

## APPENDIX G

# SWIMMING POOLS, SPAS AND HOT TUBS

*(The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.)*

### SECTION AG101 GENERAL

**AG101.1 General.** The provisions of this appendix shall control the design and construction of swimming pools, spas and hot tubs installed in or on the *lot* of a one- or two-family dwelling.

**AG101.2 Pools in flood hazard areas.** Pools that are located in flood hazard areas established by Table R301.2(1), including above-ground pools, on-ground pools and in-ground pools that involve placement of fill, shall comply with Sections AG101.2.1 or AG101.2.2.

**Exception:** Pools located in riverine flood hazard areas which are outside of designated floodways.

**AG101.2.1 Pools located in designated floodways.** Where pools are located in designated floodways, documentation shall be submitted to the *building official*, which demonstrates that the construction of the pool will not increase the design flood elevation at any point within the *jurisdiction*.

**AG101.2.2 Pools located where floodways have not been designated.** Where pools are located where design flood elevations are specified but floodways have not been designated, the applicant shall provide a floodway analysis that demonstrates that the proposed pool will not increase the design flood elevation more than 1 foot (305 mm) at any point within the *jurisdiction*.

### SECTION AG102 DEFINITIONS

**AG102.1 General.** For the purposes of these requirements, the terms used shall be defined as follows and as set forth in Chapter 2.

**ABOVE-GROUND/ON-GROUND POOL.** See "Swimming pool."

**BARRIER.** A fence, wall, building wall or combination thereof which completely surrounds the swimming pool and obstructs access to the swimming pool.

**HOT TUB.** See "Swimming pool."

**IN-GROUND POOL.** See "Swimming pool."

**RESIDENTIAL.** For the purposes of this Section, "Residential" means situated on the premises of a detached one- or two-family dwelling or which is accessory to an individual one-family townhouse or the exclusive use of its residents and invited guests.

**SPA, PORTABLE.** A nonpermanent structure intended for recreational bathing, in which all controls, water-heating and water-circulating *equipment* are an integral part of the product.

**SWIMMING POOL.** Any structure intended for swimming or recreational bathing that contains water over 24 inches (610

mm) deep. This includes in-ground, above-ground and on-ground swimming pools, hot tubs and spas.

**SWIMMING POOL, INDOOR.** A swimming pool which is totally contained within a structure and surrounded on all four sides by the walls of the enclosing structure.

**SWIMMING POOL, OUTDOOR.** Any swimming pool which is not an indoor pool.

### SECTION AG103 SWIMMING POOLS

**AG103.1 In-ground pools.** In-ground pools shall be designed and constructed in conformance with ANSI/NSPI-5 as listed in Section AG108.

**AG103.2 Above-ground and on-ground pools.** Above-ground and on-ground pools shall be designed and constructed in conformance with ANSI/NSPI-4 as listed in Section AG108.

**AG103.3 Pools in flood hazard areas.** In flood hazard areas established by Table R301.2(1), pools in coastal high hazard areas shall be designed and constructed in conformance with ASCE 24.

### SECTION AG104 SPAS AND HOT TUBS

**AG104.1 Permanently installed spas and hot tubs.** Permanently installed spas and hot tubs shall be designed and constructed in conformance with ANSI/NSPI-3 as listed in Section AG108.

**AG104.2 Portable spas and hot tubs.** Portable spas and hot tubs shall be designed and constructed in conformance with ANSI/NSPI-6 as listed in Section AG108.

### SECTION AG105 BARRIER REQUIREMENTS

**AG105.1 Application.** The provisions of this chapter shall control the design of barriers for residential swimming pools, spas and hot tubs. These design controls are intended to provide protection against potential drownings and near-drownings by restricting access to swimming pools, spas and hot tubs.

**AG105.2 Outdoor swimming pool.** An outdoor swimming pool, including an in-ground, above-ground or on-ground pool, hot tub or spa shall be surrounded by a barrier which shall comply with the following:

1. The top of the barrier shall be at least 48 inches (1219 mm) above *grade* measured on the side of the barrier which faces away from the swimming pool. The maximum vertical clearance between grade and the bottom of

- the barrier shall be 2 inches (51 mm) measured on the side of the barrier which faces away from the swimming pool. Where the top of the pool structure is above grade, such as an above-ground pool, the barrier may be at ground level, such as the pool structure, or mounted on top of the pool structure. Where the barrier is mounted on top of the pool structure, the maximum vertical clearance between the top of the pool structure and the bottom of the barrier shall be 4 inches (102 mm).
2. Openings in the barrier shall not allow passage of a 4-inch-diameter (102 mm) sphere.
  3. Solid barriers which do not have openings, such as a masonry or stone wall, shall not contain indentations or protrusions except for normal construction tolerances and tooled masonry joints.
  4. Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is less than 45 inches (1143 mm), the horizontal members shall be located on the swimming pool side of the fence. Spacing between vertical members shall not exceed  $1\frac{3}{4}$  inches (44 mm) in width. Where there are decorative cutouts within vertical members, spacing within the cutouts shall not exceed  $1\frac{3}{4}$  inches (44 mm) in width.
  5. Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is 45 inches (1143 mm) or more, spacing between vertical members shall not exceed 4 inches (102 mm). Where there are decorative cutouts within vertical members, spacing within the cutouts shall not exceed  $1\frac{3}{4}$  inches (44 mm) in width.
  6. Maximum mesh size for chain link fences shall be a  $2\frac{1}{4}$ -inch (57 mm) square unless the fence has slats fastened at the top or the bottom which reduce the openings to not more than  $1\frac{3}{4}$  inches (44 mm).
  7. Where the barrier is composed of diagonal members, such as a lattice fence, the maximum opening formed by the diagonal members shall not be more than  $1\frac{3}{4}$  inches (44 mm).
  8. Access gates shall comply with the requirements of Section AG105.2, Items 1 through 7, and shall be equipped to accommodate a locking device. Pedestrian access gates shall open outward away from the pool and shall be self-closing and have a self-latching device. Gates other than pedestrian access gates shall have a self-latching device. Where the release mechanism of the self-latching device is located less than 54 inches (1372 mm) from the bottom of the gate, the release mechanism and openings shall comply with the following:
    - 8.1. The release mechanism shall be located on the pool side of the gate at least 3 inches (76 mm) below the top of the gate; and
    - 8.2. The gate and barrier shall have no opening larger than  $\frac{1}{2}$  inch (12.7 mm) within 18 inches (457 mm) of the release mechanism.
  9. Where a wall of a *dwelling* serves as part of the barrier, one of the following conditions shall be met:
    - 9.1. The pool shall be equipped with a powered safety cover in compliance with ASTM F 1346; or
    - 9.2. Doors with direct access to the pool through that wall shall be equipped with an alarm which produces an audible warning when the door and/or its screen, if present, are opened. The alarm shall be listed and *labeled* in accordance with UL 2017. The deactivation switch(es) shall be located at least 54 inches (1372 mm) above the threshold of the door; or
    - 9.3. Other means of protection, such as self-closing doors with self-latching devices, which are *approved* by the governing body, shall be acceptable as long as the degree of protection afforded is not less than the protection afforded by Item 9.1 or 9.2 described above.
  10. Where an above-ground pool structure is used as a barrier or where the barrier is mounted on top of the pool structure and the means of access is a ladder or steps, the ladder or steps shall be surrounded by a barrier which meets the requirements of Section AG105.2, Items 1 through 9.

**AG105.3 Indoor swimming pool.** Walls surrounding an indoor swimming pool shall comply with Section AG105.2 Item 9.

**AG105.4 Prohibited locations.** Barriers shall be located to prohibit permanent structures, *equipment* or similar objects from being used to climb them.

**AG105.5 Barrier exceptions.** Spas or hot tubs with a safety cover which complies with ASTM F 1346, as listed in Section AG107, shall be exempt from the provisions of this appendix.

**AG105.6 Temporary enclosure.** A temporary enclosure shall be installed prior to the electrical bonding inspection of any in-ground swimming pool unless the permanent barrier specified in Section AG105.2 is in place prior to the commencement of the installation. The temporary enclosure shall be a minimum of 4 feet (1219 mm) in height, shall have no openings that will allow passage of a 4-inch sphere and shall be equipped with a positive latching device on any openings.

**AG105.7 Pool alarm.** Pursuant to section 29-265a of the Connecticut General Statutes, no building permit shall be issued for the construction or substantial alteration of a swimming pool at a residence occupied by, or being built for, one or more families unless a pool alarm is installed with the swimming pool. As used in this section, "pool alarm" means a device that emits a sound of at least 50 decibels when a person or an object weighing 15 pounds or more enters the water in a swimming pool.

Exception: Hot tubs and portable spas shall be exempt from this requirement

## **SECTION AG106 ENTRAPMENT PROTECTION FOR SWIMMING POOL AND SPA SUCTION OUTLETS**

**AG106.1 General.** Suction outlets shall be designed and installed in accordance with ANSI/APSP-7.

## **SECTION AG107 ABBREVIATIONS**

### **AG107.1 General.**

ANSI—American National Standards Institute  
11 West 42nd Street  
New York, NY 10036

APSP—Association of Pool and Spa Professionals

NSPI—National Spa and Pool Institute  
2111 Eisenhower Avenue  
Alexandria, VA 22314

ASCE—American Society of Civil Engineers  
1801 Alexander Bell Drive  
Reston, VA 98411-0700

ASTM—ASTM International  
100 Barr Harbor Drive,  
West Conshohocken, PA 19428

UL—Underwriters Laboratories, Inc.  
333 Pfingsten Road  
Northbrook, IL 60062-2096

## **SECTION AG108 STANDARDS**

### **AG108.1 General.**

#### **ANSI/NSPI**

ANSI/NSPI-3-99 Standard for  
Permanently Installed Residential Spas . . . . . AG104.1

ANSI/NSPI-4-99 Standard for Above-ground/  
On-ground Residential Swimming Pools . . . . . AG103.2

ANSI/NSPI-5-2003 Standard for  
Residential In-ground Swimming Pools . . . . . AG103.1

ANSI/NSPI-6-99 Standard for  
Residential Portable Spas . . . . . AG104.2

#### **ANSI/APSP**

ANSI/APSP-7-06 Standard for Suction Entrapment  
avoidance in Swimming Pools, Wading Pools, Spas,  
Hot Tubs and Catch Basins . . . . . AG106.1

#### **ASCE**

ASCE/SEI-24-05 Flood Resistant  
Design and Construction . . . . . AG103.3

#### **ASTM**

ASTM F 1346-91 (2003) Performance  
Specification for Safety Covers and Labeling  
Requirements for All Covers for Swimming Pools,  
Spas and Hot Tubs . . . . . AG105.2, AG105.5

#### **UL**

UL 2017-2000 Standard for General-purpose  
Signaling Devices and Systems—with Revisions  
through June 2004 . . . . . AG105.2

## 2009 International Energy Conservation Code

**504.7 Pools.** Pools shall be provided with energy conserving measures in accordance with Sections 504.7.1 through 504.7.3.

**504.7.1 Pool heaters.** All pool heaters shall be equipped with a readily *accessible* on-off switch to allow shutting off the heater without adjusting the thermostat setting. Pool heaters fired by natural gas or LPG shall not have continuously burning pilot lights.

