

*Guidelines for Swimming Pools,
Wading Pools, and Spas*

Barrier Design

May 2006



*Guidelines for Swimming Pools,
Wading Pools, and Spas*

Barrier Design

May 2006



For more information or additional copies
of this guidance document contact:

Office of Environmental Health and Safety
Water Recreation Program
PO Box 47825
Olympia, WA 98504-7825

1-888-586-9427

Mary Selecky
Secretary of Health

For persons with disabilities, this document is
available in other formats upon request.

Please call 1-888-586-9427
(TTY/TDD 1-800-833-6388).
DOH Pub 333-120

Special acknowledgements to:

Environmental Health Directors Pool Adhoc Committee Members:

Rick Dawson.....Benton Franklin Health District
Dave DeLong.....Tacoma Pierce County Health Department
Gary Fraser.....Washington State Department of Health
Eileen Hennessy.....Public Health Seattle and King County
Steve Main.....Spokane Regional Health District
Marty McGinn.....Clark County Health Department
David Riggs.....Wahkiakum County Health Department
Mike Young.....Snohomish Health District

Gregg Grunenfelder, Assistant Secretary
Division of Environmental Health

Maryanne Guichard, Director
Office of Environmental Health & Safety

J. Mark Soltman, R.S., Supervisor
Local Health Support Section

Gary Fraser, *Water Recreation Program*

Guidelines for Swimming Pools, Wading Pools, and Spas

Barrier Design

This document has been developed to guide state and local health departments, owners, pool and spa operators and their design consultants on barrier design preventing unauthorized persons from gaining access to pools. Barriers are a key component for the prevention of drowning and near drowning.

Purpose:

The purpose of this document is to aid in the design of new barrier construction; to assist in the retrofit and renovation of existing barriers; and to coordinate access and egress consistent with all applicable codes. Working to ensure proper design of barriers will help eliminate costly replacement or retrofit at facilities.

History:

Drowning is a leading cause of injury death among young children in Washington. Proper barriers combined with supervision must be in place to prevent access by young children to water recreation facilities. Barriers surrounding pools, spas, wading pools and similar facilities shall be designed and maintained to limit access to prevent these injuries.

Building codes require easy emergency exits from buildings that assure both access and egress for the physically disabled. State health codes limit access to pool/spa enclosures or natatoriums.

In the past, some owners and designers have experienced difficulties coordinating all applicable codes.

Regulations:

Requirements for barrier protection are found in Chapter 246-260-031(4) Washington Administrative Code (WAC) General design, construction, and equipment for new construction and remodeling. See Chapter 246-262 WAC for specific requirements for water park type features.

Examples and solutions to common barrier problems are shown on the following pages.

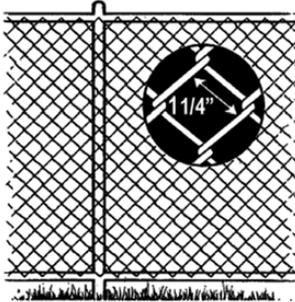
Chain Link Fencing

- Chain link fencing with openings greater than 1- ¼ inch are climbable by children providing easy footholds, as shown in **Diagram (a)**.
- When installing a new chain link fence, ensure that the measurement between the wires of the mesh does not exceed 1-¼ inch. Anything larger provides an easy hand and foothold for small children.
- Existing chain link mesh size may be reduced by the addition of slats fastened at the top or bottom of the fence, as shown in **Diagram (b)**.

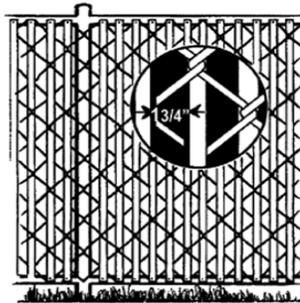
Guidelines for Swimming Pools, Wading Pools, and Spas

Barrier Design

(a). For a Chain Link Fence:
The mesh size shall not exceed 1 1/4 inches square.



