than high rate sand filters shall be specified so that the maximum flow rate does not exceed those under ANSI/NSF 50.

2. High rate sand filters shall be specified so that the maximum flow rate does not exceed 15 gallons per minute per square foot or bed surface area.

(c) *Pressure Release.* 1. Pressure-type filters shall be provided with a means to permit the release of internal pressure.

2. Filters incorporating an automatic air vent as the principal means of air release shall have a lid that provides a slow and safe release of pressure as a part of the design and have manual air release in addition to the automatic release.

3. Separation tanks used in conjunction with a filter tank shall comply with subd. 2.

4. The following statement shall be placed within the area of the air release so as to be clearly visible: "WARNING. DO NOT START UP THE SYSTEM AFTER MAINTENANCE WITHOUT FIRST OPENING THE AIR RELEASE AND PROPERLY ASSEMBLING THE FILTER AND SEPARATION TANK."

**(11) CIRCULATION PIPING.** (a) Circulation piping shall be listed as meeting one of the following methods:

1. ANSI/NSF 50 by a listing agency acceptable to the department.
2. Chapter Comm 84.

(b) All circulation piping shall be listed to withhold a pressure 50 percent greater than the maximum design pressure.

**(12) PUMPS AND MOTORS** (a) All circulation pumps shall be capable of providing the design flow rates at one of the following minimum total dynamic heads:

1. Eighty feet for diatomaceous earth filters.
2. Seventy feet for sand or cartridge filters.
3. Fifty feet for vacuum filters.
4. A maximum total dynamic head value recommended by the filter manufacturer that allows the filter to function under all operating conditions.

(b) Pumps located below the waterline of a basin shall have isolation valves installed on suction and discharge lines.

(c) Pumps located above the waterline of the pool shall be self-priming or the system shall be designed to provide a means for priming.

(d) Intake strainers shall be provided upstream of all circulations pumps on pressure filter systems.

(e) Mechanical seals shall be corrosion resistant.

**(13) RETURN INLETS AND SUCTION OUTLETS.** (a) Inlets and outlets shall be provided and arranged to produce a uniform circulation of water and maintain the distribution of sanitizer residual throughout the pool.

(b) *Return inlets.* 1. Return inlets shall be designed and installed so as to not constitute a hazard to the patron.

**Note:** An example of an inlet installation constituting a hazard to a patron is an inlet installed on a racing lane cross.

2. There shall be at least 2 inlets per circulation system.

3. Except as provided in subd. 4., the velocity of flow through any inlet orifice shall be in the range of 5 to 20 feet per second

**Note:** See the appendix for inlet velocity information.

4. For pools equipped with skimmers the velocity of flow through any inlet orifice shall be in the range of 10 to 20 feet per second.

5. Except for leisure rivers, the minimum number of return inlets shall be based on at least one additional inlet per 300 square feet of pool surface area or fraction thereof.

6. There shall be at least one wall return inlet for each 10 feet of stairway width, recessed bench length or swimout length or width or fraction thereof.

7. Bottom return inlets shall be flush with the basin floor.

8. Bottom return inlets shall be considered to have an area of influence of a radius of 10 feet.

**Note:** See the appendix for further explanatory material.

9. Wall return inlets may not extend more than one inch into a basin.

10. Except for leisure rivers, there shall be a wall return inlet within 5 feet of each corner of a basin wall.

(c) *Suction outlets.* 1. Suction system flow through main drains shall be designed to accommodate 100 percent of the circulation flow rate in accordance with all of the following:

a. All basins shall be provided with a suction outlet in the lowest point of the basin in the floor or the wall.

**Note:** For main drains installed in diving wells, see Table 90.06-1

b. Where 2 or more drains connect within the circulation system, all drains minus any one in the set shall be designed to collectively convey 100 percent of the circulation flow rate.

c. The distance between the bottom of the suction outlet grate and the opening of the suction pipe shall equal or exceed at least 1.5 times the inside diameter of the suction pipe.

2. Suction outlet grates shall comply with at least one of the following requirements:

a. A single grate having at least one dimension of length, width, diagonal or diameter that is at least 36 inches.

b. Two or more grates of any size separated from other suction outlets by at least 3 feet.

3. Suction systems shall be designed so that the maximum flow rates are not exceeded under operating conditions.

4. Suction grates and covers shall be listed as conforming to ASME/ANSI A112.19.8.

5. The maximum opening of any suction grate shall prevent the passage of a ½-inch sphere.

6. a. Barriers shall be provided on all wave pool caisson walls.

b. Openings in caisson barriers shall prevent the passage of a 4-inch sphere.

7. Vacuum fittings are not permitted within public swimming pools or water attractions.

(d) *Surface skimming systems.* 1. Surface skimming systems shall be included in the design of and installed to serve all basins.