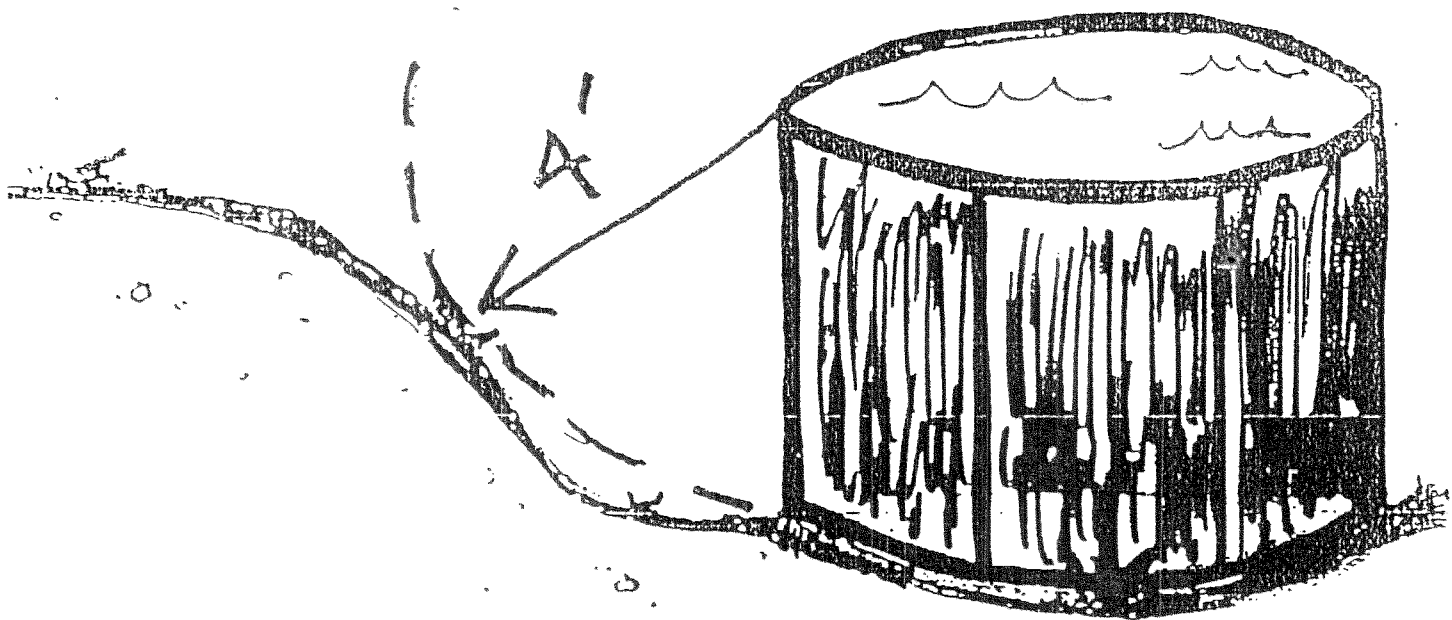
**504.7.2 Time switches.** Time switches that can automatically turn off and on heaters and pumps according to a preset schedule shall be installed on swimming pool heaters and pumps.

**Exceptions:**

1. Where public health standards require 24-hour pump operation.
2. Where pumps are required to operate solar-and waste-heat-recovery pool heating systems.

**504.7.3 Pool covers.** Heated pools shall be equipped with a vapor retardant pool cover on or at the water surface. Pools heated to more than 90°F (32°C) shall have a pool cover with a minimum insulation value of R-12.

**Exception:** Pools deriving over 60 percent of the energy for heating from site-recovered energy or solar energy source.



## ELEVATION

ACCEPTABLE SWIMMING POOL BARRIER. PROVIDED THE ABOVE GROUND SWIMMING POOL IS A MINIMUM 4 FEET ABOVE THE GROUND. REMOVE ANY GROUND WITHIN A 4 FOOT RADIUS.

# POOL ALARMS FOR NEW RESIDENTIAL SWIMMING POOLS

29-265a

Public Act 99-140 – any new or substantial alteration of a residential pool (one or more families – includes apartment house pools) for which a permit is applied on or after 10/1/99 shall have a “pool alarm” that is defined as a device which emits a sound of at least 50 decibels when a person or object weighing 15 pounds or more enters the water in the pool.

A statement from the permit applicant that such alarm will be installed must be obtained prior to issuance of the permit. Check to make sure the alarm is in place and functioning prior to issuance of the Certificate of Occupancy for the pool.

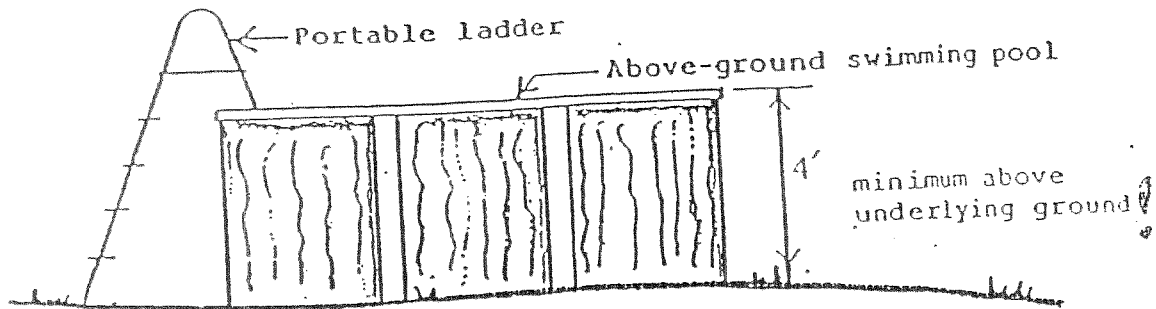
Sec. 29-265a. Permits for swimming pools. (a) As used in this section, “pool alarm” means a device which emits a sound of at least fifty decibels when a person or an object weighing fifteen pounds or more enters the water in a swimming pool.

(b) No building permit shall be issued for the construction or substantial alteration of a swimming pool at a residence occupied by, or being built for, one or more families unless a pool alarm is installed with the swimming pool.

(P.A. 99-140.)

SUB-SECTION AG 105.2 # 10

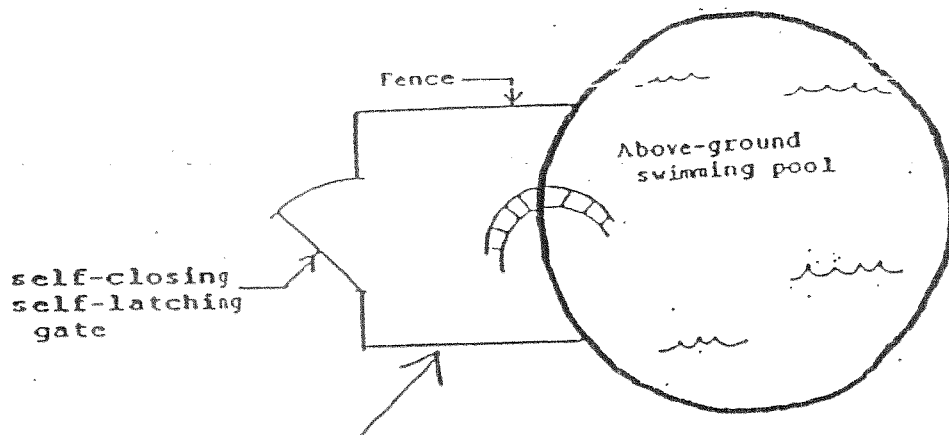
A removable ladder shall not constitute an acceptable alternative to enclosure requirements !!!



ELEVATION

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SUB-SECTION AG 105.2 ITEM #10

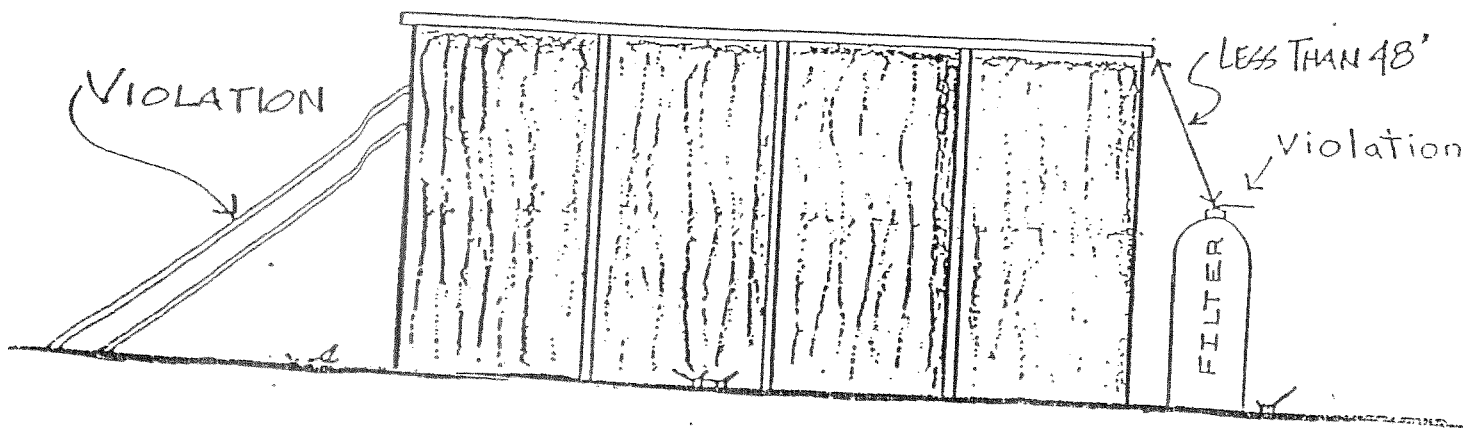


Barrier shall comply w/items 1 through 9

SITE PLAN

SUB-SECTION 16.105.4: "PROHIBITED LOCATIONS"

