



City of Laguna Niguel
Building Division
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www.CityofLagunaNiguel.org

POOLS & SPAS

107

Handouts Included:

107 - Minimum Barrier Requirements for Pools / Spas & Hot Tubs

108 - Pool / Spa Requirements

109 – Swimming Pool / Spa Demolition Requirements

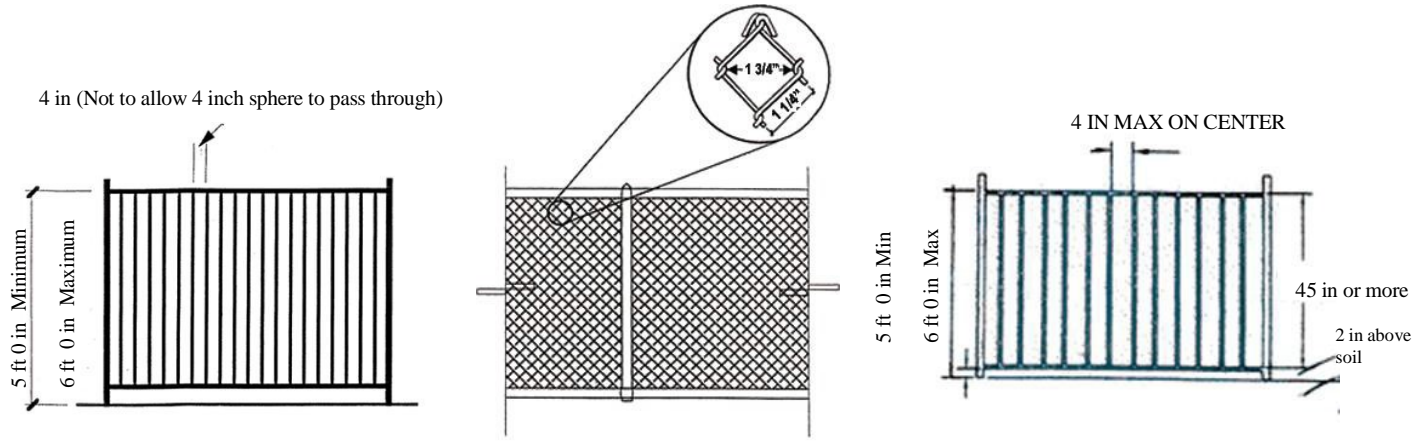
110 - Underground Gas Piping Requirements