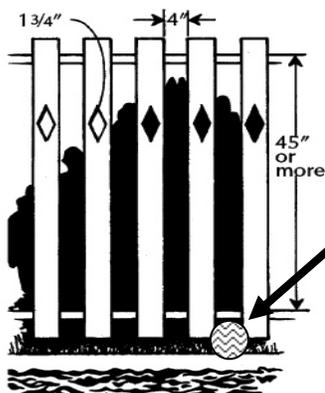
(b). When chain link exceeds 1 1/4 inches square, provide slats to reduce mesh openings to no more than 1 3/4 inches.



Horizontal and Vertical Spacing

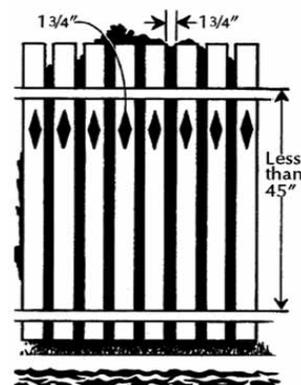
- 95% of all children age 9 and under are able to get through a 6-inch wide opening.
- All openings should be small enough so that a 4-inch diameter sphere cannot pass through. See **Diagram (c)**.
- If horizontal members of the fence are too close, this can promote climbing. When spacing is less than 45" [measured from the tops of the horizontal members] maintain vertical spacing at less than 1 & 3/4" and place horizontal members on the inside of the pool side of the barrier. See **Diagram (d)**.

(c). Vertical Spacing: If tops of horizontal members are greater than 45 inches apart, vertical spacing shall not exceed 4 inches.



All openings shall be small enough so that a 4-inch diameter sphere cannot pass through.

(d). Vertical Spacing: If tops of horizontal members are less than 45 inches apart, vertical spacing shall not exceed 1 3/4 inches.



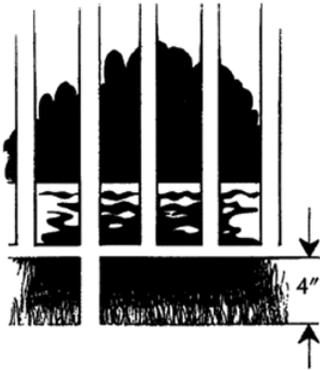
- It is very common for the ground surface to wear away beneath the bottom of the barrier creating potential entry points for children and animals. Ensure that the clearance from the bottom of the barrier to the ground surface is maintained not exceeding 4 inches. See **Diagram (f)**.

Guidelines for Swimming Pools, Wading Pools, and Spas

Barrier Design

- Evaluate fencing structures that provide flexible opening to ensure the dimensions do not exceed standards when light forces are applied to the barrier (such as a child could exert).

(f). **Maximum Clearance** shall not exceed 4 inches above grade.



(g). This barrier provides easy access for children to climb. The horizontal members are spaced less than the code will allow.



Fence detail that could create a climbing hazard

- Prevent the pool fencing from becoming a ladder that allows small children to enter. Place horizontal fence members on the interior of the fence.
Picture (g), above, shows a pool barrier that a child could easily climb and gain unwanted access to a pool.
- Avoid locating both landscape architecture and items such as barbecues, benches, etc. within 60 inches of the outside of the barrier. They may provide a way for children to climb on or over the barrier.
- Avoid decorative fences and walls that provide toe and finger holds.
- Avoid locating pool barriers so close to uphill slopes that a person could step or jump onto or over the pool barrier.

Guidelines for Swimming Pools, Wading Pools, and Spas Barrier Design

The picture to the right demonstrates how slopes adjacent to fences make it possible for younger children to simply step up to the fence and gain access to the pool. Be sure to evaluate locations of stairs, landscaping and grades.



The picture to the left shows an example of a stone fence that enhances climbing. Bricks, support posts, and similar construction must not provide hand or foot hold for climbing.

Solid Barrier: No indentations or protrusions shall be present, other than normal construction tolerances and masonry joints. The Brick Industry Association has established a maximum tolerance of 1/4" from plumb in 10 feet.



