



Layers of Protection

by

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Commission

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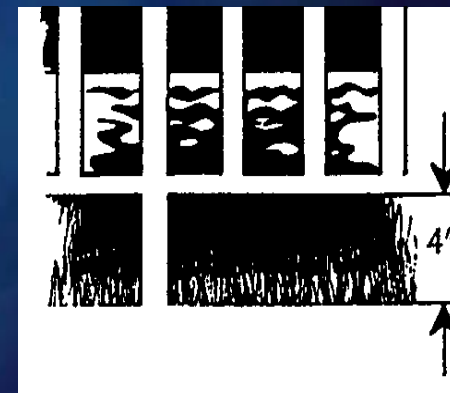
Safety Barrier Guidelines for Home Pools

A successful pool barrier prevents a child from getting OVER, UNDER, or THROUGH and keeps the child from gaining access to the pool except when supervising adults are present.

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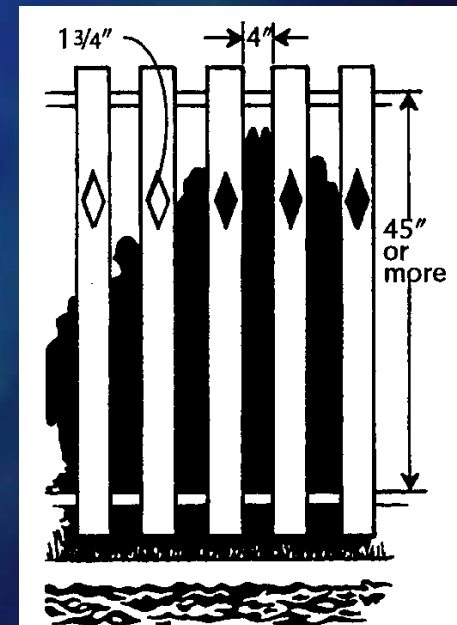
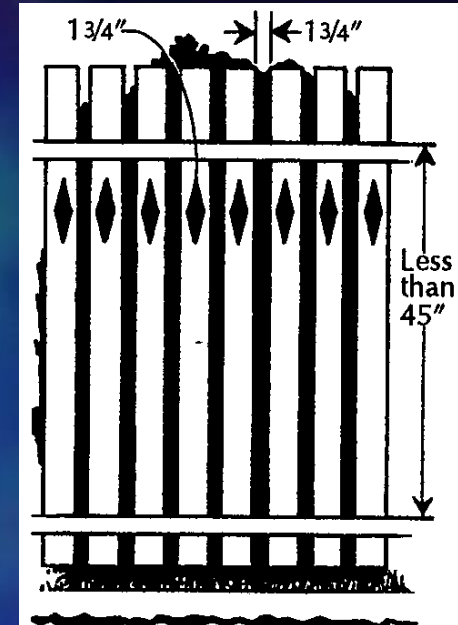
Barrier Recommendations

- 48-inch minimum height above grade
- 4-inch maximum clearance between grade bottom of the barrier or top of pool for above grade pools
- *ICC 2-inch maximum above grade*
- 1.75-inch maximum dimension for decorative cutouts



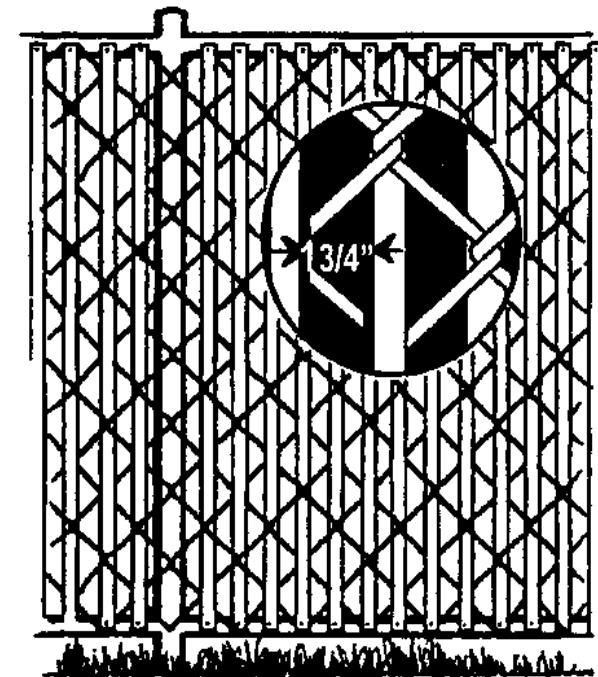
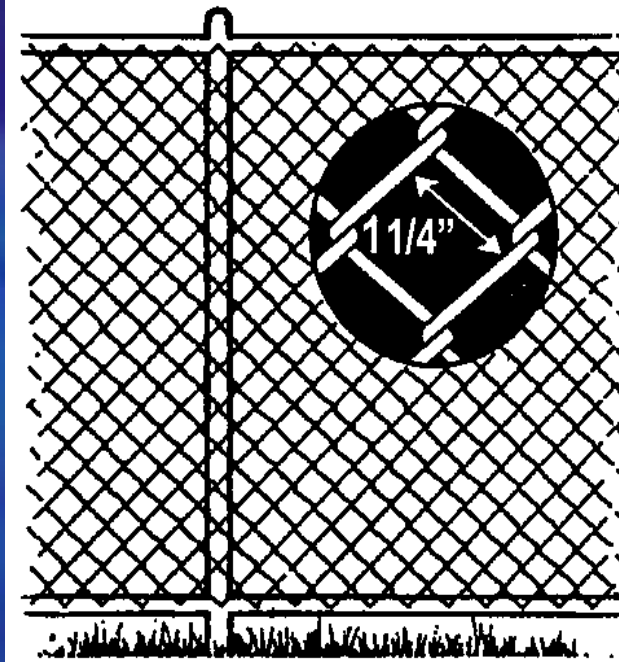
Barriers