2. Surface skimming systems shall be designed and constructed to skim the basin surface when the water level is maintained within the operational parameters of the system's rim or weir device.

3. Skimmers shall be located so as to maintain effective skimming action.

4. Skimmer covers located on a walking surface shall be designed and installed to comply with all of the following requirements:

a. The skimmer cover shall be appropriately seated.

b. The skimmer cover shall be slip resistant.

c. The skimmer cover shall be sufficiently strong so as to withstand normal use.

d. The skimmer cover may not create a tripping hazard.

5. Equalizer lines shall have an anti-entrapment cover or other entrapment protection in accordance with ASME/ANSI A112.19 when suction fittings are located in the wall of a basin.

6. Where automatic skimming devices are used as the sole overflow system, at least one surface skimming device shall be provided for each 500 square feet or fraction thereof of water surface area.

7. Circulation systems shall be designed to carry 100 percent of the rated circulation volume through the skimmers.

8. The flow rate through automatic skimmers shall be no less than 3 gallons per minute per inch of skimmer weir width.

Note: The maximum flow rate through skimmers is determined by the ANSI/NSF 50 rating.

9. Acceptable options for surface skimming systems shall be in accordance with Table 90.15-3.

**Table 90.15-3**  
**Acceptable Surface Skimming Systems**

<b>Pool Type</b>	<b>Acceptable Surface Skimming Systems</b>
Swimming, whirlpools	Gutters, auto skimmers
Activity	Auto skimmers, zero-depth trench, gutters
Leisure River	Single or multiple weirs, gutters, zero-depth trench or auto skimmers
Plunge	Auto skimmers, zero-depth trench, gutters, weirs
Vortex	Skimmers are not allowed in the side area
Wave	Zero-depth trench, skimmers, gutters, perimeter devices
Zero-Depth Entry	Zero-depth trench, skimmers, gutters, perimeter devices.
Other	As approved by the department

10. When a gutter skimming system is used, the system shall be connected to a circulation system with an adequate surge capacity to permit all phases of operation.

11. a. Except as provided in subd. 11. b., a zero-depth trench shall extend continuously from within 3 feet of one wall of the basin to within 3 feet of the opposite wall of the basin.

b. Where the entire perimeter of the basin consists of a zero-depth entry, 50 percent shall be evenly-distributed zero-depth trench.

**Comm 90.16 Mechanical systems. (1) ELECTRICAL.** Electrical components shall comply with the requirements of ch. Comm 16.

**(2) WATER HEATERS.** (a) Water heating equipment shall comply with chs. Comm 64 and 65.

(b) A thermometer accurate to within plus or minus 2°F of the operating range shall be installed in the circulation piping.

(c) The thermometer required in par. (b) shall be accessible for reading.

(d) The use of a toxic solution, such as, but not limited to, heat transfer fluid in a single-wall heat exchanger, is prohibited.

(e) Water heaters and hot water storage tanks shall be equipped with temperature and pressure relief valves in accordance with ch. Comm 84.

**(3) ILLUMINATION.** (a) Artificial lighting shall be provided so that all areas of the pool, including the bottom shall be visible when the pool or water attraction is used during periods of low illumination.

(b) For outdoor facilities, overhead lighting shall provide a minimum of 3 foot-candles of illumination at the water surface and on the deck.

(c) For indoor facilities, overhead lighting shall provide a minimum of 10 foot-candles at the water surface and on the deck.

(d) 1. Except as permitted in subd. 2., underwater lighting shall provide a minimum of ½ watt incandescent light per square foot of water surface area or equivalent.

2. If overhead lighting provides a minimum of 15 foot-candles illumination at the water surface, no underwater lighting is required.

(e) For exterior facilities, areas that are designed to operate during periods of low illumination shall be provided with sufficient emergency lighting to permit evacuation of the facility.

(f) For exterior facilities, emergency lighting shall activate within 10 seconds of lighting failure.

**(4) WATER SUPPLY.** (a) *Water quality.* The water supply for all public swimming pools and water attractions shall meet the water quality requirements as listed in ch. Comm 82, Table 82.70-1.

*Note:* Refer to Appendix A-90.20 (12) for pertinent sections of ch. Comm 82, Table 82.70-1.

(b) *Cross connection control.* Protection of the potable water supply shall comply with s. Comm 82.41.

(c) *Makeup water quality.* Makeup water to maintain the water level in all public swimming pools and water attractions and water used as a vehicle for disinfectants or other pool chemicals, for pump priming or for other such additions shall meet the requirements listed in ch. Comm 82, Table 82.70-1.

*Note:* Refer to Appendix A-90.20 (12) for pertinent sections of ch. Comm 82, Table 82.70-1.

(d) *Spray feature water.* Water used for spray features or water falling onto patrons shall be disinfected if supplied from a whirlpool or wading pool basin.