Swimming Pool & Spa Plan Check Requirements

Criteria for Geotechnical Reports



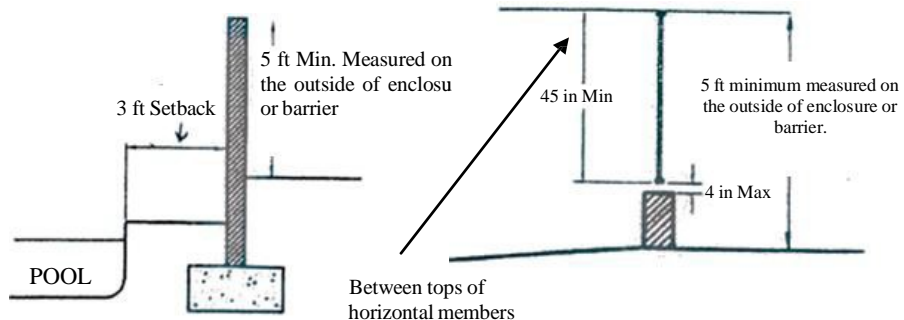
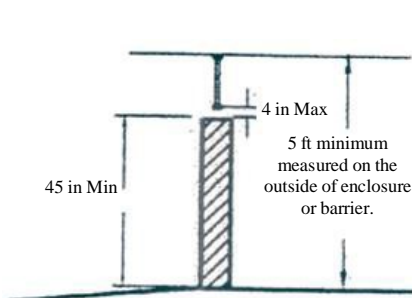
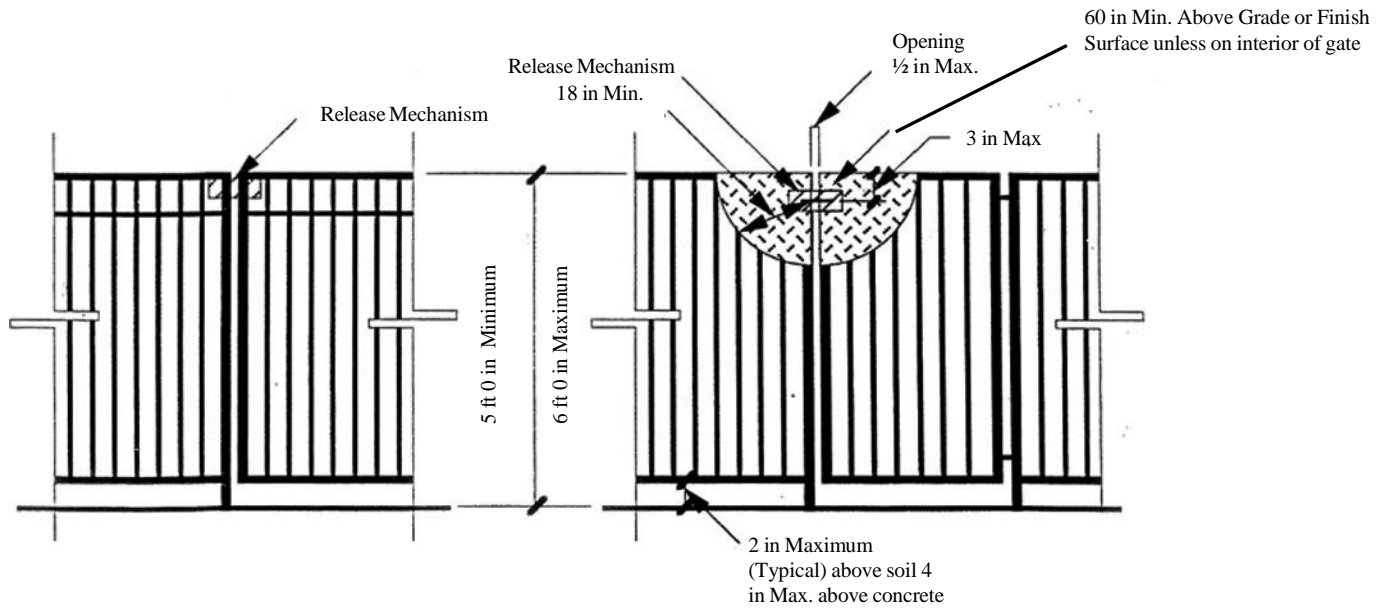
The City of Laguna Niguel Municipal Code requires that all swimming pools be surrounded by a 5' barrier. The Code requires this fence to be "Non-Climbable". The intent of this requirement is to prevent young children from gaining access to an unsupervised pool. The details below illustrate various requirements on barriers for swimming pools, spas and hot tubs. **EXCEPTION:** A swimming pool with a listed power safety cover or a spa with a safety cover complying with ASTM F1346 need not comply with this section.



Section 1243(a), Item 5: If horizontal members are equal to or more than 45 inches apart, vertical spacing shall not exceed 4 inches,

Section 1243(a), Item 6: 1 1/4 in square chain link mesh

If horizontal members are equal to or more than 46 in apart vertical spacing shall not exceed 4 in.





Permit Requirements: All pools and spas require a permit.

- 1) Three (3) copies of a site plan and structural details (gunite pools and spas only) must be submitted with the engineer's stamp on each sheet, including the site plan.
- 2) The site plan must be fully dimensioned. The site plan must also include details of the existing perimeter fence, the proposed perimeter fence, and the method of controlling access from the dwelling to the pool.
- 3) Pre-inspection of the site is required prior to issuance of a gunite pool and/or spa permit.
- 4) Homeowners Association approval is required.

Pool Location Per Approved Plan

Measurements are taken from the inside wall of the pool or spa, therefore it must be set per approved plans prior to calling for the first inspection. Any change in location must be approved prior to inspection.

