DOUGLAS STATION

NW SLOAN & NE SYCAMORE ST
LEES SUMMIT, MO 64086

POOL CONSTRUCTION DOCUMENTS

OCTOBER 13, 2025

PREPARED BY:

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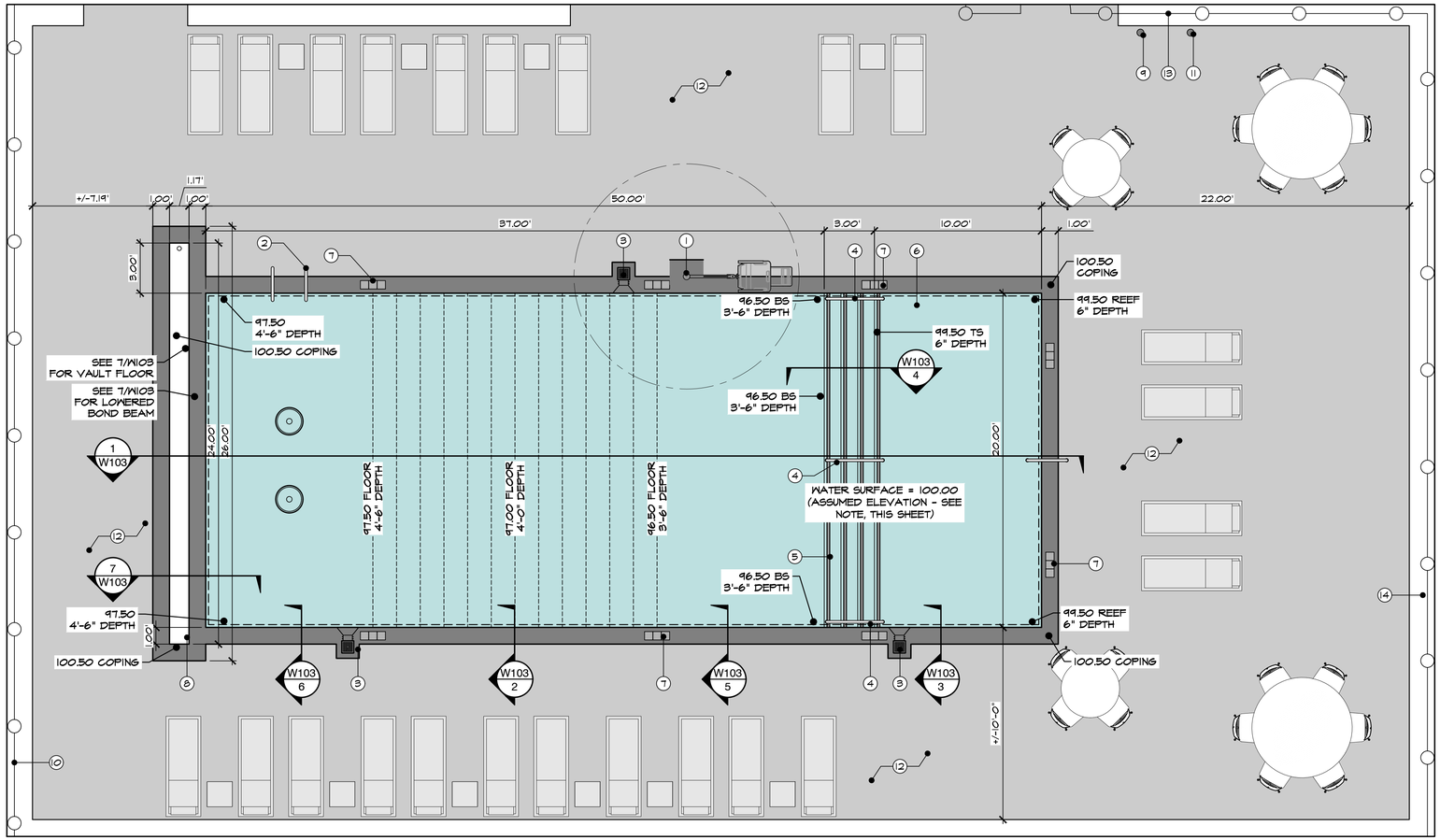
SHEET INDEX



POOL LAYOUT PLAN

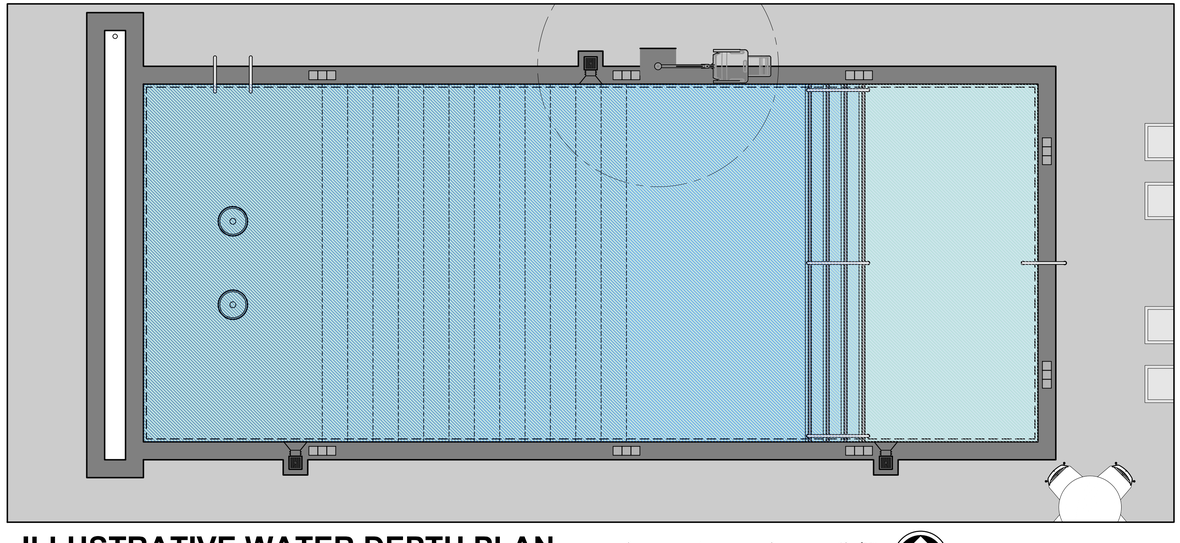
SCALE: 1/4" = 1'-0"

0 4 8 12 feet

SCALE: 1/4" = 1'-0"

NORTH

NOTE: THIS IS NOT A DIVING POOL



ILLUSTRATIVE WATER DEPTH PLAN

SCALE: 1" = 4'-0"

0 4 8 12 feet

SCALE: 1" = 4'-0"

NORTH

POOL WATER DEPTH

- 0' - 6" WATER DEPTH
- 6" - 1'-3" WATER DEPTH
- 1'-3"-2'-0" WATER DEPTH
- 2'-0" - 2'-9" WATER DEPTH
- 2'-9"-3'-6" WATER DEPTH
- 3'-6" - 4'-0" WATER DEPTH
- 4'-0" - 4'-6" WATER DEPTH
- +/- 4'-6" WATER DEPTH

DETAILS LEGEND

KEY	DETAIL	DESCRIPTION	SHEET
1	ADA ACCESSIBLE POOL LIFT	SPECTRUM AQUATICS ADA ACCESSIBLE POOL LIFT WATER DEPTH SHALL NOT EXCEED 48" AT LIFT LOCATION	2 W106
2	POOL LADDER	BONDED S.R. SMITH SNAP-LOC POOL LADDER	9 W103 & 1 W104
3	SKIMMER	HAYWARD 1082 POOL SKIMMER	5 W107
4	HANDRAIL	HANDRAIL AT POOL ENTRY REEF	8 W103
5	POOL STAIRS	12" DEPTH STAIR TREADS W/ 2" WIDE TILE OF CONTRASTING COLOR AT BOTH VERTICAL AND HORIZONTAL LEADING EDGE OF EA. STEP, TYP.	4 W103
6	ENTRY REEF	POOL ENTRY REEF, PROVIDE 2" TILE OF CONTRASTING COLOR W/ INTERIOR FINISH AT BOTH VERTICAL AND HORIZONTAL LEADING EDGE OF REEF, TYP.	3 W103
7	NO DIVING MARKERS	6"x6" NO DIVING MARKERS AND 6"x6" DEPTH MARKERS (TYP) NON-SKID TILE MARKERS ON TOP OF WALL AND INSIDE FACE OF POOL WALL W/ 4" HIGH BLOCK LETTERS AND NUMBER, IMBED FLUSH W/ POOL DECK	10 W104
8	AUTOMATIC POOL COVER VAULT	COVERSTAR AUTOMATIC POOL COVER VAULT WITH SUPPORT BRACKETS, ALUMINUM RECESSED LID & TRAVERTINE COPING	7 W103 & 4 W107
9	EMERGENCY SHUTOFF	POST MOUNTED EMERGENCY SWIMMING POOL SHUTOFF	4 W106
10	POOL ENCLOSURE FENCE	RE: LANDSCAPE	RE: LANDSCAPE
11	EMERGENCY PHONE	PROVIDE EMERGENCY TELEPHONE AT POOL ENCLOSURE. PROVIDE SIGNAGE WITH PROPERTY ADDRESS AND EMERGENCY SERVICES PHONE NUMBER AT NEXT TO PHONE.	-
12	POOL DECK	SLOPE AWAY FROM POOL AT ¼" PER FOOT. SEE LANDSCAPE DRAWINGS FOR GRADING AND SPECIFICATIONS.	RE: LANDSCAPE
13	POOL SIGNAGE	PROVIDE SIGNAGE INDICATING POOL RULES, NO LIFEGUARD ON DUTY, AND NO DIVING	-

POOL MATERIAL LEGEND

MATERIAL	DESCRIPTION
COPING	3cm TRAVERTINE COPING
WATERLINE TILE	6"X6 COBALT BLUE WATERLINE TILE
PLASTER	WHITE MARCITE PLASTER
MARKER TILE	2"x2" NON-SKID TILE AT HORIZONTAL & VERTICAL LEADING EDGES OF ALL STEPS - CONTRASTING COLOR TO POOL PLASTER

BATHER LOAD

PER KANSAS CITY, MO HEALTH DEPARTMENT PUBLIC HEALTH RULES & REGULATIONS FOR THE OPERATION & MAINTENANCE OF SWIMMING POOLS & BATHING FACILITIES:

POOL SURFACE AREA > 5' DEPTH @ 30 SF / BATHER = 0
POOL SURFACE AREA < 5' DEPTH @ 15 SF / BATHER = 1,000

1,000 / 15 = 66 PERSONS SWIMMING POOL BATHER LOAD

POOL CONSTRUCTION NOTES

1. ANY METAL WITHIN 5' OF WATERS EDGE SHALL BE BONDED
2. POOL DECK SHALL SLOPE AWAY FROM SWIMMING POOL
3. POOL ENCLOSURE & GATE TO MEET LOCAL & NATIONAL STANDARDS, PROVIDED BY OTHERS
4. ALL ELEVATIONS SHOWN ON THIS SHEET ARE BASED ON AN ASSUMED WATER ELEVATION OF 100.00. SPOT ELEVATIONS DO NOT CORRELATE TO A SURVEY OR ANY BENCHMARK. TRUE WATER AND COPING ELEVATIONS ARE INDICATED ON GRADING PLAN. CONTRACTOR SHALL CORRELATE ASSUMED POOL FLOOR/WATER/COPING ELEVATIONS ON THIS PLAN TO TRUE POOL DECK AND WATER ELEVATIONS SHOWN ON GRADING PLAN IN ORDER TO ACHIEVE THE POOL WATER DEPTHS SHOWN ON THIS PLAN.
5. POOL SHELL SHALL BE WATERPROOFED WITH AN APPROVED WATERPROOFING SYSTEM. SUBMIT PRODUCT DATA TO THE ARCHITECT FOR APPROVAL PRIOR TO CONSTRUCTION.