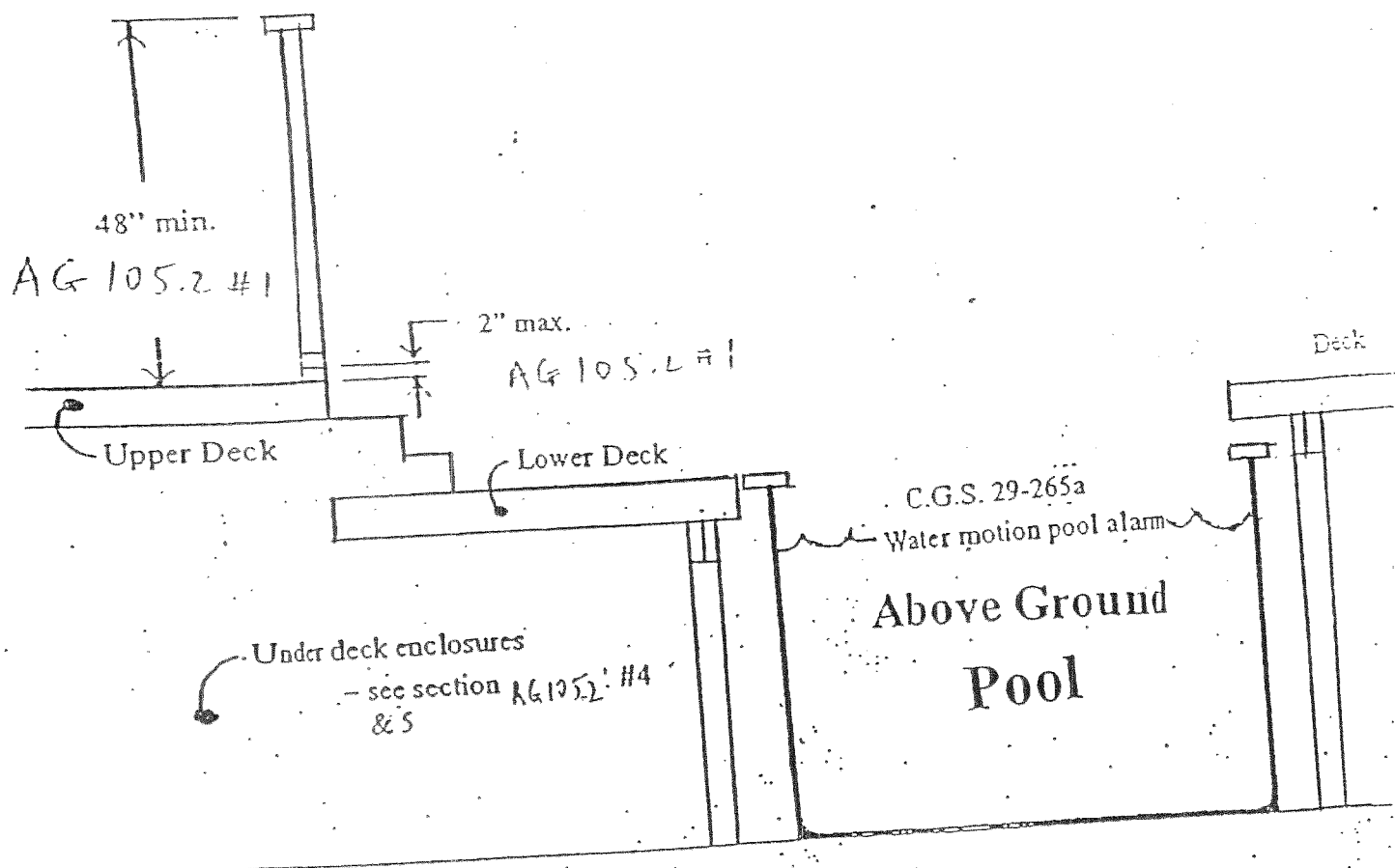
ABOVE GROUND SWIMMING POOL

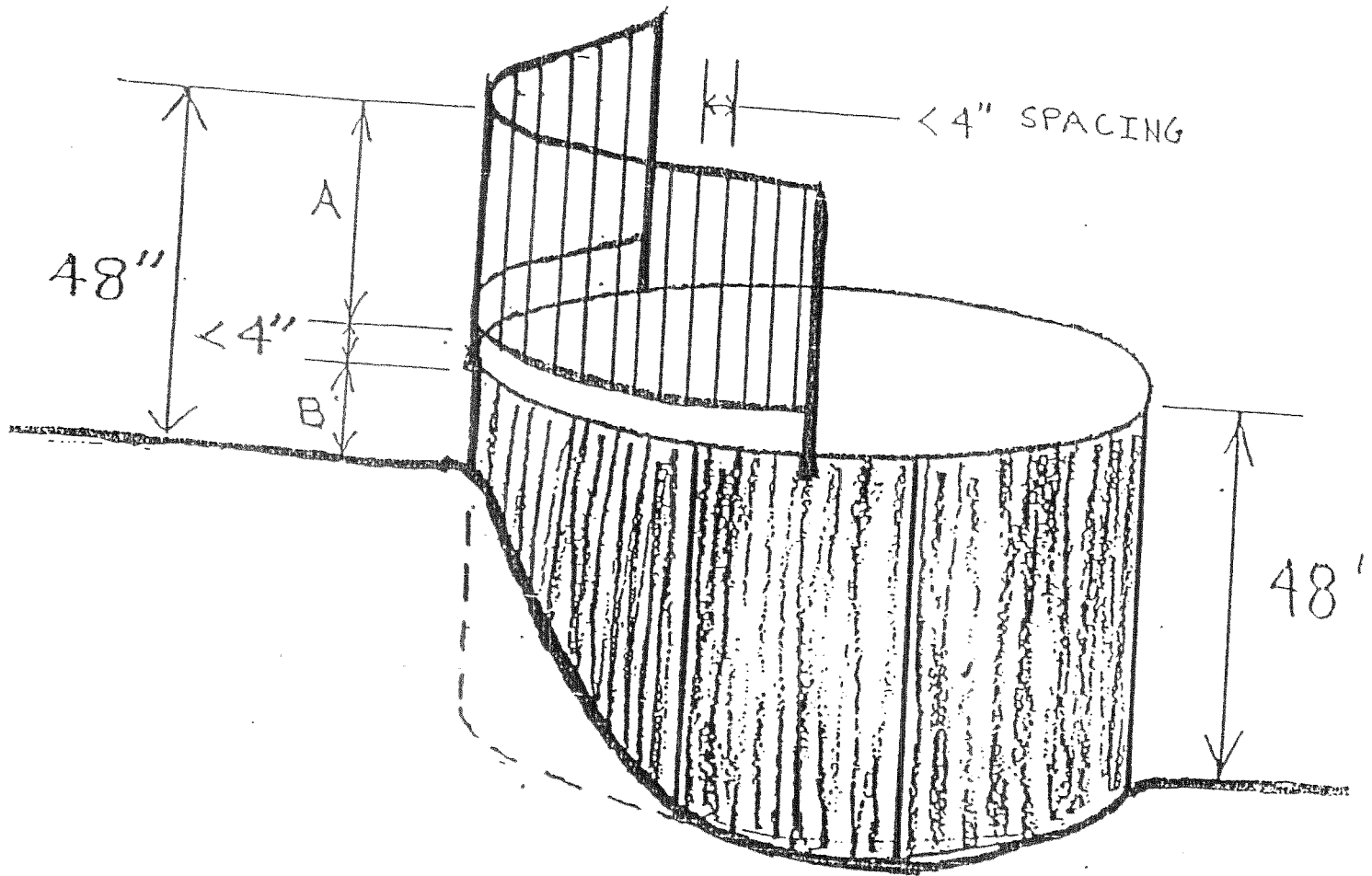


ELEVATION



## Cross-section – Multi-level Decks & Pool





## ELEVATION

NOT AN ACCEPTABLE SWIMMING POOL BARRIER. VERTICAL AND HORIZONTAL SPACING REQUIREMENTS ARE NOT IN COMPLIANCE. ONE POSSIBLE SOLUTION IS TO HAVE THE BARRIER ON TOP OF THE POOL A MINIMUM OF 48" WITH PROPER VERTICAL SPACING.

CODEREERENCE:

AG 105.2 #1 + #4

SUB-SECTION AG 105.2 # 9.2

OPTION 1 OF 3 CHOICES

*THE DOOR ALARM SHALL:*

*LISTED & LABELED UL 2017*

- Produce an audible warning when the door and its screen are opened.
- Audible warning sounds within 7 seconds of opening the door & screen.
- Sound continuously for 30 seconds minimum.
- Have a minimum sound pressure rating of 85 dBA at 10 feet.
- Be distinctive from other household sounds.
- Automatically reset under all conditions.
- Be equipped with manual means to temporarily deactivate the alarm for a single opening from either direction.
- Allow deactivation to last not more than 15 seconds.
- Have deactivation touch pads or switches located a minimum of 54 inches above the door threshold.

The door alarm must comply with All the criteria listed above.