Drowning Prevention Safety Features

- 1) Every pool or spa must be enclosed with a perimeter fence measuring a minimum of five feet (5') in height, measured on the side of the fence opposite the pool.
- 2) If the fence is designed with the horizontal members separated by forty-five inches (45") or more, the opening between the vertical members may not exceed four inches (4").
- 3) If the fence is designed with the horizontal members separated by less than forty-five inches (45"), the opening between the vertical members may not exceed 1 3/4" and the horizontal members must be located on the pool side of the fence.
- 4) All access gates shall be self-closing and self-latching, with the latching device located a minimum of sixty inches (60") above grade, and the gates shall swing away from the pool area. If the self-latching device is located less than 60" above grade, it shall be located on the pool side and at least 3" below the top of the gate.
- 5) All doors from the dwelling, which serve as perimeter fences, shall have flush-mounted door alarms mounted in the wall next to the door or a separate fence must be installed between the dwelling and the pool.
- 6) Door alarms must be:
 - a. Flush or surface mounted on the wall
 - b. Installed on all doors leading to the pool area.
- 7) See the current California Building Code for detailed pool barrier requirements.



Outdoor Heater Installation

All mechanical equipment shall be set on a concrete base above grade. Have manufacturer's installation instructions available on the job site for inspection. The heater vent termination must be a minimum of four feet (4') from any door, window or gravity air inlet into any building, measured from the closest edge of the vent. Clearance to any wall shall be per the manufacturer's installation instructions and listing. The heater must have working space at the access door.

Construction Requirements

All pool construction shall conform to expansive soil details unless a soils report indicates otherwise. Use surcharge details as necessary. Continuous inspection by a licensed special inspector is required on pools constructed of concrete.

Plumbing

PVC Plastic, schedule 40 pipe and fittings may be used for circulating piping systems. The entire system shall be tested and must hold a static water or air pressure test of not less than 35 psi for fifteen minutes. PVC water and air lines must be painted to protect them from ultraviolet rays. A thirty-six inch (36") minimum accessible pipe is required between the filter and the fossil fuel heater for the future addition of solar heating equipment. Plastic pipe and fittings designed to be joined by solvent cementing shall comply with appropriate IAPMO installation standards. A minimum of two outlets are required and must be separated by a minimum of three feet (3'). All outlets shall be covered by an anti-vortex cover. Any pool or spa over 750 gallons requires a minimum three inch (3") P-trap and a backwash line. Pools and spas using a cartridge filter are not exempt from this requirement.

Gas Piping

Non-Metallic Pipe

Non-metallic pipe must be approved PE pipe. Piping and tubing must be labeled with the designated IAPMO certification mark. PE pipe may not be used above ground. The transition from PE pipe to metallic pipe must be made with an approved installation fitting only and be installed in a horizontal position. The horizontal metallic portion of the riser must extend a minimum of thirty inches (30") before connecting to the PE pipe. Piping must be buried eighteen inches (18") below grade or twelve inches (12") below concrete. A pressure test is required and must hold 10 psi for fifteen minutes. A copper tracer wire (minimum #14 AWG) must be installed with PE gas piping.

Never cover or conceal piping until it has been inspected and approved. Refer to the current Plumbing Code to verify correct pipe sizing. Do not install or connect gas lines to a meter or appliance until a pressure test has been approved. A gas shut-off valve is required outside of, and within three feet (3') of the heater.

Electrical

Permanently installed pools and spas must have at least one 125-volt convenience receptacle located a minimum of six (6') from and not more than twenty feet (20') from the inside wall of the pool/spa. Receptacles located with twenty feet (20') of the inside walls of a pool/spa must be protected by a GFCI. A pool light metallic forming shells shall be connected to a pool light junction box with metallic or non-metallic raceway. Where rigid non-metallic conduit is used, a Number 8 insulated copper conductor must be installed. Junction boxes must be located four feet (4') minimum from the pool and eight inches (8") minimum above the flood level or ground level, whichever is greater. The pool equipment must be GFCI protected in accordance with the current electrical code. Light fixtures closer than five feet (5') horizontal from the pools edge must be a minimum of twelve feet (12') above the water level.



All metal parts or components within five feet (5') of the inside wall of the pool or spa (including metal straps for posts, metal fences, window and door frames, etc.), any enclosures (timer cans, switch boxes, etc.), and if a pool light is installed, the housing and junction box thereof shall be bonded with a Number 8 AWG unspliced solid copper conductor.