POOL SAFETY NOTES

1. PROVIDE SHEPHERD'S CROOK. SHEPHERD'S CROOK SHALL BE AFFIXED TO A TELESCOPING POLE WITH ADEQUATE LENGTH TO REACH THE BOTTOM CENTER OF THE POOL
2. PROVIDE RING BUOY W/ MINIMUM 30' THROW LINE
3. EMERGENCY POOL SHUTOFF TO BE PROVIDED NEAR POOL
5. PROVIDE LAND LINE EMERGENCY TELEPHONE WITHIN ENCLOSED POOL AREA ALONG WITH SIGN INDICATING THE LOCATION
6. ACCESS TO POOL ENCLOSURE SHALL BE LIMITED TO REGULAR POOL HOURS. THIS INCLUDES RESTRICTING ACCESS FROM DOORS WHICH OPEN TO POOL ENCLOSURE
8. SAFETY SIGNAGE ADVISING ON THE DANGER OF DIVING INTO SHALLOW AREAS AND ON THE PREVENTION OF DROWNING SHALL BE PROVIDED
9. SIGNS SHALL BE POSITIONED FOR EFFECTIVE VISUAL OBSERVATION BY USERS

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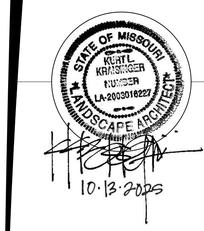

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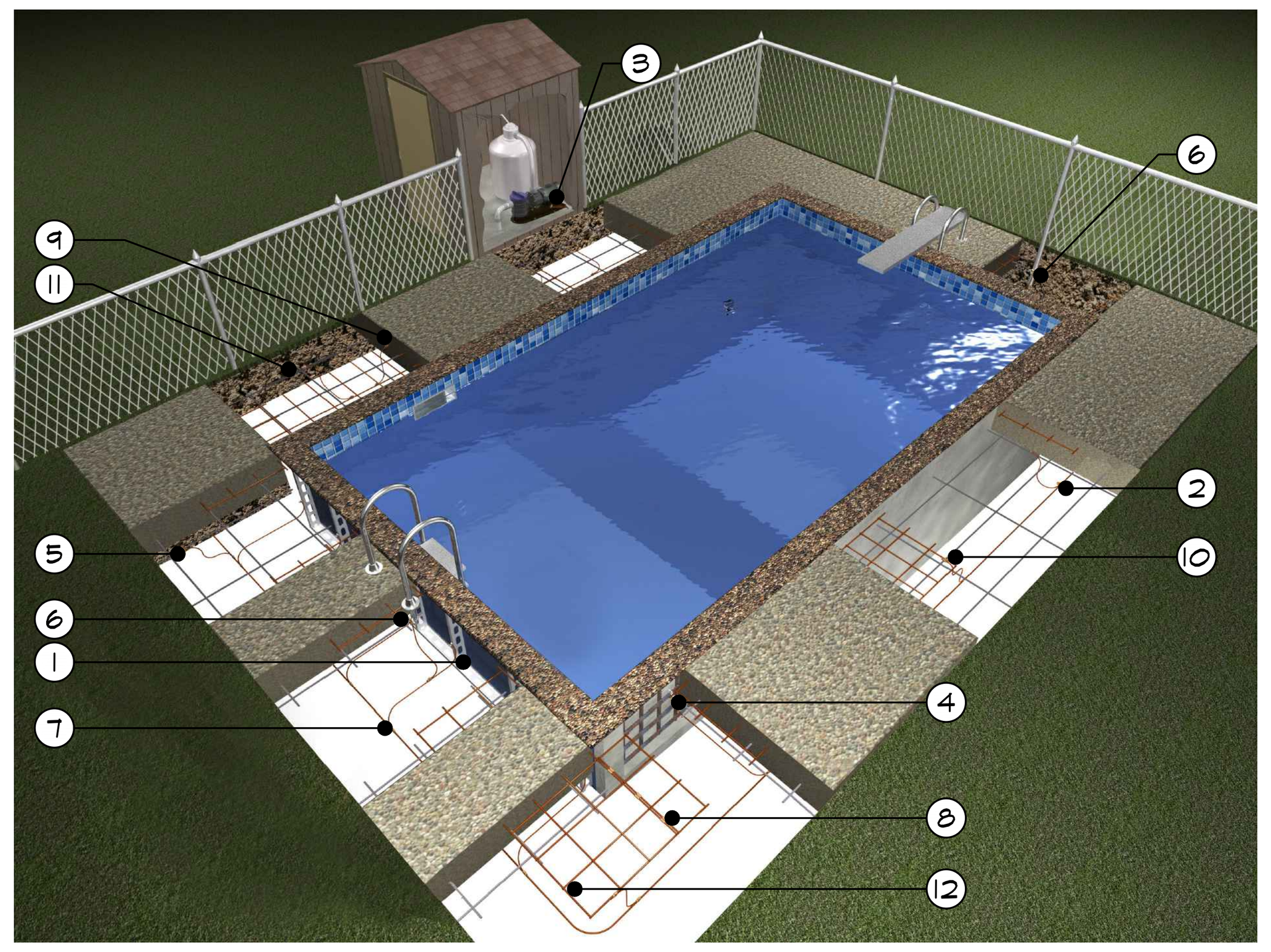
REVISION:

10/13/2025

POOL PLAN

W001



④&⑤ REBAR & WATER PIPE GROUND CLAMPS

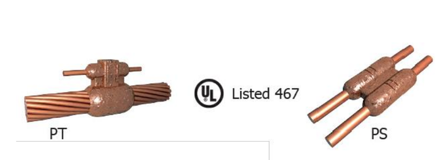
PART #	PIPE & REBAR RANGE	CONDUCTOR RANGE (AWG)
RB12A	⅜" - 1"	10 Sol. - 2 Str.
RB12B	⅜" - 1"	10 Sol. - 2 Str.

- SUITABLE FOR DIRECT BURIAL.

⑥ CPC PIPE CLAMPS

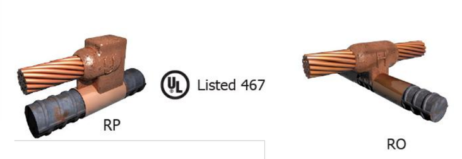
PART #	MATERIAL	NOM. PIPE SIZE RANGE	PIPE OUTSIDE DIAMETER
CPC1.5/2	TINNED BRONZE	1.5" - 2"	1" - 2.4"
CPC2.5/3	TINNED BRONZE	2.5" - 3"	2.25" - 3.5"

- SUITABLE FOR DIRECT BURIAL.
- CONDUCTOR RANGE #6 - 250 MCM.
- OTHER SIZES AVAILABLE.



⑦&⑧ CABLE TO CABLE ULTRAWELD EXOTHERMIC CONNECTION MOLDS

PART #	WELD METAL		REQUIRED HANDLE
	ULTRASHOT	NUWTUBE	
PT8S8SB	US25	NUWTUBE25	MHI
PS8S8SL	US25	NUWTUBE25	MH3 (INCLUDED)
PS8S6SL	US25	NUWTUBE25	MH3 (INCLUDED)



⑨&⑩ CABLE TO REBAR ULTRAWELD EXOTHERMIC CONNECTION MOLDS

PART #	WELD METAL		REQUIRED HANDLE	PACKING MAT'L #
	ULTRASHOT	NUWTUBE		
RP38SB	US25	NUWTUBE25	MHI	WRPSLV
RP4L8SA	US25	NUWTUBE25	INCLUDED	CERPMI
RO38SB	US65	NUWTUBE65	MHI	WRPSLV
RO48SB	US65	NUWTUBE65	MHI	WRPSLV
RO58SB	US65	NUWTUBE65	MHI	WRPSLV

① ONE-HOLE TINNED COPPER LAY-IN LUG

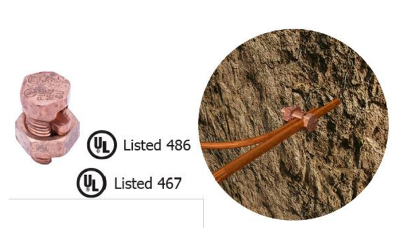
PART #	CONDUCTOR RANGE (AWG)	BOLT HOLE SIZE
TCL1414DB	4 - 14	#10

- SUITABLE FOR DIRECT BURIAL.

⑪ REBAR GROUNDING ASSEMBLY

PART #	REBAR SIZE	CONDUCTOR TYPE (AWG)	CONDUCTOR LENGTH (FT)
RB3GA8SX5	3	8 Sol.	5

- PREFABRICATED REBAR GROUNDING ASSEMBLY WITH EXOTHERMICALLY WELDED CONNECTION.
- STANDARD 24" LONG REBAR.
- CAN BE WIRE TIED OR WELDED CAGE PRIOR TO CONCRETE POUR



② COPPER SPLIT BOLT

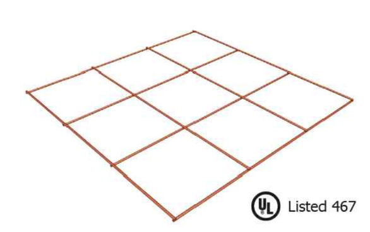
PART #	RANGE FOR EQUAL MAIN (AWG)	MINIMUM TAP
GESB6	4 Sol. - 8 Sol.	16 Sol.

- SUITABLE FOR DIRECT BURIAL.

③ COPPER OFFSET TERMINAL LUG

PART #	CONDUCTOR RANGE (AWG)	BOLT HOLE SIZE
GEOL2	14 Str. - 6 Str.	#8

- SUITABLE FOR DIRECT BURIAL.



⑫ UL LISTED PREFABRICATED #8 SOLID COPPER GROUND MESH

PART #	WIDTH (FT)	LENGTH (FT)	CONDUCTOR SPACING (IN)	APPROX. WT. (LBS)
GM350812	3	50	12	32
GM375812	3	75	12	42
GM3100812	3	100	12	51

- OTHER MESH SIZES AND WIRE GAUGES AVAILABLE

TYPICAL POOL GROUNDING & BONDING VIGNETTE

BONDING LOOP GENERAL NOTES

EQUIPMENT BONDING NOTES

1. ALL METALLIC ITEMS TO BE BONDED AT PUMP ROOM PER NEC 280.26.

2. BOND ALL ITEMS AS NOTED ON THIS POOL BONDING LOOP PLAN, TO INCLUDE LADDERS, STANCHION ANCHORS, FLOATABLE ANCHORS, RAILING, PUMPS, DECK JUNCTION BOXES AND ALL OTHER METALLIC WITHIN 5'-0" OF THE POOL.

3. REINFORCEMENT STEEL AROUND POOL TO BE BONDED TO AT EACH POURED SECTION OR EVERY 20 FEET (WHICHEVER IS LESS). USE ONLY LUGS LISTED AND LABELED FOR BONDING REBAR TO A COPPER CONDUCTOR. LUGS SHOULD ALSO BE RATED FOR DIRECT BURIAL, AS LUGS WILL BE ENCLOSED WITHIN CONCRETE AFTER INSTALLED.

