CHRISTOPHER GRUBER
Construction Official

(201) 391-5732
Fax: (201) 391-1312

BOROUGH OF MONTVALE
Building Department – Code Enforcement
12 Mercedes Drive, Montvale, NJ 07645
www.montvale.org

POOLS

Required Information
(3 copies)

BROCHURE FOR: POOL
PUMP
FILTER
FENCE
HEATER – FUEL SOURCE

TOPOGRAPHICAL SURVEY WITH LOCATION OF THE POOL, FENCE, PUMP, FILTER, HEATER, PATIO AND DECK

STRUCTURAL POOL PLANS AND DIAGRAM FOR ELECTRIC

PLANS AND DETAILS FOR FENCING AND GATE

IMPERVIOUS COVERAGE CALCULATIONS – SEE ZONING PERMIT

COMPLETED AND SIGNED FORMS FOR THE FENCE CERTIFICATION AND THE CSST FORM

COMPLETED AND SIGNED PERMIT APPLICATION BY THE GENERAL CONTRACTOR AND ALL SUBCODES

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RESIDENTIAL ABOVE GROUND AND IN-GROUND POOL REQUIREMENTS

Indicate on SURVEY where the pool is to be located "to scale"

Indicate all coping and proposed concrete / pavers "to scale" on the survey

Include specifications on above ground pool (from pool company), pump, filter and heater information

All pools must include Engineer's sealed drawings, topographical survey with grade calculations, location and specifications of pump, filter and heater

PLAN REVIEW CHECK LIST FOR SWIMMING POOLS

1. Provide electrical plan and include bonding and grounding details and wire size as well as location of GFCI devices, switches, receptacles, lighting fixtures, etc
2. Detail of pump motor connection
3. Detail of underground circuit includes burial depth and materials
4. Size of pool and type of construction, seal by a professional engineer
5. Show existing and proposed grades and location of any retaining walls, their height and type of construction
6. Show location of pump, filter, heater and tank
7. If pool is heated – type of cover (required by Energy Code)
8. Show distances from property lines, house, septic tank and field or pits
9. Show location of fence and type of construction. Show gates and direction of swing
10. Show location and size of patio, pavers, or deck to be constructed
11. Details for diving board
12. Calculations for impervious coverage

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PLUMBING CODE COMPLIANCE SUMMARY REQUIRED FOR ALL POOLS

1. Pool heaters shall have a temperature relief valve per IRC 2015 M2006

2. Provide a diagram of this gas line showing the materials to be used, lengths and size for each section.

3. The gas pipe diameter shall be taken from the I.F.G.C. 2015 table 402.4(1) (if sch 40 metallic), table 402.4(15) for csst, table 402.4(20) for pex. Manufactures sizing tables are also acceptable.

4. If gas line does not connect at the meter, provide sizing calculations for the entire gas service system (old and new) by "Longest Length Method" or other approved method.

5. The meter and / or gas service may have to be upgraded per the gas utility provider requirements.

6. If pool has bottom drains, then:
   a) Include a Plumbing Subcode technical section with pool in item "other". Pool contractor as exempt applicant is ok.
   b) Provide schematic diagram of pump circulation lines.
   c) Clearly show separation of bottom drains.
   d) Provide documentation of code compliant drain covers.

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CORRUGATED STAINLESS STEEL TUBING (CSST)

When installing **CSST** piping, an **ELECTRICAL SUB-CODE** must be submitted for Bonding.

Block_____ Lot_____ Permit #_____

Work Site Address_____

Contractor_____

I will be using CCST_____ Name_____

Signature_____

Date_____

I will not be using CCST_____ Name_____

Signature_____

Date_____

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INSPECTION REQUIRMENTS FOR POOLS

INGROUND POOLS

1. Footing – AFTER concrete collar is poured as per manufacturer specifications.
2. Pool Steel – PRIOR to placement of concrete or gunite.
3. Electrical - BONDING.
4. Electrical - PIPE and TRENCH.
5. Electrical – APRON BONDING GRID
6. Plumbing- POOL DRAINS PRIOR to placement of concrete or gunite. (bottom drain/vacuum release system only)
7. Plumbing - PIPE, TRENCH and AIR TEST. (Pool Heater if applicable)
8. Final Electric
9. Final Plumbing
10. Final Building – *All permanent fencing and/or barriers need to be installed in order to have final inspection.*

ABOVE GROUND POOLS

1. Electrical ROUGH, BONDING, or TRENCH. (Do not energize or seal any equipment until inspection passes)
2. Plumbing - PIPE, TRENCH and AIR TEST. (Pool Heater if applicable)
3. Final Electrical
4. Final Plumbing (If applicable)
5. Final Fire (If Applicable, pool heater located inside a structure)
6. Final Building – All permanent fencing and/or barriers need to be installed in order to have final inspection.

