# Pool Barrier Design

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

Barriers around water recreation facilities are intended to prevent injury and drowning by deterring unauthorized entry to a pool, spa, or other recreational water feature. The design standards for barriers are based on this intent, particularly as it applies to young children under the age of five, who are more likely to be injured or drown when unsupervised. 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. The requirements for barrier protection are located in Washington Administrative Code (WAC) 246-260-031(4) General Design.

- **Part 1, pages 1-5, explains barrier requirements of WAC 246-260-031(4).**
- **Part 2, pages 6-7, provides design recommendations.**

## Part 1 – Barrier Requirements

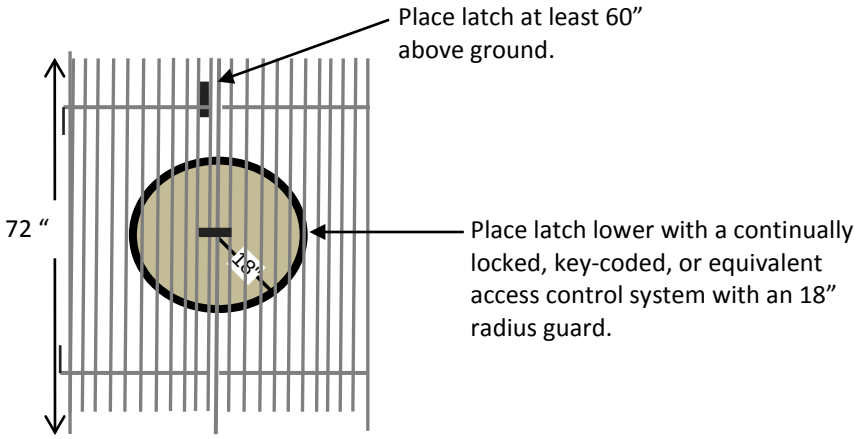
To comply with the barrier requirements, install barriers and self-closing, self-latching gates or doors that meet height requirements:

- Limited Use Pools: at least 60 inches.[1]
- General Use Pools: at least 72 inches.[2]

Install self-closing, self-latching gates or doors with a latch that meet the following requirements:

- A latch installed at least 60 inches from the ground; **or**
- If the latch is less than 60 inches from the ground, you must install:
    - 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, and
    - An 18-inch radius of solid material around the latch to preclude a child on the outside of the barrier from reaching through the gate or barrier and opening the latch.

All gates must close and latch completely to prevent access to pool area.




[1] "Limited use pool" means any swimming, spa, wading, or spray pool regulated by this chapter at an apartment, boarding home, condominium, fraternity, home owners association, hotel, mobile home park, motel, recreational vehicle park, sorority or rental housing unit for the use of the persons living or residing at the facility and their resident's invited guests.
[2] "General use pool" means any swimming, spa, wading, or spray pool regulated by this chapter not meeting the definition of a "limited use pool."

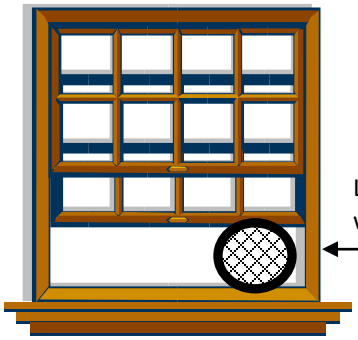


Washington State Department of Health

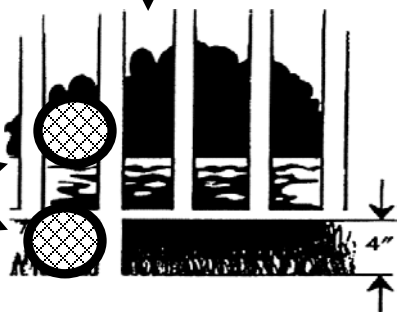
**Ensure barriers, including windows do not:**

- Allow a passage of a 4-inch sphere **or**
- Exceed 4 inches above a solid grade. If material is soil, gravel, or loose in nature, a 2-inch maximum is recommended.