4. ALL METAL FITTINGS WITHIN OR ATTACHED TO THE POOL SURFACE TO BE BONDED

5. ALL FENCE POST AND GATES WITHIN 5 FEET FROM POOL SURFACE TO BE BONDED.

6. ALL PUMP MOTORS AT THE POOL TO BE BONDED TO THE BONDING LOOP UNLESS DOUBLE INSULATED. THIS INCLUDES WATER CIRCULATING, CHEMICAL FEED AND HEATER PUMPS.

7. ALL METAL RACEWAYS, PIPES, FIXED PARTS (AWNING, DOOR FRAMES, WINDOW FRAMES), AND CABLES WITHIN 5 FEET FROM THE POOL SURFACE TO BE BONDED.

8. ALL METALLIC CANOPIES, STAND, TOWERS OR OBSERVATION STANDS WITHIN 12' ABOVE THE MAXIMUM WATER LEVEL OF THE POOL AND LOCATED IN THIS AREA TO BE BONDED. BOND EACH SUPPORT LOCATED IN POOL DECK.

9. ITEMS WITH MULTIPLE ANCHOR SOCKETS, LEGS, ETC TO BE BONDED AT EACH LOCATION IN THE POOL DECK.

10. ALL PIPING TO AND FROM THE PUBLIC BATHING PLACE, INCLUDING INLET AND OUTLET PIPES SHALL BE METALLICALLY BONDED TOGETHER AND ADEQUATELY CONNECTED TO THE SAME GROUNDING ELECTRODE USED TO GROUND THE NEUTRAL CONDUCTOR OF THE ELECTRICAL SYSTEM. METAL FENCES SHALL BE GROUNDED AT BOTH SIDES OF THE ENTRANCE GATE.

11. ALL ELECTRICAL DEVICES SUCH AS PORTABLE ANNOUNCING SYSTEMS, RADIOS, AND SOFT DRINK DISPENSERS THAT MIGHT BE USED AROUND THE POOL AND IMMEDIATE ENVIRONMENT SHALL BE PROHIBITED WITHIN REACH OF BATHERS. FURTHER SPECIAL GROUNDING OF SUCH FIXTURES MUST BE PROVIDED.

12. BONDING LOOP CONDUCTOR AROUND POOL SHALL BE A SOLID COPPER CONDUCTOR AWG, NOT SMALLER THAN A #6 AWG.

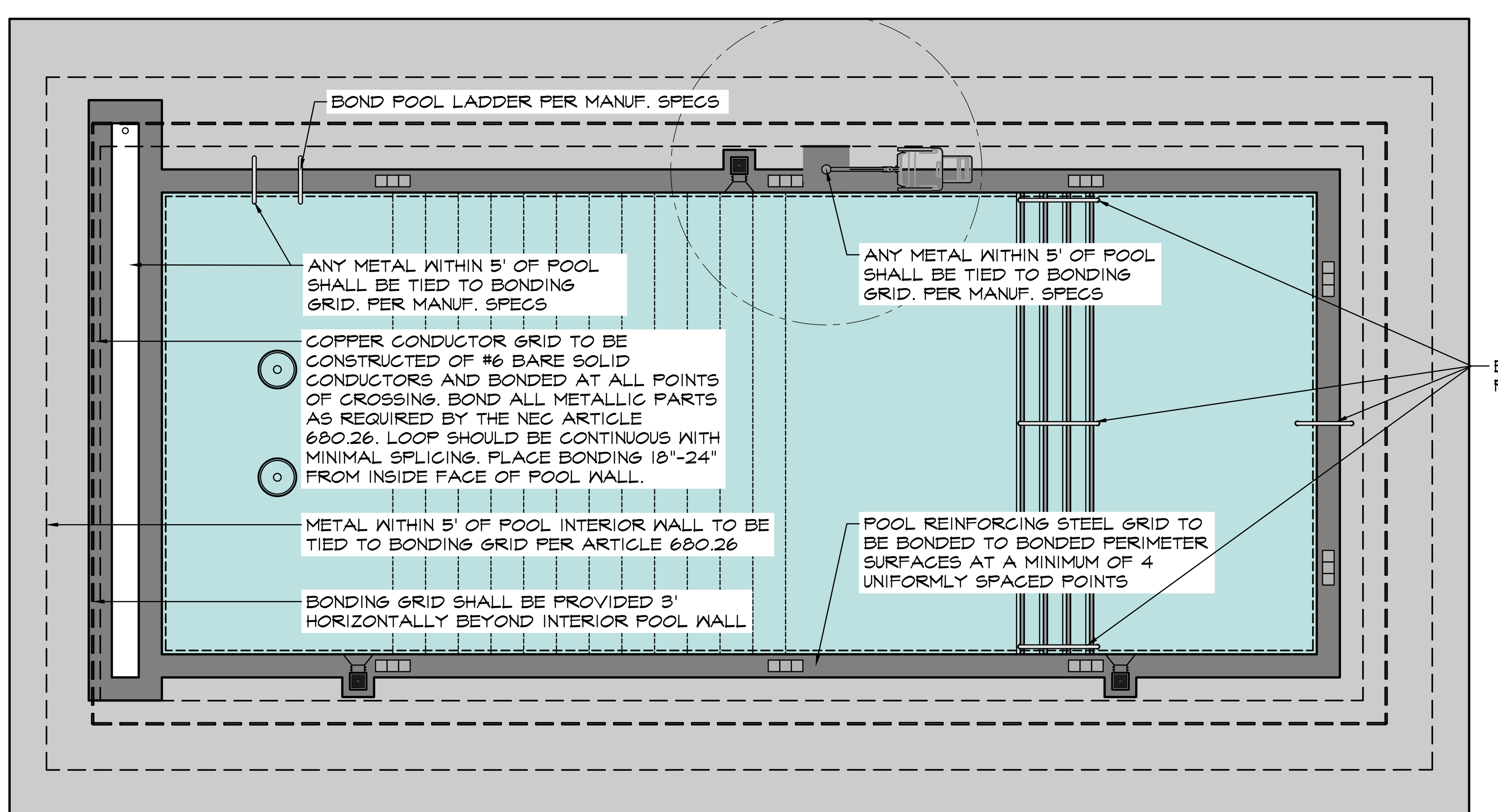
13. BONDING LOOP AROUND POOL TO BE AS CONTINUOUS AS POSSIBLE WITH A MINIMUM NUMBER OF SPLICES

14. CONNECTIONS FROM POOL BONDING LOOP CONDUCTOR TO OTHER BONDED ITEMS CAN BE MADE WITH A MINIMUM #8 AWG SOLID COPPER

15. ALL BONDING CONNECTIONS TO BE MADE WITH DEVICES LISTED AND LABELED FOR THIS ENVIRONMENT. BONDING CONNECTORS SHALL BE BRASS, COPPER, COPPER ALLOY, OR STAINLESS STEEL.

16. EXOTHERMIC WELDING IS A PERMITTED METHOD FOR BONDING THE COPPER BONDING LOOP TO THE REINFORCEMENT STEEL.

17. ALL CONNECTIONS BETWEEN BONDED ITEMS AND POOL BONDING LOOP TO BE UNDER 2 OHMS RESISTANCE.



VERIFY ALL METALLIC ITEMS ARE ON BONDING LOOP PER NEC 680.26

POOL BONDING GRID TO BE INSPECTED & TESTED AFTER INSTALLATION TO ASSURE SYSTEM IS PROPERLY FUNCTIONING AT ALL REQUIRED LOCATIONS PER ARTICLE 680 OF THE NATIONAL ELECTRICAL CODE.

POOL BONDING PLAN
SCALE: 1" = 5'-0"

0 5 10 15 feet
SCALE: 1" = 5'-0"
NORTH

POOL GROUNDING & BONDING TECHNICAL NOTES

TECHNICAL NOTES:
*680.26 EQUIPOTENTIAL BONDING * (SUMMARIZED)
(A) PERFORMANCE. THE EQUIPOTENTIAL BONDING REQUIRED BY THIS SECTION SHALL BE INSTALLED TO REDUCE VOLTAGE GRADIENTS IN THE POOL AREA.

(B) BONDED PARTS. THE PARTS SPECIFIED IN 680.26(B)(1) THROUGH (B)(7) SHALL BE BONDED TOGETHER USING SOLID COPPER CONDUCTORS, INSULATED COVERED, OR BARE, NOT SMALLER THAN 8 AWG OR WITH RIGID METAL CONDUIT OF BRASS OR OTHER IDENTIFIED CORROSION-RESISTANT METAL. CONNECTIONS TO BONDED PARTS SHALL BE MADE IN ACCORDANCE WITH 250.8**. AN 8 AWG OR LARGER SOLID COPPER BONDING CONDUCTOR PROVIDED TO REDUCE VOLTAGE GRADIENTS IN THE POOL AREA SHALL NOT BE REQUIRED OR ATTACHED TO REMOTE PANELBOARDS, SERVICE EQUIPMENT, OR ELECTRODES

(1) CONDUCTIVE POOL SHELLS. BONDING TO CONDUCTIVE POOL SHELLS SHALL BE PROVIDED AS SPECIFIED IN 680.26(B)(1)(a) OR (B)(1)(b). POURED CONCRETE, PNEUMATICALLY APPLIED OR SPRAYED CONCRETE, AND CONCRETE BLOCK WITH PAINTED PLASTERED COATINGS SHALL ALL BE CONSIDERED CONDUCTIVE MATERIALS DUE TO WATER PERMEABILITY AND POROSITY. VINYL LINERS AND FIBERGLASS COMPOSITE SHELLS SHALL BE CONSIDERED TO BE NONCONDUCTIVE MATERIALS.
(a) STRUCTURAL REINFORCING STEEL. UNENCAPSULATED STRUCTURAL REINFORCING STEEL SHALL BE BONDED TOGETHER BY STEEL TIE WIRES OR THE EQUIVALENT. WHERE STRUCTURAL REINFORCING STEEL IS ENCAPSULATED IN A NONCONDUCTIVE COMPOUND, A COPPER CONDUCTOR GRID SHALL BE INSTALLED IN ACCORDANCE WITH 680.26(B)(1)(b).
(b) COPPER CONDUCTOR GRID. A COPPER CONDUCTOR GRID SHALL BE PROVIDED AND SHALL COMPLY WITH (b)(1) THROUGH (b)(4).
(1) BE CONSTRUCTED OF MINIMUM 8 AWG BARE SOLID COPPER CONDUCTORS BONDED TO EACH OTHER AT ALL POINTS OF CROSSING. THE BONDING SHALL BE IN ACCORDANCE WITH 250.8 OR APPROVED MEANS.
(2) CONFORM TO THE CONTOUR OF THE POOL.
(3) BE ARRANGE DIN A 300mm (12in) BY 300mm (12in) NETWORK OF CONDUCTORS IN A UNIFORMLY SPACED PERPENDICULAR GRID PATTERN WITH A TOLERANCE OF 100mm (4in)
(4) BE SECURED WITHIN OR UNDER THE POOL NO MORE THAN 150mm (6in) FROM THE OUTER CONTOUR OF THE POOL SHELL.