(Other inspections may be required depending on the scope of the project. Consult the Subcode Official if you have any questions.)

Equipotential Bonding of Permanently Installed Swimming Pools

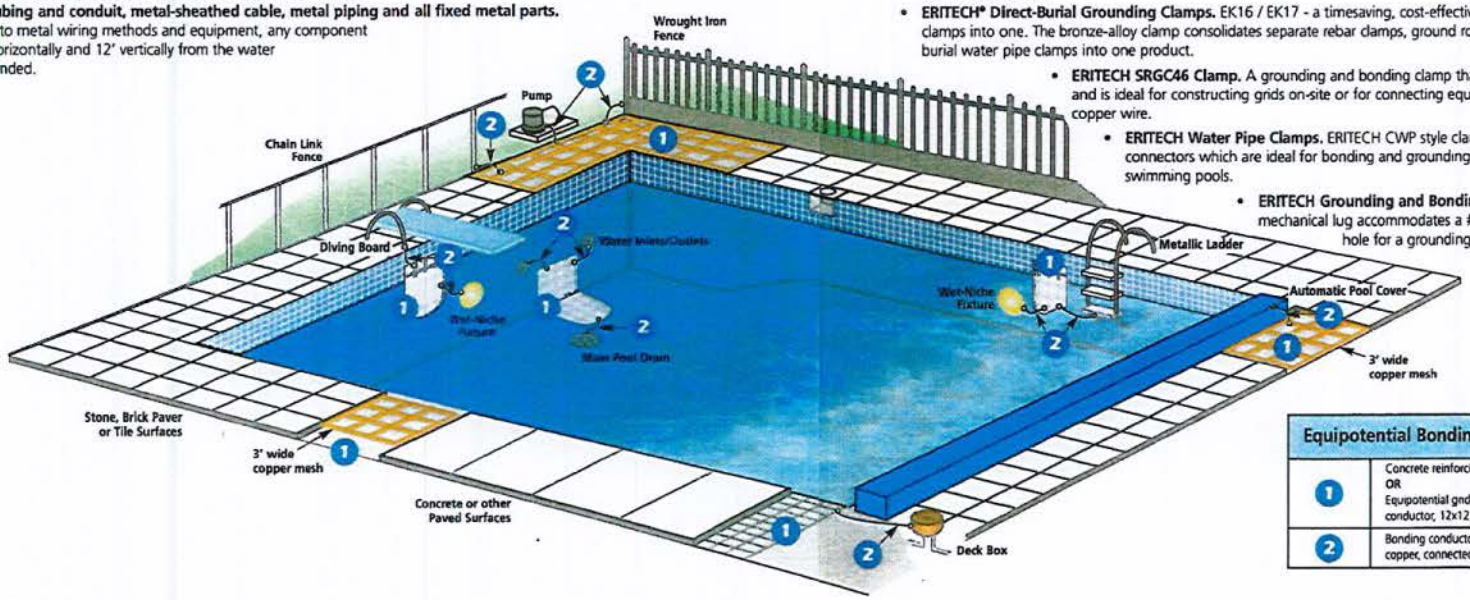
The requirements for bonding and grounding permanently installed indoor and outdoor swimming pools are provided in Article 680 "Swimming Pools, Fountains and Similar Installations" of the 2005 Edition of the National Electrical Code (NEC®).

What is Equipotential Bonding?

Article 680.26 details the bonding requirements for permanently installed swimming pools in order to "eliminate voltage gradients in the pool area as prescribed." Bonding the metallic parts in and around the pool area prevents differences of potential from developing in the event of an electrical equipment fault and reduces the possibility of electric shock. The area created by bonding the metallic parts together is known as an equipotential plane.

The NEC requires bonding all of the following metallic parts in a permanently installed swimming pool with a #8 AWG solid or larger conductor.