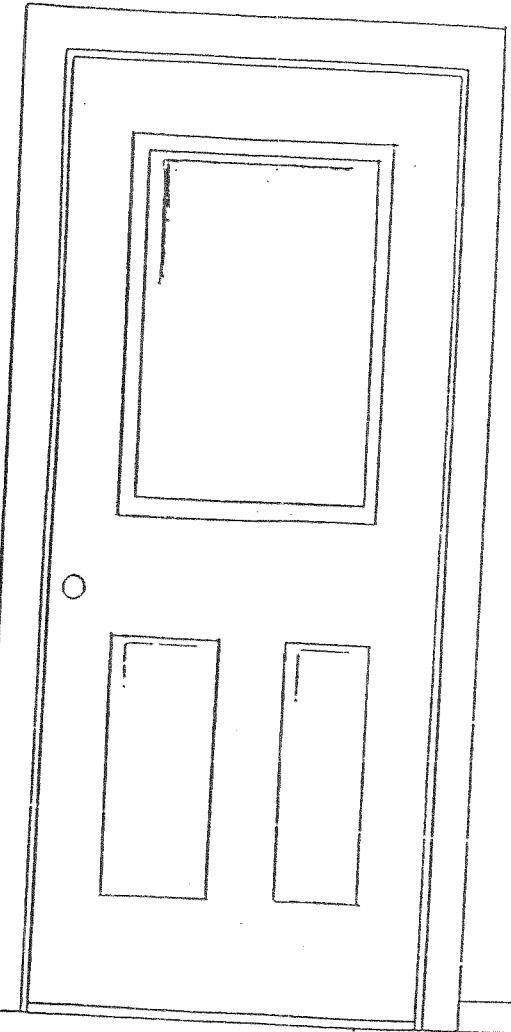
SECTION

AG 105.2 , ITEM 9

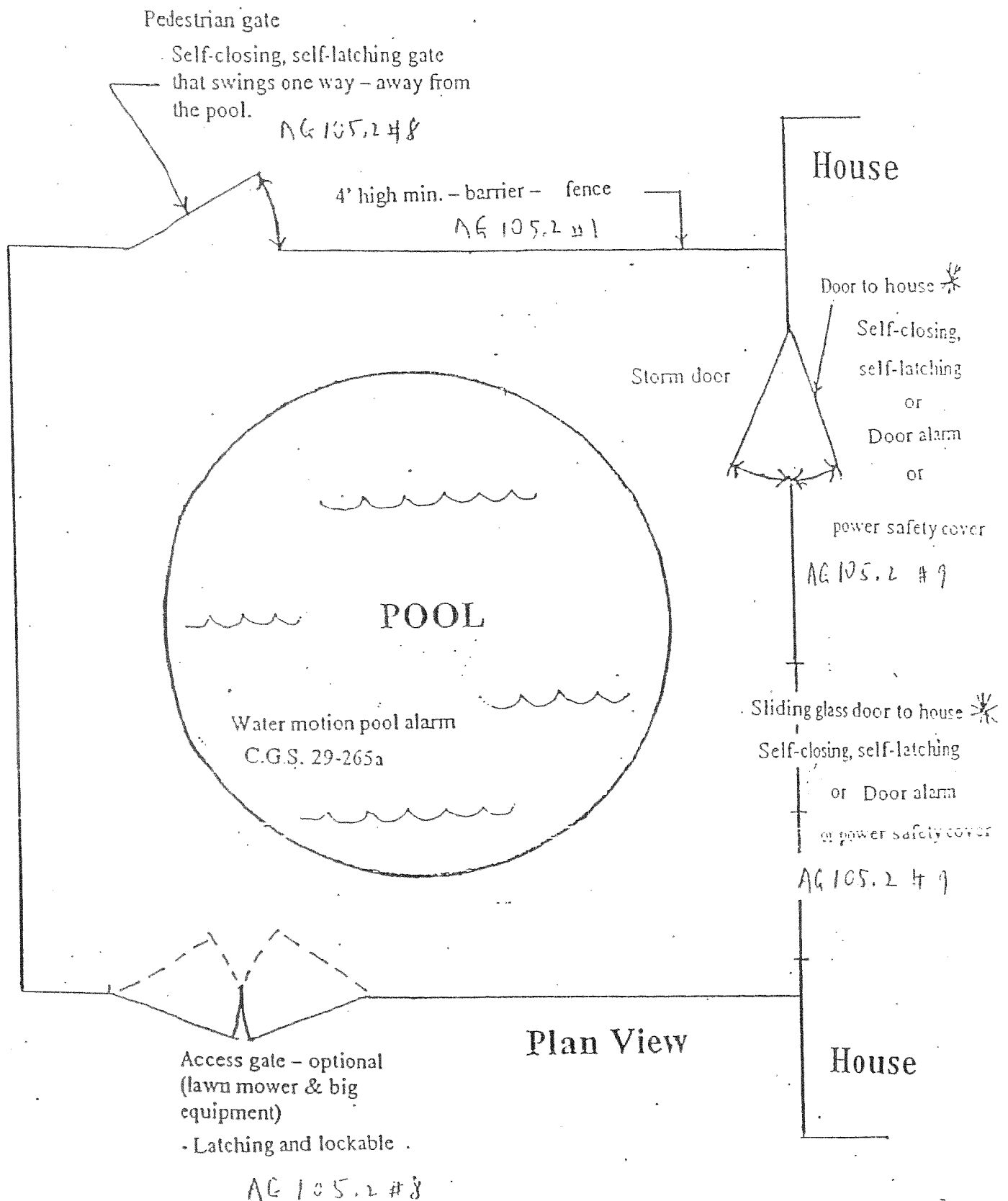
SELF CLOSING AND  
SELF LATCHING DEVICE

ALARM  
DEACTIVATION SWITCH  
OR TOUCHPAD

54" MINIMUM

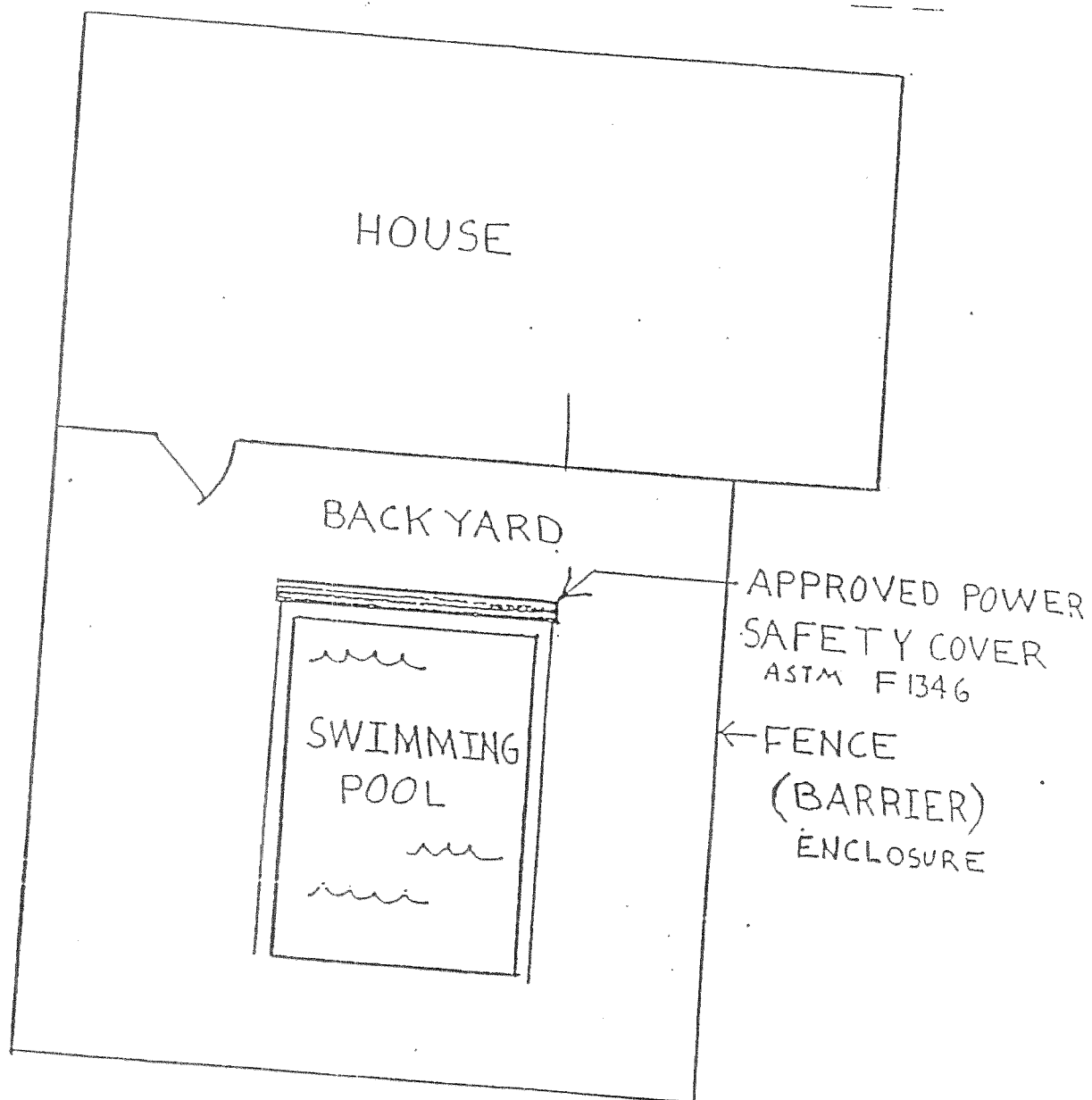


ELEVATION

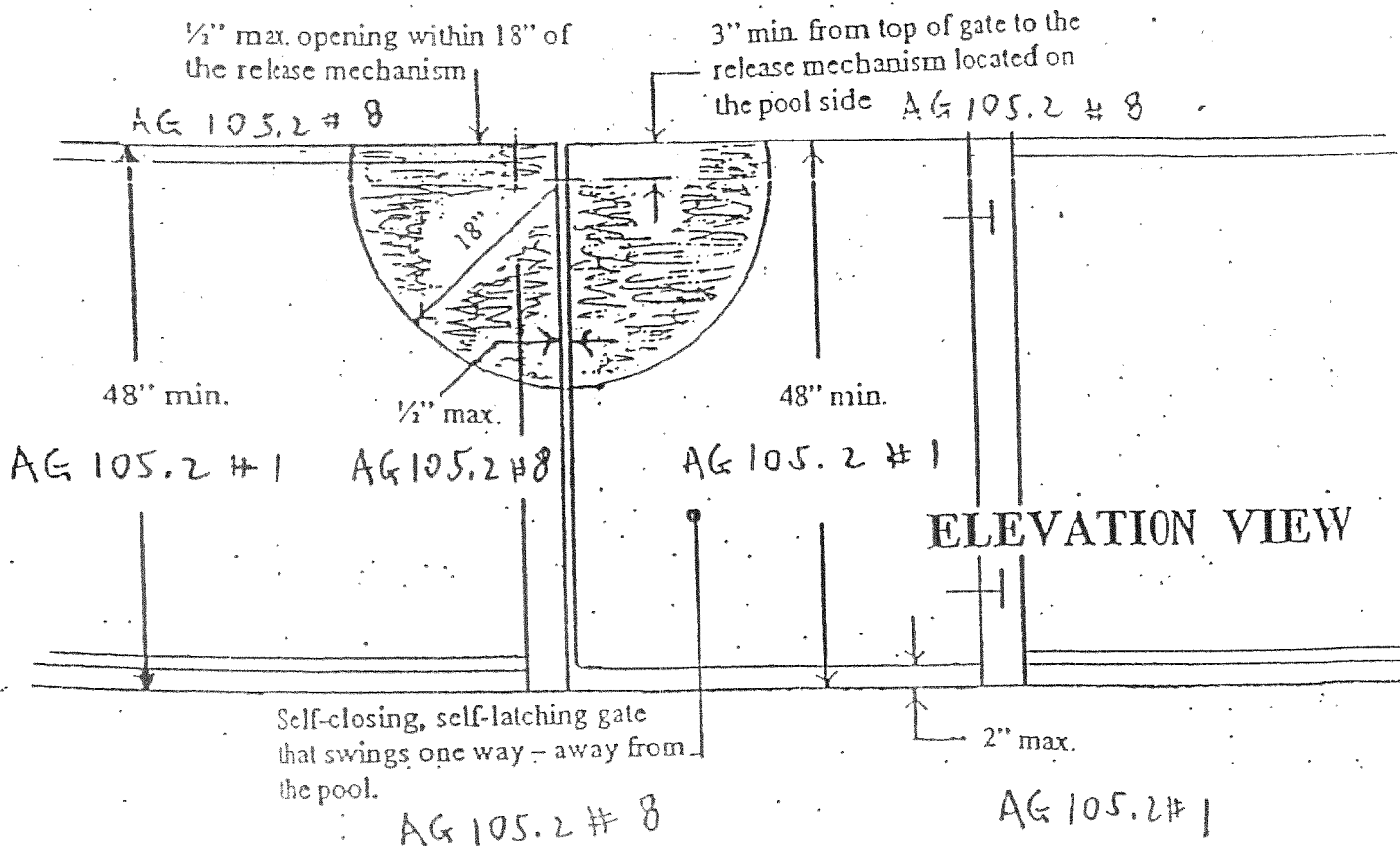
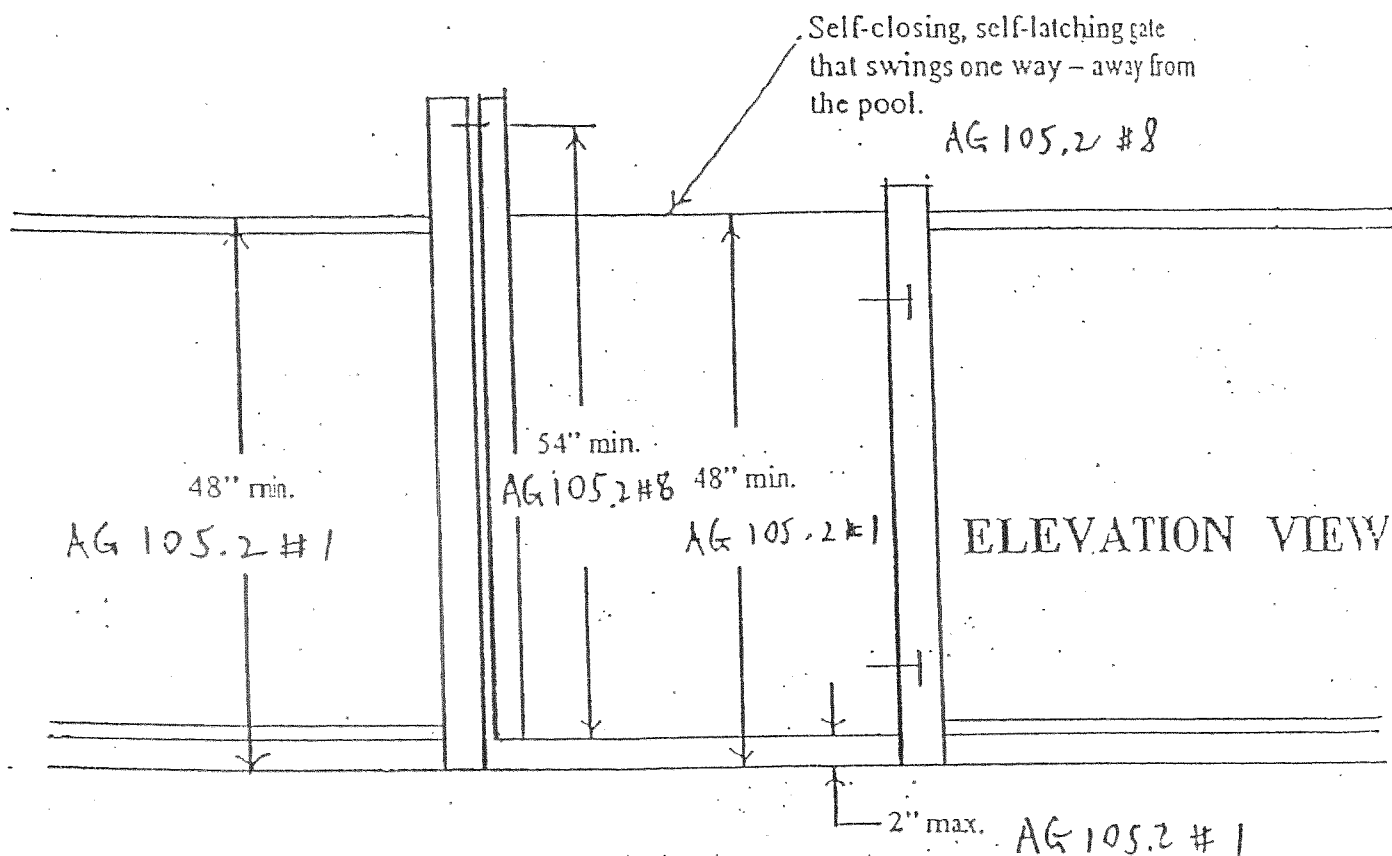


\* NOTE: PER AG 105.3, THE REQUIREMENTS OF AG 105.2  
ITEM #9 ALSO APPLY TO INDOOR POOLS.