(2) PERIMETER SURFACES. THE PERIMETER SURFACE SHALL EXTEND FOR 1m (3ft) HORIZONTALLY BEYOND THE INSIDE WALLS OF THE POOL AND SHALL INCLUDE UNPAVED SURFACES AS WELL AS POURED CONCRETE SURFACES AND OTHER TYPES OF PAVING. PERIMETER SURFACES LESS THAN 1m (3ft) SEPARATED BY A PERMANENT WALL OR BUILDING 1.5m (5ft) IN HEIGHT OR MORE SHALL REQUIRE EQUIPOTENTIAL BONDING ON THE POLL SIDE OF THE PERMANENT WALL OR BUILDING. BONDING TO PERIMETER SURFACES SHALL BE PROVIDED AS SPECIFIED IN 680.26(B)(2)(a) OR (2)(b) AND SHALL BE ATTACHED TO THE POOL REINFORCING STEEL OR COPPER CONDUCTOR GRID AT A MINIMUM OF FOUR (4) POINTS UNIFORMLY SPACED AROUND THE PERIMETER OF THE POOL. FOR NONCONDUCTIVE POOL SHELLS, BONDING AT FOUR POINTS SHALL NOT BE REQUIRED.
(a) STRUCTURAL REINFORCING STEEL. STRUCTURAL REINFORCING STEEL SHALL BE BONDED IN ACCORDANCE WITH 680.26(B)(1)(a).
(b) ALTERNATE MEANS. WHERE STRUCTURAL REINFORCING STEEL IS NOT AVAILABLE OR IS ENCAPSULATED IN A NONCONDUCTIVE COMPOUND, A COPPER CONDUCTOR(S) SHALL BE UTILIZED WHERE THE FOLLOWING REQUIREMENTS ARE MET:
(1) AT LEAST ONE MINIMUM 8 AWG BARE SOLID COPPER CONDUCTOR SHALL BE PROVIDED
(2) THE CONDUCTORS SHALL FOLLOW THE CONTOUR OF THE PERIMETER SURFACE
(3) ONLY LISTED SPLICES SHALL BE PERMITTED
(4) THE REQUIRED CONDUCTOR SHALL BE 450mm TO 600mm (18in TO 24") FORM THE INSIDE WALLS OF THE POOL.

(3) METALLIC COMPONENTS. ALL METALLIC PARTS OF THE POOL STRUCTURE, INCLUDING REINFORCING METAL NOT ADDRESSED IN 680.26(B)(1)(a), SHALL BE BONDED. WHERE REINFORCING STEEL IS ENCAPSULATED WITH A NONCONDUCTIVE COMPOUND, THE REINFORCING STEEL SHALL NOT BE REQUIRED TO BE BONDED.

(4) UNDERWATER LIGHTING.

(5) METAL FITTINGS.

(6) ELECTRICAL EQUIPMENT.

(7) FIXED METAL PARTS. ALL FIXED METAL PARTS SHALL BE BONDED INCLUDING, BUT NOT LIMITED TO, METAL-SHEATHED CABLES AND RACEWAYS, METAL PIPING, METAL AWNINGS, METAL FENCES, AND METAL DOOR AND WINDOW FRAMES.

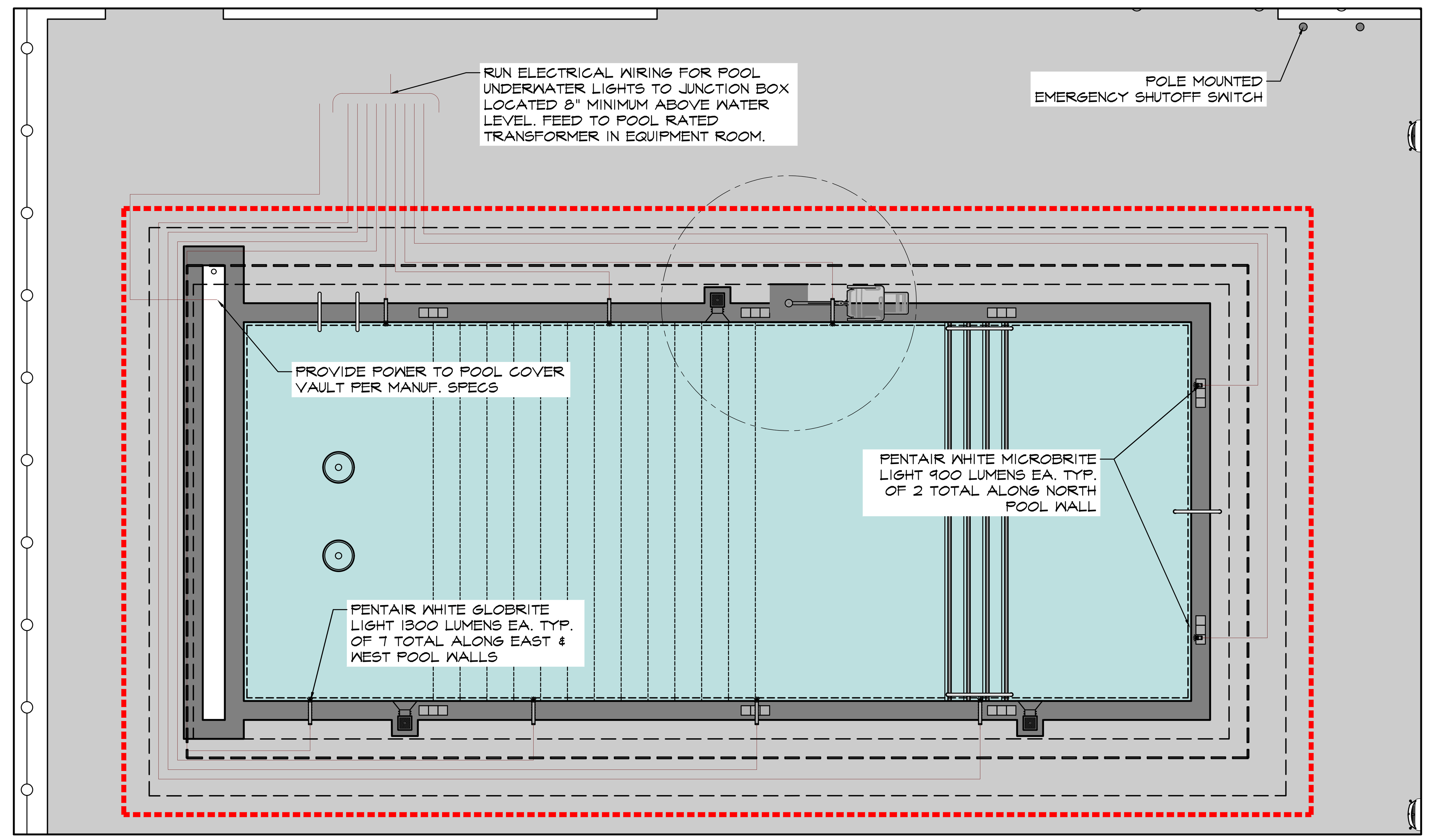
EXCEPTION NO 1: THOSE SEPARATED FROM THE POOL BY PERMANENT BARRIER THAT PREVENTS CONTACT BY A PERSON SHALL NOT BE REQUIRED TO BE BONDED.
EXCEPTION NO 2: THOSE GREATER THAN 1.5m (5ft) HORIZONTALLY FROM THE INSIDE WALLS OF THE POOL SHALL NOT BE REQUIRED TO BE BONDED.
EXCEPTION NO 3: THOSE GREATER THAN 3.7m (12ft) MEASURED VERTICALLY ABOVE THE MAXIMUM WATER LEVEL OF THE POOL, OR AS MEASURED VERTICALLY ABOVE ANY OBSERVATION STANDS, TOWERS, OR PLATFORMS, OR ANY DIVING STRUCTURES, SHALL NO BE REQUIRED TO BONDED.

(C) POOL WATER. WHERE NONE OF THE BONDED PARTS IS IN DIRECT CONNECTION WITH THE POOL WATER, THE POOL WATER SHALL BE IN DIRECT CONTACT WITH AN APPROVED CORROSION-RESISTANT CONDUCTIVE SURFACE THAT EXPOSES NOT LESS THAN 5800mm SQ (9in SQ) OF SURFACE AREA TO THE POOL WATER AT ALL TIMES. THE CONDUCTIVE SURFACE SHALL BE LOCATED WHERE IT IS NOT EXPOSED TO PHYSICAL DAMAGE OR DISLODGEMENT DURING USUAL POOL ACTIVITIES, AND IT SHALL BE BONDED IN ACCORDANCE WITH 680.26(B).

250.8 CONNECTION OF GROUNDING AND BONDING EQUIPMENT**
(A) PERMITTED METHODS. EQUIPMENT GROUNDING CONDUCTORS, GROUNDING ELECTRODES CONDUCTORS, AND BONDING JUMPERS SHALL BE CONNECTED BY ONE OR MORE OF THE FOLLOWING MEANS:
(1) LISTED PRESSURE CONNECTORS
(2) TERMINAL BARS
(3) PRESSURE CONNECTORS LISTED AS GROUNDING AND BONDING EQUIPMENT
(4) EXOTHERMIC WELDING PROCESS
(5) MACHINE SCREW-TYPE FASTENERS THAT ENGAGE NOT LESS THAN TWO THREADS OR ARE SECURED WITH A NUT
(6) THREAD-FORMING MACHINE SCREWS THAT ENGAGE NOT LESS THAN TWO THREADS IN THE ENCLOSURE
(7) CONNECTIONS THAT ARE PART OF A LISTED ASSEMBLY
(8) OTHER LISTED MEANS

(B) METHODS NOT PERMITTED. CONNECTION DEVICES OR FITTINGS THAT DEPEND SOLELY ON SOLDER SHALL NOT BE USED

*NEC 2017 EQUIPOTENTIAL BONDING ARTICLE 680.26
**NEC 2017 CONNECTION OF GROUNDING AND BONDING EQUIPMENT ARTICLE 250.8



POOL ELECTRICAL PLAN
SCALE: 1" = 5'-0"

0 5 10 15 feet
SCALE: 1" = 5'-0"
NORTH

ELECTRICAL REQUIREMENTS

6' OFFSET FROM WATERS EDGE PER NEC SECTION 680:
<u>SECTION 680.90</u> - OVERHEAD CONDUCTOR CLEARANCES. REQUIRES THAT CONDUCTORS/CABLES BE INSTALLED BETWEEN 22.5'-27' ABOVE WATER LEVEL OF POOL (DEPENDING ON VOLTAGE AND CABLE TYPE). THIS WOULD PRESUMABLY APPLY TO FESTOON LIGHTING, AS OPPOSED TO THE BELOW REFERENCED 12' RULE FOR OVERHEAD LIGHTING.
<u>SECTION 680.22</u> - OUTLET LOCATIONS. NO ELECTRICAL OUTLETS LOCATED CLOSER THAN 6' FROM INSIDE OF POOL WALL. ALL OUTLETS LOCATED BETWEEN 6'-20' FROM INSIDE OF POOL WALL SHALL BE GFCI PROTECTED. AT LEAST ONE OUTLET IS REQUIRED TO BE PROVIDED WITHIN THIS DISTANCE RANGE FROM THE POOL.
<u>SECTION 680.22(B)(1)</u> - ANY LUMINAIRE INSTALLED ABOVE THE POOL OR WITHIN 5' OF THE INSIDE WALL OF THE POOL SHALL BE INSTALLED AT A HEIGHT OF 12' ABOVE THE POOL WATER LEVEL.
<u>SECTION 680.22(B)(6)</u> - LISTED LOW-VOLTAGE LUMINAIRES ARE PERMITTED CLOSER THAN 5' FROM THE INSIDE WALLS OF THE POOL PROVIDED THEY ARE SUPPLIED BY A LISTED TRANSFORMER OR POWER SUPPLY THAT IS SWIMMING POOL AND SPA RATED.
<u>SECTION 680.22(B)(4)</u> - LINE VOLTAGE LUMINAIRES OR LIGHTING OUTLETS INSTALLED BETWEEN 5'-10' FROM THE INSIDE WALLS OF THE POOL MUST BE GFCI PROTECTED
<u>SECTION 680.26(B)(7)</u> - ALL FIXED METAL PARTS WITHIN 5' HORIZONTALLY AND 12' VERTICALLY OF POOLS MUST BE BONDED.
<u>SECTION 680.26(B)(2)</u> - ALL PERIMETER SURFACES WITHIN 3' SURROUNDING POOL (PAVED AND UNPAVED) SHALL BE BONDED