Electrical conduit may be a minimum schedule 40 PVC plastic if below grade. The conduit must be buried eighteen inches (18") below grade. The conduit must be UL listed. Above ground conduit subject to damage shall be schedule 80.

State Energy Code

All swimming pool/spas with fossil-fuel heaters must contain the following measures mandated by the State Energy Code:

- 8) System is certified with 78% thermal efficiency, on-off switch, weatherproof operating instructions, no electric resistance heating, and no pilot light.
- 9) System is installed with:
 - a. At least a thirty-six inch (36") pipe between the filter and heater for future solar heating.
 - b. Cover for outdoor pool or outdoor spa.

Pool system has directional inlets and a circulation pump time switch.

Swimming Pool, Spa, and Hot Tub Enclosure Requirements

- a) **General.** The provisions of this section apply to the design and construction of barriers for swimming pools located on the premises of Group R, Division 3 Occupancies, as defined in the 2016 California Building Code.
- b) **Definitions.** For the purpose of this section, certain terms, words and phrases are defined as follows:
 - 1) **ABOVE-GROUND/ON-GROUND POOL.** See definition of "swimming pool."
 - 2) **BARRIER** is a fence, wall, building wall, or a combination thereof, which completely surrounds the swimming pool and obstructs access to the swimming pool.
 - 3) **GRADE** is the underlying surface such as earth or a walking surface.
 - 4) **HOT TUB.** See definition of "swimming pool".
 - 5) **IN-GROUND POOL.** See definition of "swimming pool."
 - 6) **SEPARATION FENCE** is a barrier, which separates all doors of a dwelling unit with direct access to a swimming pool from the swimming pool.



- 7) **SPA**. See definition of “swimming pool.”
- 8) **SWIMMING POOL** is any structure intended for swimming or recreational bathing that is designed to contain water over 18 inches deep. This includes in-ground, aboveground and on-ground swimming pools; hot tubs; portable and non-portable spas; and fixed in-place wading pools.
- 9) **SWIMMING POOL, INDOOR**, is a swimming pool, which is totally contained within a residential structure and surrounded on all four sides by walls of said structure.
- 10) **SWIMMING POOL, OUTDOOR**, is any swimming pool, which is not an indoor pool.
 - c) **Outdoor Swimming Pool Barriers**. An outdoor swimming pool shall be provided and maintained with a barrier consistent with the following provisions:
 - 1) The top of the barrier shall be at least 60 inches 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 measured on the side of the barrier, which faces away from the swimming pool. The maximum vertical clearance at the bottom of the barrier may be increased to 4 inches when grade is a solid surface such as a concrete deck, or when the barrier is mounted on the top of the above ground pool structure. When barriers have horizontal members spaced less than 45 inches apart, the horizontal members shall be placed on the pool side of the barrier. Any decorative design work on the side away from the swimming pool, such as protrusions, indentations or cutouts, which render the barrier easily climbable, is prohibited.
 - 2) Openings in the barrier shall not allow passage of a 1¾ inch diameter sphere.

EXCEPTIONS:

- i. When vertical spacing between such openings is 45 inches or more, the opening size may be increased such that the passage of a 4 inch diameter sphere is not allowed.
- ii. For fencing composed of vertical and horizontal members, the spacing between vertical members may be increased up to 4 inches when the distance between the tops of horizontal members is 45 inches or more.
- 3) Chain link fences used as a barrier shall not be less than 11 gage and shall have a maximum mesh size of 1¼ inch square unless the fence is provided with slats fastened at the top or the bottom which reduce the openings to no more than 1¾ inches.
- 4) Where the barrier is composed of diagonal members, such as a lattice fence, the maximum opening formed by the diagonal members shall be no more than 1¾ inch.
- 5) All access gates shall be self-closing and self-latching, with the latching device located a minimum of sixty inches (60") above grade, and the gates shall swing away from the pool area. If the self-latching device is located less than 60" above grade, it shall be located on the pool side and at least 3" below the top of the gate.
- 6) Access gates shall comply with the requirements of Items (c) (1), (2), (3), and (4) above. Pedestrian access gates shall be self-closing and have a self-latching device. Where the release mechanisms of the self-latching device is located less than 60 inches from the bottom of the gate, (1) the release mechanism shall be located on the pool side of the barrier at least 3 inches below the top of the gate, and (2) the gate and barrier shall have no opening greater than ½ inch within 18 inches of the release mechanism. Pedestrian gates shall swing away from the pool.