**(5) WASTEWATER DISPOSAL.** Wastewater discharges shall be in accordance with ss. Comm 82.38 Table 82.38-1 and 82.33.

*Note:* See appendix for a reprint of Table 82.38-1.



(6) EQUIPMENT ROOM. (a) An equipment room or equipment enclosure shall be provided to serve all public swimming pools and water attractions.

1. An equipment room shall be ventilated in accordance with ch. Comm 64.
2. An equipment room shall be drained.
3. An equipment room shall be accessible for operation and maintenance of equipment.

(b) The doors to all rooms in which a chlorine gas feeder is located or a cylinder of compressed chlorine gas is located or stored shall be labeled "DANGER-CHLORINE GAS" in clearly readable letters.

**Comm 90.17 Sanitizing equipment. (1) EQUIPMENT STANDARDS.** (a) Sanitizing equipment shall be certified to comply with the requirements of NSF/ANSI 50.

(b) A chemical system that provides the residual required by ch. HFS 172 shall be installed when an alternative means of disinfection is proposed.

*Note:* Alternative disinfection systems include ultraviolet light, ozone and electrolytic chlorine generation, but are not limited to those systems.

(c) Sanitizing equipment shall be capable of introducing a sufficient quantity of a U.S. EPA-approved sanitizer for normal operating procedures.

*Note:* See ch. HFS 172 for disinfectant concentration and efficacy requirements.

(d) Sanitizing equipment shall be certified by a nationally recognized testing laboratory.

(2) SANITIZING EQUIPMENT. (a) Skimmer baskets may not be used as chemical feeders.

(b) An automatic controller for controlling the sanitizing equipment shall be installed on all public swimming pools and water attractions.

(c) The automatic controller shall include a flow sensor installed so that the chemical feed pump will not operate without a return flow to disburse the chemical.

(d) The automatic controller shall be electrically interlocked with the circulation pump control circuit.

*Note:* Pool operation requirements are found in ch. HFS 172, Wis. Adm. Code.

(e) The automatic controller and circulation pump shall have separate disconnect switches.

**Comm 90.18 Safety features. (1) ROPE AND FLOAT LINES.** (a) 1. Except as permitted in subd. 2., a rope and float line shall be provided in all basins:

a. To separate activity areas, such as plunge areas, climbing walls, pad walks and other areas where patron activity may harm others.

b. To restrict access to the caisson wall in wave pools.

c. To identify water depth greater than 5.5 feet in combination pools and activity pools.

2. Rope and float lines are not required in areas where the department determines that the installation of the rope and float line would constitute a safety hazard.

(b) For water depth, the rope and float line shall be located one foot toward the shallow end for each location where the purpose of the rope and float line is to mark a depth change.

(c) A 4-inch wide boundary line of contrasting color shall be installed on the basin walls and floor corresponding to the location of the rope and float line.

(d) For wave generators, the rope and float line shall be located a minimum of 5 feet from the caisson wall.

(e) The rope and float lines shall be securely fastened to wall anchors.

(f) Rope and float lines shall be of sufficient size and strength so as to provide temporary support for a pool patron in the water.

(g) Rope and float lines shall be installed with limited slack so as to provide temporary support for a pool patron in the water.

**(2) DEPTH MARKERS.** (a) Depth markers shall be installed on all public swimming pools and water attractions that incorporate a water depth over 6 inches.

(b) Depth markers shall be installed at the maximum and minimum water depths and at all points of slope change.

(c) 1. Except as provided in subd. 2., water depth markers shall be installed around the perimeter of the basin at intervals no greater than 25 feet and at lesser intervals when indicating a change in water depth not to exceed 2 feet.

2. Water depth markers for leisure rivers shall be located every 25 feet on alternate side walls and at all entry points.

(d) 1. Depth markers shall be indicated in feet, inches or feet and inches and when abbreviated so indicated as "FT" or "IN."

2. Depth markers shall be plainly and conspicuously installed at all of the following locations:

a. On the vertical basin wall except where no portion of the basin wall is visible and above the waterline.

b. On the top of the coping or edge of the deck next to the basin.

**Note:** Additional depth markings may also be indicated in metric.

(e) When additional depth markers are indicated in metric, "meters" shall be abbreviated as "M."

(f) All water depths indicated on depth markers shall be the depth at the location of the depth marker.

(g) All depth markers installed on vertical basin walls shall be located so as to be read from the waterside.

(h) Depth markers installed on decks shall be located no greater than 18 inches from the basin edge and positioned so as to be read while standing on the deck facing the water along the affected perimeter.

(i) All depth markers installed on decks shall be of slip resistant materials.

(j) The minimum height of depth marker characters shall be 4 inches. Characters shall be clearly visible and of permanent contrasting color to the background on which applied.

(k) Depth markers for water deeper than 5 feet shall indicate the maximum basin depth.