- **Concrete reinforcing steel and all metallic structural components.** Uncoated reinforcing steel and all other metallic structures.
- **Underwater lighting.** All metallic parts (housings and mounting brackets).
- **Metal fittings.** Metal fittings for pipes, drains and water inlets.
- **Electrical equipment.** All metal parts of any electrical equipment associated with the pool including pumps and recirculating equipment, heaters and blowers and automatic covers.
- **Metallic tubing and conduit, metal-sheathed cable, metal piping and all fixed metal parts.** In addition to metal wiring methods and equipment, any component within 5' horizontally and 12' vertically from the water must be bonded.



Equipotential Bonding	
1	Concrete reinforcing steel per NEC 680.26 (B)(1) OR Equipotential grid, #8 AWG or larger solid copper conductor, 12x12 spacing per NEC 680.26(C)(3)
2	Bonding conductor, #8 AWG or larger solid copper, connected per NEC 250.8

ERITECH® EQUIPOTENTIAL BONDING

Equipotential Bonding Grid

All of the bonded parts in or around the swimming pool must be attached to an equipotential bonding grid. This grid must extend 3' beyond the inside surface of the pool under concrete, stone or other paved walking surfaces. This grid can consist of the following:

- **Reinforcing Steel.** Uncoated reinforcing steel of a concrete pool (poured or sprayed, with painted or plaster coatings) can be used as the equipotential bonding grid.
- **Copper Grid.** A grid constructed with a minimum of #8 AWG bare solid copper conductors with 12" x 12" spacing.

Pools made of non-conductive materials (fiberglass composite, vinyl lined polymer or other non-conductive materials) do not require an equipotential grid that covers the full contour of the bottom and sides of the pool, however an equipotential grid is still required around the perimeter of the pool extending 3' beyond the sides of the pool.

EQUIPOTENTIAL BONDING SOLUTIONS FROM ERICO® INCLUDE THE FOLLOWING:

- **ERITECH® Prefabricated Mesh.** Convenient, efficient and economical for equipotential bonding grids. Prefabricated mesh is constructed with #8 AWG solid copper conductor with 12" x 12" spacing and is available in 3' x 100' rolls and other convenient sizes.
- **CADWELD® Welded Electrical Connections.** For connecting the bonding conductor to rebar and to the copper grid. CADWELD provides a permanent, low-resistance connection needed to create a long-lasting, reliable bonding network. CADWELD connections will not deteriorate with age, cannot loosen and are made with inexpensive, lightweight and portable equipment.
- **ERITECH® Direct-Burial Grounding Clamps.** EK16 / EK17 - a timesaving, cost-effective, versatile product that combines four clamps into one. The bronze-alloy clamp consolidates separate rebar clamps, ground rod clamps, water pipe clamps and direct-burial water pipe clamps into one product.
- **ERITECH SRGC46 Clamp.** A grounding and bonding clamp that is UL® listed for direct burial in concrete and is ideal for constructing grids on-site or for connecting equipotential bonding mesh to #8 AWG copper wire.
- **ERITECH Water Pipe Clamps.** ERITECH CWP style clamps are UL-listed mechanical connectors which are ideal for bonding and grounding the metallic pipes and conduit of swimming pools.
- **ERITECH Grounding and Bonding Lug.** The EL4 bronze single hole mechanical lug accommodates a #8 AWG solid conductor and has a 1/4" hole for a grounding stud.

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Block_____ Lot_____ Permit #_____

Work Site Address_____

FENCE CERTIFICATION

1. I am aware that a fence or approved barrier is required on any swimming pool.
2. I understand that the permanent code compliant fence must be installed prior to filling the pool.
3. I understand that the pool may **NOT** be used until I have obtained a Certificate of Occupancy from the building department.

I have read and understand the required fence procedures and certificate requirements for above ground and in-ground pools. I understand failure to comply will result in the issuance of violations and fines in the amount of **$2000** or more in accordance with N.J.A.C. 5:23-2.24

