

**Building Permit Application****City of Portland, Oregon - Bureau of Development Services**

1900 SW 4th Avenue, Portland, Oregon 97201 • 503-823-7300 • TTY 503-823-6868 • www.portlandoregon.gov/bds

18.140214 NS
3/23/18 PKP**Type of work**

- ☒ New construction ☐ Addition/alteration/replacement
☐ Demolition ☐ Other:

Category of construction

- ☒ 1 & 2 family dwelling ☐ Commercial/industrial ☐ Accessory building
☐ Multifamily ☐ Master builder ☐ Other:

Job site information and location

Job no.: Job address: 4404 NE 37th Ave.

City/State/ZIP: Portland, OR 97211

Suite/bldg./apt. no.: Project name:

Cross street/directions to job site:

Subdivision: Lot no. Tax map/parcel no.

Description of work

in-ground fiberglass swimming pool

Provide RS Permit no.

☒ **Property owner** ☐ **Tenant**

Name: Todd + Cindy Greene E-mail: toddandcindy@hotmail.com

Address: 4404 NE 37th Ave.

City/State/ZIP: Portland, OR 97211

Phone: 503-913-1061 FAX:

Owner installation: This installation is being made on property that I own, which is not intended for sale, lease, rent, or exchange.

Owner signature: Date:

☒ **Contractor**

Business name: Premier Pools & Spas E-mail: lstewart@ppas.com

Address: 9150 SW Pioneer Ct. Suite G

City/State/ZIP: Wilsonville, OR 97070

Phone: 503-855-4117 FAX:

CCB lic. no. 174389 00012629

Authorized signature: [Signature]

Print name: Logan Stewart Date: 3/20/18

☒ **Applicant** ☒ **Contact Person**

Business name: Premier Pools and Spas

Contact name: Logan Stewart

Address: 9150 SW Pioneer Ct. Suite G

City/State/ZIP: Wilsonville, OR 97070

Phone: 503-855-4117 FAX:

E-mail: lstewart@ppas.com

Authorized signature: [Signature]

Print name: Logan Stewart Date: 3/20/18

Office Use Only

Permit no:

Date received:

By:

Required Data: One and Two Family Dwelling

Permit fees* are based on the value of the work performed. Indicate the value (rounded to the nearest dollar) of all equipment, materials, labor, overhead, and the profit for the work indicated on this application.

X Valuation:	30,000
Number of bedrooms:	
Number of bathrooms:	
Total number of floors:	
New dwelling area:	square feet
Garage/carport area:	square feet
Covered porch area:	square feet
Deck area:	square feet
Other structure area:	square feet

Required Data: Commercial Use

Permit fees* are based on the value of the work performed. Indicate the value (rounded to the nearest dollar) of all equipment, materials, labor, overhead, and the profit for the work indicated on this application.

Valuation:	\$30,000
Existing building area:	square feet
New building area:	312 square feet
Number of stories:	
Type of construction:	
Occupancy groups	
Existing:	
New:	

Notice

All contractors and subcontractors are required to be licensed with the Oregon Construction Contractors Board under ORS 701 and may be required to be licensed in the jurisdiction in which work is being performed.

Statement of Fact: I certify that the facts and information set forth in this application are true and complete to the best of my knowledge. I understand that any falsification, misrepresentation or omission of fact (whether intentional or not) in this application or any other required document, as well as any misleading statement or omission, may be cause for revocation of permit and/or certificate of occupancy, regardless of how or when discovered.

I acknowledge that work related to this Building Permit Application may be subject to regulations governing the handling, removal and/or disposal of asbestos and/or lead-based paint. If the work is subject to regulations governing asbestos and/or lead-based paint, I will comply with all such regulations. (initials)

Building Permit Fees*

Please refer to fee schedule

Fees due upon application	
Amount received	
Date received	

This permit application expires if a permit is not obtained within 180 days after it has been accepted as complete.



City of Portland, Oregon - Bureau of Development Services

1900 SW Fourth Avenue • Portland, Oregon 97201 • 503-823-7300 • www.portlandonline.com/bds



Simple Site Erosion Control Requirements Form

Project or Permit Number 18-1420214 RS
 Project Address 4404 NE 37th Ave Portland
 Name of Responsible Party (print) Rick Woylin
 Day Phone 503-440-6934 FAX _____ email RWoylin@PPOS.COM

Erosion control inspections are required and it is your responsibility to request these inspections.

Erosion control measures are required on this site. Because of the size and slope, a drawn plan is not required. Erosion Control Measures and inspections are required prior to beginning foundation excavation. This form may only be used for simple sites:

1. Flat (less than 10% slope before development)
2. More than 50 feet from a wetland or waterbody
3. Outside an environmental or greenway zone
4. Less than 10,000 sq. ft. of ground disturbance
5. Not a land division of 10,000 sq. ft. or more

This is an agreement that the applicant and/or responsible parties will use erosion control during this project as required. The applicant and/or responsible party must sign this form to comply with Section 10.40.020 of the Code. Details for the measures outlined below are located in the City of Portland Erosion Control Manual, available at either the Development Services Center or on our Web site at www.portlandonline.com/bds

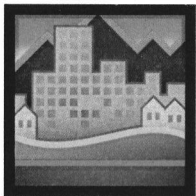
Minimum Erosion Control Requirements	Additional Requirements
1. Temporary sediment control (silt fences, bio-filter bags or fiber rolls, storm drain inlet protection).	Prevent the transport of sediment from the site (Manual Sections 2-2 and 4-2) Call for #200 inspection. These items must be provided even with undisturbed vegetative buffers as allowed by manual.
2. Stabilize access points by installing a gravel construction entrance. Do not use rock or dirt ramps in the gutter, use a wood ramp if needed to get over curb.	Limit construction vehicle access, whenever possible, to one route. Stabilize access points. Provide street cleaning by sweeping or shoveling any sediment that may have been tracked out. Place sediment in a suitable disposal area where it will not erode again. (Manual Sections 2-2 and 4-1)
3. Stabilize all soils, including stockpiles that are temporarily exposed. Use one or more of the temporary soil stabilization Best Management Practices (BMP's): temporary grasses, mulch applications, erosion blankets, plastic sheeting, plus dust control measures.	Soil Stabilization (Manual Sections 2-2 and 4-4)
4. Maintain erosion controls identified in requirements 1 through 3 above according to specifications prescribed in manual.	Inspect and maintain required erosion and sediment controls to ensure continued performance of their intended function. (Manual Chapters 4 and 5)
5. Comply with the necessary development activity controls, including controls for fuel spill control, waste removal, concrete waste management or painting preparation.	During construction, prevent the introduction of pollutants in addition to sediment into stormwater. (Manual Section 5)
6. Use one or more of the following to permanently stabilize soils before final building inspection: Permanent vegetative cover, mulch applications or application of sod.	After construction but before project completion, permanently stabilize all exposed soils that have been disturbed during construction. (Manual Sections 4-4)
7. Prevent sediment from entering all storm drains, including ditches, which receive runoff from the disturbed area	Remove temporary drain inlet protection measures after final site clean-up. Call for #210 inspection.
8. Post signage on-site that identifies the City's Erosion Control complaint number	The sign will be provided upon approval of the pre-construction inspection. It must be maintained on-site until the final inspection.

**You must request a preconstruction erosion control inspection prior to construction.
 Call 503-823-7000 and request a #200 inspection using your IVR number.**

I agree to meet each requirement and use appropriate erosion control measures as outlined above to prevent erosion and sedimentation from leaving the site of project/permit number referenced. I understand that all inspections are still required, and that failure to install or maintain adequate measures may result in a re-inspection fees or additional fines. A permanent erosion control inspection #210 will be required prior to a final building inspection.

Signature of Responsible Party
 Property Owner or Owner's Agent

Date 3-23-18



City of Portland Development Services Center

1900 SW Fourth Avenue, Suite 1500 Portland, OR 97201
Telephone: (503) 823-7310



GENERAL NOTES AND SUPPLEMENTAL INFORMATION ONE AND TWO-FAMILY DWELLING SWIMMING POOLS, SPAS, AND HOT TUBS

The following "General Notes and Supplemental Information" are now **part of your approved plans**.

- It is the **responsibility of the builder to comply** with these requirements during construction.
- Where there is a conflict between a general note and the plans, **the more restrictive shall apply**.

Barriers(s) for Outdoor Pools, Spas, and Hot Tubs Spas and Hot Tubs with ASTM 1346 covers are exempt from provisions.

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

- AG105.2**
- 1) Minimum 48" above grade measured from the side which faces away from the swimming pool
 - 2) Under the barrier clearance 2" maximum if barrier is located at grade and 4" maximum if mounted to pool structure
 - 3) Openings in the shall not allow the passage of a 4-inch-diameter sphere
 - 4) Solid barriers shall not have indentations or protrusions that form handholds or footholds
 - 5) Where a barrier is composed of horizontal and vertical members and the distance between the tops of horizontal members is less than 45 inches, the horizontal members must be located on the pool side of the fence with spacing between vertical members not to exceed 1 ¾"
 - 6) Where a barrier is composed of horizontal and vertical members and the distance between the tops of horizontal members is 45 inches or more, the spacing between vertical members shall not exceed 4"
 - 7) Maximum mesh size for chain link is 2 ¼ -inch square unless installed slate fastened at top and bottom reduce opening not to exceed 1 ¾" in width
 - 8) Where barrier is composed of diagonal members, the maximum opening formed by the diagonal members shall not be more than 1 ¾"
 - 9) Access gates shall comply with items 1-9 above and with the following:
 - a) Be equipped to accommodate a locking device
 - b) Pedestrian gates shall open outward away from the pool
 - c) Pedestrian gates shall be self-closing and have a self-latching device
 - d) Other gates shall have a self-latching device. If release mechanism of self-latching device is located less than 54" from the bottom of the gate, the release mechanism shall be located on the pool side of the gate at least 3" below the top of the gate and the gate and barrier shall have no openings larger than ½" within 18" of the release mechanism
 - 10) Where a wall of a dwelling serves as part of the barrier:
 - a) Pool shall be equipped with a power safety cover in compliance with ASTM 1346, or
 - b) Self-closing doors with self-latching devices approved by the Building Official
 - 11) If located on an above ground structure the ladder or steps shall be capable of being secured, locked, or removed or the barrier shall be surrounded by the barrier.