*Note:* 95% of all children age 9 and under are able to get through a 6-inch wide opening.

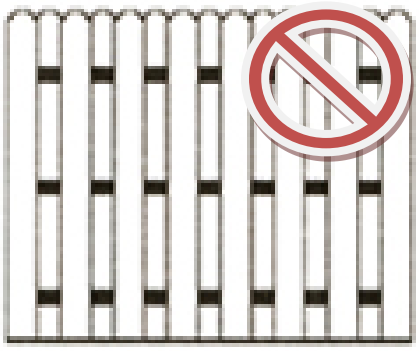


Less than 4" openings for windows, gates, and fences.

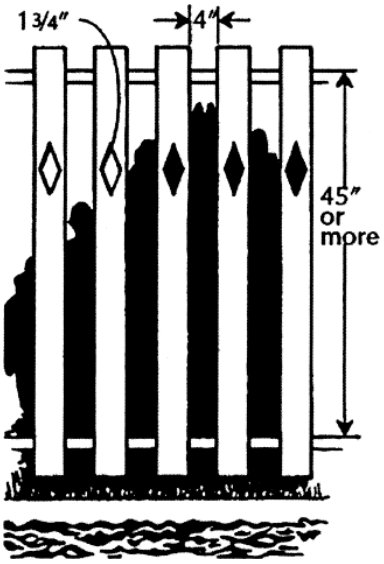



**Install barriers that do not:**

- Have a design that would create a ladder effect, **or**
- Have vertical space openings more than 1¾" if the horizontal members are less than 45 inches apart (measured from top to top).

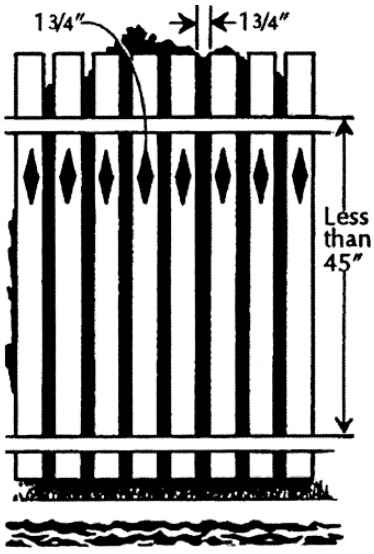


These barrier designs provide easy access for children to climb. The horizontal members are spaced less than the code will allow.

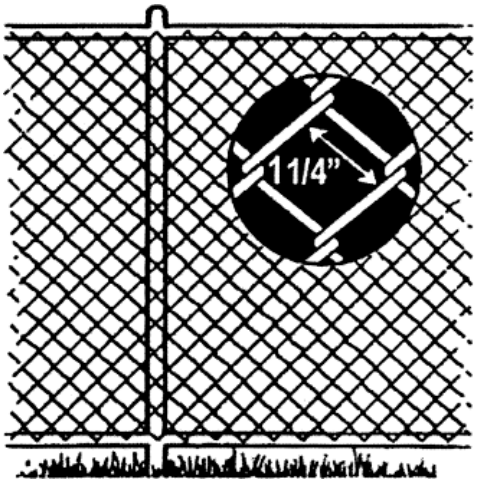



Vertical Spacing: If tops of horizontal members are greater than 45 inches apart, vertical spacing shall not exceed 4 inches.

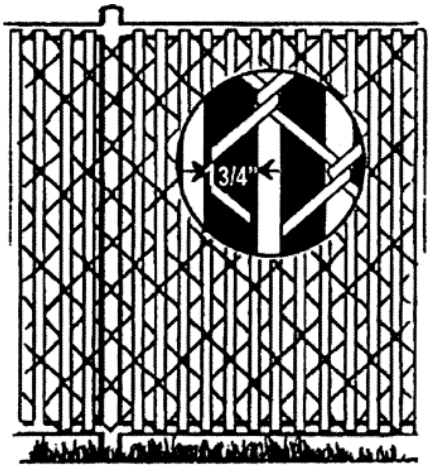
Vertical Spacing: If tops of horizontal members are less than 45 inches apart, vertical spacing shall not exceed 1¾ inches.