**(3) WARNING MARKERS** (a) Pools or water attractions having water depths of 5 feet or less shall be provided with diving prohibition markers located on the deck at intervals of no more than 25 feet.

(b) Diving prohibition markers shall be printed with the text, "No Diving."

(c) The "No Diving" text shall be at least 4 inches in height.

(d) Diving prohibition markers shall include the international "No Diving" symbol.

(e) "No Diving" text and the "No Diving" symbol shall be clearly visible and of a contrasting color to that of the marker background.

**(4) BARRIERS.** (a) Except as provided in par. (b), public swimming pools, water attractions and water attraction complexes shall be separated from surrounding property by a barrier consisting of a fence, wall or building.

(b) Independent interactive play attractions are not required to be surrounded by a barrier.

(c) A fence or wall shall be constructed so as to afford no external handholds or footholds.

(d) The barrier shall be at least 5 feet in height.

(e) Gates in the barrier shall be equipped with a self-closing, lockable closure mechanism at a height of at least 54 inches from the bottom of the gate.

(f) Fences serving as barriers shall have no opening greater than 4 inches in width or diameter.

(g) The bottom of a fence or wall shall be a maximum of 4 inches from grade.

(h) Doors in fences and walls shall be self-closing and lockable.

**(5) EMERGENCY STOP BUTTONS.** Wave action pools, vortex pools, water slides and leisure rivers shall have emergency stop buttons accessible to designated staff as outlined in a staffing plan for the purpose of stopping the propulsion system.

**Note:** See the electrical code, ch. Comm 16, for location and installation requirements.

**Comm 90.19 Toilet room and sanitary facilities. (1) GENERAL REQUIREMENTS.** (a) Toilet and handwash facilities, and public drinking fountains shall be located so to be accessible by a length of paved walking surface no greater than 300 feet from the nearest rim of the most distant public swimming pool or water attraction.

(b) Showers and dressing facilities shall be provided and located on the premises and accessible by a length of paved walking surface.

**Note:** All applicable building requirements of chs. Comm 61 to 65 shall apply to the construction of bathhouses.

(c) 1. The floors of toilet rooms and dressing areas serving public swimming pools or water attractions shall have a smooth, hard, nonabsorbent, slip resistant surface.

2. A smooth, hard, nonabsorbent surface shall extend upward on the walls at least 6 inches.

3. Junctions between walls and floors shall be coved.

4. When floor drains are installed, drain openings shall be  $\frac{1}{4}$ - inch or less in width or diameter.

**(2) DRAINAGE OF COVERED AREAS.** (a) Floor drains shall be installed in toilet rooms and locker rooms where sanitary fixtures are located and where the room door is adjacent to the deck or adjacent to the impervious walkway draining to the deck.

(b) Floor drain openings shall be  $\frac{1}{4}$ -inch or less in width or diameter.

(c) Floors shall be pitched to drain.

**(3) WALLS.** Toilet room and locker room walls shall have a smooth, hard, nonabsorbent surface to a height of at least 4 feet above the floor.

**(4) LOCKERS.** Lockers shall be set either on solid masonry bases at least 4 inches high or on legs extending at least 10 inches above the floor.

**(5) REQUIRED NUMBER OF SANITARY FIXTURES.** (a) The required minimum number of toilets, lavatories and showers shall be provided in accordance with Table 90.19.

(b) 1. Except as provided in subd. 2., the minimum number of drinking fountains shall be provided adjacent to the required deck in accordance with Table 90.19.

2. For bed and breakfast establishments, tourist rooming houses or private guest rooms, a source of potable drinking water shall be provided in the enclosure by a fixture installed as per ch. Comm 82 or by providing commercially bottled drinking water.

**(6) DIAPER CHANGING STATION.** (a) Except as permitted in par. (b), all toilet rooms providing the required sanitary fixtures shall be equipped with a diaper changing station.

(b) Diaper changing stations are not required in toilet rooms exclusively serving therapy pools.

**(7) SPECTATOR ACCESS.** Spectator walkways, restrooms, dressing rooms and seating areas shall be separated from pool patron required deck.