_____ _____
Contractor signature Homeowner signature

_____ _____
Printed name of Contractor Printed name of Homeowner

_____ _____
Company name Homeowner address

_____ _____
Date Date

Pool Fence Requirements

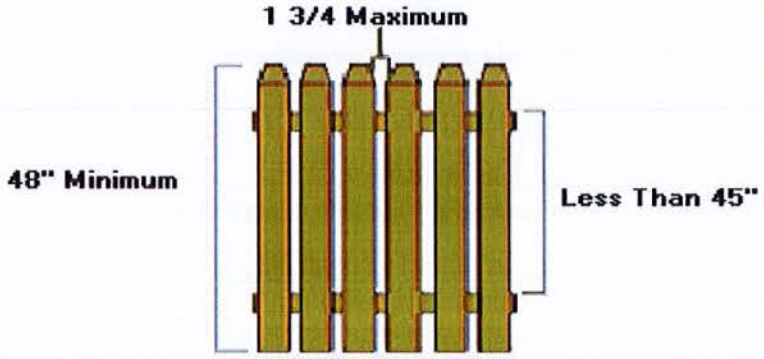
Private swimming pools must be surrounded by a barrier, such as a fence or wall. The barrier must meet the following requirements.

- The top of the barrier shall be at least 48 inches above finished ground level measured on the side of the barrier, which faces away from the swimming pool. The maximum vertical clearance between finished ground level and the bottom of the barrier shall be 2 inches measured on the side of the barrier, which faces away from the swimming pool.

- Solid barriers shall not contain indentations or protrusions except for normal construction tolerances and tooled masonry joints.

Fences with horizontal rails less than 45" apart

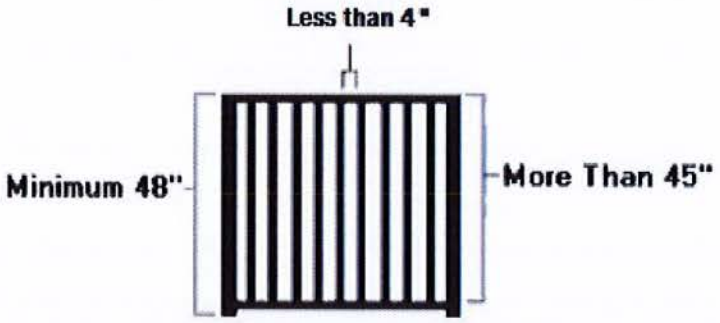
Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is less than 45 inches, the horizontal members shall be located on the swimming pool side of the fence. Spacing between vertical members shall not exceed 1-¾ inches in width. Decorative cutouts shall not exceed 1-¾ inches in width.



If horinontial planks are less than 45" apart the vertical spacing can not be more than 1 3/4"

Fences with horizontal rails more than 45"aparts

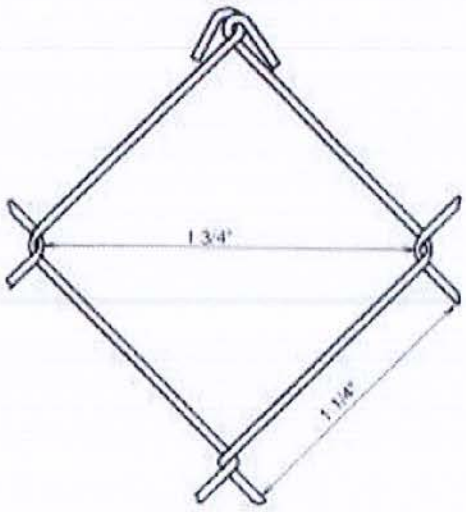
Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is 45 inches or more, spacing between vertical members shall not exceed 4 inches. Decorative cutouts shall not exceed 1-¾ inches in width.



If horizontal rails are more than 45" apart the vertical spaces cannot be more than 4" apart