ELECTRICAL NOTES

1. ELECTRICAL LAYOUT ON THIS SHEET IS A DIAGRAMMATIC EXHIBIT, FIELD ADJUST AS NECESSARY TO AVOID OBSTACLES

LIGHTING REQUIREMENTS

8 LUMENS PER POOL SURFACE SF REQUIRED

SWIMMING POOL : 1000 SF
- LUMENS REQUIRED : 8,000 LUMENS
- LUMENS PROVIDED : 10,900 LUMENS
  (7) PENTAIR GLOBRITE WHITE LED LIGHTS (1300 LUMENS EA)
  (2) PENTAIR MICROBRITE WHITE LED LIGHTS (900 LUMENS EA)

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STATE OF MISSOURI
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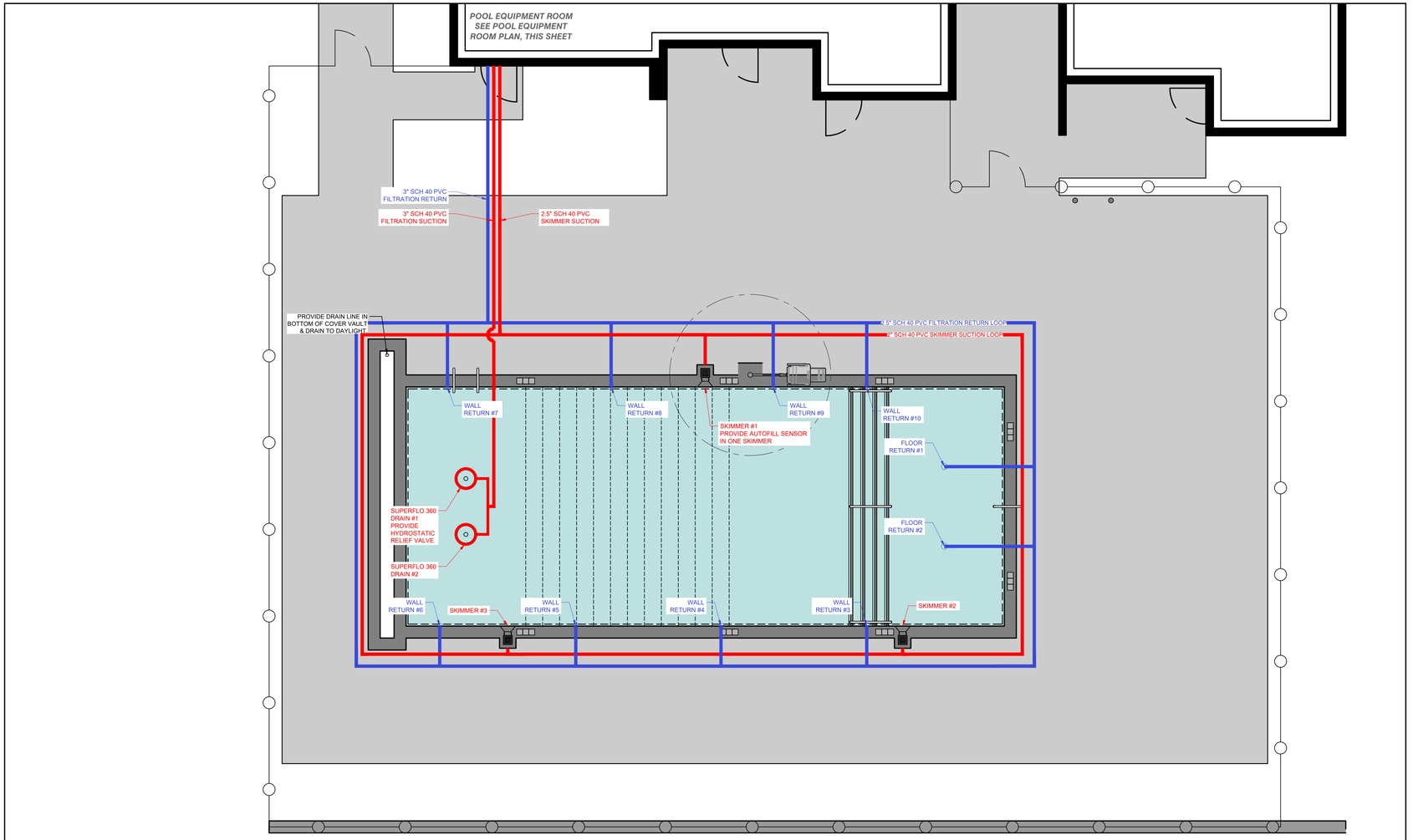
POOL ELECTRICAL PLAN
W002

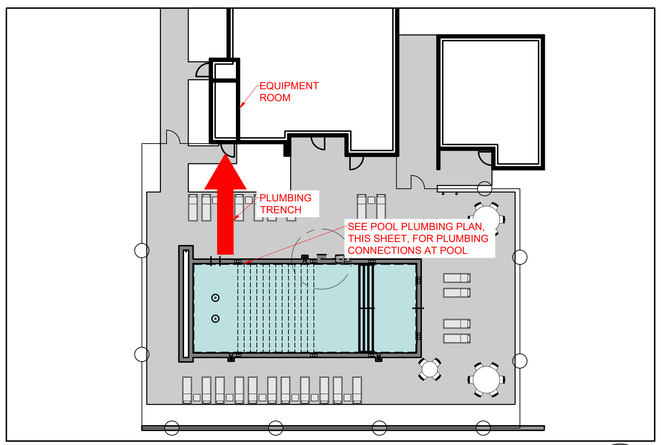


POOL PLUMBING PLAN
SCALE: 1" = 5'-0"

0 5 10 15 feet
SCALE: 1" = 5'-0"

NORTH

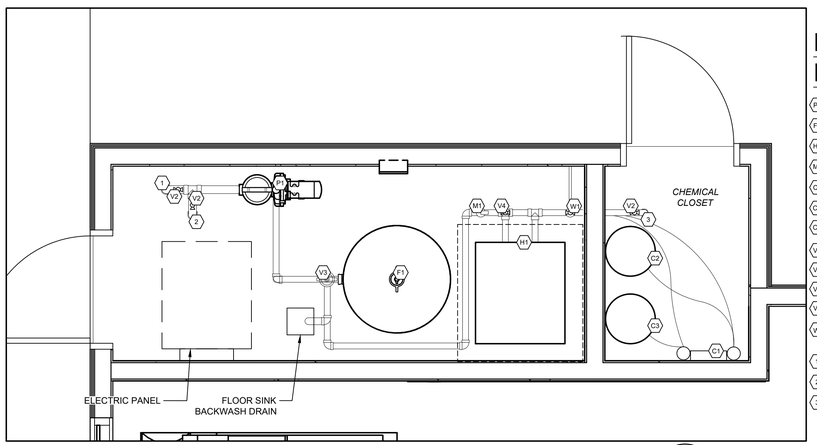
LEGEND
- POOL FILTRATION RETURN
- POOL FILTRATION SUCTION



SITE PLAN
SCALE: 1" = 10'-0"

0 10 20 30 feet
SCALE: 1" = 10'-0"

NORTH



EQUIPMENT ROOM PLAN
SCALE: 1/2" = 1'-0"

0 2 4 6 feet
SCALE: 1" = 2'-0"

NORTH

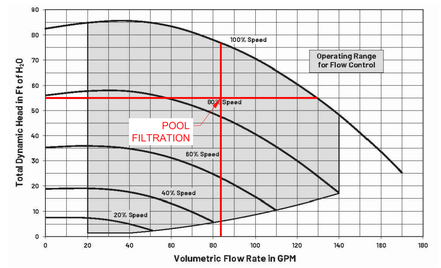
POOL EQUIPMENT ROOM LEGEND
- P1 PENTAIR INTELLIFLO 3 VSF 3HP VARIABLE SPEED PUMP
- F1 PENTAIR TR140C SAND FILTER
- H1 PENTAIR ETi 400 NATURAL GAS HEATER
- M1 FLOW VIZ FLOW METER
- C1 PENTAIR COMMERCIAL INTELLICHEM WATER CHEMISTRY CONTRIOLLER
- C2 ACID TANK WITH STENNER PUMP
- C3 CHLORINE TANK WITH STENNER PUMP
- V1 CHEMICAL RESISTANT, CORROSION RESISTANT CHECK VALVE
- V2 BALL VALVE
- V3 BACKWASH VALVE
- V4 HEATER BYPASS
- W1 FRESH WATER FEED & ACTUATOR - JANDY LEVOLOR AUTOFILL. CONTRACTOR TO FIELD LOCATE AUTOFILL SENSOR PER MANUFACTURER'S INSTRUCTIONS
- 1 3" SCH 40 PVC FROM POOL SUPERFLOW 360 DRAINS #1 & #2
- 2 2.5" SCH 40 PVC FROM POOL SKIMMER LOOP
- 3 3" SCH 40 PVC TO POOL FILTRATION RETURN

POOL PROJECT DATA

MIN POOL DEPTH	6" (IN REEF), 3'-6" (IN POOL)	POOL SKIMMERS	3
MAX POOL DEPTH	4'-6"	POOL RETURNS	10
POOL SURFACE AREA	1,000 SF	POOL DRAIN	DUAL VGB SUPERFLOW 360 PEBBLE TOP DRAINS
POOL VOLUME	23,720 GAL.	FILTRATION PUMP	PENTAIR INTELLIFLO 3 VSF 3HP
285-MIN FILTRATION TURNOVER RATE	83 GPM	FILTER	PENTAIR TR-140C SAND FILTER
		FILTER AREA	7.06 SF
POOL PERIMETER	140 LF	FILTER RATE	11.8 GPM/SF
TOTAL DYNAMIC HEAD (TDH)	+/-55'	HEATER	PENTAIR ETi 400 NATURAL GAS HEATER
BATHER LOAD	66 PERSONS	POOL SANITIZER	PENTAIR INTELLICHEM WITH LIQUID CHLORINE AND ACID
		POOL AUTOMATION	PENTAIR INTELLICENTER AUTOMATION