Any gates other than pedestrian access gates shall be equipped with lockable hardware or padlocks and shall remain locked at all times when not in use.

- 7) Where a wall of a Group R, Division 3 Occupancy dwelling unit serves as part of the barrier and contains door openings between the dwelling unit and the outdoor swimming pool, which provide direct access to the pool, one of the following two access controlling devices must be installed.
 - i. A separation fence measuring at least 48 inches above grade measured on the side of the barrier, which faces away from the swimming pool.
 - ii. An alarm installed at all doors with direct access to the pool. The alarm shall be mounted on the door, contain a low battery indicator, and sound continuously for a minimum of 30 seconds, within 15 seconds after the door and its screen, if present, are opened, and be capable of providing a sound pressure level of not less than 85 dBA when measured indoors at 10 feet. The alarm shall automatically reset under all conditions. The alarm system shall be equipped with a manual means, such as a touch pad or switch, to temporarily deactivate the alarm for a single opening. Such deactivation shall last no longer than 15 seconds. The deactivation switch shall be located at least 54 inches above the threshold of the door. The alarm shall have a 10 year life battery.
- 8) 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, then (1) the ladder or steps shall be capable of being secured, locked or removed to prevent access or (2) the ladder or steps shall be surrounded by a barrier which meets the requirements of Items (c) (1) through (6). When the ladder or steps are secured, locked or removed, any opening created shall be protected by a barrier complying with Items (c) (1) through (6).
- 9) The owner of the property where the swimming pool is located shall sign and file with the City, a disclosure statement certifying the homeowner's understanding of the potential life-safety hazards associated with a swimming pool and the need to maintain the barrier requirements set forth in this ordinance.
- 10) All swimming pool water shall be maintained in a clear condition, which is free of algae, insects, debris, and in a sanitary condition.
 - d) **Indoor Swimming Pool.** For an indoor swimming pool, protection shall comply with the requirements of the current International Swimming Pool and Spa Code.
 - e) **Approval.** Plaster inspection or approval to fill the pool with water shall be withheld by the Building Department until there has been compliance with all provisions of this article.
 - f) **Maintenance.** Failure to maintain the barrier or comply with all provisions of this section may result in an enforcement action by the City requiring the immediate draining of the pool. The pool shall not be refilled until such time compliance has been achieved with all provisions of this section.
 - g) **Modifications.** When there are practical difficulties involved in carrying out the provisions of this section, the building official may grant modifications for individual cases. The building official shall first find that a special individual reason makes the strict letter of this section impractical and that the modification is in conformance with the intent and purpose of this section and that such modification does not lessen the degree of protection afforded by the provisions of this section. The details of any action granting modifications shall be recorded and entered into the files of the Community Development Department.



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POOL & SPA REQUIREMENTS

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ARTICLE 3. EXCAVATION, FILLING AND OBSTRUCTION OF HIGHWAYS

Sec. 7-3-27. Definitions.

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

HIGHWAY means any public highway, public street, public way or public place in the city, which has been acquired, by the city by purchase, dedication or condemnation proceedings.

PERSON includes any individual, firm, copartnership, joint venture, association, corporation, estate, trust, business trust, this state, any county and any city, including this city, and all departments and bureaus thereof except the department of public works of the city, or any other group or combination acting as a unit.

PUBLIC agency means and includes the United States or any department or agency thereof, the state or any department or agency thereof, or any county, municipal corporation or public district. Cross reference - Definition generally.

Sec. 7-3-28. Permit required.

A person who digs up, plows up, removes or breaks the earth, soil, stone, pavement or other surface of or otherwise injures any highway or makes or causes to be made any excavation, or constructs, places upon, maintains or leaves any material or any obstruction or impediment to travel in or upon a highway or installs or maintains or causes to be installed or maintained any tank, pipe, conduit, duct, tunnel or any other installation of any nature across, upon, in or under any highway, unless he shall have first obtained a permit so to do, shall be guilty of a misdemeanor. (Ord. No. 90-11, § 6, 3-6-90)

Sec. 7-3-29. Time of filing of application for permit.