**Chain Link Fencing**
When installing a new chain link fence, ensure that the measurement between the wires of the mesh does not exceed 1¼ inches. Anything larger provides an easy hand and foothold for small children.




**When chain link exceeds 1¼ inches square,** provide slats to reduce mesh openings to no more than 1¾ inches. Chain link fencing with openings greater than 1¼ inches are climbable by children providing easy footholds. Existing chain link mesh size may be reduced by the addition of slats fastened at the top or bottom of the fence.




**Measurements**
All barrier and gate heights are measured on the outside, from the ground level to the top of the barrier and gate. Latch heights are measured on the outside of the gate, from ground level to the graspable portion of the latch. The 18-inch radius is measured outward from the graspable portion of the latch.

**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 60 inches or more from the ground. Self-closing sliding screen doors are not adequate for meeting the code.

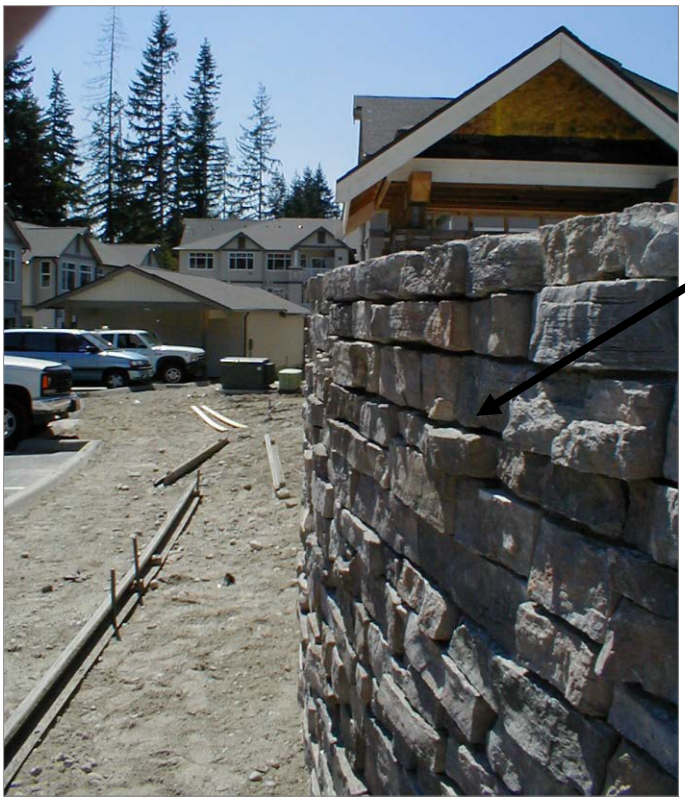
**Barrier Operational Rules**
Owners are responsible to inspect and maintain proper barrier protection continuously to meet the requirements of WAC 246-260-131(2)(a) of the facility operational rules. Owners must also prevent access to the facility by means of locked barriers when not in operation per WAC 246-260-141(1).

**Barrier Location/Required Setbacks**
Owners shall ensure pump houses, planters, balconies, landscape features, trees, and structures are located 15 feet or more horizontally away from any swimming pool, or provide barriers or other means to prevent diving or ready access to a pool from the structures. These structures do not include building walkways above the second story, inaccessible roofs 8 feet or more in height, or any barriers provided to prevent unauthorized pool access.

**Watch Out for Climbable Fences**

Bricks, support posts, and similar construction must not provide hand or foot hold for climbing. Below are two examples of fences that enhance climbing.

The slopes adjacent to the 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.