POOL EQUIPMENT ROOM PROVISIONS

1. PROVIDE FRESH AIR INTAKE & EXHAUST FOR HEATER PER MANUFACTURER'S SPECIFICATIONS
2. PROVIDE 400,000 BTU NATURAL GAS FOR HEATER
3. PROVIDE 1" FRESH WATER LINE FOR AUTOFILL
4. PROVIDE FLOOR DRAIN CAPABLE OF GRAVITY DRAINING AT A RATE OF 106 GPM AT EQUIPMENT ROOM. SLOPE FLOOR TO DRAIN.
5. SEPARATE EQUIPMENT ROOM & CHEMICAL CLOSET FROM ADJACENT SPACES BY EITHER A CONCRETE CURB OR RECESS THE ROOM 6".
6. PROVIDE 60-AMP ELECTRICAL PANEL AT EQUIPMENT ROOM
7. POOL EQUIPMENT AND LINES TO BE LABELED W/ LABELING MACHINE. PROVIDE A LAMINATED WATERPROOF AS-BUILT DIAGRAM OF EQUIPMENT ROOM LAYOUT AT SERVICE CONTROL PANEL W/ BINDER OF ALL EQUIPMENT CUT SHEETS
8. PLUMBING LAYOUT ON THIS SHEET IS A DIAGRAMMATIC EXHIBIT. FIELD ADJUST AS NECESSARY TO AVOID FOOTINGS, TREES AND OTHER OBSTACLES
9. ALL PUMPS SHALL BE CONTROLLED BY A VALVE (VARIABLE SPEED PUMPS SHALL ALSO HAVE THEIR SPEED SETTING LOCKED) SO AS NOT TO EXCEED THE DESIGN FLOW RATES INDICATED ON POOL/SPA PROJECT DATA, THIS SHEET. EXCEEDING THESE FLOW RATES COULD CREATE VELOCITIES THAT WILL DAMAGE PLUMBING.
10. ALL POOL EQUIPMENT SHALL BE HELD ABOVE FLOOR ON HOUSEKEEPING PADS
11. AVOID MIXING CHLORINE AND ACID - DOING SO WILL CREATE POTENTIALLY FATAL GASSES. CHLORINE AND ACID SHALL NOT BE STORED TOGETHER INSIDE OF THE HOUSE.
12. POOL CHEMICALS SHALL NOT BE STORED IN ANY ROOM WITH OPEN AIRFLOW TO LIVING SPACES - PROVIDE BARRIER BETWEEN ROOMS CONTAINING POOL CHEMICALS AND ANY LIVING SPACE ALONG WITH DEDICATED MECHANICAL VENTILATION WHICH EXHAUSTS TO BUILDING EXTERIOR.
13. PROVIDE SEPARATE MECHANICAL VENTILATION AT EQUIPMENT ROOM AND CHEMICAL CLOSET.
14. MAINTAIN AMBIENT TEMPERATURES BELOW 100 DEGREES IN EQUIPMENT ROOM.
15. ALL PIPES SUSPENDED FROM WALLS AND CEILING SHALL BE SCHEDULE 80 PVC
16. PROVIDE MIN. 42" WIDE LOUVERED DOOR TO EQUIPMENT ROOM
17. ALL HARDWARE & EXHAUST FANS IN CHEMICAL CLOSET SHALL BE CORROSION RESISTANT



1 PENTAIR INTELLIFLO 3 3HP PUMP
SCALE: NTS FILTRATION PUMP CURVE

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10.13.2025

DOUGLAS STATION
NW SLOAN & NE SYCAMORE ST
LEE'S SUMMIT, MO 64086

REVISION:

10/13/2025

POOL PLUMBING PLAN

W003

GENERAL POOL STRUCTURAL NOTES

1. GENERAL INFORMATION

1.1 SPECIAL INSPECTIONS

1.1.1 THE CONTRACTOR OR OWNER SHALL PROVIDE SPECIAL INSPECTION WHICH REQUIRES THE EXPERTISE OF AN APPROVED SPECIAL INSPECTOR IN ORDER TO ENSURE COMPLIANCE WITH THE CODE AND THE APPROVED CONSTRUCTION DOCUMENTS. SPECIAL INSPECTIONS ARE IN ADDITION TO THE INSPECTIONS PERFORMED BY THE BUILDING OFFICIAL.

1.1.2 CONTINUOUS SPECIAL INSPECTION IS REQUIRED TO BE PERFORMED BY THE SPECIAL INSPECTOR WHO IS CONTINUOUSLY PRESENT WHEN AND WHERE THE WORK TO BE INSPECTED IS BEING PERFORMED. THE FOLLOWING REQUIRES CONTINUOUS SPECIAL INSPECTION:

1.1.2.1 AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATED SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.

1.1.2.2 DURING CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.

1.1.3 PERIODIC SPECIAL INSPECTION IS REQUIRED TO BE PERFORMED BY THE SPECIAL INSPECTOR WHO IS INTERMITTENTLY PRESENT WHERE THE WORK TO BE INSPECTED HAS BEEN OR IS BEING PERFORMED. THE FOLLOWING REQUIRES PERIODIC SPECIAL INSPECTION:

1.1.3.1 FOR PLACEMENT OF REINFORCING STEEL, INCLUDING PRESTRESSING TENDONS, AND PLACEMENT.

1.2 SEE SHEET W002 FOR ADDITIONAL POOL NOTES

1.3 A SOILS INVESTIGATION SHALL BE DONE PER THE REQUIREMENTS OF INTERNATIONAL BUILDING CODE (IBC) SECTIONS 1705.6 AND 1803 OR THE INTERNATIONAL RESIDENTIAL CODE (IRC) SECTION R401.4.

1.4 THE CONTRACTOR SHALL PROTECT THE POOL STRUCTURE, DURING CONSTRUCTION AND UNTIL THE POOL IS FILLED, FROM THE PRESENCE OF HIGH GROUND WATER, SOIL EROSION, OR OTHER CONDITIONS WHICH ADVERSELY AFFECT THE POOL STRUCTURE.

1.5 THE CONTRACTOR SHALL BE RESPONSIBLE FOR SOIL STABILIZATION, BRACING, AND EXCAVATION SAFETY DURING THE CONSTRUCTION OF THE POOL STRUCTURE AND SHALL COMPLY WITH ALL OSHA WORK SAFETY REQUIREMENTS AND ALL OTHER GOVERNING REGULATIONS.

1.6 THE POOL WALL MATERIAL SHALL BE CONSTRUCTED AGAINST TEMPORARY FORMWORK AND BACKFILLED WITH A MINIMUM OF 6" OF CLEAN GRANULAR DRAINAGE FILL MATERIAL, BEHIND THE POOL WALLS AND AT THE BASE OF THE POOL WALLS.

1.7 CONCRETE FORMING: DESIGN, ENGINEER, ERECT, SHORE, BRACE, AND MAINTAIN FORWORK, SHORES, AND RESHORES IN ACCORDANCE WITH ACI 301, TO SUPPORT VERTICAL, LATERAL, STATIC, AND DYNAMIC LOADS, SO THAT RESULTING CONCRETE CONFORMS TO THE REQUIRED SHAPES, LINES, AND DIMENSIONS. DESIGN FORMWORK TO LIMIT DEFLECTION OF FORM-FACING MATERIAL TO 1/240 OF CENTER-TO-CENTER SPACING OF SUPPORTS

1.8 THE FORMWORK MUST BE CONSTRUCTED IN A STABLE MANNER WITH ADEQUATE BRACING TO PROVIDE A SOUND SUBSTRATE FOR THE POOL WALL CONSTRUCTION.

1.9 ALL FORMWORK SHALL BE REMOVED PRIOR TO PLACEMENT OF THE BACKFILL AND AFTER THE POOL WALLS HAVE ACHIEVED A MINIMUM OF 75% OF CONCRETE DESIGN COMPRESSIVE STRENGTH.

1.10 THE BACKSIDE OF THE POOL WALLS MUST BE REVIEWED TO VERIFY THAT NO SAND SEAMS OR AREAS OF DEFECTIVE GUNITE OR SHOTCRETE EXIST AND THE WALL CONSTRUCTION MUST BE APPROVED PRIOR TO BEGINNING THE BACKFILL OPERATION.

1.11 THE BACKFILL MATERIAL SHALL BE CLEAN GRANULAR DRAINAGE FILL MATERIAL CAREFULLY PLACED IN A CONTROLLED AND COMPACTED MANNER PER THE SPECIFIED REQUIREMENTS.

1.12 THE POOL UNDERDRAIN SYSTEM SHALL BE PLACED WITHIN THE ZONE OF CLEAN GRANULAR DRAINAGE FILL MATERIAL BELOW THE POOL FLOOR. A GEOTEXTILE FILTER FABRIC SHALL BE PLACED BETWEEN THE GRANULAR DRAINAGE MATERIAL AND THE UNDERLYING SOILS. CONTACT LANDSCAPE ARCHITECT IMMEDIATELY IN THE EVENT ANY SUBSURFACE ABNORMALITIES (INCLUDING BUT NOT LIMITED TO ACTIVE SPRINGS OR HIGH WATER TABLE) ARE ENCOUNTERED DURING POOL EXCAVATION.

1.12.1 THE GEOTEXTILE FABRIC SHALL BE A POLYPROPYLENE FABRIC WHICH IS RESISTANT TO ULTRAVIOLET DEGRADATION AND TO BIOLOGICAL AND CHEMICAL ENVIRONMENTS NORMALLY FOUND IN SOILS. THE GEOTEXTILE FABRIC SHALL BE MIRAFI HP270N WITH AOS OF 40, MIRAFI FW700 WITH AN AOS OF 70, OR AN APPROVED EQUAL.

1.13 ALL WATER STOPS SHALL BE FLEXIBLE PVC WATERSTOPS MEETING CE CRD-C572. INSTALL IN ALL CONSTRUCTION JOINTS IN THE CAST-IN-PLACE CONCRETE POOL CONSTRUCTION AS SHOWN IN THE DRAWING WITH THE LONGEST LENGTHS PRACTICAL WITH SPECIALLY FABRICATED SECTIONS AT INTERSECTIONS, WHERE APPLICABLE. HEAT WELD ALL JOINTS AND INSTALL IN ACCORDANCE WITH THE MANUFACTURERS WRITTEN INSTRUCTIONS. PROVIDE SPECIALLY FABRICATED SECTIONS AT INTERSECTIONS WHERE APPLICABLE.

1.14 THE CONTRACTOR'S SUBMITTED BASE BID CONSTRUCTION COST SHALL INCLUDE ALL MEANS AND METHODS NECESSARY FOR THE CONSTRUCTION OF THE POOL WALLS AND ASSOCIATED EARTHWORK.

2. REINFORCING STEEL

2.1 REINFORCING STEEL IN SHOTCRETE SHALL HAVE NON-CONTACT LAP AND SPACING PER INTERNATIONAL BUILDING CODE (IBC) SECTIONS 1913.4.2 AND 1913.4.3 OR

2.2 REINFORCING STEEL IN SHOTCRETE MAY HAVE CONTACT LAP SPLICES ONLY IF THE LAPS ARE STACKED PARALLEL TO THE DIRECTION OF THE SHOTCRETE (E.G., ONE BAR IS BEHIND THE OTHER AND NOT STACKED SIDE BY SIDE).

2.3 ALL REINFORCING STEEL TO BE ASTM A615 GRADE 60 OR BETTER. LAP ALL BARS MIN OF 59 DIAMETERS OR 2'-0" MINIMUM. WIRE TIE AT LEAST 50% OF ALL LAPS WITH AT LEAST 16 GA WIRE OR EQUAL, BEND ALL TIES DOWN.

2.3.1 THE MEANS AND METHODS OF WIRE TIES AND CHAIRS IS NOT THE RESPONSIBILITY OF THE DESIGN TEAM. THE CONTRACTOR SHALL PROVIDE ADEQUATE TEMPORARY SUPPORT OF THE REINFORCING BARS SUCH THAT THE LOCATION DOES NOT DEFORM DURING CONCRETE PLACEMENT. THE TIES AND CHAIRS SHALL MEET THE REQUIREMENTS OF ACI 301.