Applications for permits under this article shall be filed not less than 48 hours before the work is proposed to be done.



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SWIMMING POOL / SPA DEMOLITION REQUIREMENTS

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Demolition of a swimming pool/spa requires preparing the pool/spa for backfilling, and placement and compaction of backfill material. The following procedure is authorized by issuance of demolition permit which may be obtained from the Building Department. A site plan showing the pool and equipment location is required. Request a Building Inspection prior to covering the demolished areas.

- Break out a minimum of two 24-inch-diameter or equivalent holes in the pool/spa bottom for drainage (one hole for a spa). One of the holes shall be at the low point in the pool/spa.
- Place a 12-inch-thick layer of pea gravel over the entire bottom of the pool/spa.
- Continue to backfill the pool/spa with easily compacted "dirty" sand, commonly called fill sand at building supply outlets. Fill with dirty sand to within 30 inches of the final surface. Broken concrete from the pool/spa decking or coping shall not be used for backfill. Compact the soil firmly with hand compaction equipment on 6-inch-thick sand lifts with prudent use of water.
- If hardscape is to be constructed over the pool/spa area, fill sand may be placed up to the subgrade level for the hardscape material.
- If the pool/spa area is to be landscaped, the upper 18 inches may be backfilled with suitable planting medium.

NOTE: The area of the pool/spa backfill WILL NOT be suitable for construction such as room additions, decks, etc., until a geotechnical investigation and inspection is performed by a Registered Soils Engineer. If any construction is intended for this area in the future, a geotechnical engineer shall approve the method of backfilling and provide a letter of acceptance.



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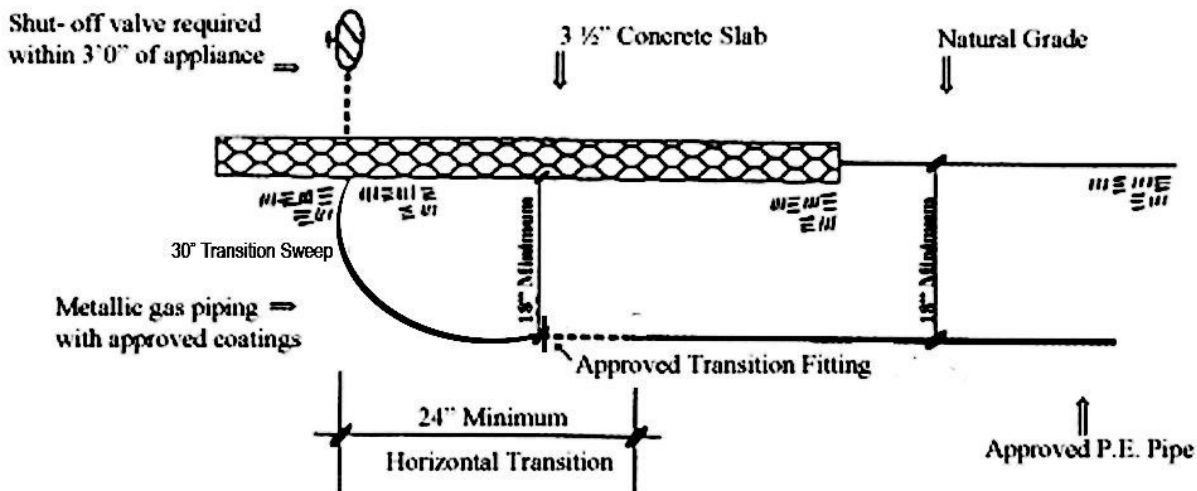
UNDERGROUND GAS PIPING REQUIREMENTS

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NOTE:

Non-Metallic Pipe: Approved P.E. pipe shall be used in exterior buried piping systems. The transition from P.E. to metal shall be made with an approved transition fitting only and be installed in a horizontal position. The horizontal metallic portion of the riser shall extend a minimum of thirty inches (30") before connecting to the plastic pipe. Piping must be buried a minimum of 18 inches (18") below grade. A pressure test is required and must hold 3 psi for a minimum of 15 minutes. A number 14 insulated copper tracer wire or other approved materials shall be installed with and attached to underground non-metallic gas piping and shall terminate above grade at each end.