Indoor Swimming Pools

AG105.3 Walls surrounding an indoor pool shall comply with AG105.2, item 10 listed above.

COMPLIANCE WITH THE FOLLOWING STANDARDS IS REQUIRED

ANSI/NSPI STANDARDS

- 3-14 Standard for Permanently Installed Residential Spas
- 4-12 Standard for Above-ground/On-ground Residential Swimming Pools
- 5-11 Standard for Residential In-ground Swimming Pools
- 6-13 Standard for Residential Portable Spas

ANSI/APSP STANDARDS

- 7-13 Standard for Suction Entrapment avoidance in Swimming Pools, Wading Pools, Spas, Hot Tubs and Catch Basins

ASTM STANDARDS

- F1346-91 (2010) Performance Specification for Safety Covers and Labeling Requirements for All Covers for Swimming Pools, Spas and Hot Tubs



Most Widely Accepted and Trusted

ICC-ES Report

ESR-2014

Reissued 11/22/2017

This report is subject to renewal 11/2018

ICC-ES | (800) 423-6587 | (562) 699-0543 | www.icc-es.org

EVALUATION SUBJECT:

VIKING, TRILOGY, BLUE HAWAIIAN AND LIBERTY FIBERGLASS SWIMMING POOL AND SPA SHELLS

DIVISION:

13 00 00—SPECIAL CONSTRUCTION

SECTION:

13 11 13—BELOW-GRADE SWIMMING POOLS

Report Holder:

**LATHAM POOL PRODUCTS, INC. DBA VIKING POOLS, BLUE HAWAIIAN
POOLS, TRILOGY POOLS AND LIBERTY COMPOSITE POOLS**

176 VIKING DRIVE
JANE LEW, WV 26378



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18-140214-RS

ICC-ES Evaluation Report

ESR-2014

Effective Date: November 2017

Revision Date: November 22, 2017

www.icc-es.org | (800) 423-6587 | (562) 699-0543

A Subsidiary of the International Code Council®

DIVISION: 13 00 00—SPECIAL CONSTRUCTION
Section: 13 11 13—Below-Grade Swimming Pools

REPORT HOLDER:

**LATHAM POOL PRODUCTS, INC. dba VIKING POOLS,
BLUE HAWAIIAN POOLS, TRILOGY POOLS AND
LIBERTY COMPOSITE POOLS**
176 VIKING DRIVE
JANE LEW, WEST VIRGINIA 26378
(304) 884-6954
www.Latham.com

EVALUATION SUBJECT:

**VIKING, TRILOGY, BLUE HAWAIIAN AND LIBERTY
FIBERGLASS SWIMMING POOL AND SPA SHELLS**

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2018, 2015, 2012 & 2009 *International Building Code*® (IBC)
- 2018, 2015, 2012 & 2009 *International Residential Code*® (IRC)
- 2018 & 2015 *International Swimming Pool and Spa Code*® (ISPSA)
- 2012 & 2009 *International Plumbing Code*® (IPC)
- 2015 and 2012 *Uniform Swimming Pool, Spa & Hot Tub Code*® (USPSHWC)
- 2016, 2013 AND 2010 *California Residential Code*® (CRC)
- 2017 *City of Los Angeles Residential Code*® (LARC)
- 2013 *Abu Dhabi International Building Code* (ADIBC)[†]

[†]The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

Compliance with the following standards:

- APSP 5-2011, Standard for Residential Inground Swimming Pools
- APSP 3-2014, Standard for Permanently Installed Residential Spas and Swim Spas
- IAPMO/ANSI Z124.7-2013, Prefabricated Plastic Spa Shells
- AC274, ICC-ES Acceptance Criteria for In-ground Residential, Fiber-reinforced Plastic Swimming Pools and Permanently Installed Plastic Spas, dated December 2006 (editorially revised July 2017)

2.0 USES

The fiberglass pool and spa shells are for recreational use as swimming pools or spas in residential applications with water circulated through a filter in a closed system. The

pools comply with APSP/ANSI-5 as Type O or Type I pools. The spas comply with APSP/ANSI-3 and IAPMO/ANSI Z124.7.

3.0 DESCRIPTION

3.1 General:

The fiberglass pool and spa shells consist of one-piece fiberglass construction shop- formed over a mold. The material is minimum 1/4-inch-thick (6.4 mm), fiberglass-reinforced plastic (FRP), composed of isophthalic resin, vinylester resin, fiberglass, and ceramic (ceramic in Viking Pools only). The surface finish is a neopentyl glycol gel coat.

The overall dimensions, depths and capacities are shown in Table 1 for pools, Table 2 for spas and Table 3 for models that are permitted to be installed up to 19 1/2 inches (495 mm) above ground.

Notice: The pool and spa shells are designed to remain full of water at all times. The shell may be damaged if the water level is allowed to drop below the skimmer. When appreciable drawdown is noticed or if it becomes necessary to drain the pool or spa, contact Viking Pools, LLC, or its dealers for instructions.

3.2 Aboveground Pools and Spas:

Models intended for installation up to 19 1/2 inches (495 mm) above ground, listed in Table 3, have vertical supports consisting of 1-inch-by-1 1/2-inch-by-36-inch-long (25 mm by 38 mm by 914 mm), Douglas fir, No. 2 wood members encapsulated in the FRP process at 4 1/2-foot (13372 mm) intervals.

4.0 INSTALLATION

4.1 General:

The swimming pool and spa shells must be permanently installed in-ground or, in the case of the models shown in Table 3, up to 19 1/2 inches (495 mm) above ground. All plumbing and electrical installations must comply with the relevant codes in effect at the construction site at the time of construction.

Subject to the code official's approval, the pool or spa shells may be installed without a soil investigation by a registered design professional provided none of the following conditions is encountered at the site:

1. The existence of groundwater within the excavation, where the pool or spa floor will contact the soil at the time of installation.
2. The existence of an un-compacted fill in contact with any portion of the pool or spa shell.
3. The existence of any expansive-type soils.

4. The existence of any soil types with an angle of repose that will not support the walls of the excavation at desired slopes.
5. Danger to adjacent structures posed by the proposed pool or spa location.

If any of the above conditions is encountered, excavation must cease immediately. The specified conditions at the site must then be reviewed, and recommendations made, by a registered design professional. The code official must approve the registered design professional's recommendations; subject to the code official's approval, pools and spas may be installed in expansive-type soils in accordance with Section 4.2 before work is resumed.

The pool or spa excavation profile must coincide with the contours of the pool or spa. The over excavation must be approximately 6 to 24 inches (152 to 610 mm) on the sides and ends. The over excavation at the pool bottom must be a minimum of 3 inches (76 mm). The backfill for the pool or spa bottom must consist of a layer of bedding sand formed to match the pool or spa profile. This sand layer must be compacted using a manual tamper and water. The pool or spa shell must sit firmly on the sand and be within 1 inch (25.4 mm) of level. Simultaneous waterfill and sand backfill operations must then commence. The sand must be compacted with a tamper and water. The installer must ensure that the backfill level and water level are approximately the same throughout the filling procedure.

After completion of the backfill, the bond beam and decking must be installed in accordance with the manufacturer's published installation instructions, and approved by the code official.

4.2 Expansive soils:

For installation of pools or spas in expansive soils, the following additional installation details must be followed subject to the code official's approval:

1. All surfaces adjacent to the pool or spas must be excavated to a depth of 12 inches (305 mm) beneath the pool bottom and 6 inches (152 mm) behind the horizontal pool walls.
2. Any soft or loose soils exposed by step 1 must be removed until exposed material is solid. If the soil is still soft and loose, the upper 6 inches (152 mm) of all horizontal excavation surfaces must be scarified and compacted with mechanical equipment. The compacted surfaces and the excavated wall surfaces must be maintained in a moist condition until the first lift of backfill or fill is placed against the surface. The term compaction implies any method necessary to consolidate the native and fill materials to keep the pool or structure from settling.
3. The excavated bottom area of the pool or spa must be backfilled with granular import material to approximately 6 inches (152 mm) below the bottom of the pool or spa, wetted and compacted.
4. The remaining 6 inches (152 mm) must be backfilled beneath the pool or spa and behind the pool walls with clean sand and compact. The pool or spa must be filled with water as backfilling progresses to a level equivalent to that of the backfill. The backfill must be placed in compacted layers of approximately 6 inches (152 mm) while a uniform height of backfill is maintained around the pool or spa.
5. Positive surface drainage away from the perimeter of the pool and surrounding deck is required and critical to installations in highly expansive soils. Surface area drains and surface drainage swales or subdrains must be placed as needed to prevent ponding or saturation

of the soil around the perimeter and vicinity of the pool to prevent excessive shrink-swell or volume changes in the soil.

4.3 Aboveground Pools and Spas:

Models shown in Table 3 may be installed up to 19¹/₂ inches (495 mm) above ground. These pool and spa shells may be placed with or without concrete or wood decking. Unless the elevated external portions of the units are protected from sunlight by soil berms, decking, etc., these portions must be coated with a UV-inhibiting opaque paint that is compatible with the laminate.