2.4 REINFORCING STEEL SHALL HAVE A MINIMUM OF 2" CLEARANCE TO SOIL AND INSIDE FACE OF SHELL.

2.5 PLACE STEEL REINFORCEMENT IN CENTER OF CONCRETE UNLESS NOTED OTHERWISE.

2.6 ALL REINFORCING BARS INSTALLED INTO PREVIOUSLY CAST CONCRETE, SHOTCRETE, OR GUNITE SHALL BE ANCHORED INTO THE CONCRETE USING HILTI HY-200 ADHESIVE ANCHORING SYSTEM OR AN APPROVED EQUAL. ALL HOLES SHALL BE DRILLED WITH THE RECOMMENDED BIT SIZE, TO THE MINIMUM EMBEDMENT LENGTH SPECIFIED, AND SHALL BE THOROUGHLY CLEANED OUT WITH A BRUSH AND COMPRESSED AIR PRIOR TO INSTALLING THE ADHESIVE AND BARS. ALL ADHESIVE MANUFACTURERS RECOMMENDATIONS AND REQUIREMENTS MUST BE FOLLOWED. THE CONTRACTOR SHALL PERFORM A QUALITY CONTROL PROGRAM DURING THE DRILLING AND CLEANING OF THE HOLES, INSTALLING THE ADHESIVE, AND INSTALLING THE BARS TO ENSURE THAT THE RECOMMENDED PROCEDURES AND REQUIREMENTS ARE BEING IMPLEMENTED.

2.7 THE CONTRACTOR SHALL SUBMIT THE POOL REINFORCING STEEL SHOP DRAWING FOR A REVIEW A MINIMUM OF 14 DAYS PRIOR TO STARTING CONSTRUCTION. THE SUBMITTED SHOP DRAWINGS SHALL INCLUDE THE BAR SIZE AND SPACING, BENDING DIAGRAMS, AND SPECIAL BAR PLACEMENT AND BENDING DIAGRAMS FOR THE REINFORCING AROUND THE CONVERTERS, MAIN DRAIN, AND OTHER NON-TYPICAL LOCATIONS. ALL BENT BARS SHALL BE SHOP FABRICATED AND COLD BENT UNLESS SPECIFICALLY APPROVED OTHERWISE.

3. CONCRETE

3.1 POOL SHELL SHALL BE MONOLITHIC SHOTCRETE (THICKNESS PER REINFORCING SCHEDULE, DETAIL 1, SHEET W002) FREE OF JOINTS OR SEAMS (SUCH AS IN POURED POOL SHELL). SHELL SHALL BE PLACED IN ONE DAY IF POSSIBLE, IF NOT FEATHER CUT OFF SECTIONS.

3.2 CONCRETE SHALL BE PER ASTM C31 AND SHALL HAVE A MINIMUM 4000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.

3.2.1 MINIMUM WATER TO CEMENT RATIO SHALL BE 0.52 WITH A MAXIMUM SLUMP OF 4" +/-1" OR 2" +/-1" FOR SHOTCRETE. THE SLUMP MAY BE INCREASED WITH THE USE OF ADMIXTURES.

3.2.2 CONCRETE SHALL HAVE 5% TO 8% AIR-ENTRAINMENT. AIR-ENTRAINING ADMIXTURE SHALL MEET ASTM C260 AND SHALL BE COMPATIBLE WITH ALL OTHER CONCRETE ADDITIVES, PARTICULARLY THE SHRINKAGE REDUCING ADMIXTURE.

3.2.3 ALL CEMENT SHALL MEET ASTM C150, TYPE I OR II.

3.2.4 ALL AGGREGATE SHALL MEET ASTM C33 AND SHALL BE PROPORTIONED SUCH THAT THE MIX SHALL CONTAIN A MINIMUM OF 50% COARSE AGGREGATE. COARSE AGGREGATE SHALL MEET ASTM C33, NO. 57 AND NO. 67.

3.2.5 CONCRETE SHALL HAVE 3.0 POUNDS PER CUBIC YARD OF +/-1.5" LONG SYNTHETIC MACRO FIBER REINFORCEMENT COMPLYING WITH ASTM C116. USE STRUX 90/40 BY GRACE CONCRETE PRODUCTS OR FIBERMESH 650 BY PROPEX CONCRETE SYSTEMS.

3.2.6 CONCRETE SHALL HAVE 128 OUNCES OF SHRINKAGE REDUCING ADMIXTURE PER CUBIC YARD. ECLIPSE 45000 BY GRACE CONSTRUCTION PRODUCTS OR MASTERLIFE SRA20 BY BASF CHEMICAL COMPANY ARE ACCEPTABLE SHRINKAGE-REDUCING ADMIXTURES.

3.2.7 CONCRETE SHALL HAVE WATER-REDUCING ADMIXTURE MEETING ASTM C494, TYPE A OR TYPE F. WATER-REDUCING ADMIXTURES SHALL BE COMPATIBLE WITH ALL OTHER CONCRETE ADDITIVES AND SHALL BE USED AT A DOSAGE PER THE MANUFACTURER'S RECOMMENDATIONS.

3.2.8 ALL ADMIXTURES SHALL CONTAIN NO MORE THAN 0.1% CHLORIDE IONS.

3.3 THE CONTRACTOR SHALL IMPLEMENT ANY NECESSARY PLACEMENT, FINISHING, AND CURING OPERATIONS TO ACCOMMODATE ANY SPECIAL REQUIREMENT OF THE CONCRETE MIX DESIGN AND CONCRETE ADDITIVES.

3.3.1 THE DESIGN INTENT IS TO MINIMIZE CRACKING AND SHRINKAGE CRACKS. THE CONTRACTOR SHALL CAREFULLY COORDINATE THE TIMING OF CONCRETE POURS WITH THE MIX DESIGNS AND FINISH SCHEDULES TO ASSURE THAT CRACKING IS REDUCED. THE CONTRACTOR SHALL CONTACT THE DESIGN TEAM IF CONCERNS OR QUESTIONS ARE PRESENT.

3.4 WET CURE THE POOL FLOOR SLAB FOR A MIN. OF 7 DAYS PRIOR TO STARTING CONSTRUCTION OF THE POOL WALLS. WET CURE THE POOL WALLS DURING GUNITE OR SHOTCRETE PLACEMENT AND CONTINUE THE WET CURING OF THE POOL WALLS FOR A MIN OF 7 DAYS FOLLOWING THE COMPLETION OF THE WALLS.

3.5 THE POOL WALLS SHALL ONLY BE CONSTRUCTED USING WET-GUN SHOTCRETE OR DRY-GUN GUNITE CONSTRUCTION.

3.5.1 THE CONTRACTOR SHALL SUBMIT DESIGN MIXES FOR CAST-IN-PLACE CONCRETE, WET-GUN GUNITE, AND GROUT FOR REVIEW A MINIMUM OF 14 DAYS PRIOR TO STARTING CONSTRUCTION.

3.5.2 SHOTCRETE INCLUDES BOTH WET-MIX AND DRY-MIX (GUNITE).

3.5.3 SHOTCRETE SHALL BE DONE AT A HIGH VELOCITY OF 350 TO 400 FEET-PER-SECOND.

3.5.4 SHOTCRETE TERMINOLOGY SHALL FOLLOW THE AMERICAN SHOTCRETE ASSOCIATION'S POSITION STATEMENT #2.

3.5.5 REBOUND, TRIMMING, AND LOOSE DEBRIS SHALL BE REMOVED FROM THE STRUCTURE AND SHALL NOT BE USED IN ANY MANNER WITHIN THE STRUCTURE OR VESSEL.

DRY-GUN GUNITE:

3.5.6 GUNITE SHALL BE PROPORTIONED FOR ONE PART CEMENT TO FOUR PARTS SAND BY VOLUME. THE COLUMN PROPORTIONS SHALL BE BASED ON A UNIT WEIGHT METHOD, NOT AN ABSOLUTE VOLUME METHOD.

3.5.7 CEMENT AND SAND SHALL BE DRY MIXED.

3.6 ALL CONCRETE WORK SHALL BE IN STRICT CONFORMANCE WITH THE CURRENT "ACI MANUAL OF CONCRETE PRACTICE". ALL GUNITE AND SHOTCRETE WORK SHALL CONFORM WITH ACI 506.

3.7 THE CONSTRUCTION JOINT BETWEEN POURED FLOOR AND GUNITE OR SHOTCRETE POOL WALL SHALL BE SANDBLASTED CLEAN AND A LAYER OF GROUT PASTE SHALL BE APPLIED IMMEDIATELY PRIOR TO STARTING GUNITE OR SHOTCRETE WALL CONSTRUCTION. THE GROUT PASTE MUST NOT BE ALLOWED TO DRY PRIOR TO STARTING THE WALL CONSTRUCTION.

3.8 CAST-IN-PLACE CONCRETE, GUNITE, AND SHOTCRETE, SHALL BE TESTED DURING PLACEMENT AS FOLLOWS:

3.8.1 PROVIDE ONE SET OF FOUR TEST CYLINDERS PER ASTM C31 FOR EACH DAYS POUR OR FOR EACH 30 CUBIC YARDS OF MATERIAL PLACED, WHICHEVER IS GREATER.
TEST AT POINT OF DISCHARGE PER ASTM C143 FOR EACH SET OF TEST CYLINDERS TAKEN.

3.8.1.1 COMPRESSIVE STRENGTH TEST: ONE SET OF FOUR CYLINDERS PER ASTM C39. TEST ONE CYLINDER AT 7-DAYS, TWO CYLINDERS AT 28- DAYS AND HOLD ONE IN RESERVE TO BE TESTED AS DIRECTED.

3.8.2 AIR CONTENT: VOLUMETRIC METHOD PER ASTM C 173 OR PRESSURE METHOD PER ASTM C231 FOR EACH SET OF TEST CYLINDERS TAKEN.

3.8.3 CONCRETE TEMPERATURE: ONE TEST PER ASTM C1064 FOR EACH SET OF TEST CYLINDERS TAKEN HOURLY WHEN AIR TEMPERATURE IS BELOW 40 DEGREES F OR ABOVE 90 DEGREES F.

3.8.4 GUNITE OR SHOTCRETE TEST PANELS SHALL BE FABRICATED BY GUNNING ONTO A HEAVY PLYWOOD OR STEEL PLATE FORM SHOOTING FROM EACH POSITION TO BE ENCOUNTERED DURING THE POOL CONSTRUCTION.

3.8.4.1 THE TEST PANELS SHALL BE A MINIMUM OF 24"X24" BY 8" THICK AND SHALL BE OF ADEQUATE SIZE TO TAKE A SET OF FOUR 4" DIAMETER CORE SAMPLES FROM EACH TEST PANEL.

3.8.4.2 THE TEST PANELS SHALL BE CURED TO MATCH THE CURING METHODS UTILIZED ON THE POOL WALLS AND THE CORE SAMPLES SHALL BE HANDLED, SOAKED AND TESTED PER ACI 506, ASTM C42, AND ASTM C39. TEST ONE CORE AT 7-DAYS, TWO CORES AT 28-DAYS , AND HOLD ONE CORE IN RESERVE TO BE TESTED AS DIRECTED.

3.8.5 ALL CONCRETE TESTING AND SAMPLING SHALL BE PERFORMED BY PERSONNEL TRAINED AND CERTIFIED IN CONCRETE SAMPLING.

3.8.6 TEST RESULTS SHALL BE SUBMITTED TO ARCHITECT, ENGINEER, AND CONTRACTOR WITHIN 24 HOURS OF COMPLETING TESTS. CONCRETE TESTING SHALL BE PERFORMED BY AN APPROVED TESTING AGENCY.