Chain link Fence Mesh Size Limit

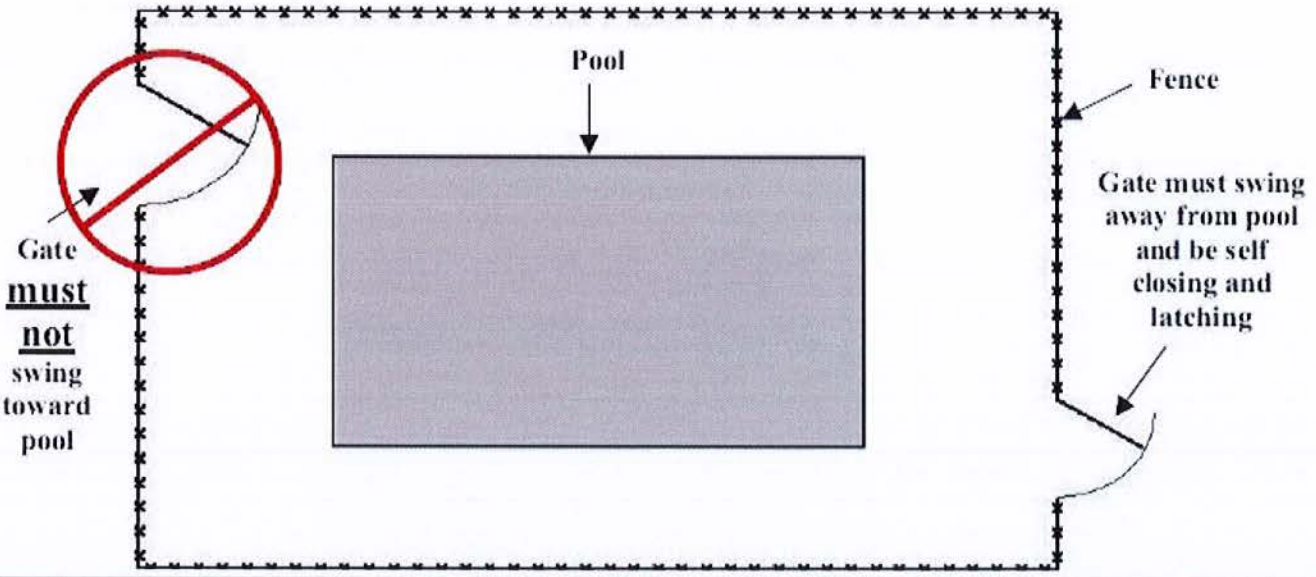
Maximum mesh size for chain link fences shall be a 1 ¼-inch square unless the fence is provided with slats fastened at the top or the bottom which reduce the openings to not more than 1 ¾-inches. (Figure 3)



Important: The maximum mesh size for a pool fence is smaller than the standard chain link mesh

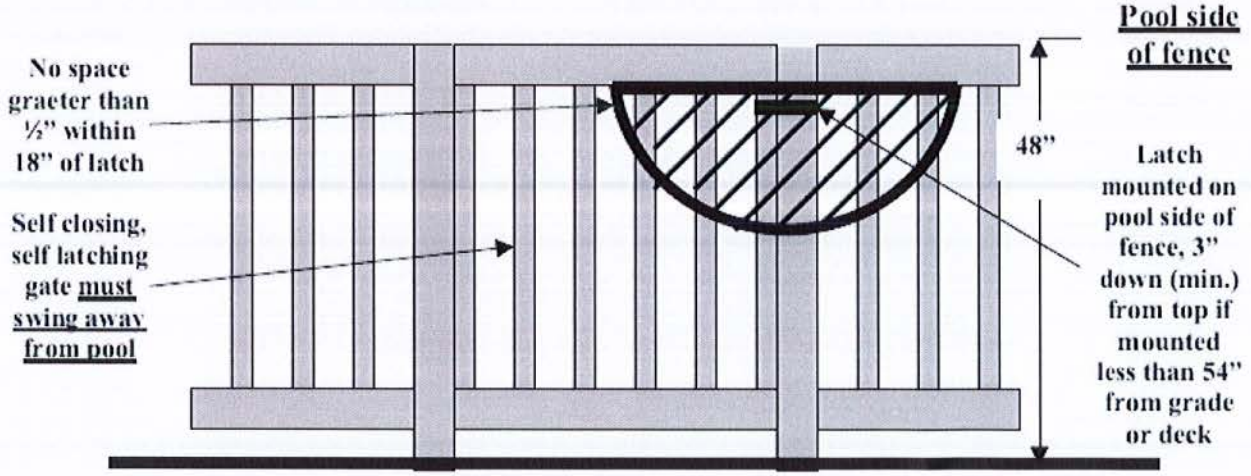
Gate Swing

Gates shall comply with the requirements of a fence for height, picket spacing or chain link mess size and shall be equipped to accommodate a locking device. Pedestrian access gates shall open outwards away from the pool and shall be self-closing and have a self-latching device. Gates must swing out only so that even if the 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.