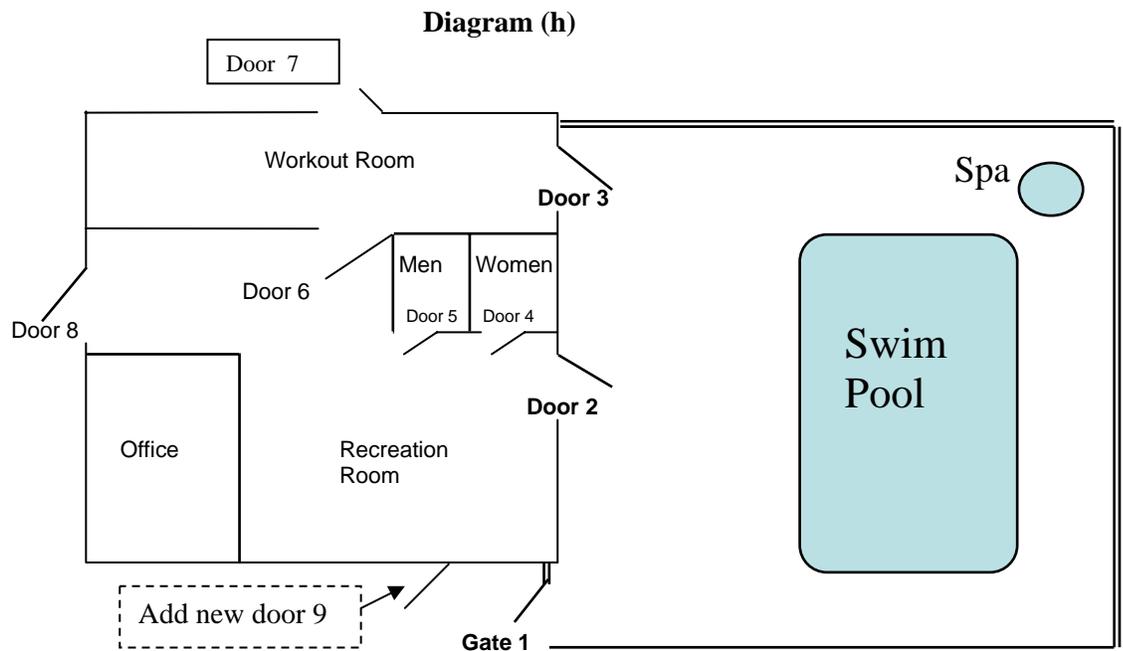
Guidelines for Swimming Pools, Wading Pools, and Spas

Barrier Design

Recreation Room Doors and Windows

Recreation rooms or cabanas may be used for a variety of purposes such as meetings, wedding receptions, parties, play billiards, ping pong, or exercise/lift weights. The doors and windows that lead into the swimming pool and spa enclosure area must meet the barrier requirements per Chapter 246-260 WAC.

- These requirements may conflict with other agency requirements. Building/Fire departments should be consulted before changes are made. Alternative emergency exits may be required per local building department.
- Conflicts in codes may be avoided when planning for outdoor pools by moving the pool/spa away from the adjacent buildings with a separate fence around the complete pool/spa enclosure, or providing alternative access from the recreation room for emergency access out of the rooms.
- Diagram (h) shows that the doors entering the pool area (doors 2 & 3) with ordinary height latches do not provide adequate barrier protection to the pool area. Latches must be mounted at 60" or higher above the floor or continuously locked when latches are at the standard height. Raising latch height may create conflicts with building and fire codes. An alternative means to exit may be required by the building or fire codes. Placing a new exit door at door 9 is one solution that could meet emergency exit requirements and also restrict access to the pool from doors 2 and 3.



Guidelines for Swimming Pools, Wading Pools, and Spas

Barrier Design

Sliding doors entering into pool enclosure

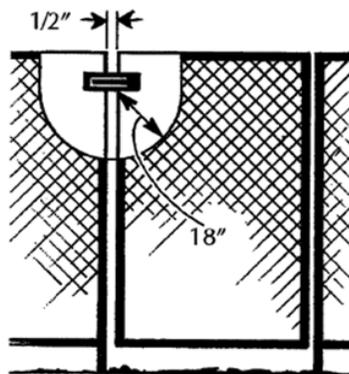
Sliding doors must be self closing, self latching and provide a mechanism that uses a continuously locked latch, coded lock or other equivalent access control system that always requires a key or code to enter pool area or a latch height of sixty inches or more from the ground. Please note: Some self-closing screens on slider doors have not provided satisfactory closure and may not be considered adequate for meeting the code.