5.0 CONDITIONS OF USE

The pool and spa shells described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 The pool and spa shells must be constructed and installed in accordance with this report and the manufacturer's published installation instructions. In the event of conflict, this report governs.
- 5.2 Electrical and plumbing installations must comply with the relevant codes in effect at the construction site at the time of construction.
- 5.3 Clearances of the pools and spas from slopes set forth in IBC Section 1805.3, CRC Section R403.1.7, IRC Section R403.1.7 or UBC Section 1805.3.3 must be observed.
- 5.4 A barrier must be installed in accordance with IBC Section 3109, ISPSC Section 305, IRC Section AG105, or UBC Appendix Chapter 4, as applicable.
- 5.5 Slip resistance is outside the scope of this evaluation report. Reports of slip resistance tests that demonstrate compliance with Section 8.1 of APSP/ANSI-5 for swimming pools, or Sections 5.4.1, 5.6.3.2 and 5.6.4.4 of APSP/ANSI-3 for spas, shall be submitted for approval by the code official.
- 5.6 Diving equipment may only be installed on Type I pools and must meet the minimum requirements of, and be installed in accordance with, Section 5.8 of APSP/ANSI-5.
- 5.7 Pools located in flood hazard areas established in accordance with Table R301.2 (1) of the IRC must comply with Sections AG101.2 and AG103.3 of the IRC, Section AG101.2 of CRC or Section 304 of the ISPSC.
- 5.8 Suction outlets must be designed and installed in accordance with IBC Section 3109.5, CRC Section AG106, ISPSC Section 310 and IRC Section AG106.1.
- 5.9 The pool and spa shells are fabricated by Viking Pools Inc. at their Williams, California; Midland, Texas; Jane Lew, West Virginia; Rockingham, North Carolina; Fayetteville, Tennessee; Breaux Bridge, Louisiana; Dix, Illinois; or the Zephyrhills, Florida, facilities, under a quality-control program with inspections by ICC-ES.

6.0 IDENTIFICATION

The pool and spa shells are identified by the following information imprinted on the top step of the pool or spa shell: manufacturer's name (Latham Pool Products, Inc. dba Viking Pools) and address, pool or spa shell designation, a coded serial number and the evaluation report number (ESR-2014).

A permanent sign, bearing the following statement, must be attached to the pumping equipment:

Notice: *The pool and spa shells are designed to remain full of water at all times. The shell may be damaged if the water level is allowed to drop below the skimmer. When appreciable draw-down is noticed or if it becomes*

necessary to drain the pool or spa, contact Viking Pool or its dealers for instructions.

A permanent label must be attached adjacent to the above sign indicating the Viking Pools, LLC, distributor's name, address and telephone number.

TABLE 1—POOLS

SERIES	LENGTH (ft-in)	WIDTH (ft-in)	MAX DEPTH (ft-in)	CAPACITY (gal)	POOL TYPE
AC	39'	16'	6'	16,700	Type 0
AL	26'	12'	5'6"	7,000	Type 0
AP	38'	16'	5'10"	17,500	Type 0
ARU	22'	11'	5'	5,200	Type 0
AT	40'	16'	8'	21,000	Type 1
B	25'5"	11'10"	4'6"	8,100	Type 0
BAR	38'	16'	7'	18,500	Type 0
BFF	25'7"	12'	6'	9,000	Type 0
BH38	18'	11'	4'-1"	3,600	Type 0
BHBA	30'	14'-5"	5'-10"	9,500	Type 0
BHBI	34'	15'	6'-6"	13,000	Type 0
BHBY	29'-10"	14'-6"	6'-6"	10,000	Type 0
BHCC	32'-10"	13'-6"	6'-2"	11,300	Type 0
BHCY	19'-11"	10'	5'	4,500	Type 0
BHGI	42'	16'	7'	19,300	Type 0
BHIB	29'-3"	12'-5"	5'-6"	6,600	Type 0
BHOB	41'	16'	7'	23,000	Type 0
BHPL	24'	11'	5'-6"	5,000	Type 0
BHPR	30'	14'	6'-7"	10,000	Type 0
BHSC	24'	12'	6'-4"	7,000	Type 0
BHSH	26'	12'	6'	7,000	Type 0
BHSR	24'	11'	5'-6"	6,000	Type 0
BHSW	34'	15'	6'-10"	14,000	Type 0
BHSY	32'	14'	5'-5"	10,000	Type 0
BHTB	34'	15'	5'-6"	12,000	Type 0
BHTC	27'-6"	11'-7"	5'-1"	6,800	Type 0
BHVI	28'	12'	6'-10"	8,000	Type 0
BKD	23'11"	12'3"	5'	6,000	Type 0
BL	38' to 45'	11'10"	4'6"	11,200 to 14,400	Type 0
BN	40'	16'	8'	22,000	Type 1
BP	38'	15'8"	5'11"	17,000	Type 0
BPD	38'	15'8"	8'	20,000	Type 1
CA	31'	14'	6'	12,000	Type 0
CC	35'	16'	6'6"	14,000	Type 0
CCX	35'	16'	6'-6"	11,500	Type 0
CD	33'	16'	5'5"	14,000	Type 0
CL	30'	14'	6'	12,500	Type 0
CM	23' 11"	12'3"	5'	6,000	Type 0
CO	40'	16'	7'	18,000	Type 0
CP	31'	12'	5'	10'500	Type 0
CR	39'7"	15'10"	8'	19,500	Type 1
CRBJ	40'	16'	7'	19,000	Type 0
CRBL	32'	14'	6'	12,000	Type 0
CRBM	28'	12'	5'	7,000	Type 0
CRDFJ	38'	16'	7'	17,600	Type 0
CRDFL	31'	14'	6'	11,000	Type 0
CRDFM	24'	12'	5'6"	6,000	Type 0
CRDJ	40'	16'	7'	19,000	Type 0
CRDL	30'	14'	5'6"	10,000	Type 0
CRDM	25'	12'	5'	6,000	Type 0
CRSBJ	38'	16'	7'	19,000	Type 0
CRSBL	30'	14'	6'	11,300	Type 0
CRSBM	24'	12'	5'6"	6,700	Type 0
CRSGJ	34'	16'	6'6"	13,800	Type 0
CRSGL	30'	14'	6'	9,700	Type 0
CRSGM	23'	12'	5'6"	5,500	Type 0
CRSGS	20'	10'	4'6"	3,400	Type 0
CRUD	26'	12'	4'7"	4,400	Type 0
CRUJ	35'	16'	6'6"	11,600	Type 0
CRUL	30'	14'	6'	8,000	Type 0
CRUM	26'	12'	5'	5,300	Type 0
CRUS	20'	10'	4'6"	3,000	Type 0

CSA	34'	15'	6'	13,000	Type 0
FDM	30'	14'	6'	12,000	Type 0
FF	30'	13'8"	6'	12,000	Type 0
FJI	34'	15'	6'	12,000	Type 0
FP	25'1"	12'	5'5"	6,000	Type 0
FSP	25'	12'	5'6"	8,700	Type 0
FR12	26'	12'	5'8"	7,600	Type 0
FR14	30'	14'	6'	11,200	Type 0
FR16	35'	16'	6'6"	15,250	Type 0
GB	33'9"	14'8"	6'6"	14,300	Type 0
GC	39'7"	15'10"	7'11"	19,600	Type 1
GS	34'8"	15'7"	5'10"	15,000	Type 0
HMT	34'	15'	6'	12,000	Type 0
JV	26'9"	12'	5'5"	6,800	Type 0
K	33'9"	14'8"	8'2"	16,000	Type 0
KL	30'	14'	5'11"	12,800	Type 0
L	31'6"	14'	7'	13,700	Type 0
LBBST	15'	12'	4'	2,500	Type 0
LBCST	21'	15'4"	4'-4"	12,000	Type 0
LCN	30'	14'	5'9"	10,800	Type 0
LD	19'9"	9'10"	5'	3,750	Type 0
LG	30'	14'	6'	10,000	Type 0
LGX	30'	14'	6'	9,000	Type 0
LN	36'	16'	7'	18,000	Type 0

TABLE 1—POOLS (Continued)

SERIES	LENGTH (ft-in)	WIDTH (ft-in)	MAX DEPTH (ft-in)	CAPACITY (gal)	POOL TYPE
MC	23'8"	12'	5'5"	6,000	Type 0
MFF	14'3"	8'7"	4'	1700	Type 0
MK	27'7"	14'6"	5'10"	10,000	Type 0
MLL	15'10"	8'6"	4'	2,200	Type 0
MP	14'6"	9'6"	4'	2,500	Type 0
MR	40'	16'	6'6"	17,000	Type 0
MT	35'	14'	5'7"	12,400	Type 0
MTK	16'	9'3"	4'	2,300	Type 0
NB	21'	15'4"	4'4"	7,000	Type 0
NT	34'8"	15'7"	5'10"	14,500	Type 0
OB	40'	16'	5'8"	18,900	Type 0
PRT	23'	12'	5'5"	6,700	Type 0
PS	40'	16'	7'	17,500	Type 0
RP	30'	14'	5'11"	10,000	Type 0
RS	30'	14'	6'6"	12,500	Type 0
RYBR	33'8"	16'	5'4"	11,500	Type 0
RYDC	39'6"	16'	6'	15,500	Type 0
RYDKS	33'4"	15'10"	6'	10,000	Type 0
RYJW	32'10"	14'7"	6"	11,000	Type 0
RYNB	30'	14'3"	5'6"	8,300	Type 0
RYQN	41'	15'	6'	13,500	Type 0
RYRM	27'6"	11'10"	5'	5,000	Type 0
RYSPB	34'5"	15'11"	4'4"	10,000	Type 0
SFF	25'	11'10"	5'6"	9,000	Type 0
SH	35'	14'	5'10"	10,500	Type 0
SK	19'9"	9'10"	5'	2,750	Type 0
SL	39'	7'7"	4'	6,500	Type 0
SP	20'	10'11"	5'	3,600	Type 0
SR	39'	16'	6'	16,300	Type 0
ST	27'7"	14'6"	5'10"	10,000	Type 0
TCAS	36'	16'	5'4"	16,000	Type 0
TCOR	25'4"	12'	5'5"	5,300	Type 0
TEQU	34'8"	15'4"	5'6"	9,000	Type 0
TEU	28'	14'	5'4"	9,200	Type 0
TEUT	28'	14'	5'4"	9,400	Type 0
TGEM	32'7"	16'	5'4"	9,000	Type 0
TGEN	40'2"	16'	8'6"	17,000	Type 1
THEL	24'	12'	5'4"	7,500	Type 0