SECTION AG 105.2 , ITEM 9



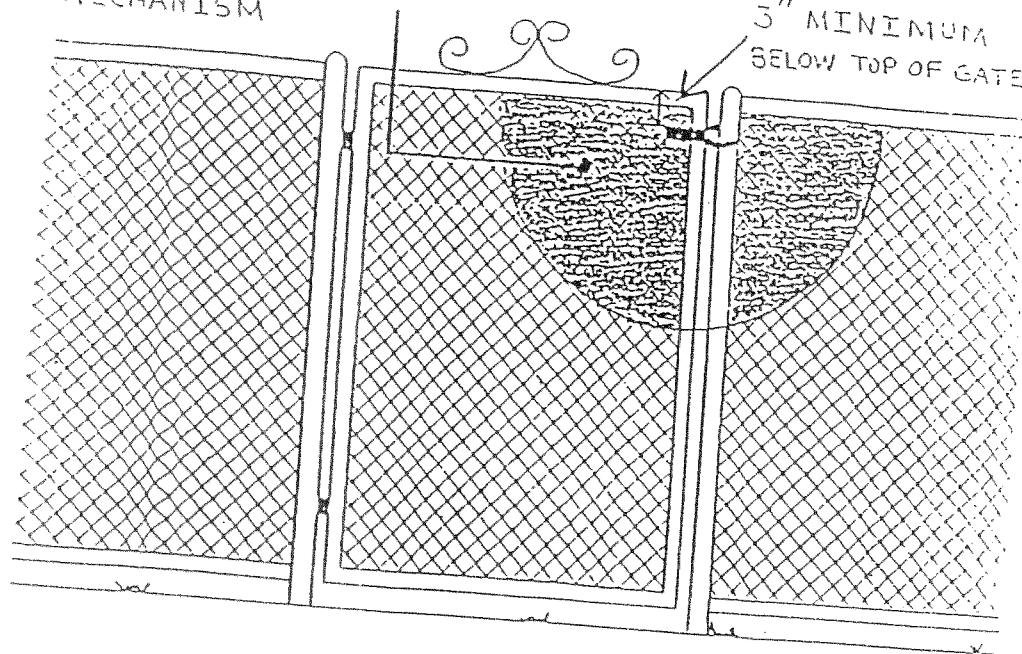
SITE PLAN



ACCESS GATE OR PEDESTRIAN ACCESS GATE

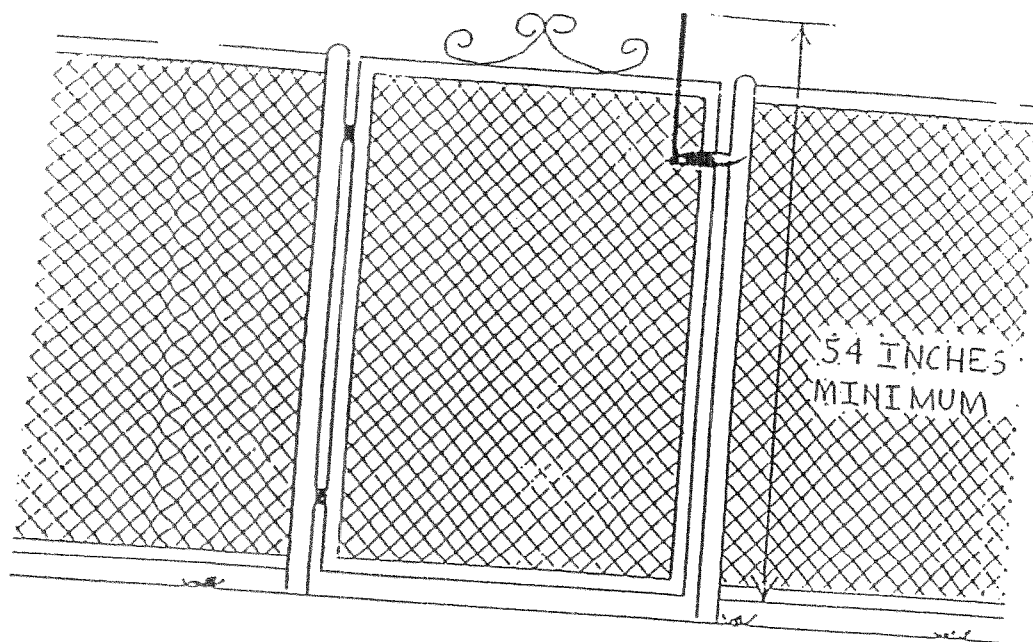
1/2" MAXIMUM OPENING WITHIN  
16" OF THE RELEASE  
MECHANISM