Table 90.19

MINIMUM NUMBER OF SANITARY FIXTURES REQUIRED  
AT PUBLIC POOLS AND WATER ATTRACTIONS

Facility (example of location and type)*	Cumulative Area of Surface Water (in square feet)	Number of							
		Public Toilets		Public Urinals	Public Lavatories		Public Showers		Public Drinking Fountains
		F	M	M	F	M	F	M	
1. Swimming pools, wading pools and whirlpools in conjunction with sleeping or dwelling units having plumbing, except for items 2. to 5. No open swim lessons permitted. (i.e., apartment, hotels, motels, condos and mobile home parks)	< 2000	One unisex		0	One unisex		0	0	1 <sup>a</sup>
	2000 – 7500	1	1	0	1	1	1	1	1
	> 7500	See note <sup>b</sup> below for requirements.							
2. Swimming pools, wading pools and whirlpools without living units, except for items 3. to 5. Swimming pools, wading pools and whirlpools with sleeping or dwelling units where open swim or lessons are permitted and water attractions where lessons are conducted. (i.e., municipal pools and campgrounds)	< 2000	1	1	0	1	1	1	1	1
	2000 – 3999	3	1	2	1	1	2	2	1
	4000 – 5999	4	2	2	2	2	4	4	1
	6000 – 7499	4	2	2	2	2	5	5	1
	7500 – 8999	8	2	2	3	2	5	5	2
	9000 – 9999	10	2	3	4	3	6	6	2
	10000 – 12999	12	3	3	4	3	6	6	2
	13000 – 15000	14	3	4	5	4	7	7	3
>15,000	See note <sup>b</sup> below for requirements.								
3. Water attractions and water attraction complexes with sleeping or dwelling units. No open swim or lessons permitted. Use 300 sq. ft. for slides without basins. (i.e., activity pools, waterslide plunge pools, leisure river or tubing pools and wave pools)	< 7500	1	1	0	1	1	1	1	1
	7500 – 9999	4	1	1	2	2	2	2	2
	10000 – 14999	8	2	2	2	2	2	2	2
	15000 – 22499	12	3	3	3	3	3	3	3
	22500 – 29999	12	3	3	3	3	3	3	3
	30000 – 37500	16	4	4	4	4	4	4	4
>37500	See note <sup>b</sup> below for requirements.								
4. Water attractions and water attraction complexes without sleeping or dwelling units. No lessons permitted. Use 300 sq. ft. for slides without basins. (i.e., activity pools, waterslide plunge pools, leisure river or tubing pools and wave pools)	< 7500	2	1	1	1	1	1	1	1
	7500 – 9999	6	2	1	2	2	2	2	2
	10000 – 14999	8	2	2	2	2	2	2	2
	15000 – 22499	12	3	3	3	3	3	3	3
	22500 – 29999	16	4	4	4	4	4	4	4
	30000 – 37500	20	5	5	5	5	5	5	5
>37500	See note <sup>b</sup> below for requirements.								
5. Splash pad (independent of any other pool or attraction)		One unisex		0	One Unisex		One rinse off shower		1
6. Therapy/exercise pools.	<b>Patron Load</b>								
	Up to 10	One Unisex							
	11 – 20	2	1	1	1	1	2	2	1
	21 – 30	2	1	1	2	2	3	3	1
> 30	Per department approval								

F = female; M = male; < = less than; > = greater than

<sup>a</sup> For pools with spectator areas, see Appendix A-90.16 regarding chs. Comm 61 to 65 that contain the requirements for sanitary facilities.

<sup>b</sup> For water attractions in excess of 37,500 sq ft., use the following additions:

- For each 7,500 sq. ft. or fraction thereof add one sanitary unit – 0.7 male water closets, 1.0 male urinal, 0.85 male lavatories, 1.0 male showers, 0.6 drinking fountains, 4.0 female water closets, 1.0 female lavatory and 1.0 female shower.

For pools in excess of 7,500 sq. ft. and Type 1 above, and for pools in excess of 15,000 sq. ft. and Type 2 above, use the following additions:

- For each 4,000 sq. ft. or fraction thereof, add one sanitary unit – 1.0 male water closet, 1.0 male urinal, 1.0 male lavatory, 4.0 male showers, 1.0 drinking fountain, 4 female water closets, 1.0 female lavatory, 4.0 male showers.

For the requirements listed for additional sanitary facilities each fraction represents an additional fixture.

### **Subchapter III – Wading Pools, Whirlpools, Interactive Play Attractions and Cold Soak Pools – Special Requirements.**

**Comm 90.20 Wading pools.** Wading pools shall be in compliance with the applicable requirements of ss. Comm 90.04 to 90.19 and with this section:

(1) The maximum depth of water in a wading pool may not exceed 24 inches.

(2) The maximum depth of water at the accessible perimeter of a wading pool may not exceed 18 inches.

(3) A piping system may be used to allow a wading pool to be filled using pool water from an adjacent basin, other than a whirlpool, when the water quality meets the requirements in ch. HFS 172 prior to use.

**Note:** See the appendix for filling options.

(4) Obstructions extending from the walls or bottom of the wading pool are not permitted except with the approval of the department based on design safety.

**Comm 90.21 Whirlpools and cold soak pools.** Whirlpools and cold soak pools shall be in compliance with the applicable requirements of ss. Comm 90.04 to 90.19 and with this section:

(1) All walls within 5 feet of the whirlpool or cold soak pool shall be constructed of impervious material to a height of at least 3 feet above the deck.