When entry gate latches are not at 60 inches above floor/deck

- Door and gate latches must be provided with continually locked, key carded or other equivalent access control system when latches are less than 60 inches from the floor.
- When doors and gate are constructed of materials that may allow children to reach through the fence. A solid material at least 18 inches in radius must protect the latch. See **Figure 031.2 (from Chapter 246-260 WAC)** for detail.

Figure 031.2 Gate and Latch

Detail: When latch height is less than 60 inches from the ground, a continuously locked lock must be provided with an 18 inch radius of protection around the latch.



Locker room doors entering into pool enclosure

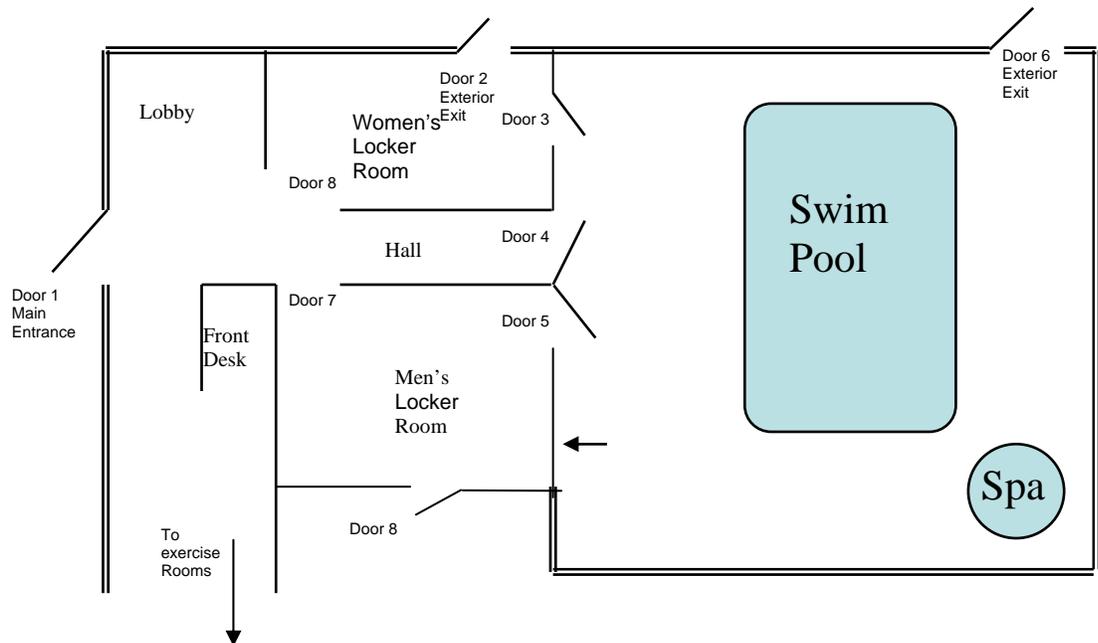
- Facilities with multiply activities, such as athletic clubs, that provide lifeguards or attendants must provide those guards during all hours the facility is open or have a means to prevent access to the pool enclosure when no lifeguard or attendant is present.
- Locker room doors entering the pool enclosure must be self-closing, self-latching with the latch at 60 inches above the floor or continuously locked. When locker rooms are over 750 square feet a secondary fire exit may be required by local building codes, an additional fire exit door that does not enter the pool/spa enclosure may be required.

Guidelines for Swimming Pools, Wading Pools, and Spas

Barrier Design

- Pool safety covers or additional barriers such as moveable fences may be required when locker room doors can not be self closing, self latching with latches at 60 inches, or continually locked.