3" MINIMUM  
BELOW TOP OF GATE



INSIDE POOL AREA ONLY

SECTION AG 105.2 ITEM 8



INSIDE OR OUTSIDE POOL AREA

SECTION AG 105.2 ITEM 8



FIGURE AG 105.2 #2 + #5

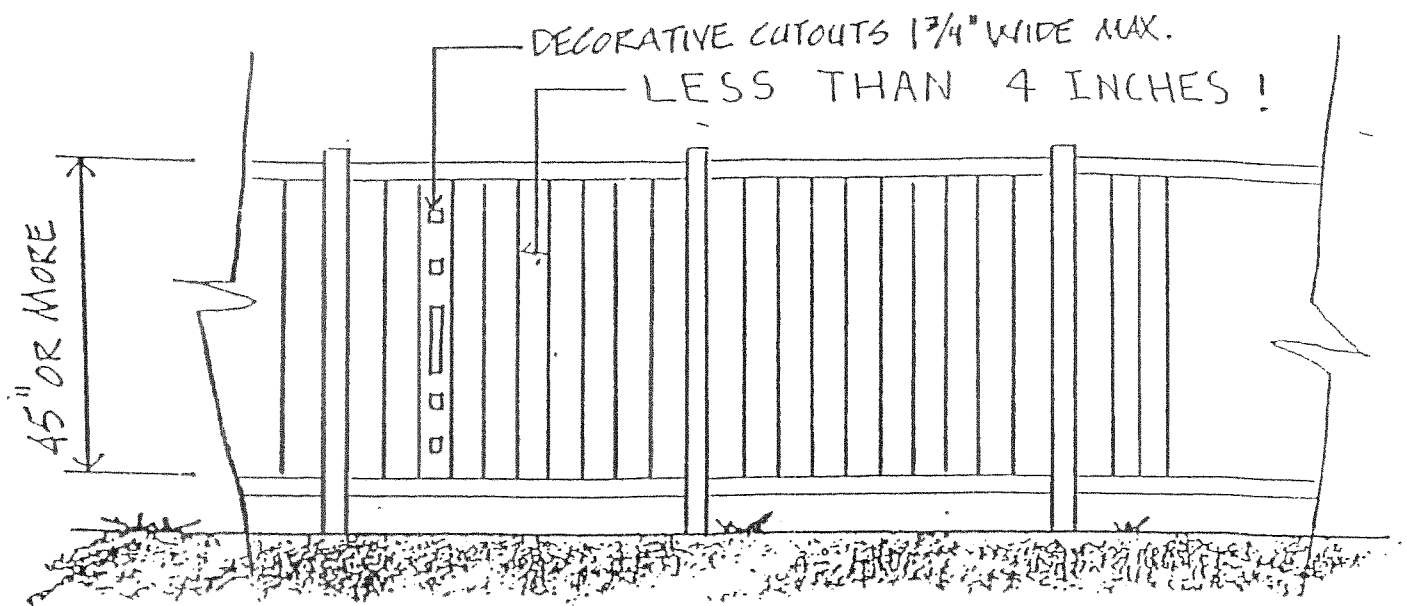
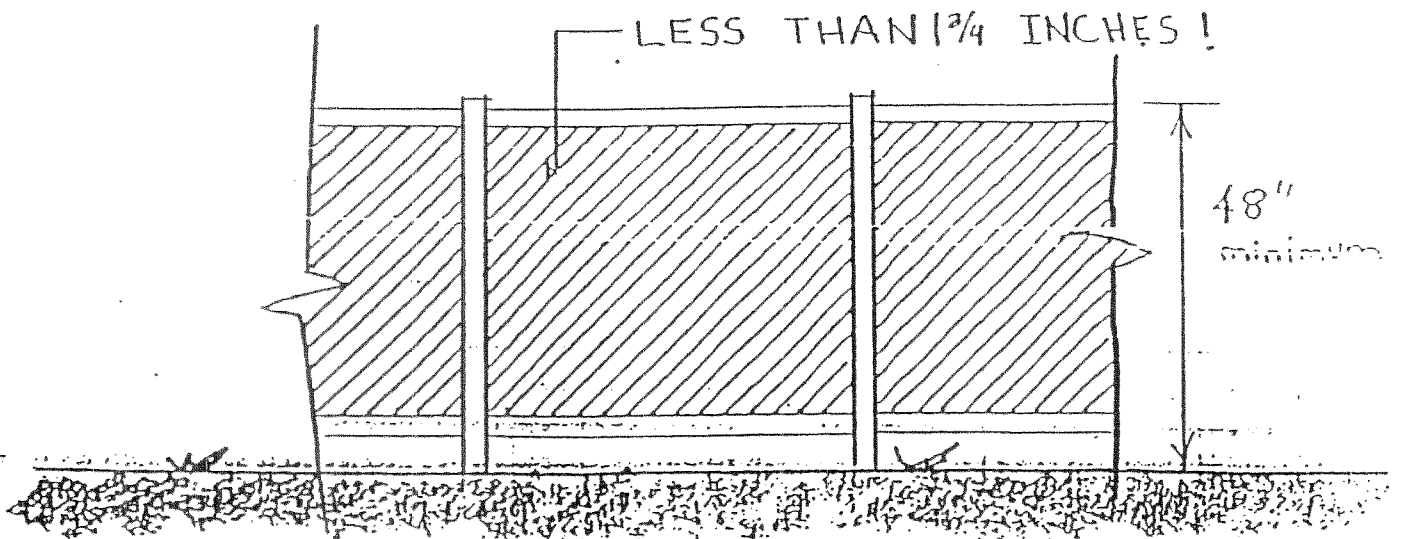
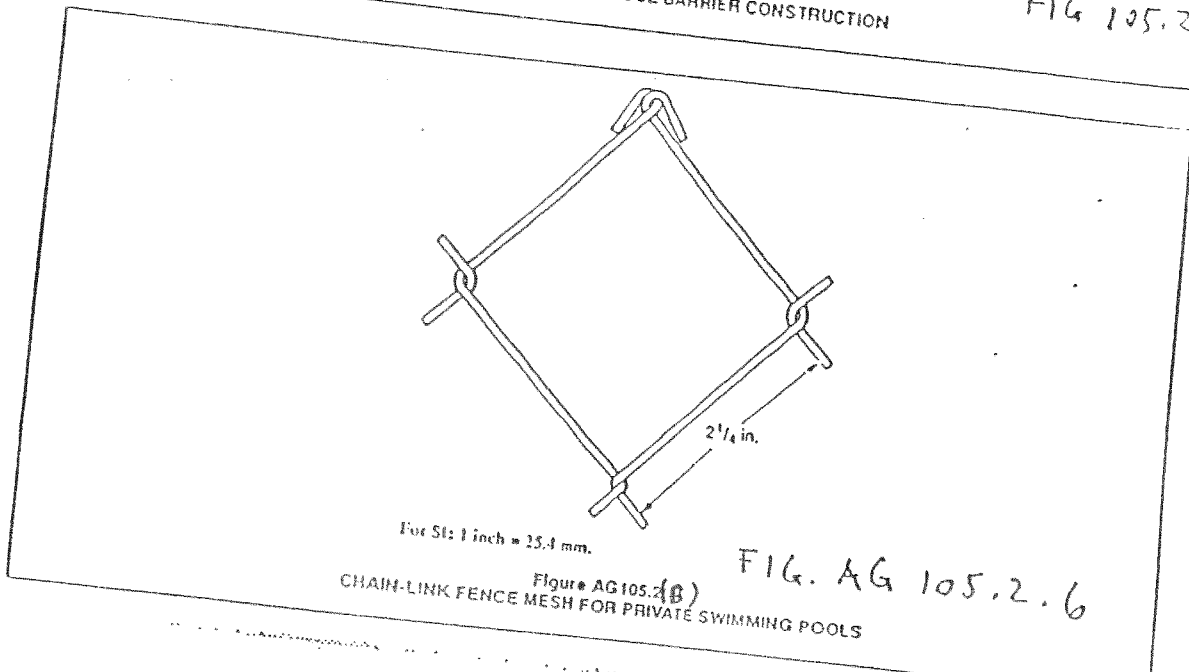
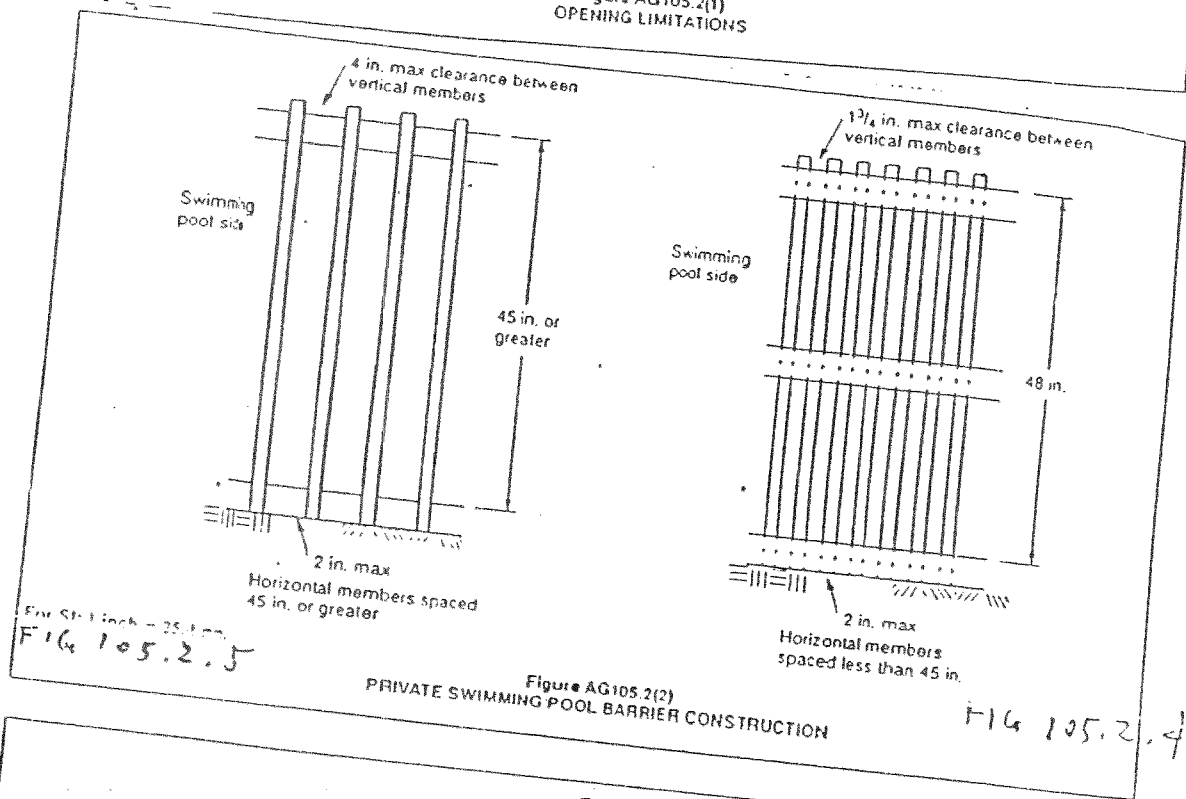
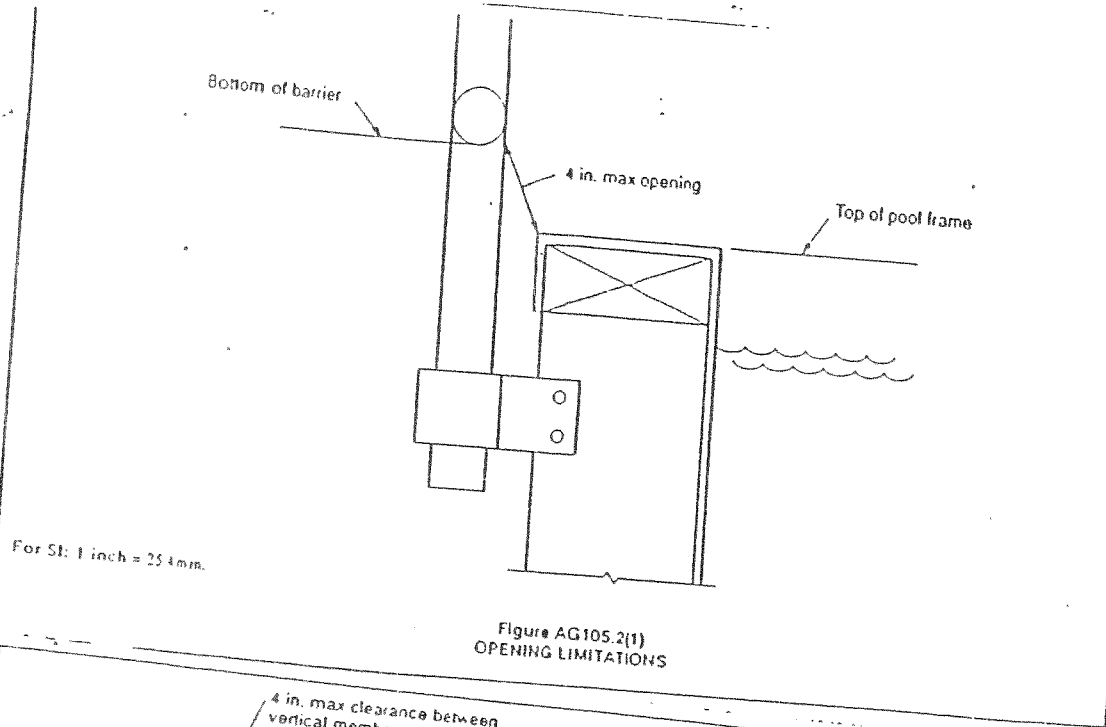
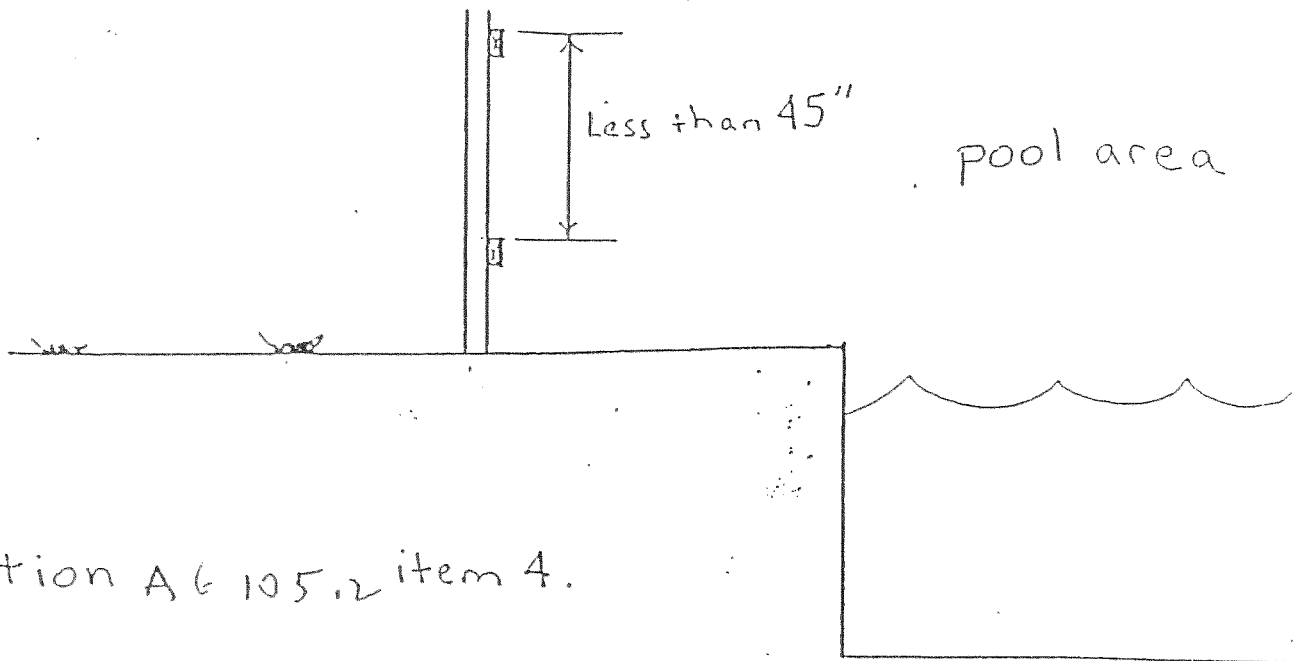