THYSB	43'8"	16'	5'4"	18,000	Type 0
THYSS	43'8"	16'	5'4"	17,700	Type 0
THYST	43'8"	16'	5'4"	17,300	Type 0
TMRC	20'	8'	5'3"	3,800	Type 0
TN	30'	14'	5'11"	13,500	Type 0
TND	44'	16'	7'	19,300	Type 0
TPIC	24'-1"	12'-2"	5'-4"	5,600	Type 0
TRGSB	43'-8"	16'	5'-4"	18,500	Type 0
TRGSS	43'-8"	16'	5'-4"	17,800	Type 0
TRGST	43'-8"	16'	5'-4"	17,400	Type 0
TRMSB	39'-2"	16'	5'-4"	13,400	Type 0
TRMSBT	39'-2"	16'	5'-4"	14,300	Type 0
TRMSS	39'-2"	16'	5'-4"	13,800	Type 0
TRMST	39'-2"	16'	5'-4"	13,300	Type 0
TSOL	20'-8"	11'-9"	5'-4"	5,100	Type 0
TSYN	40'-2"	16'	6'-3"	16,000	Type 0
V	33'	14'	5'4"	11,700	Type 0
HZA	18'	8'6"	6'	4,500	Type 0
HZB	18'	8'6"	6'	4,300	Type 0
HZC	18'	8'6"	5'6"	4,050	Type 0
HZD	18'	8'6"	5'6"	3,850	Type 0
HZDXL	18'	8'6"	5'	3,000	Type 0
HZE	18'	8'6"	5'	3,600	Type 0
HZF	18'	8'6"	5'	3,400	Type 0
HZG	9'	8'6"	4'6"	1,200	Type 0
HZH	9'	8'6"	5'	1,350	Type 0
WL	26'	16'	5'	10,500	Type 0

For SI: 1 inch = 25.4 mm, 1 foot = 305 mm, 1 gallon = 3.785 L.

TABLE 2—SPAS

SERIES	SHAPE	DIAMETER OR WIDTH (ft-in)	DEPTH (ft-in)	CAPACITY (gal)
BOS	Octagonal	8'4"	3'	475
BOSSP	Octagonal	8'4"	1'6"	270
BOSSW	Octagonal	8'4"	3'	475
CS	Octagonal	8' x 12'5"	3'	700
CSSP	Octagonal	8' x 12'5"	1'6"	430
CSSW	Octagonal	8' x 12'5"	3'	700
LOS	Dodecagon	7'6"	3'	450
LOSSP	Dodecagon	7'6"	1'6"	220
LOSSW	Dodecagon	7'6"	3'	450
LRS	Round	7'	3'	420
LRSSP	Round	7'	1'6"	180
LRSSW	Round	7'	3'	420
M	Round	10'	3'4"	550
MSP	Round	10'	1'6"	325
MSW	Round	10'	3'4"	550
RG	Freeform	8' x 10'	3'4"	600
RGSP	Freeform	8' x 10'	1'6"	470
RGSW	Freeform	8' x 10'	3'4"	600
RY	Rectangle	8' x 10'	3'4"	600
RYSP	Rectangle	8' x 10'	1'6"	330
RYSW	Rectangle	8' x 10'	3'4"	600
RS	Round	5'8"	3'0"	275
RSSW	Round	5'8"	3'0"	275
RSSP	Round	5'8"	1'6"	150
OS	Octagonal	6'0"	3'0"	375
OSSW	Octagonal	6'0"	3'0"	375
OSSP	Octagonal	6'0"	1'6"	125
SPKM	Kidney	7' x 10'	3'	350
SS	Square	6'6'	3'0"	295
SSSW	Square	6'6'	3'0"	295
SSSP	Square	6'6'	1'6"	150
TMRD	Square	7'-9"	2'-11"	675
TNEP	Round	8'	2'-11"	575

For SI: 1 inch = 25.4 mm, 1 foot = 305 mm, 1 gallon = 3.785 L.

TABLE 3—ABOVEGROUND POOLS AND SPAS (19½ INCHES MAXIMUM ABOVE GRADE)

POOLS		SPAS			
AL	MTK	BOS	LRS	RG	SPKM
ARU	SK	BOSSP	LRSSP	RGSP	SS
B	SL	BOSSW	LRSSW	RGSW	SSSP
BFF	SP	CS	M	RS	SSSW
BKD		CSSP	MSP	RSSP	
FP		CSSW	MSW	RSSW	
MFF		LOS	OS	RY	
MK		LOSSP	OSSP	RYSP	
MLL		LOSSW	OSSW	RYSW	

LATHAM POOL PRODUCTS, INC. D.B.A.

Viking Pools: Empress

Step 1. PLANNING FOR THE INSTALLATION

RECOMMENDED TOOLS

1. Hammer
2. Neon nylon string 2 rolls
3. Yard marking spray paint
4. Strap kit (four 20' straps, one 33' strap, one 35' strap, four 2" to 3" shackles [U bolts], one large (4") shackle)
5. Two 2" ratchet straps
6. Laser transit/level
7. 2" duct tape
8. 2 – 50' ropes
9. Sharpie markers
10. A roll of paper towels
11. Shop Rags
12. Bi-metal Hole saws, 2-3/8", 1-1/2", 3", and 5" with centering bit
13. Reciprocating saw (Sawzall) or jig saw with extra 6" bi metal blades
14. Cordless drill (with multiple batteries charged)
15. A drill bit set (with multiple 1/4" bits)
16. Leather Gloves
17. Caulk gun. Optional: auto caulk gun
18. 1 – 35" rigid tape measure
19. 1 – 100' measuring tape
20. Utility Knife
21. PVC cutters that will cut 2" pipe
22. Phillips head screw driver (#2 to tighten skimmer screws)
23. Pen and grade work sheet
24. A box of 2" screws
25. A box of 3" screws
26. Pipe wrench
27. A 4" handheld grinder (for squaring up the skimmer hole and/or flattening the back side of the shell for return fittings and lights – is a must-have in case you accidentally cut through a hook or core location)
28. Shovels, rakes, picks
29. Wheelbarrow
30. Bottle jack
31. Short 2x4's and short 4x6 boards
32. Crane
33. Bobcat
34. Excavator
35. Dump truck
36. Safety fencing
37. Hoses (2)

CONSUMABLE MATERIALS LIST

1. 2 – 4' 2x4's
2. 1 – 10' 2x4
3. 2 – 16' 2x4's
4. Plumbing
 - a. PVC Pipe and Fittings (that comply to FED, State, and Local codes)
 - b. PVC Cleaner and Glue
5. Electrical
 - a. Electrical conduit (pipe, elbows, unions)

- b. Wire and Hardware (that comply to FED, State, and Local codes)
 - c. Rebar (42 three foot [3'] sticks) or 6"x6" W1.4 x w1.4 Wire Mesh
 - d. Rebar ties with pig tail
6. Pool Equipment
 - a. Pump
 - b. Filter
 - c. Chlorinator (if required)
 - d. Heater (if required)
 - e. Automation (if required)
 - f. Lighting (with transformer)
 - g. Handrail and/or ladder with escutcheons (and concrete anchors)
 - h. Equipment pad or Portland cement and form boards
 7. Tile Kit
 - a. Waterline tile, step/seal inlays, inlaid mosaic tiles
 - b. Adhesive and grout for tile with scrubber sponges
 - c. Tile float
 - d. Extra tubes of silicon adhesive/sealant
 8. 1/2 inch washed gravel (for pool base and backfill)
 9. Forms for concrete
 10. Cantilever deck forms (Stegmeyer / Mortex) (if required)
 11. Extra ties for Forms
 12. Wood stakes
 13. Materials for brick or stone work
 14. Materials for concrete deck
 15. Materials for pavers

SITE PREPARATION AND PLANNING

In planning for the installation of a new Latham pool, there are many important considerations that must be evaluated in order to achieve a functional, long-lasting and aesthetic addition to a home. When choosing a location, consider the following:

1. Grade: Pools and decks are normally constructed on level ground. Extreme variations in grade should be resolved before the excavation of the pool begins. A relatively level and flat location is preferred so time and effort are not wasted on radical fluctuations in grade.
2. Excavation Equipment Access and Pool Delivery: Determine the most efficient route for equipment to enter and access the site. Also keep in mind that a well-planned route can save time and money by enabling multiple pieces of equipment to work in unison. For example: Coordinate the delivery of the pool with the completion of the excavation and preparation of the hole. Use of a crane with four (4) 20-foot straps is recommended for the process of setting the pool shell in the excavated site. However, if a track excavator was used to prepare the site, in some cases it may also be utilized to unload and set the pool. Contact Latham for specific guidelines for setting pools with excavator equipment. Finally, consider the placement of the equipment. If possible, position the pool equipment so the pool shell can be unloaded and placed directly into the excavation without risking damage to the equipment.
3. Underground Utilities: Check with local authorities for the locations of underground water, gas, power and sewer lines.
4. Overhead Power Lines.
5. Local Building Codes: Determine the setbacks from property lines, easements, house footings, etc.
6. Underground Water Conditions.
7. Water Drainage: Water should always drain away from the pool. Failure to keep ground water away from the exterior of the pool may result in damage to the pool that is not covered under warranty.
8. Local Fencing Codes.
9. Location of Pool Equipment.
10. Electrical Run for Pool Equipment.
11. Exposure to Sunlight.
12. Surrounding Foliage.
13. View from Residence.

NOTICE:

Failure to read and follow specific instructions contained in this manual will void your pool warranty.