- Spacing for horizontal and vertical members:
 - 1.75 inches between slats if the tops of horizontal members are spaced less than 45 inches apart
 - 4-inch maximum distance between vertical members if the horizontal members are spaced more than 45 inches apart



Barriers

- Solid Barrier – No indentions or protrusions to enable climbing
- Chain Link Fence – Fine mesh, not to exceed 1.25 inches square unless slats are inserted and fastened to reduce mesh openings to no more than 1.75 inches
- Latticework – maximum openings should not exceed 1.75 inches



Barrier Gates

- Self-closing and Self-latching
- Latching device – out of a child's reach
- Open outward, away from the pool

Door Alarms

- House forms 4th side of Barrier
- Additional Layer of Protection

UL Standard – 2017

General-Purpose Signaling Devices and Systems

- Produce audible alarm when door is opened.
- Door in closed position, alarm is in monitoring mode without having to set/reset a switch.
- Audible alarm within 7 seconds of door opening.
- Sound for not less than 30 seconds.

Door Alarm Switches

- Momentary Cancel switch allowed.
 - Cancel alarm if door closed, reset to monitor.
 - Re-cycled or no affect if door remains open.
- Momentary Disable switch allowed.
 - Disable for not more than 15 seconds.
- Switches mounted a minimum of 54 inches above the door threshold.



Additional Layer of Protection

Swimming Pool Alarms

Swimming Pool Alarms

Previous Study

- CPSC tested alarms in 1987
- Identified Problems
 - Didn't consistently alarm
 - False alarms

Second Study

May 2000

- Surface Wave Sensors
 - \$149 - \$200
- Subsurface Disturbance Alarms
 - \$190 - \$250
- Wristband Alarm
 - \$179

www.cpsc.gov

Results

- Subsurface pool alarms generally performed better
 - More consistent in alarming
 - Less likely to false alarm
 - Can be used with solar covers
- Surface Alarms
 - More susceptible to water surface conditions
- Wristband
 - Alarms with any water contact

Recommendations

- Pool Alarms can be a good additional layer of protection
- Not a substitute for supervision or for barrier completely surrounding pool
- Remote alarm feature important
- Wristband would need to be worn at all times
- Standard needed to set minimum performance requirements

ASTM Standard

F2208-02

Standard Specification for Pool Alarms

- General performance requirements
 - Alarm will sound at pool and remote location within 20 seconds of water entry
 - On/Off indication
 - Minimum alarm sound of 85 dB at 10 ft
 - Low Battery indicator (if battery powered)
 - Automatic reset



Entrapment Guidelines

Guideline Purpose

- These guidelines provide safety information that will help identify and address potential entrapment hazards in swimming pools, wading pools, spas, and hot tubs.