(2) (a) 1. Except as provided in subd. 2. or 3., an observation window shall be provided if a whirlpool is located in a separate, enclosed room to allow the owner or operator a clear observation of the whirlpool or cold soak pool from outside the room.

2. A private guest room equipped with a telephone.

3. A whirlpool or cold soak pool room where a camera and remote observed monitor is provided.

(b) Where a camera is provided as in par. (a) 3., signage shall be installed to notify patrons of the camera's use.

(3) (a) Except as provided in par. (b), whirlpools or cold soak pools may not be located:

1. Within 11 feet of a basin where the water exceeds 5 feet in depth.

2. Within 11 feet of a basin whose water depth is six inches deeper than that of the whirlpool or cold soak pool.

(b) Whirlpools or cold soak pools may be located adjacent to a pool or water attraction basin if a common wall constructed in accordance with s. Comm 90.11 (5) separates the two basins.

(4) The maximum water depth of a whirlpool or cold soak pool shall be 4 feet measured from the water line.

(5) If the water depth exceeds 24 inches in a whirlpool or cold soak pool, stairs shall be provided.

(a) Stairways shall be recessed and may not extend past a bench installed in the basin.

Note: See appendix for more information.

(b) Recessed stairways shall have a minimum unobstructed horizontal tread depth of 10 inches, with a riser height no greater than 12 inches, and shall be uniform except that when the bottom tread is used for a seat, the bottom riser may be a maximum of 14 inches above the whirlpool floor.

(c) The minimum width of the stairways shall be 15 inches.

(d) Handrails shall be securely mounted on each side of stairways.

(e) The leading edge of deck-mounted handrails shall be located within 3 inches horizontally measured from the vertical plan of the bottom riser.

(f) The two handrails shall be separated a maximum of 3 feet.

(6) A whirlpool water agitation system shall be separate from the water circulation system.

(7) A manually controlled, 15 minute maximum, agitation system timer shall be provided within the pool enclosure.

(8) An emergency stop shall be provided that is tied to the agitation system and circulation system.

Note: See the electrical code for installation and locating requirements.

(9) (a) Except as provided in par. (b), the coping around the perimeter of the whirlpool or cold soak pool may extend vertically a maximum height of 3 inches.

(b) 1. Transfer walls may extend 16 to 19 inches above the deck.

2. Transfer wall widths shall be 12 to 16 inches measured at the top of the wall.

(10) A piping system may be used to allow a whirlpool or cold soak pool to be filled using pool water from an adjacent basin, other than a whirlpool when the water quality meets the requirements in s. HFS 172.14 (4) prior to use.

**Comm 90.22 Interactive play attractions.** Interactive play attractions shall be in compliance with the applicable requirements of ss. Comm 90.04 to 90.19 and with this section

(1) DESIGN AND MATERIALS. (a) All materials for walking surfaces on an interactive play attraction shall be slip-resistant.



(b) 1. A splash zone of an interactive play attraction shall be sloped to drain to the surge tank or pool within the same basin.

2. All exterior walking surfaces shall be sloped to drain away from the splash zone.

**(2) WATER SUPPLY, PIPING, CIRCULATION AND FILTRATION.** (a) The circulation system of an interactive play attraction may not be connected with the feature pump system unless otherwise approved by the department.

(b) All nozzles that spray from the ground shall be flush with the floor so as to not create a tripping hazard.

(c) The total water volume of a balance tank including associated piping shall be at a minimum of 4 times the combined flow rate of all the attraction pumps and of a sufficient volume so as to allow operation through all cycles of filtration operation.

(d) All aboveground piping shall automatically drain. Gravity drains shall be of a capacity of at least 125 percent of the discharge.

(e) The suction intake of the circulation pump shall be located in the lowest point of the balance tank.

**(3) VEGETATION.** Plants or vegetation may not be located in the splash zone area.

#### **Subchapter IV – Play Features and Slides**

**Comm 90.30 Play features. (1) GENERAL.** Structures and devices not intended for patron activities such as climbing, walking and hanging shall be either designed or supervised to prevent such action.

**(2) IN-WATER PLAY FEATURES.** (a) In-water play features installed shall be subject to this subsection.

**Note:** Examples of in-water play features include, but are not limited to, floating boats and trucks, floatable walks, floatables, spray pad features not in conjunction with a pool or water attraction with a circulation system and other permanently installed features.

(b) 1. Floating play features may not be installed in pools with water depths of less than 36 inches.

2. a. Except as provided in subd. 2. b., a minimum 3 feet of water depth shall be maintained at least 6 feet in every direction from any tethered play feature.

b. A tethered play feature may be located within 6 feet of a wall when that portion of the wall is padded to a point 6 feet from the play feature.

**Note:** Padding need only cover the wall above the waterline.

3. Inflatable play features may not be installed in public swimming pools and water attractions.

(c) The means of anchoring of tethered play features shall be configured in such a manner as to minimize circumstances of possible entrapment of patrons, bodies, hair, limbs or appendages when in contact with any element of the play feature or its anchors.