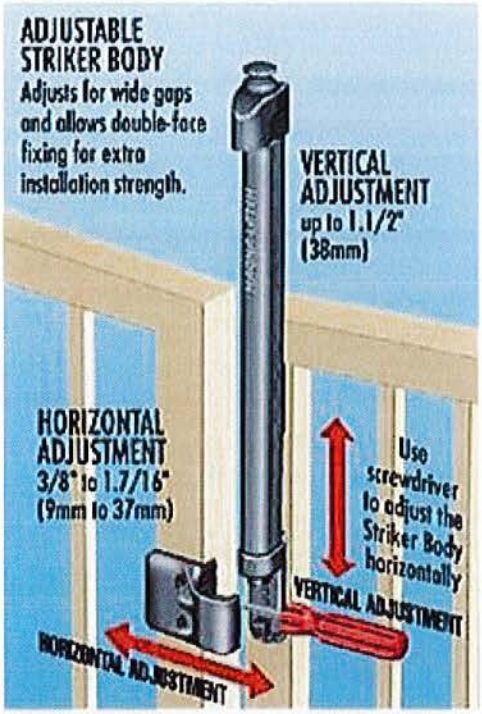
48" high gates with latches mounted less than 54" from the ground

If the latch is mounted less than 54" from grade, it must be mounted on the **pool** side of the gate, a minimum of 3" down from the top of the gate so you must reach over the fence to unlatch and have no space greater than ½" within 18" of the latch so a child can not reach through the fence to unlatch it.



48" high gates with the latch mounted above the top of the gate.

Several manufactures make latches that can be mounted on a 48" high gate and have the operating mechanism above the top of the gate. The operating mechanism must be mounted at least **54**" above the bottom of the gate.



Gates more than 48" high

Gates that are more than 48" high must have the latch mounted at least 54" above the bottom of the gate.

Above ground pools

Barrier are required for above ground pools, **a removable ladder is not an acceptable barrier** for an above ground pool. The barrier may be a compliant fence that surrounds the entire pool or yard. Pools that have a wall that is at least 48" do not require a fence around the entire pool and may have a fence just around the ladder area or a ladder with a built in self closing latching gate.

Above ground pools with walls at least 48" above grade

Ladder with built-in gate

Fence around ladder area

Above ground pools on sloped site

Where the walls of an above-ground pool are used as the barrier, are on a sloped site, which will make a portion of the top of the pool structure to be less than 48" to grade, a minimum of 3-foot level surface around the portion of the pool structure that is less than 48" to grade should be provided. The level surface should be measured away from the pool wall to the excavation edge and should be tapered away from the pool at a minimum of 45- degree angle for a distance of one half the level surface.

Above ground pools on sloped site where the pool wall is used as the barrier

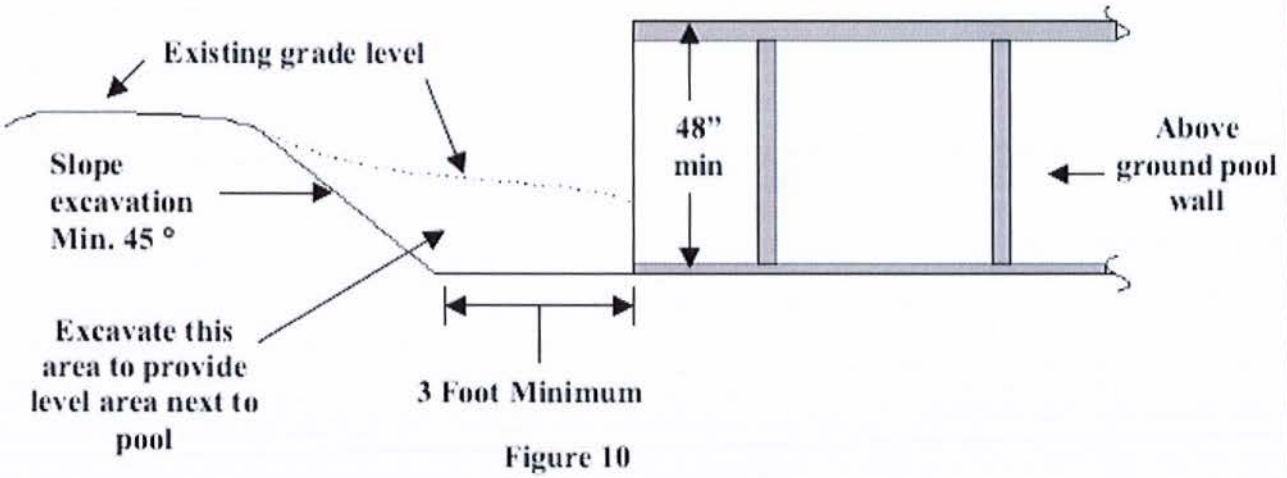


Figure 10