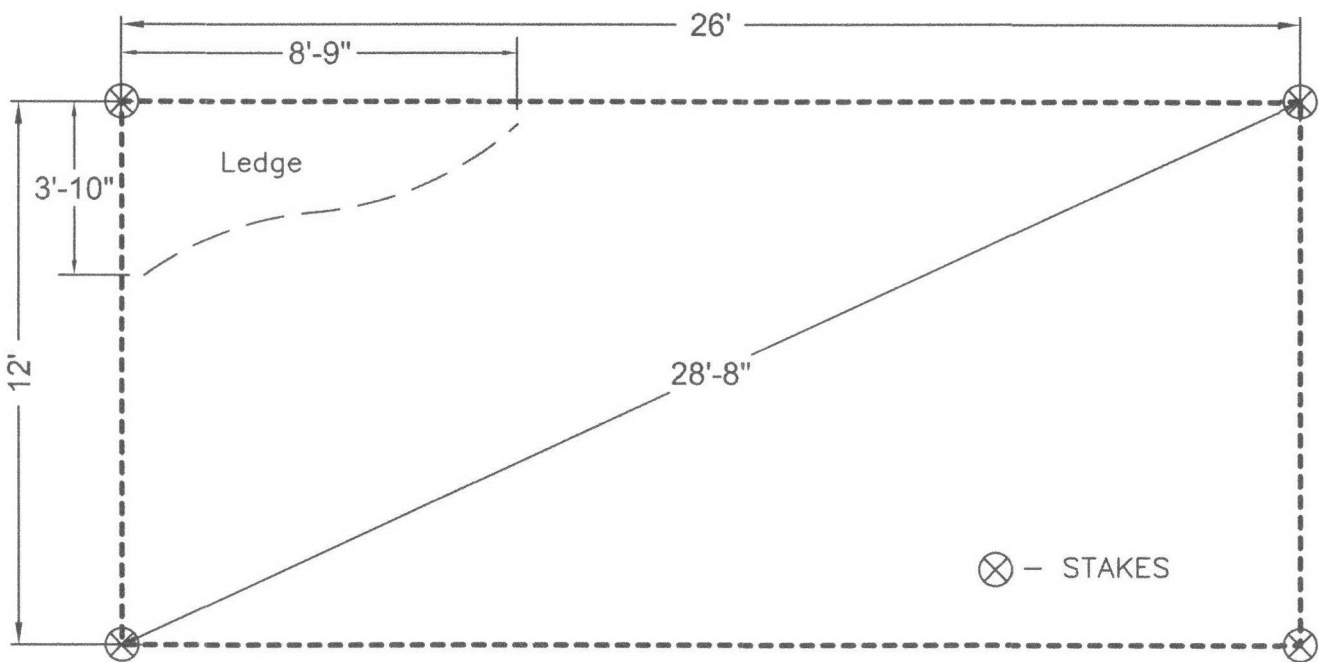
Step 2. POOL LAYOUT

When laying out the pool, note that the dimensions are to the outside edge of the pool beam. Most permit plans are measured to the water's edge. The coping of a Latham fiberglass pool is approximately 4" to 6" on all sides. There is generally a difference of 8" to 12" between the length and width dimensions in the installation guide and those of the permit plans in most cases (see the Latham fiberglass pool specification document for exact inside and outside dimensions for each model). Overall length and width measurements may vary up to 3%. Depending on the customer and the local building inspector, this fact can be a critical consideration. Distances between the water's edge to most property lines, electrical lines, and other structures such as houses, garages, sheds and patios must be exact to plan specifications.

Start by laying out the pool template or with a 12' wide by 26' long rectangle with diagonal measurements of 28'-8". Next, lay-out the center point, making sure the center lines are at 90 degrees. Stake each point around the perimeter of the pool as shown in Figure 1. Connect each stake with string. Denote the location of the skimmer with a 2'x2' box outside of the pool layout. Use spray paint to follow the contour of the string. The outline will be the shape of the outside dimensions of the pool shell. Remove the string and stakes, leaving only the outline of the pool. Be sure to mark tanning ledge location, if any.

NOTE: Latham Pool Products offers yard templates for each pool model offered. The yard templates are reusable and are the dimensions of the shell. If using a yard template, simply lay the template out in the yard where the pool is to be set and paint a line on the edge of the template.

Figure 1 - Excavation Dimensions



Step 3. ELEVATION

Elevation and grade of the pool area are two of the most often overlooked or miscalculated variables in the installation process. While considering all the variables concerning elevation and grade, always remember that you want water to run away from the pool. Before excavation, use the provided Form 1 – INSTALLATION PLANNING GUIDE to calculate all critical measurements.

Check the four corners of the pool layout with the aid of a transit level or a sight level to determine the highest corner. This corner will be used in planning the elevation of the pool. In a typical installation, the elevation of the pool should be 4-6 inches above the highest point of the existing grade around the pool. However, careful consideration should be given to pool type, size and drainage of the future pool deck, as well as the elevation of the surrounding landscape and existing structures, patios and sidewalks.

INSTALLATION PLANNING GUIDE

Job: _____ Pool: FR12 Date: _____

Finish Grade

* Slope

Top of Concrete at Pool

Thickness of Concrete

Top of Pool

Shallow End Depth

Top of Sand or 1/2" Clean Gravel Shallow End

Thickness of Sand 1/2" Clean Gravel

Top of Dig Shallow End

Top of Pool

Deep End Depth

Top of Sand 1/2" Clean Gravel Deep End

Thickness of Sand 1/2" Clean Gravel

Top of Dig Deep End

** FINISH GRADE

DISTANCE TO POOL

** FINISH GRADE
EXISTING PATIO

UNDISTURBED SOIL

3" - 4" SAND OR 1/2" CLEAN GRAVEL

* SLOPE = DISTANCE TO POOL X .25 (1/4")

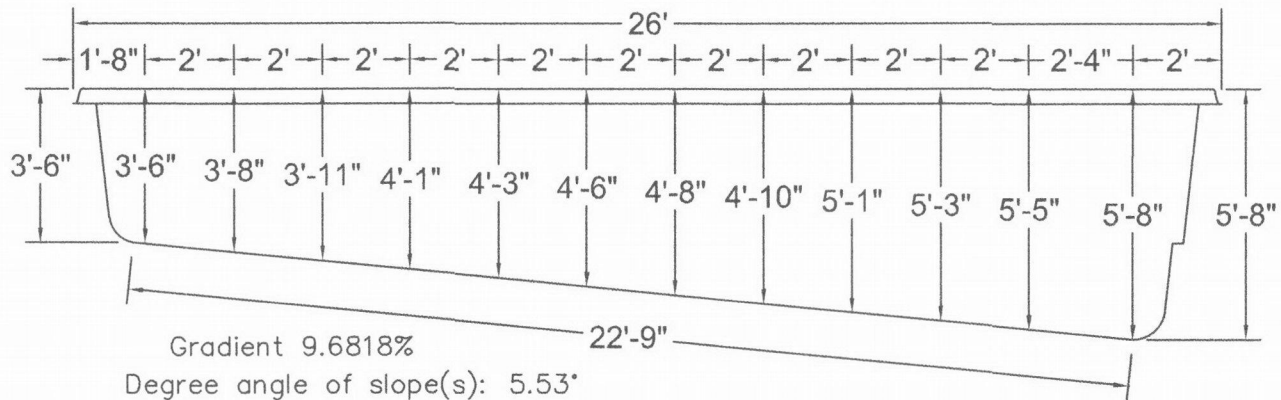
** IF POOL IS INDEPENDENT OF ANY EXISTING
STRUCTURES OR PATIOS, FINISH GRADE IS
TO BE 3 1/2" BELOW EDGE OF POOL DECK.

Step 4. EXCAVATION

Correct excavation of the pool is very important. A hole that is too small can mean hours of picking and shoveling by hand. A hole that is too large will require extra recommended backfill material, which if not dealt with properly, can result in settling or bulging of the pool.

The excavation should be dug very close to the pool size with a minimum disturbance to the unexcavated soil which will support the pool. The clearance is approximately 6" on the sides and 6" on the ends (see Figure 2).

Figure 2 - Pool Shell Depth Dimensions

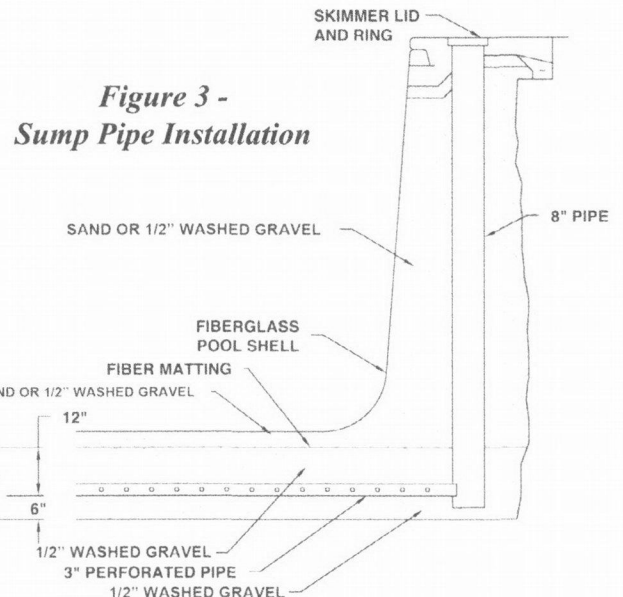


The depth of the excavation is determined with the use of a transit level and grade pole. The bottom of the excavation is over dug approximately 4". This size pool will require approximately 20 to 25 yards of sand or 1/2" clean gravel for backfill (more may be required if the excavation is significantly over-dug).

The excavation should be 12' by 26', with a total depth of approximately 3'-10" (shallow end) to approximately 6' (deep end) from the desired elevation of the pool. It can be helpful to give yourself extra room the first 6" in width and 12" in length of the hole, to get past the coping, and allow space for the skimmer and bottom suction fittings (if any). Also, keep in mind that the wall of our pools are tapered, usually 1" in for every 12" in depth. A place for the skimmer must also be dug in the side of the excavation wall. The skimmer cutout should be 2' by 2' and 3' deep. See Figure 1 for placement. Pools with tanning ledges require the tanning ledge area excavated to the depth stated in Fig. 1 plus 4" for bedding material.

Never use excavated material as fill or backfill in the hole; the material will settle. We suggest sand or 1/2" clean gravel compacted thoroughly (a plate tamper is needed for the pool base). The fill material used for the pool base must also be used to backfill around the sides of the pool shell. In the case of significant over excavation on the sides of the pool or in seasonal high water or poor drainage areas, you may want to mix 10% Portland cement with the backfill for stabilization.