FIGURE AG 105.2 .7

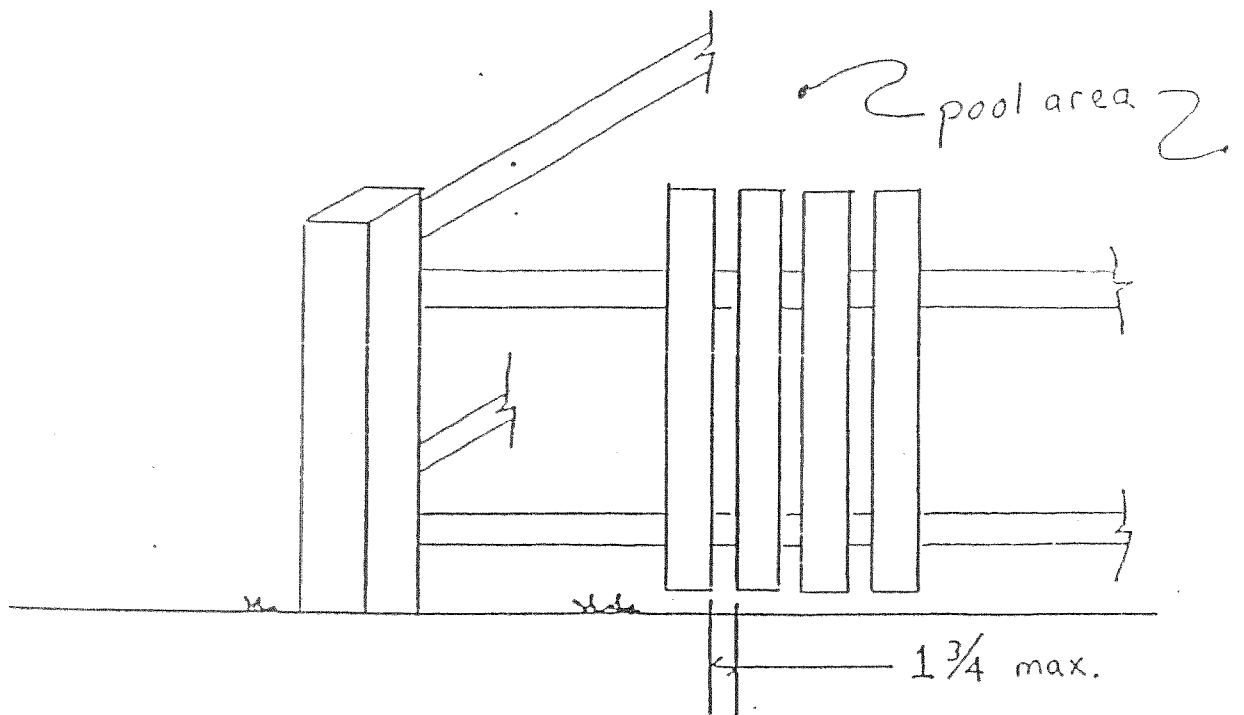


ELEVATION

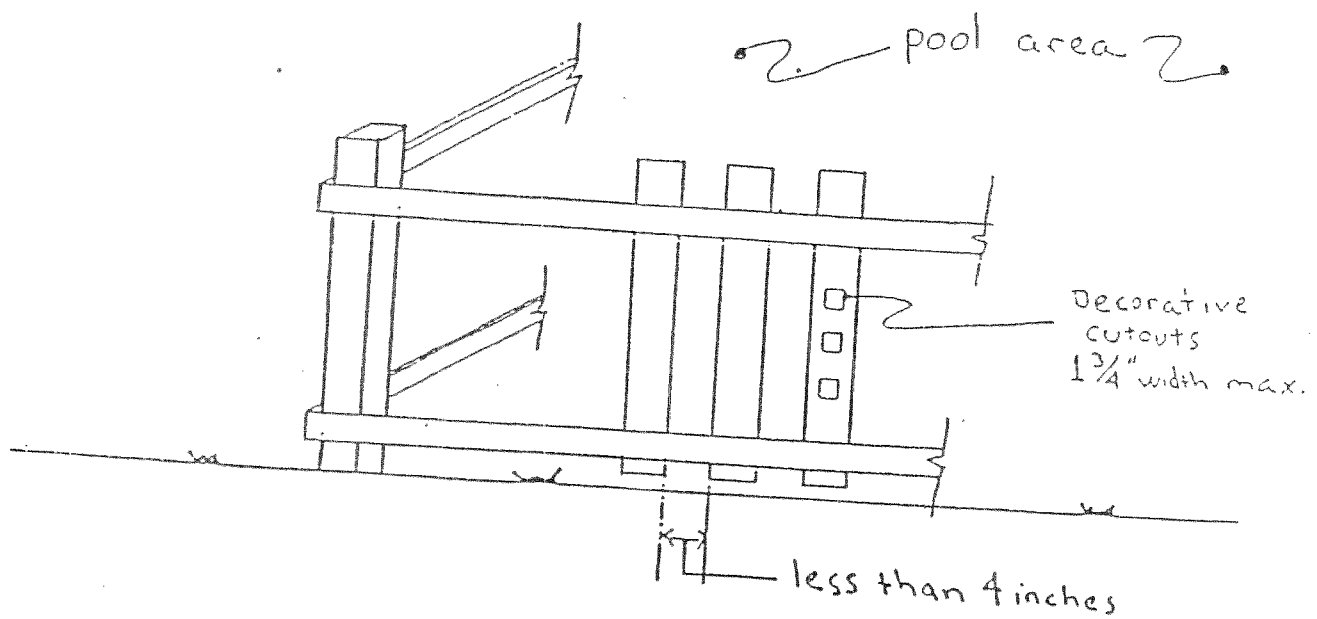
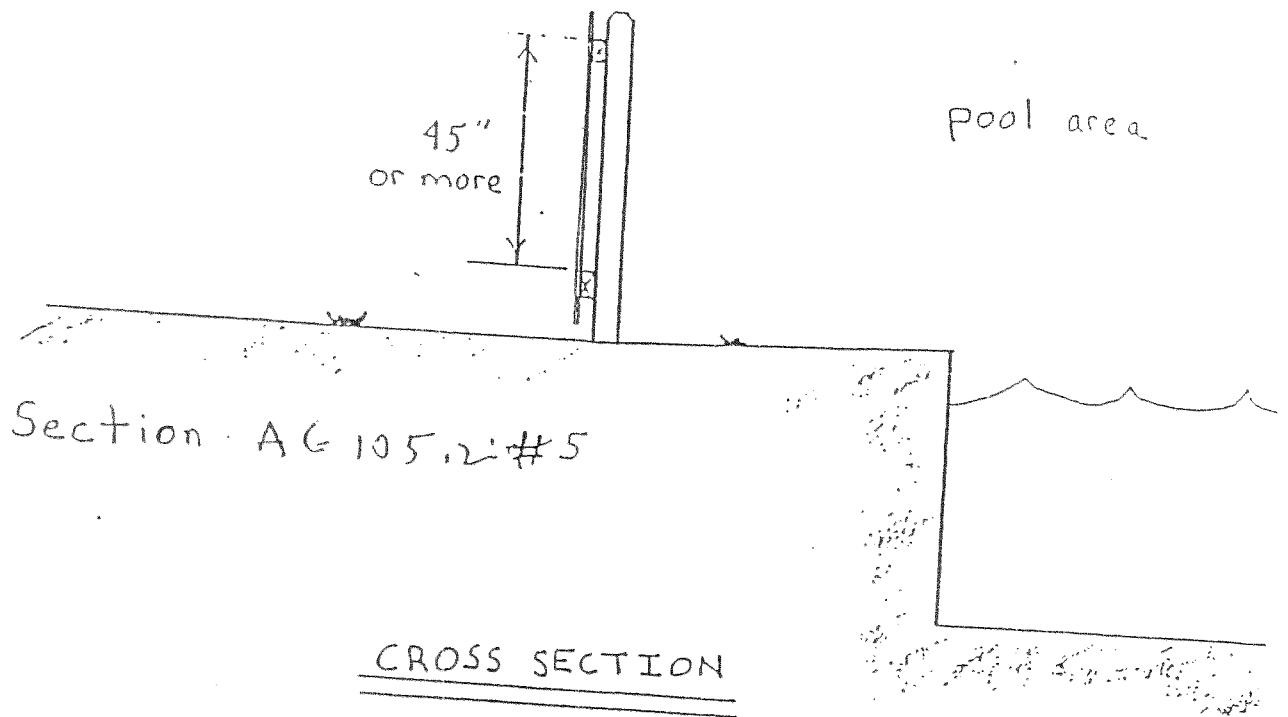