Diagram (i)
Example of Floor Plan at Private Club



- Pools that are open to use and are not continually lifeguarded (using lifeguards, shallow water guards, or attendants as specified in Chapter 246-260 WAC) will require barrier protection at doors 3, 4, 5, and 6. Doors and gates must be self-closing, self-latching, with either a latching mechanism at 60 inches above floor or latches that are continually locked or require a code or key card for entering.
- Building codes may require secondary emergency exits from locker rooms, as shown at exterior exit doors 2 and 8.
- Locker rooms doors (door 3 and 5) entering into the pool enclosure that have continuously locked latches may maintain the door in an open position when the pool is lifeguarded. These same doors must be locked during all hours the pool is not lifeguarded. In that way, access from the locker rooms to the pool remains closed when the pool is not lifeguarded, but still allows for persons 16 years old and under to have access to the locker rooms.
- Existing facilities with unrestricted entries into the pool room from locker rooms must find a solution that restricts entry to anyone sixteen years old or younger, but does not block emergency exits.

Guidelines for Swimming Pools, Wading Pools, and Spas

Barrier Design

- Pools that are continually lifeguarded do not require self-closing, self-latching doors when doors are closed and locked during non-use periods.

Other agencies have codes that may conflict with DOH requirements for barriers.

These include:

- Local Building Department Codes
- Americans With Disabilities Act requirements
- Fire Codes

The Water Recreation Facility Code (Chapter 246-260 WAC) may conflict with other agency requirements. Building/Fire departments should be consulted before changes are made. Alternative fire exits must be provided per local building department.

Conflicts in codes may be avoided in plan review by moving outside pool/spa away from the adjacent buildings with a separate fence around the complete pool/spa enclosure, or providing alternative access from the recreation room for emergency access out of the rooms.

General Recommendations:

- The owner maintains ultimate responsibility for ensuring that the barriers conform to the requirements.
- Plans for fences, gates, doors, windows, adjacent landscaping, grading, additions of barbecues, benches, art and similar additions, alterations and changes to barriers should be included in plan submittals and revisions given to the Health Department.
- The architect/engineer that designs the pool facility and the builder installing the pool facility should have complete information from the multiple subcontractors and contractors completing the whole project.
- After plans have been approved by the Health Department, changes and revisions to the barrier design must be reviewed and approved prior to construction.
- Prior to a barrier installation, the owner/operator should always verify that it meets current code with their local health jurisdiction.
- Coordination with building departments, project architect/engineers, general contractors, and owners of facilities helps the project stay consistent with health codes, fire codes, ADA, and building codes for both egress and access to the facility.

Guidelines for Swimming Pools, Wading Pools, and Spas Barrier Design

Contact Local Health Department

For specific information or questions, please contact the local health department where the facility is or will be located.

The following contact information is current as of the publication of this document; however, it may change over time. Another resource for finding local health department contact information is the Web site <http://www.doh.wa.gov/LHJMap/LHJMap.htm>.

Jurisdiction		
Clark County	Marty McGinn Clark County Health PO Box 9825 Vancouver, WA (360) 397-8428 marty.mcgin@clark.wa.gov	
King	Eileen Hennessy Downtown Public Health 2124 4 th Ave, 3 rd Floor Seattle, WA (206) 205-3489 eileen.hennessy@METROKC.gov	
Pierce	Dave DeLong Tacoma Pierce Health 3629 S. D. Street Tacoma, WA (253) 798-6499 DDeLong@tpchd.org	
Snohomish	Mike Young Snohomish Health 3020 Rucker Ave Everett, WA (425) 339-5250 myoung@snohomish.shd.wa.gov	
Spokane	Steve Main Spokane Health West 1101 College Ave Spokane, WA (509) 324-1594 smain@spokanecounty.org	
For the rest of Washington State	Gary Fraser Department of Health PO Box 47825 Olympia, WA (360) 236-3073 1-888-586-9427 gary.fraser@doh.wa.gov	Robert Howell 1015 236th Pl. SW. Bothell, WA 98021 1-425-485-6873.
For more information about this topic:		