Latham requires that a permanent sump pipe (see Figure 3) be installed on all pools. A gravity fed "daylight drain" is an acceptable alternative to a permanent sump pipe installation. The purpose of the sump pipe installation (or daylight drain) is to provide a means of checking for groundwater around the pool and allow for dewatering the site prior to any work on the pool that requires lowering the water level within the pool shell, thus minimizing potentially high hydrostatic pressure. Latham recommends the installation of a permanent sump pump in areas with a high water table and/or significant ground water. Latham suggests digging an 18" x 8' x 18" trench across the deep end of the excavation. Six inches of 1/2" clean gravel should be placed in the bottom of the trench. A section of 3" perforated PVC pipe is placed on the rock base and connected to a vertical stand of 8" PVC pipe running to the surface of the excavation. Cover the new sump line with landscaping fabric. The 8" PVC riser pipe should be trimmed with a skimmer ring and lid for



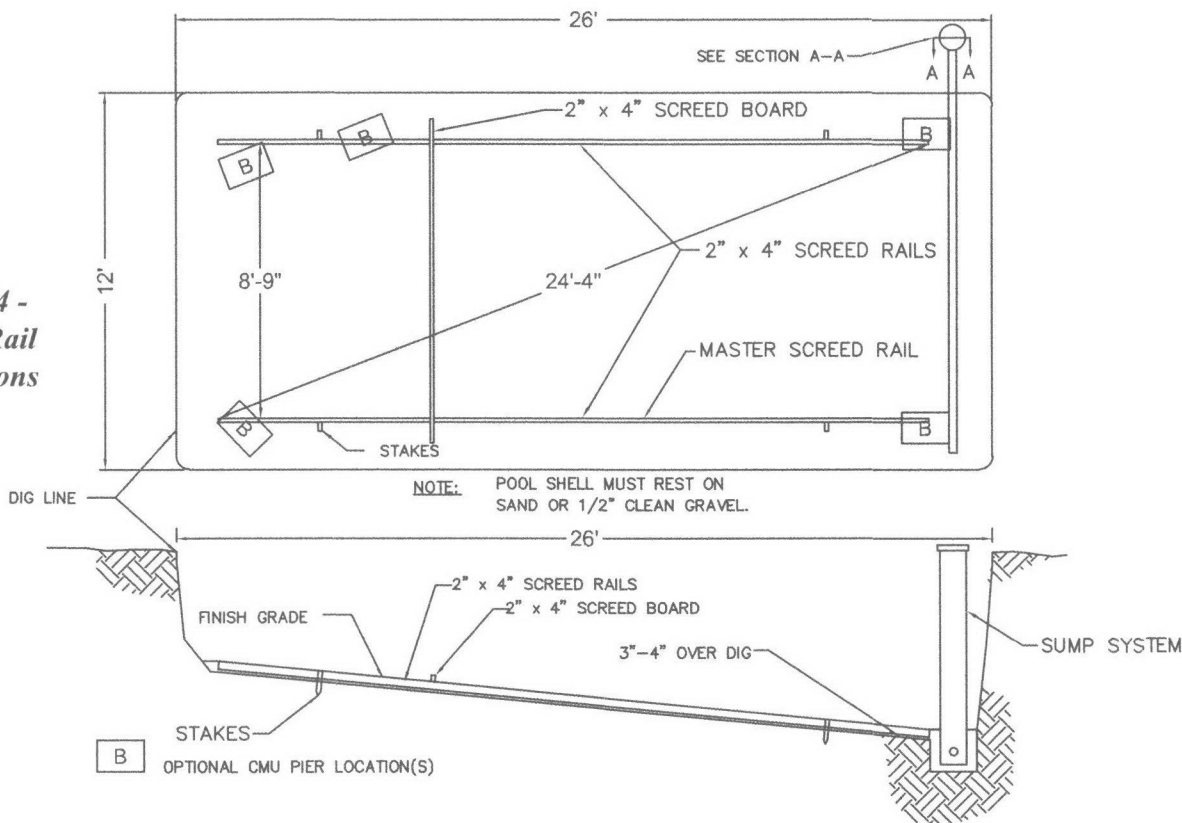
aesthetics and safety. After the connection has been made to the vertical stand of 8" PVC, finish covering the 3" perforated PVC pipe with 1/2" to 1" clean gravel to the bottom of the excavation (see Figure 3). The bottom of the excavation is now ready for approximately 4" of base material.

Step 5. PREPARATION OF THE BOTTOM SURFACE OF THE EXCAVATION

The preparation of the excavation bottom is critical so the pool will fit properly. Thorough preparation will eliminate settling, stress cracks and a minimum of time will be spent setting the pool.

First, install the 2" x 4" master screed rail(s) length wise in the excavation, using wood or metal stakes (See Figure 4). Make sure the diagonal measurement is exact to insure that the bottom is square. Adjust the master screed rail(s) to the appropriate height using a transit level (See Figure 2). Next, install the remaining screed rail(s) parallel to the master screed rail(s) using the offset dimensions as shown in Figure 4 and making sure that they are perfectly level to the Master screed rail(s) to insure that the bottom is square. Next, spread a layer of fill material approximately 4" deep evenly over the bottom of the excavation. Rake the fill material flat to the top of the screed rails (See Figure 3). Compaction of the fill material is generally achieved by screeding it into place, but depths of greater than 4" will require use of a plate tamper. Rake and compact the area several times. Screenshot the bottom of the excavation, filling any low spots as you go. Remove the screed rails and fill in the voids with fill material, being careful not to disturb the fill.

**Figure 4 -
Screed Rail
Dimensions**



Step 6. SETTING THE POOL

Upon arrival/delivery of your pool shell, be sure to inspect the pool for damage that may have occurred during transportation and for conformity to order specifications. The recommended method of setting the pool shell is by making use of a crane or boom truck. A track-mounted excavator can be used to lower the pool into the excavation, but directions should be obtained from Latham prior to setting the shell. Please note that Latham recommends lifting all pool models over 12' wide with a spreader bar and 20' lifting straps. Once the pool is set in the excavation, the pool should be checked for level and the bottom should be walked over to detect any voids in the fill material that might be present.

The pool is then lifted and reset as many times as necessary to achieve a "good fit." A good fit is realized by raking the surface of the fill material in order to see where the pool's perimeter is touching (footprint) and by walking around on the inside of the pool to detect low spots. It is normal to feel a slight void under the center of the pool, but walking in the pool should cause the floor to rest on the bed of fill material. The pool shell will conform to the base material under the weight of the water. It is important

to make certain that the bottom, perimeter, and all transition points are sitting firmly upon the bed of fill material. The pool can be separated from the lifting equipment when the entire perimeter of the pool (including all transitions) is within 1/2" of level around the entire perimeter of the shell with tile preinstalled, or 1" of level if tile is to be installed later during the installation.

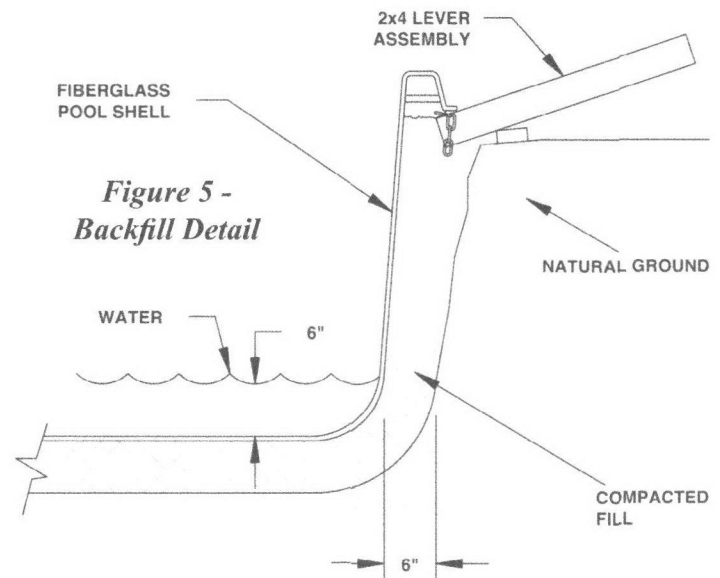
A properly prepared hole should not require the filling of large voids beneath the pool. Blindly adding fill material beneath a pool can cause more harm than good. It is important that any adjustments to the pool's elevation be made before water is added. If the hole was properly prepared, nothing more than a few minor adjustments should be needed.

Step 7. WATER AND BACKFILL

On most pool shells water can be filled to the bottom of the first step with no backfill material against the shell wall. The pool should then be checked to assure it is still level (check EXCAVATION NOTES for specific shell being installed). If the pool shell does not remain level, the water should be completely removed and the bedding material added or removed as necessary to achieve level.

As backfill material is initially placed around the pool shell, care should be taken to ensure that the wall-floor and step-floor radiuses are tightly packed with fill material. Once the pool shell is "locked in," the fill/backfill process can continue. It is very important that the radiuses of the pool are properly and completely compacted. Poorly packed radiuses can result in hairline cracks and/or structural cracks due to deflection. Be sure to backfill slowly and thoroughly.

After approximately 12" of water is in the pool and backfill has been placed evenly, the backfill and water should always be +/- 6" of each other. As the water approaches the shallow end, pay particular attention to all the unsupported areas of the pool. Steps and swimouts tend to droop, so slight adjustments may need to be made with the levering device. Be sure you wait until a sufficient amount of water surrounds the area (usually 12") to keep the rest of the pool in place, or you may raise more than you intend. The walls of the pool may bulge inward if too much backfill has preceded the water in the pool, or outward if too much water precedes the backfill. If bulging does occur during the installation, the only remedy is to dig that area out and proceed correctly. Slight bulging has only visual effects, while not affecting the structure of the pool. A string line is very useful in determining the straightness of the pool walls during the backfilling process.