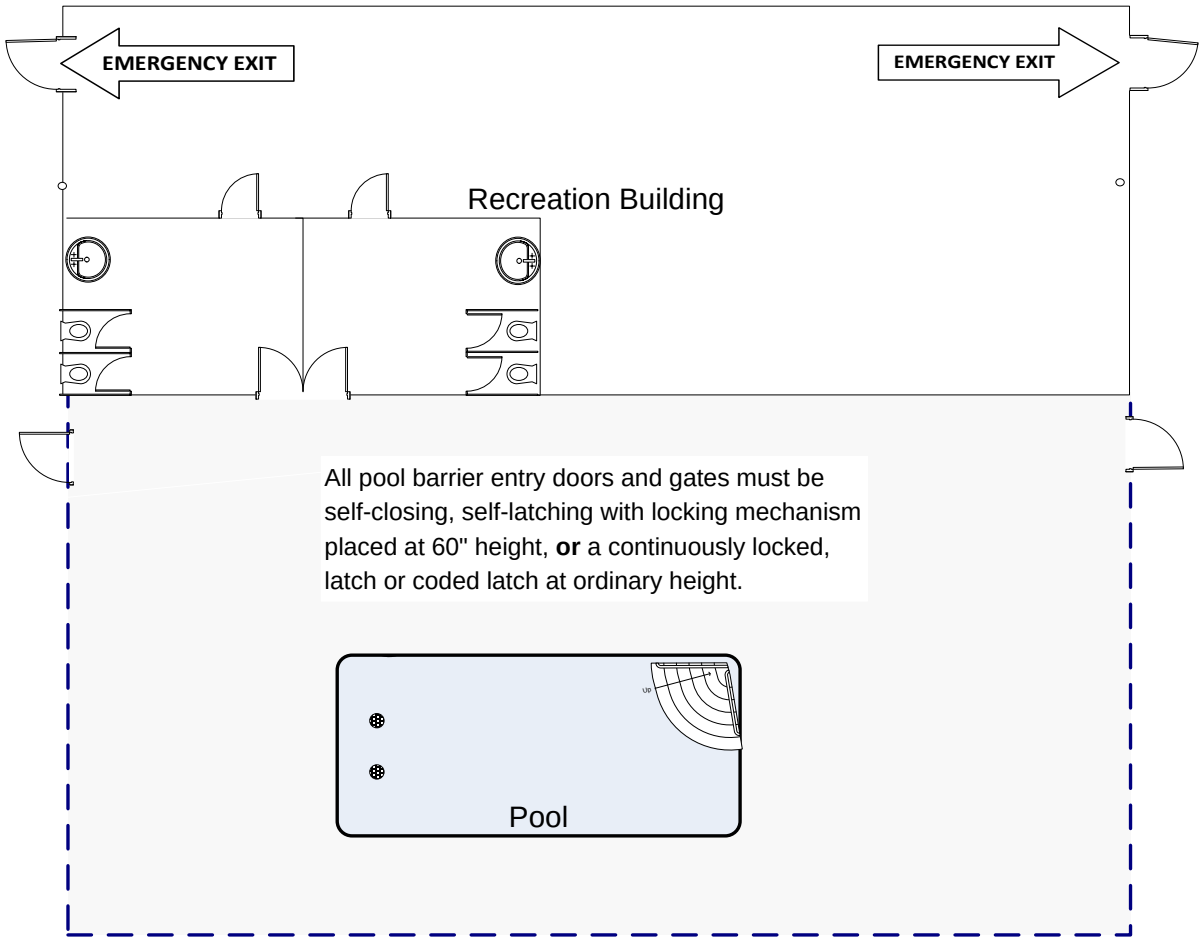
This design provides hand and foot holds for a child, greater than normal construction tolerances, and masonry joints. The Brick Industry Association has established a maximum tolerance of ¼" from plumb in 10 feet.

**Barrier Designs & Codes Conflict Considerations**

The doors and windows that open into the swimming pool and spa enclosure area must meet the barrier requirements per Chapter 246-260 WAC. Often the specific requirements of the pool code may conflict with other agency requirements, such as the rules set forth by local building and fire departments and the ADA. Most conflicts arise at indoor and outdoor facilities with an adjacent activity building used for exercise, meetings, receptions, etc.