Never cover or conceal piping until inspected and approved. For correct pipe sizes see table 12-3 in the California Plumbing Code. Do not install or connect gas lines to meter or appliance until the pressure test has been approved. A gas shut-off valve is required outside of and within three feet (3') of an appliance.





**CITY OF LAGUNA NIGUEL
COMMUNITY DEVELOPMENT DEPARTMENT**

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**CITY OF LAGUNA NIGUEL
SWIMMING POOL & SPA
PLAN CHECK REQUIREMENTS**

SUBMIT THREE COPIES OF THE FOLLOWING ITEMS FOR SWIMMING POOL AND SPA BUILDING PERMITS.

- Construction details/steel schedule, wet stamped and signed by licensed engineer. Engineering shall be “Site Specific” not generic.
- Engineer shall circle all sections & details that are applicable & cross-reference details.
- Yard drainage shall be collected & conveyed to the front through curb drains.
- Provide name of owner, address, phone, and property tract/lot.
- Plot plan, including the following information:
 - Dimensions of all property lines clearly identified with a north arrow.
 - Show set backs & clearance from property line to waters edge.
 - Location of all easements and required setbacks.
 - Indicate top and bottom of slopes (ascending/descending) height, ration (2:1, 1:1) with section cut, slope setback, slope ratios.
 - BTU ratings of additional gas fired appurtenances (i.e., fireplace, heaters) and Spa/Pool heater and minimum size & length of gas all gas piping.
 - Location of electrical panel and gas meter.
 - Location of all mechanical equipment, type and size of pool equipment and plumbing.
 - Pool barrier fencing and gate location; show height & type of fencing (label existing or proposed).
 - Indicate existing structures, retaining walls, decks, patio covers and any proposed structures. Before Permit Issuance we also will need the following:
 - Home Owner Association approval.
 - Encroachment Permit from Public Works.
 - Drowning Prevention letter signed by the owner.
 - Fire ant forms.
- The following will require subsequent review by the City of Laguna Niguel’s geotechnical consultant & 3 sets of soil reports will be required.
 - Active grading permit on file.
 - When excavation is closer than ten (10) feet to the top or toe of slope.
 - Any cutting into a slope.



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**CRITERIA FOR GEOTECHNICAL REPORTS
REQUIRED FOR SWIMMING POOLS AND
ASSOCIATED IMPROVEMENTS**

If a geotechnical report is required for a pool by the City of Laguna Niguel, the report must be in a formal report or letter format (i.e., hand written memos are not acceptable) and should contain the following minimum information:

1. The report should include a review of the improvement/landscape plans. A copy of the plans should be included with the report.
2. The report should be signed by either a registered civil/geotechnical engineer or a certified engineering geologist. If the pool excavation will be surcharged (i.e. by a structure, wall, slope, etc.), the report will need to be signed by a civil/geotechnical engineer.
3. If any excavation required for the pool is surcharged, temporary stability, as well as the need for shoring should be addressed.
4. A site reconnaissance should be performed by the registered professional signing the report. The report should address whether the site (i.e. slopes, improvements, etc.) exhibits any above-normal signs of slope movement, including slope creep and/or lateral fill extension. *(If there are significant signs of slope movement in the area of the proposed improvements, a more detailed investigation, including subsurface exploration, lab testing and analysis, will be required).*
5. The report should address whether the site is a previously graded site or is underlain by natural, unevaluated geotechnical conditions. *(If the site is not a previously graded site, a more detailed investigation including subsurface exploration, lab testing and analysis will be required).*
6. The report should address soil expansivity and soil corrosion to both concrete and metals. If lab testing is not performed, highly expansive and severely corrosive soil conditions should be assumed.
7. The report should address the potential future effects of slope creep and lateral fill extension on both the pool and associated improvements.
8. The report should contain recommendations for:
 - a. Pool wall earth pressure.
 - b. Retaining wall earth pressures if applicable.
 - c. Bearing material and whether any over-excavation is required.
 - d. Concrete/shotcrete shall be 4500psi, type V cement and water cement ratio of 0.45.
 - e. Set-back requirements to minimize the effects of slope creep and lateral fill extension.
 - f. Temporary excavations and the need for shoring (if necessary).
 - g. Flatwork and other improvements (if requested by owner or contractor).