Guideline Contents

- Data

- Body Entrapment

- Hair Entrapment/Entanglement

- Evisceration/disembowelment

Types of Entrapment

Body Part

evisceration

air

entanglement

Methods to Address Entrapment

- **Body Part**

- Multiple Drains

- Approved Drain Covers

- Safety Vacuum Release Systems (SVRS)

Methods to Address Entrapment

- **Hair Entrapment (Mechanical)**
 - Approved Drain Covers
 - Flow Rate

Entrapment Guidelines

- Three basic guidelines addressing;
 - Construction
 - Outlet Covers
 - Maintenance

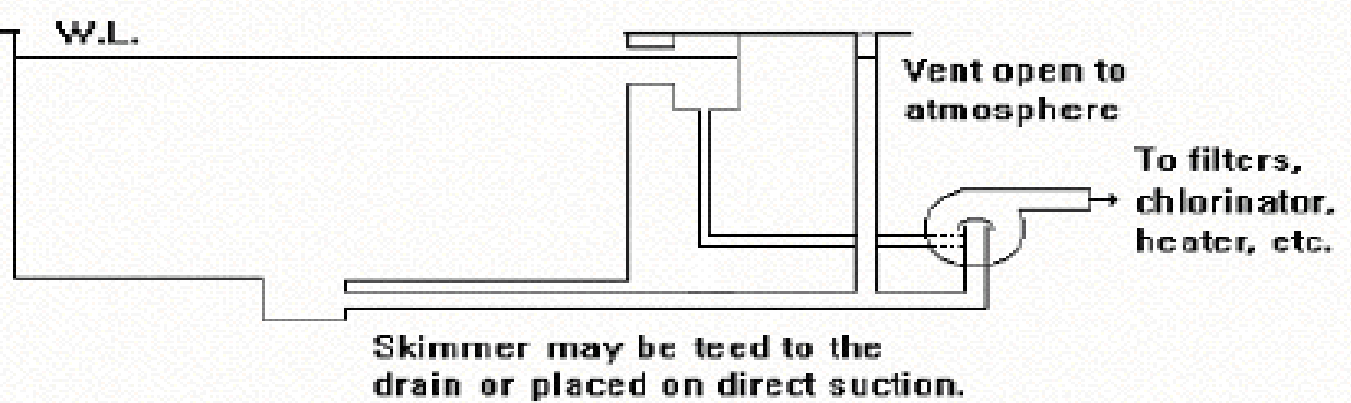
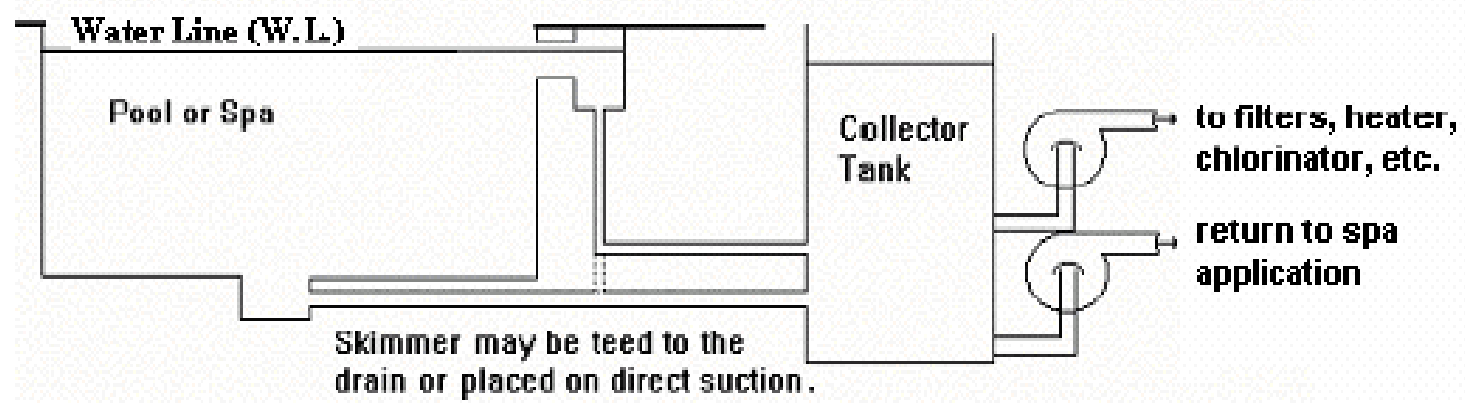
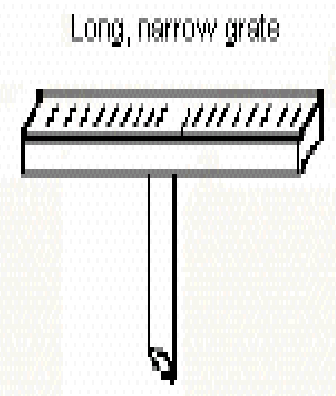
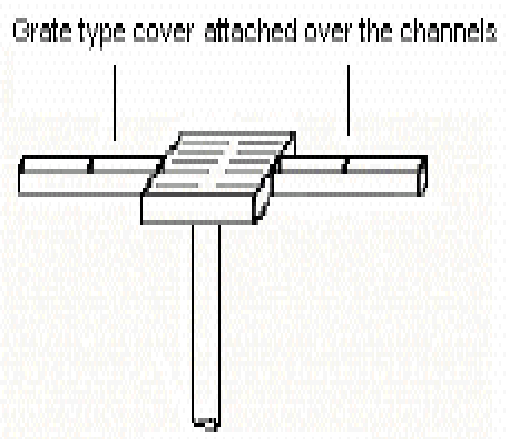
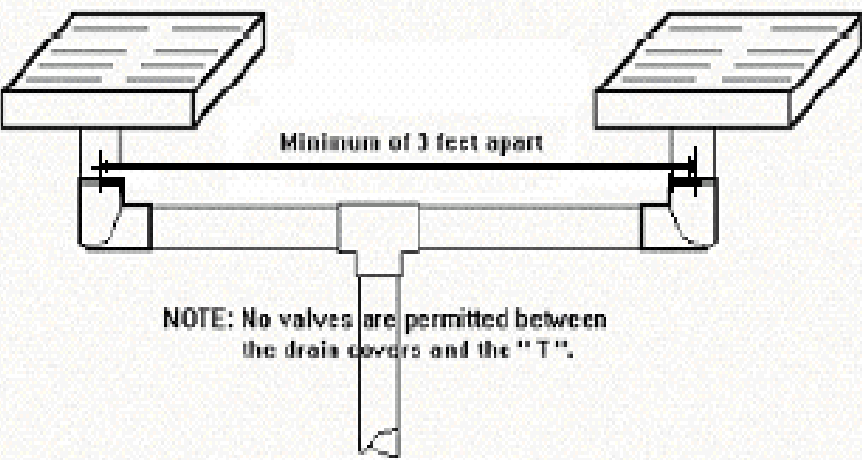
Guideline #1