To mitigate the stress under step, tanning ledges, and some seats potentially induced on the pool shell as a result of backfill settling, Latham recommends either a shallow dig under large steps, tanning ledges, and some seats (Figure 6) or in the event of an over-dig, the installation of concrete masonry unit (CMU) piers placed under the steps, integral tanning ledges and/or swim outs, and some seats may be needed (Figure 7).

Figure 6 -
Minimal Dig Stair Detail

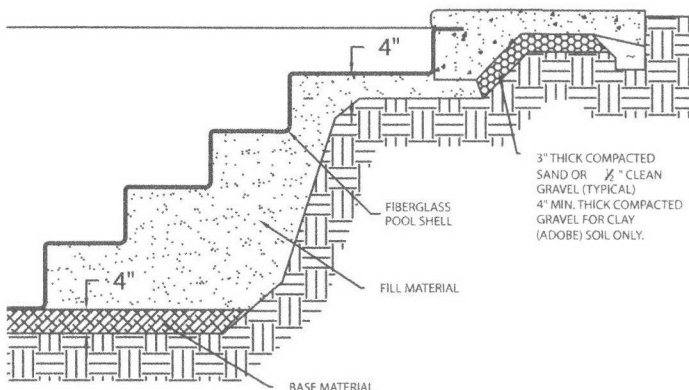
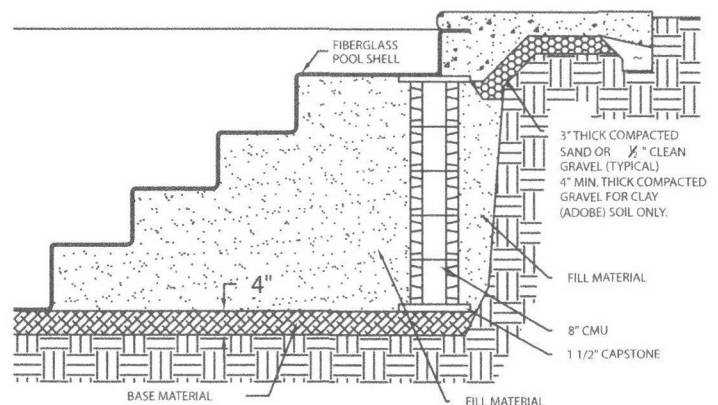


Figure 7 -
CMU Pier Stair Detail



Blocking the steps is performed after the pool shell has been set within level and water reaches the tread of the next to last step tread (2nd from floor). When installing CMU piers, start by placing a 1-1/2" capstone block on the base material. On top of the capstone block, stack CMU's (cinder blocks) until they reach a point just under the step or ledge locations designated in Figure 4. Since the step area of the pool shell is often lower than the rest of the shell, jack the step package up using a bottle jack and a section of 2" x 6" lumber under the outside radius of the top step (where the top tread meets the top riser). Jack the steps to be level with the rest of the beam of the shell. Shim the gap between the top CMU and the bottom of the tread/riser radius with another capstone block and/or 1/4" concrete backer board. When the bottle jack is released, the pool shell should be within 1/2" of level around the entire perimeter of the shell with tile preinstalled, or 1" of level if tile is to be install later during the installation. Bottle jacks should be removed from the job site once the piers are in place. **Do not leave bottle jacks or organic material, such as wood under the pool shell for support.** Properly placed piers should be 1/2 under the step of the shell, with the remaining portion of the top block/shim remaining outside the step/riser tread (See Figure 7 for detailed drawing of properly placed piers). **Do not place piers completely under the top step or tanning ledge (swimout) as stress will be transferred to the radius between the horizontal and vertical surfaces, resulting in stress fractures.**

This pool does not require annual draining for service. If draining is ever required, the owner, or their agents, must first receive written permission and instructions from Latham Pool Products. Damage caused due to the water being drained below the level of the skimmer inlet is specifically excluded from the Latham warranty.

Step 8. PLUMBING

A basic swimming pool circulation system is relatively simple in operation. Water in the pool is drawn through the skimmer to the pump, which pushes it through the filter back to the pool via the returns. See Figure 8 for a basic filtering system diagram. More advanced filtering systems may include sanitizers, jets, blowers, automatic pool cleaners, etc. Latham recommends the use of 2", schedule 40 PVC plumbing on most pools. The plumbing system must be designed to comply with ANSI/APSP-7 STANDARD FOR SUCTION ENTRAPMENT AVOIDANCE IN POOLS AND SPAS (latest revision). Visually inspect and pressure test all plumbing installed at the factory upon the delivery of the pool and during the backfill process.

Latham Pool Products suggests placing the equipment slightly above the elevation of the pool. If the equipment is placed below the water level, check valves or shut off valves must be installed to prevent accidental siphoning of the pool. The equipment becomes less efficient the greater the distance away from the pool. Pipes may now be glued at the equipment pad and circulation of the filtering system may begin. Check all connections for leaks and proper circulation before covering them. Local building codes may require pressure testing of the plumbing system before the installation is complete.

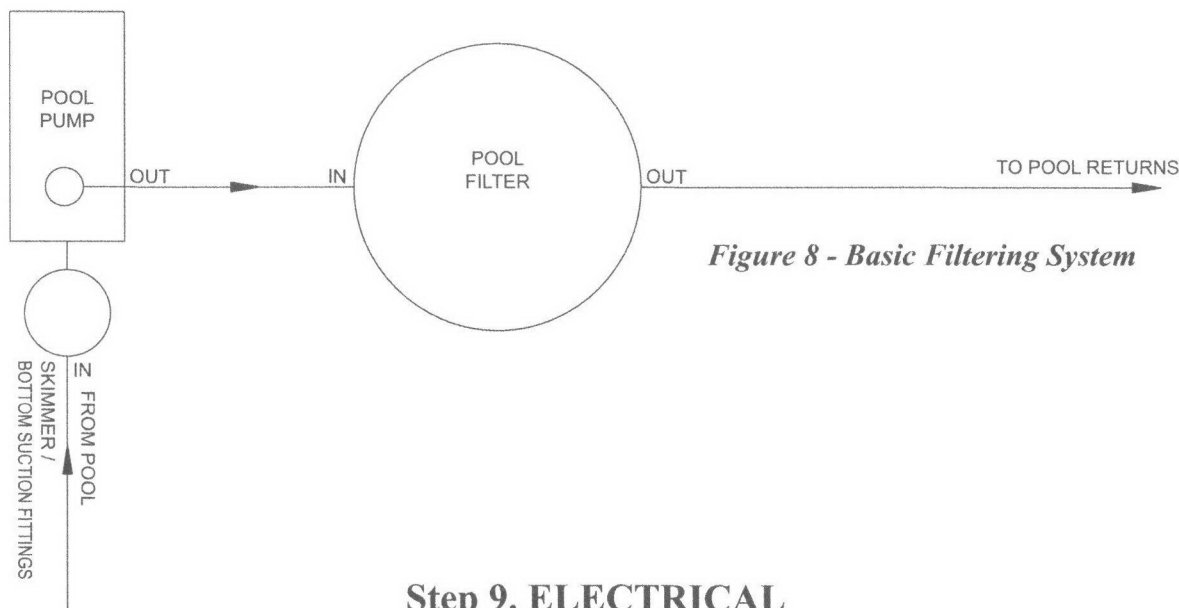


Figure 8 - Basic Filtering System

Step 9. ELECTRICAL

If the installer or homeowner is not qualified to do electrical work, an electrician should be hired and a building official should inspect the work. All electrical work should be done to National Electric Code specifications and any local codes. Latham will not be held responsible for any electrical work.

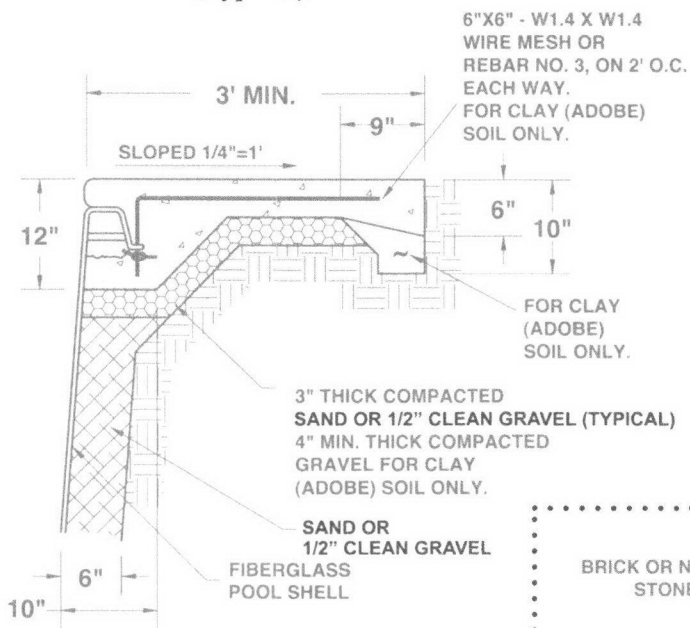
Step 10. POURING CONCRETE

A standard cantilevered deck, as shown in Figure 9, requires that forms be placed on the inside perimeter of the pool. These forms are attached to the pool beam using double-sided tape. The forms are then held in place using supplied wire ties and screws. Cantilever forms are typically installed on the same day of the concrete pour. The backfill should be removed from the top 8 inches around the pool perimeter to a width of approximately 10 inches. In areas of sandy soil conditions, the material is typically removed just prior to pouring the deck. Care should be taken that the concrete is worked into the area under the beam of the shell so that air voids are minimized. If desired, $\frac{3}{4}$ " holes may be drilled every 36" to aid bleeding air. Rebar or wire mesh should be used in the concrete deck. For decks using pavers, as shown in Figure 10, the concrete deck should be poured up to approximately $\frac{1}{4}$ " of the top of the pool coping. Deck should fall $\frac{1}{4}$ " per 12 inches of horizontal deck to allow any surface water to be drained away from the pool.