**Note:** The use of jacketed chains or cables meets this requirement.

(d) All in-water play features shall be designed and installed to prevent injury to the user and constructed so as not to create a safety hazard.

(e) The width or length of an in-water play feature may not exceed 42 inches.

(f) 1. When more than one pad walk is located in the same pool basin, a minimum separation of 10 feet between pad walks shall be provided.

2. All deck or basin obstructions within 6 feet of a pad walk shall be padded or encased so as to protect users from abrasion, laceration or contusion.

(g) Two floatables, other than two pads within a pad walk, shall be separated by a minimum of 10 feet.

**(3) ON-DECK PLAY FEATURES.** (a) Play features permanently installed on decks shall be designed and installed to minimize injury to the user and constructed so as not to create a safety hazard.

**Note:** Examples of on-deck play features include basketball hoops, volleyball nets and other water games.

(b) Spray features may not be located so as to spray on the required deck area of a basin.

**Comm 90.31 Slides. (1) GENERAL.** All slides installed as an appurtenance to a public swimming pool or water attraction shall be designed, manufactured and permanently installed so as to provide a safe and healthy environment for the rider and other occupants of the facility.

**Note:** For accessibility information, refer to the final accessibility guidelines for recreational facilities, Federal Register, Vol. 67, No. 170, as published Tuesday, September 3, 2002.

**(2) DESIGN AND MANUFACTURING.** (a) The total water volume of a separate balancing tank serving runout slides shall be a minimum of 2 times the combined flow rate of the pumps or of a sufficient volume based on velocity and time of the propulsion system and backwash requirements.

(b) Pool slides, drop slides and waterslides shall be so designed that parts with external surfaces that may come in contact with a person using the slide are assembled, arranged and finished so that they are smooth and continuous with and will not cut, pinch, puncture or cause an abrasion to any person.

(c) All slide flumes shall be designed and constructed so as each person using the waterslide remains inside the flume path during normal use.

(d) All curves, turns and tunnels on the path of a flume shall be designed and constructed as not to present a hazard to any person using the slide under normal use.

(e) Pool slides, drop slides and waterslides shall be designed to support the intended use.

(f) On-site constructed towers, stairs, platforms and elevated decks providing access to slides shall conform to chs. Comm 61 and 62.

(g) 1. Slides installed in facilities without a lifeguard staffing plan shall occupy no more than 10 percent of the pool perimeter.

2. Slide structures shall have a maximum individual obstruction width of 20 feet.

(h) For waterslides and runout slides, all closed curved flumes shall be a minimum of 32 inches in diameter.

(i) For all other slides listed in Table 90.31-1, the slide terminus shall be designed to not allow riders to cross into the path of another rider.

**(3) INSTALLATION.** (a) All slide installations shall comply with the parameters as specified in Table 90.31-1.

**Note:** See the appendix for further explanation.

(b) Except where a lifeguard staffing plan has been approved by the Department of Health Services, children's slide obstructions shall comply with all of the following requirements:

1. The side view of the obstruction, as viewed from any point, shall be less than 50 square feet.
2. The square footage of the obstruction shall be measured to a height of 6 feet above the water line.
3. Individual obstructions shall have at least a 10-foot horizontal separation.
4. No more than 20 percent of the pool basin shall be occupied by obstructions.

Table 90.31-1

INSTALLATION PARAMETERS BY SLIDE TYPE<sup>a</sup>

Slide Type	Maximum Slide Height Measured Vertically From the Slide Entrance (in feet)	Slide Terminus Drop to Water Level (in inches)	Water Depth Allowed for Slide Installation (in feet)	Minimum Clear Space In Front of Slide Terminus and Pool Wall (in feet)	Minimum Distance from Slide Flume or Entry to Side Obstructions, unless protected (in feet)	Minimum Separation Distance Between Slides in Same Structure Measured from Side of Sliding Surface, unless protected (in feet)	Maximum Overhang Distance for Deck-mounted Slides (Slide terminus extension into pool) (in feet)	
Children's slide	≤ 4 to slide terminus	≤ 6	≤ 2	≥ 7.5	≥ 4	As per manufacturer's recommendation	N/A	
Pool slide	≤ 4 to deck	≤ 6	≤ 2	≥ 7.5	≥ 4	As per manufacturer's recommendation	N/A	
Pool slide, discharging into water ≤ 2 feet deep	> 4 and ≤ 6 to deck	≤ 6	≤ 2	≥ 10	≥ 5	As per manufacturer's recommendation	2	
Pool slide, discharging into water ≤ 2 feet deep	> 6 to deck	Not permitted.						
Pool slide, installed in water ≥ 3 feet deep	≤ 6	≤ 6	≥ 3	≥ 15	≥ 5	≥ 5	≤ 2	
Pool slide, installed in water ≥ 3 feet deep	> 6	≤ 6	≥ 3	≥ 20	≥ 5	≥ 5	No maximum	
Drop slide, short drop	No limitation	20 to < 30 <sup>b</sup>	3.5 to 6 <sup>b</sup>	≥ 15	≥ 5	≥ 5	No maximum	
Drop slide, long drop	No limitation	30 to 60	6 to 12 <sup>b</sup>	≥ 15	≥ 5	≥ 5	No maximum	
Waterslide <sup>c</sup>	No limitation	≤ 6 or as per manufacturer's recommendation	≥ 3	≥ 20	≥ 5 <sup>d</sup>	≥ 5	No maximum	
Runout slide	No limitation	N/A	N/A	For deceleration area, as per manufacturer's recommendation	≥ 5 <sup>e</sup>	≥ 3	—	