- **Addresses;**
 - **New Construction**
 - **Existing Pools/Spas**
 - **Wading Pools**

Guideline #1

■ New construction options

- a minimum of two outlets per pump, with pipe centers at least 3 feet apart with outlet covers listed and approved in accordance with ASME/ANSI A112.19.8 performance standard.
- alternative designs, such as;
 - 18" x 23" or larger covers,
 - long channels that cannot be blocked by the body,
 - gravity feed systems,
 - atmospheric vent systems,
 - engineered, tested, and approved designs that prevent entrapment hazards from occurring, including designs that do not include fully submerged suction outlets.



Due to care and maintenance concerns, consider installation of a back-up system that relieves entrapping suction and/or shuts down the pump when a blockage is detected, such as

- An SVRS,
- Other technology,

in case unanticipated conditions arise that may present an entrapment hazard. Tests should be conducted to verify entrapment does not occur.

■ Existing pool, spa, or hot tub with a single suction outlet, the following actions are recommended:

- Rework the suction (drain) system to include either a minimum of two drains per pump with approved covers or,
- drain design configurations that prevent a seal from occurring (large aspect cover, long and narrow, etc.), and
- consider installing a back-up system in case an unanticipated condition arises and a blockage occurs, or

- **Where rework is not possible or practical, ensure that:**
 - an ASME/ANSI A112.19.8 listed cover is in place,
 - flow through the drain (outlet) grate does not exceed 1.5 feet per second (fps), and
 - a secondary back-up system that relieves the entrapping suction and/or shuts down the pump when a blockage is detected [e.g., an SVRS] or other technology is installed.

- For wading pools that include a fully submerged suction outlet(s);
 - Install multiple drains with ASME/ANSI A112.19.8 tested covers and an SVRS back-up system or other technology due to the shallow depth of water and easy access to the pool drains.
 - Consider alternative designs that prevent entrapment hazards from occurring such as those noted above under new construction.

Guideline #2

- If the drain cover does not display the appropriate markings for maximum flow rate and labeling that indicate it has been tested to the ASME/ANSI voluntary standard, shut down the pump and replace the cover.

Guideline #3

- Develop a comprehensive maintenance program for each facility. A checklist is provided in the Guidelines to help implement this program. The maintenance program should address the following:

- a. If the drain cover or grate is cracked, broken, or missing, immediately shut down the pump(s) and replace the grate or cover.
- b. The covers should be anchored in accordance with the manufacturer's specifications and supplied parts (e.g., non-corroding fasteners).
- c. The practice of color coding or labeling plumbing and equipment should be incorporated into all facilities. The most important aspect of a labeling/coding program is to provide the location, identification, and marking of the On/Off switch for the circulation pump(s).