CROSS SECTION

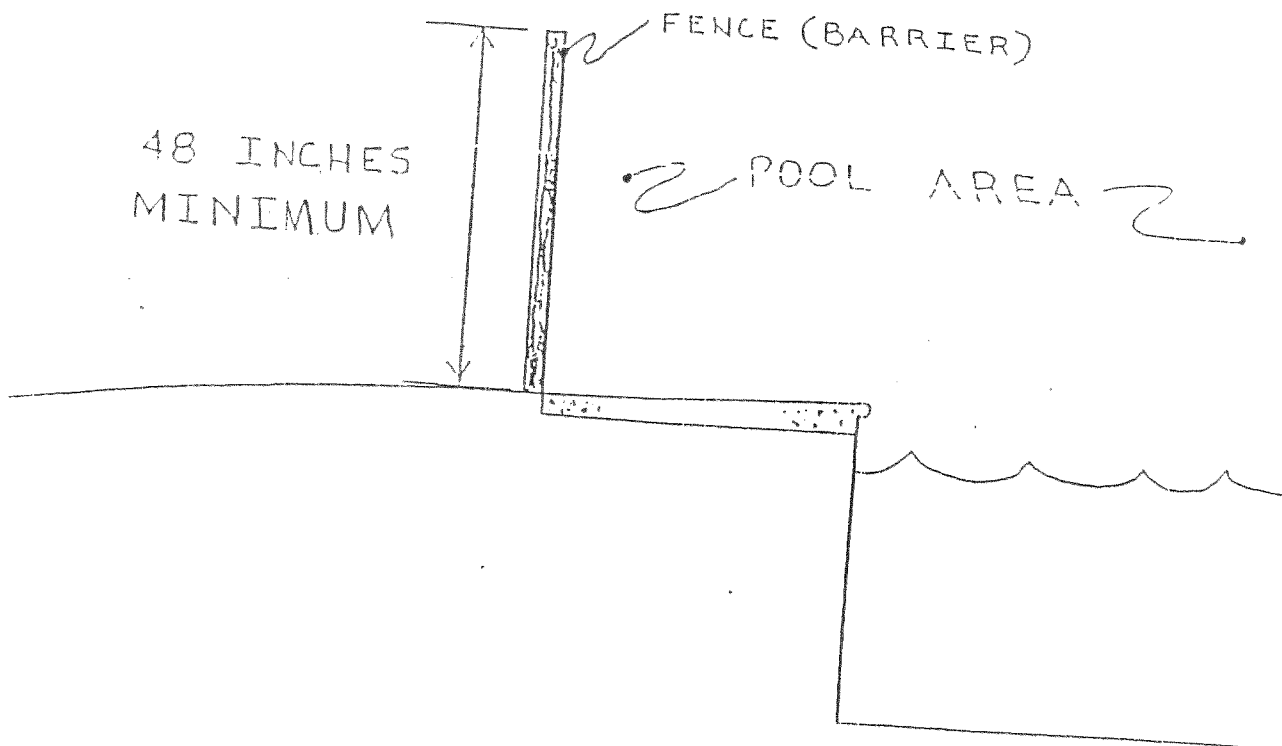
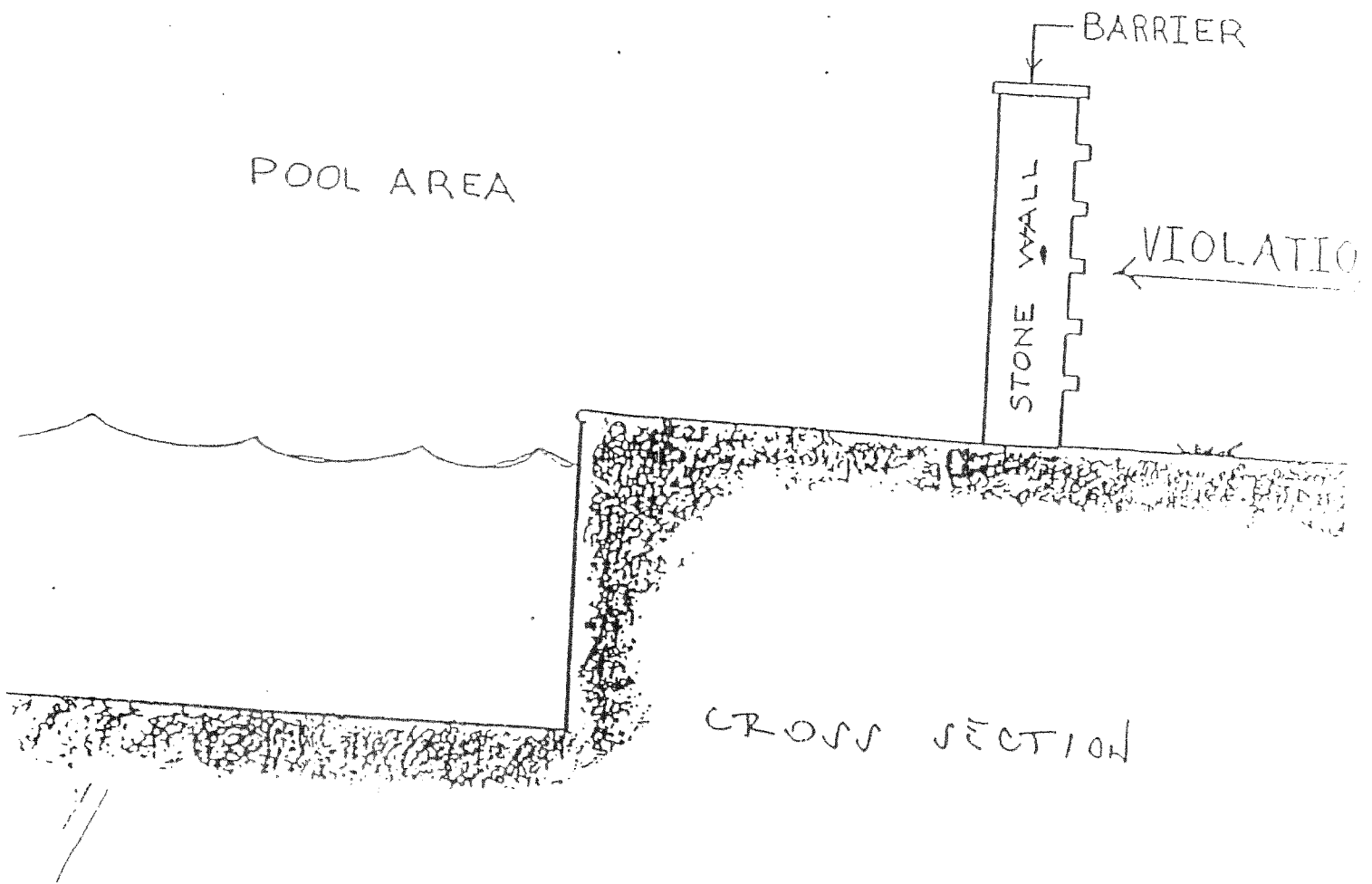


ISOMETRIC



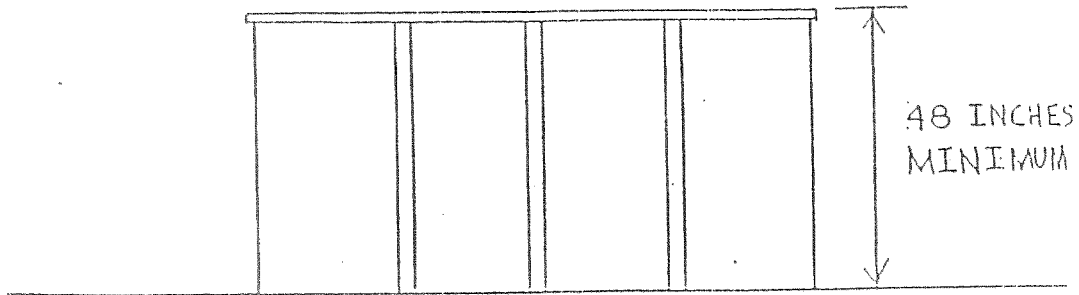
ISOMETRIC

FIGURE AG 105.2, 3

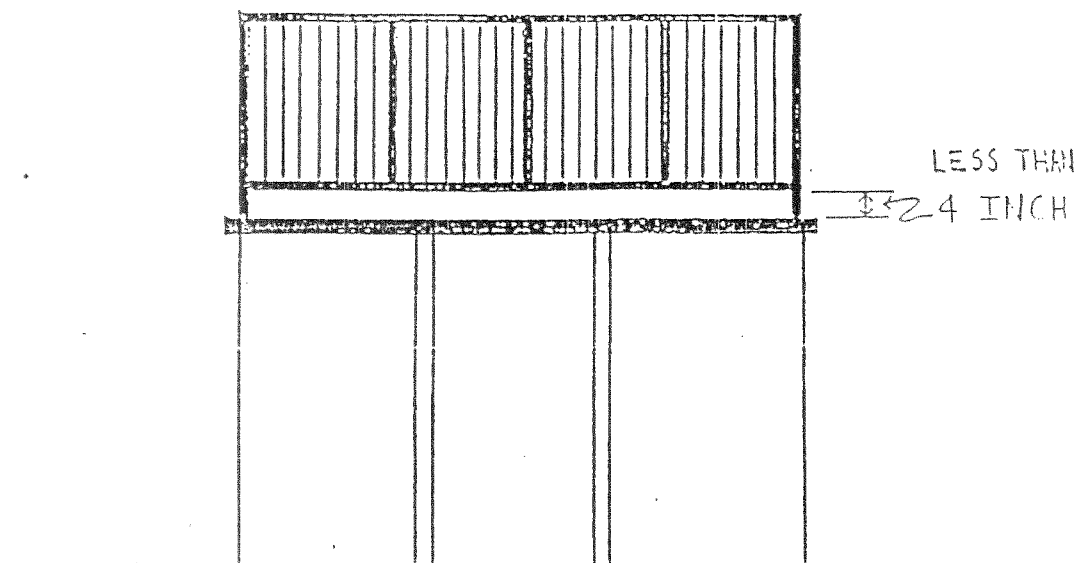


SECTION AG 105.2, ITEM 1

THE ABOVE GROUND SWIMMING POOL STRUCTURE  
COULD BE THE BARRIER IF:

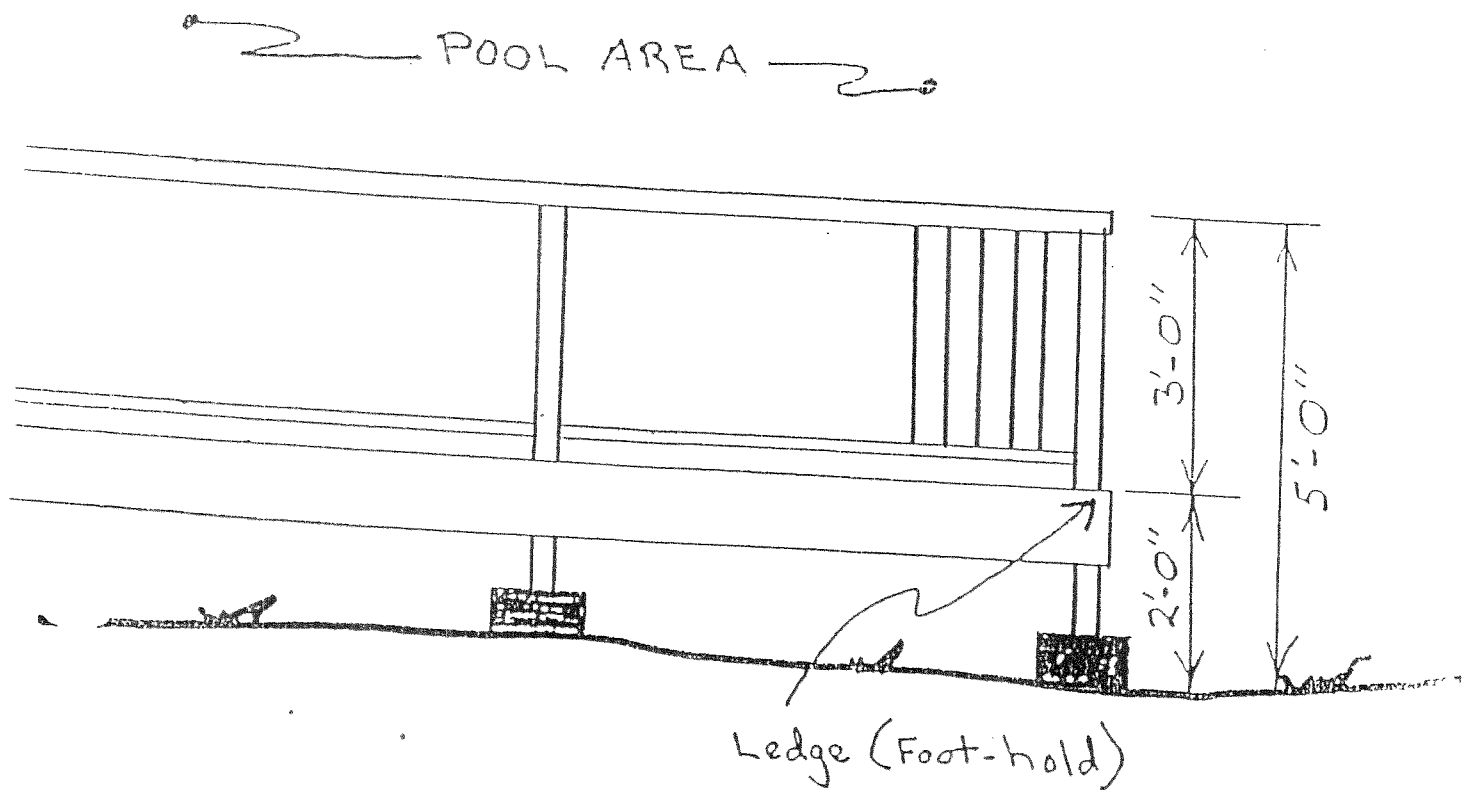


ABOVE GROUND POOL



ABOVE GROUND POOL

SECTION AG 105.12, ITEM 1



## ELEVATION

NOT AN ACCEPTABLE BARRIER. THE DECK, WHEN FRAMED IN THIS MANNER, PROVIDES A LEDGE (FOOTHOLD) ON THE OUTSIDE OF THE BARRIER. IN THESE SITUATIONS, THE CODE COMPLIANT BARRIER VERTICAL DIMENSION SHOULD BE MEASURED FROM THE TOP OF THE DECK TO THE TOP OF THE RAILING.