Half inch holes may be drilled into the lip of the pool every 3'. Two foot lengths of 3/8" rebar are placed in each hole and bent at 90 degree angles (see Figures 9 and 10). This will ensure a bonding or anchoring effect on the sides of the pool. The walkway may also be reinforced with 6" No. 10 wire mesh or No. 3 rebar on 2' centers (see Figures 9 and 10). Concrete should be poured at least 3' around the perimeter of the pool and at least 4" thick. Latham will not be held responsible for any concrete work or cracks that may result from its use.

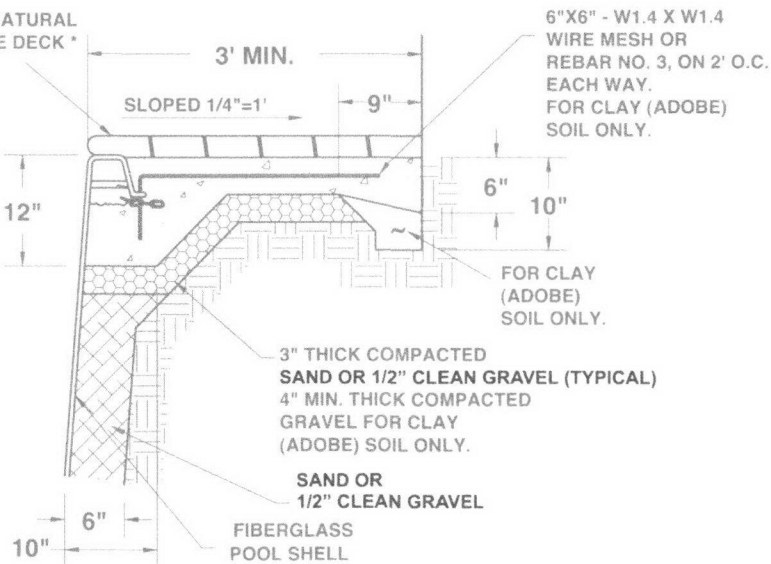
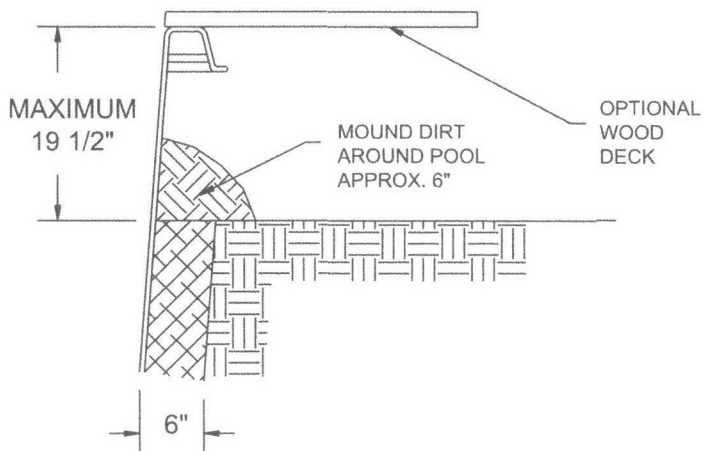
In northern climates 6"-8" of ½ clean gravel is recommended under the concrete deck.

**Figure 9 -
Cantilever Concrete Deck
(Typical)**

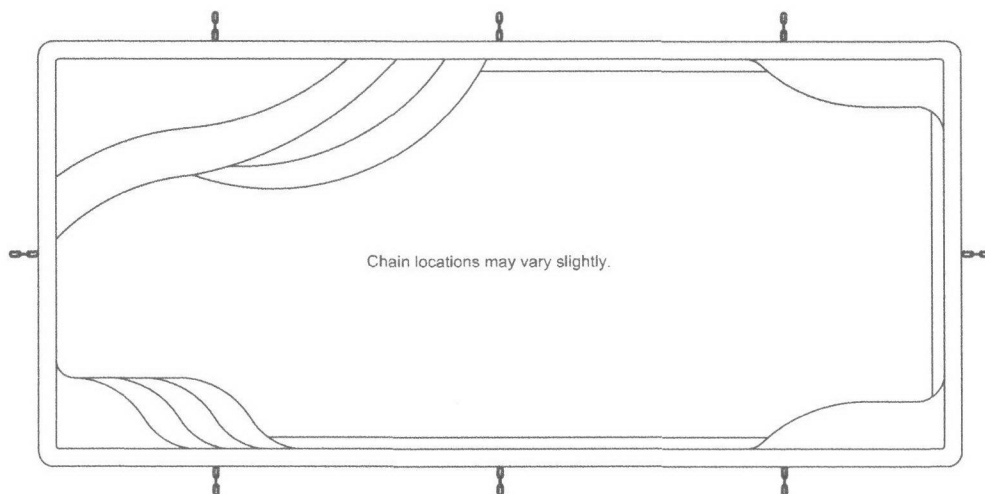


**Figure 10 -
Concrete Deck with
Brick or Stone**

**Figure 11 -
Partial Above Ground Installation (Typical)
(Only for pools 12' wide and under)**



**Figure 12 -
Chain Locations**

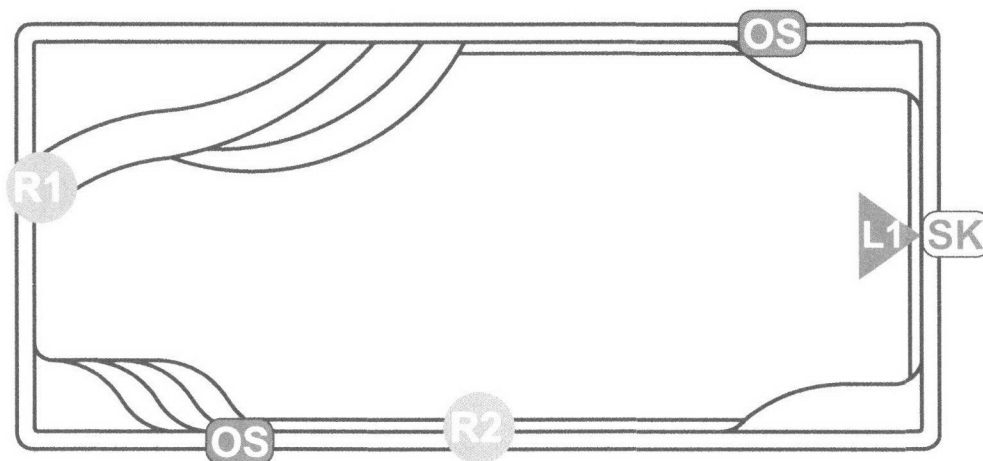


POOL LIFTING NOTE:

1. When being lifted from the trailer and/or set in the excavated installation site, four (4) 20' straps should be used. The 4 straps should be connected to a common lift point, typically the ball of the crane.

**Figure 13 -
Standard Fitting
Locations**

<u>Legend:</u>	
SK	- Skimmer
R	- Return Fitting
L	- Light
OS	- Optional Skimmer Location for Auto Cover Bundle

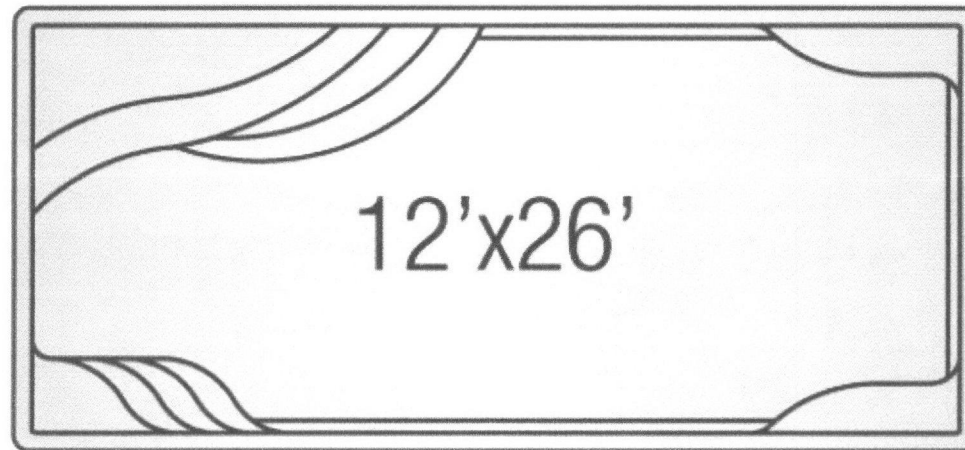


Drawing denotes approximate standard outfitting locations. Additional fittings and custom outfitting not shown.

WARNING TO THE BUYER

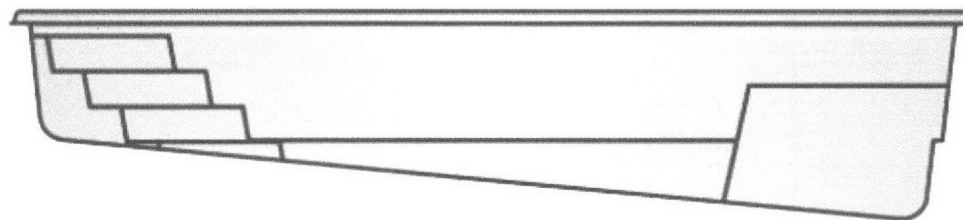
The pool is designed to be kept full at all times. The shell can be damaged if the water level is allowed to drop below the skimmer. When appreciable draw-down is noticed, or if it becomes necessary to drain the pool, contact Latham Pool Products, or their agents for instructions. The pool shell may be damaged and separation from the concrete may occur if the pool is allowed to overflow or if heavy water drainage is allowed to over-run the deck to pool shell connection. Keep the water level in the middle of the skimmer. Latham Pool Products will not be held responsible for any unforeseen problems or circumstances which arise from inadequate site drainage or incorrect deck installation. Refer to the Latham Warranty for conditions, circumstances, or installation practices that may void the pool's warranty.

AUTO COVER READY



Empress

Depth: 3'-6" to 5'-8"



Ships from CA, FL, IL, LA, NC, TN, TX, WV

Non-Diving Pool. Use of Diving Equipment is Prohibited.

18-140214-RS

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