N/A = not applicable; ≥ = greater than or equal to; ≤ = less than or equal to.

<sup>a</sup> Slide installation as per manufacturer's requirements if more stringent. For slide types not specifically listed in this table, contact the department.

<sup>b</sup> Interpolation would be used for increasing drop and increasing depth proportionally.

<sup>c</sup> Water slides with a drop shall comply with drop slide requirements in this table.

<sup>d</sup> No minimum separation distance where slide exit prevents exiting over adjacent slide path.

<sup>e</sup> Minimum distance may be reduced if slide terminus is designed and installed to restrict patron exit angle.

(4) SLIDE FLUME WATER. (a) Except for waterslides, water for flume lubrication shall be a maximum of 10 percent of the circulation flow.

(b) The balance tank for runout slide flume lubrication systems shall be at a minimum of 2 times the combined flow rate of the water attraction pump and of a sufficient volume to allow operation through all cycles of filtration operation.

### Subchapter V – Incorporation of Standards

**Comm 90.40 Incorporation of standards by reference. (1) CONSENT.** Pursuant to s. 227.21 (2), Stats., the attorney general has consented to the incorporation by reference of the standards listed in sub. (3).

**Note:** Copies of the adopted standards are on file in the offices of the department and the legislative reference bureau. Copies of the standards may be purchased through the respective organizations listed in Tables 90.40-1 to 90.40-2.

(2) ALTERNATE STANDARDS. (a) 1. Alternate standards that are equivalent to or more stringent than the standards referenced in this code may be used in lieu of the referenced standards when approved by the department or if written approval is issued by the department in accordance with par. (b).

2. Upon receipt of a fee as specified in ch. Comm 2 and a written request, the department may issue an approval for the use of the alternate standard.

3. The department shall review and make a determination on an application for approval within 40 business days of receipt of all forms, fees and documents required to complete the review.

(b) Determination of approval shall be based on an analysis of the alternate standard and the standard referenced in this code, prepared by a qualified party.

(c) The department may include specific conditions in issuing an approval, including an expiration date for the approval. Violations of the conditions under which an approval is issued shall constitute a violation of this code.

(d) If the department determines that the alternate standard is not equivalent to or more stringent than the referenced standard, the request for approval shall be denied in writing.

(e) The department may revoke an approval for any false statements or misrepresentations of facts on which the approval was based.

(f) The department may reexamine an approved alternate standard and issue a revised approval at any time.

**(3) ADOPTION OF STANDARDS.** The standards referenced in Tables 90.40-1 to 90.40-2 are hereby incorporated by reference into this chapter.

**Note:** The tables in this section provide a comprehensive listing of all of the standards adopted by reference in this code. For requirements or limitations in how these standards are to be applied, refer to the code section that requires compliance with the standard.

**Table 90.40-1**

<b>ANSI</b>	<b>American National Standards Institute, Inc. 11 W 42<sup>nd</sup> Street New York, New York 10036 Phone: (212) 642-4980 Web: <a href="http://www.ansi.org/public/std_info.html">www.ansi.org/public/std_info.html</a></b>
<b>Standard Reference Number</b>	<b>Title</b>
ANSI/NSF 50-2001	Circulation System Components and Related Materials for Swimming Pools, Spas/Hot Tubs

**Table 90.40-2**

<b>ASME</b>	<b>American Society of Mechanical Engineers 3 Park Avenue New York, New York 10016-5990 Phone: (800) 843-2763 Web: <a href="http://www.asme.org/catalog/">www.asme.org/catalog/</a></b>
<b>Standard Reference Number</b>	<b>Title</b>
ANSI/ASME A112.19.8-2007	Suction Fittings for Use in Swimming and Wading Pools, Spas and Hot Tubs

**END**

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**EFFECTIVE DATE**

Pursuant to s. 227.22 (2)(intro.), Stats., these rules shall take effect on the first day of the month following the publication in the Wisconsin Administrative Register.

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