The goal of the barrier gates and entry doors to the pool area is to limit unauthorized access of children. To meet the swimming /spa pool barrier requirements, an entry door to the pool or spa area from an adjacent building may not serve as an emergency egress. Barrier doors or gates within the swimming pool/spa area may be used to exit from the pool area in an emergency.

In the design example below, the doors and gates entering the pool area from the building, restrooms, and outside gates must meet the barrier requirements of Chapter 246-260 WAC to protect children from entering the pool. To also meet the requirements of ADA, the entry barriers locks may be placed at ordinary height with a continuously locked latch or coded latch. The emergency exits may be any doors from the building not leading to the pool.



## Part 2 –Design Recommendations

**Attributes for a safe design include:**

- Self-closing/self-latching gate components that are capable of adjustment to compensate for changes in gate alignment during and after installation.
- A gate and frame that are capable of sustaining manual force, including shaking, jarring or applying either an upward or downward manual force on the access gate at the time of inspection without:
    - Any part breaking or fracturing.
    - Any component becoming permanently deformed by more than ¼ inch over its length.
    - The gate becoming unlatched.
    - Allowing the access gate to be disconnected from the fence post.
- A gate that opens outward away from the pool. An outward opening gate is more difficult for a young child to open should they climb an object and unlock the latch. Even if a gate is not completely latched, a young child pushing on the gate in order to enter the pool area will at least close the gate and may actually engage the latch.

**Material Strength**

To construct the pool barrier that will maintain its integrity and resist changes due to conditions with public use and weathering. Whatever material chosen, you need to ensure the barrier continues to maintain the required dimensions. A good model for strength of material is similar to the balcony construction standards found in the International Building Codes.

- Measuring from the top of the barrier, be able to sustain a load of 50 pounds per linear foot applied in any direction and to transfer this load through the support structure; and
- Have the ability to resist a single concentrated load of 200 pounds, applied in any direction at any point along the top of the fence.
- Ensure all intermediate fence rails, including openings and space between rails can withstand a horizontally applied normal load of 50 pounds on an area equal to 1 square foot.


Photo provided by Wagner Instruments

Many building departments use a push/pull device to evaluate fencing structures to ensure the design exceeds the standard when forces are applied to the barrier components. If the fence cannot withstand these forces or deforms to a degree that brings the barriers' effective dimensions out of the minimum requirements, it will be necessary to make corrections to meet the rule.

**Owner / Manager Responsibility**

It is the responsibility of the property owner or the property manager to:

- Inspect and adjust the hardware, or the gate, or both, to compensate for ground movement and other factors so that the gate continues to effectively self-close and self-latch.
- Maintain the integrity of the fence and to regularly inspect the gates, doors, etc., for proper closing and latching operation for correct operation.
- Maintain a 60-inch clear zone to include all items that would aid a child in climbing the fence and gate. Keep this area free of toys, furniture, or other objects, which could be moved by a child and used to climb the fence.
- Ensure that the clearance from the bottom of the barrier to the ground surface is maintained to not exceed 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 surrounding ground levels, structures, or landscaping does not reduce the effective height of the barrier and applies only to the barrier height and does not apply to the location of the gate latch.

**Meeting Codes**

When making a change to existing barrier construction and prior to a new 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.

**Plan Review**

Plans for fences, gates, doors, and windows should be included in the plan submittals. Landscaping, grading, additions of barbecues, benches, art and similar additions, alterations and changes in proximity to barriers need to be included. 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 entire project.

**Health Department Contacts**

Health department contacts for water recreation facilities are available at http://www.doh.wa.gov/CommunityandEnvironment/WaterRecreation/RegulatedFacilities/HealthDepartmentContacts.aspx.

For persons with disabilities, this document is available in other formats upon request.
To submit a request, please call 1-800-525-0127 (TDD/TTY call 711).