3.9 CONCRETE MIX DESIGN SHALL BE SINGED OFF BY THE CONCRETE PLANT TO VERIFY THE MIX DESIGN DOES NOT HAVE ISSUES WITH ALKALI SILICA REACTION. INCLUDED IN THIS MIX DESIGN SHALL COMPLY WITH ONE OF THE FOLLOWING:

A. EXPANSION RESULT OF AGGREGATE: NOT MORE THAN 0.04 PERCENT AT ONE-YEAR WHEN TESTED IN ACCORDANCE WITH ASTM C1239.

B. EXPANSION RESULTS OF AGGREGATE AND CEMENTITIOUS MATERIALS IN COMBINATION: NOT MORE THAN 0.10 PERCENT AT AN AGE OF 16 DAYS WHEN TESTED IN ACCORDANCE WITH ASTM C1567.

C. ALKALI CONTENT IN CONCRETE: NOT MORE THAN 4LB./CU. YD FOR MODERATELY REACTIVE AGGREGATE, WHEN TESTED IN ACCORDANCE WITH ASTM C1293 AND CATEGORIZED IN ACCORDANCE WITH ASTM C1778, BASED ON ALKALI CONTECT BEING CALCULATED IN ACCORDANCE WITH ACI301.

4. FOUNDATIONS

4.1 ALL EARTHWORK AND COMPACTED FILL SHALL MEET THE REQUIREMENTS OF THE PROJECT GENERAL NOTES AND ALL THE FOLLOWING EARTHWORK RELATED NOTES.

4.2 THE POOL WALLS ARE DESIGNED FOR AN EQUIVALENT FLUID PRESSURE OF 62.4 PCF. THE BOTTOM OF THE POOL STRUCTURE SHALL BE SUPPORTED ON SOILS CAPABLE OF PROVIDING AN ALLOWABLE SOIL BEARING PRESSURE OF 2000 PSF.

4.3 A GEOTECHNICAL ENGINEER SHALL DETERMINE IF THE EXPOSED SUBGRADE SOILS ARE ACCEPTABLE TO SUPPORT THE POOL FILL MATERIAL OR IF UNSTABLE OR UNSUITABLE SOILS EXIST WHICH REQUIRE REMOVAL AND REPLACEMENT.

4.3.1 THE CONTRACTOR SHALL VERIFY WITH THE GEOTECHNICAL ENGINEER THAT THE SOILS BELOW AND ADJACENT TO THE POOL STRUCTURE ARE SATISFACTORY FOR SUPPORT OF THE POOL STRUCTURE AND MEET THE SPECIFIED REQUIREMENTS PRIOR TO STARTING CONSTRUCTION OF THE POOL STRUCTURE. THE GEOTECHNICAL ENGINEER PERFORMING THE FIELD SHALL SUBMIT A LETTER STATING THAT THE SOIL MATERIALS ADJACENT TO THE POOL STRUCTURE ARE ACCEPTABLE AND MEET THE SPECIFIED REQUIREMENTS.

4.4 ALL POOL FLOOR AREAS SHALL BE CONSTRUCTED ON A MINIMUM NEW 18" THICK ZONE OF GRANULAR DRAINAGE FILL MATERIAL, PLACED OVER RECONDITIONED AND APPROVED NATIVE SOILS OR ADDITIONAL ENGINEERED FILL SOILS

4.4.1 OVEREXCAVATE BELOW AND BEYOND THE GEOMETRY OF THE POOL STRUCTURE AS REQUIRED TO CONSTRUCT THE SPECIFIED ZONE OF DRAINAGE FILL MATERIAL.

4.4.2 FOLLOWING THE EXCAVATION OPERATIONS, THE NATIVE SOILS ENCOUNTERED SHOULD BE PROOFROLLED TO IDENTIFY ANY SOFT OR UNSTABLE AREAS. ANY EXISTING FILL MATERIAL OR OTHER UNSTABLE OR UNSUITABLE MATERIALS IDENTIFIED SHOULD BE REMOVED.

4.4.3 THE NATIVE SOILS ENCOUNTERED BELOW OR ADJACENT TO THE POOL STRUCTURE SHALL BE REMOVED PRIOR TO PLACING ANY NEW FILL MATERIAL IF THE SPECIFIED MOISTURE CONTENT IS NOT WITHIN -2% AND +2% OF THEIR OPTIUM VALUE.

4.4.4 THE GEOTECHNICAL ENGINEER SHALL REVIEW THE EXCAVATION, THE PROOF ROLLING OPERATION, AND APPROVED THE BASE SOILS PRIOR TO STARTING PLACEMENT OF ANY FILL MATERIAL.

4.5 THE CLEAN GRANULAR DRAINAGE FILL MATERIAL BELOW THE POOL FLOOR AND BEHIND THE POOL WALLS SHALL BE A CLEAN, WELL-GRADED, CRUSHED ROCK MEETING ASTM C33 COARSE AGGREGATE GRADING REQUIREMENTS FOR NO. 57 OR NO. 67 AGGREGATE.

4.6 ANY GENERAL FILL SOILS PLACED BELOW OR BEYOND THE ZONE OF GRANULAR SOILS WITHIN OR BEYOND THE AREA OF THE POOL MUST BE APPROVED, CLEAN, ON-SITE SOILS.

4.7 ALL PROPOSED ON-SITE OR BORROW FILL MATERIAL MUST BE APPROVED BY THE GEOTECHNICAL ENGINEER.

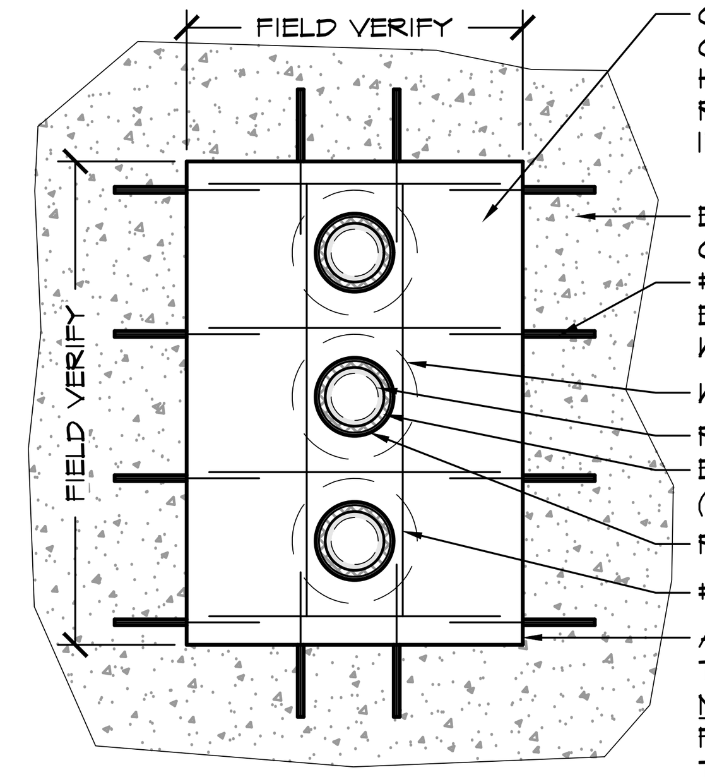
4.8 ALL FILL MATERIAL SHALL BE PLACED IN MAXIMUM 8" THICK LOOSE LIFTS AND BE COMPACTED TO A MINIMUM OF 95 PERCENT OF THE MATERIALS MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-698, STANDARD PROCTOR PROCEDURES.

4.9 ALL SOILS SHOULD BE PLACED WITH A MOISTURE CONTENT BETWEEN -2% AND +2% OF THEIR OPTIMUM MOISTURE CONTENT VALUE.

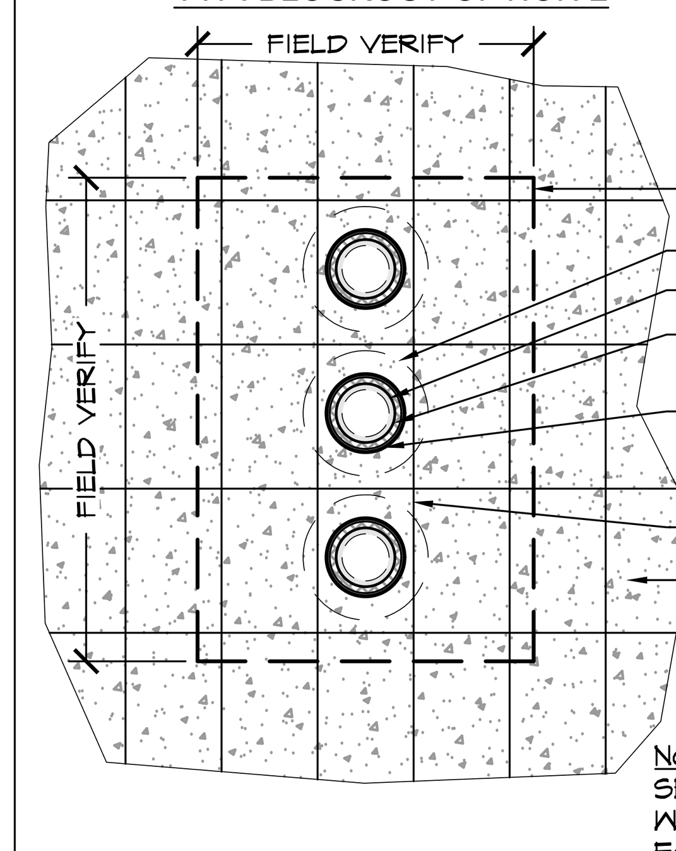
4.10 GRANULAR SOILS SHALL BE PLACED AT A WORKABLE MOISTURE CONTENT. THE PLACEMENT OF ALL FILL MATERIAL SHALL BE MONITORED, TESTED, AND APPROVED BY THE GEOTECHNICAL ENGINEER.

4.11 THE CONTRACTOR SHALL COORDINATE WITH A GEOTECHNICAL ENGINEER TO VERIFY THAT THERE ARE NOT ANY UNDERLYING SUBSTRATES THAT COULD CREATE INSTABILITIES OR SETTLEMENTS, E.G. CAVES, MINES, BURIED TANKS, OR DEFORMITIES DUE TO KARST TOPOGRAPHY.

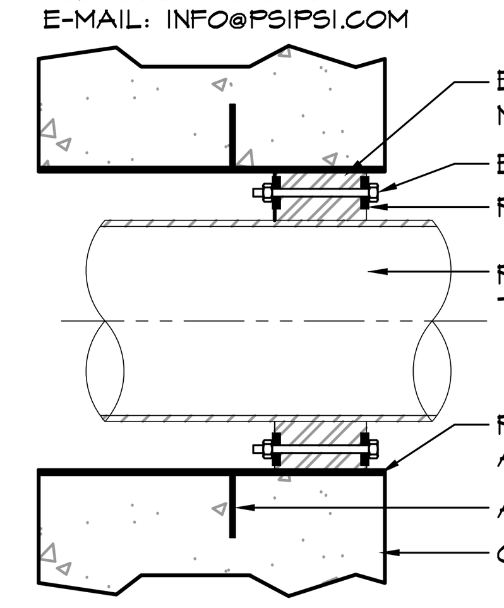
TYP. BLOCKOUT OPTION 1



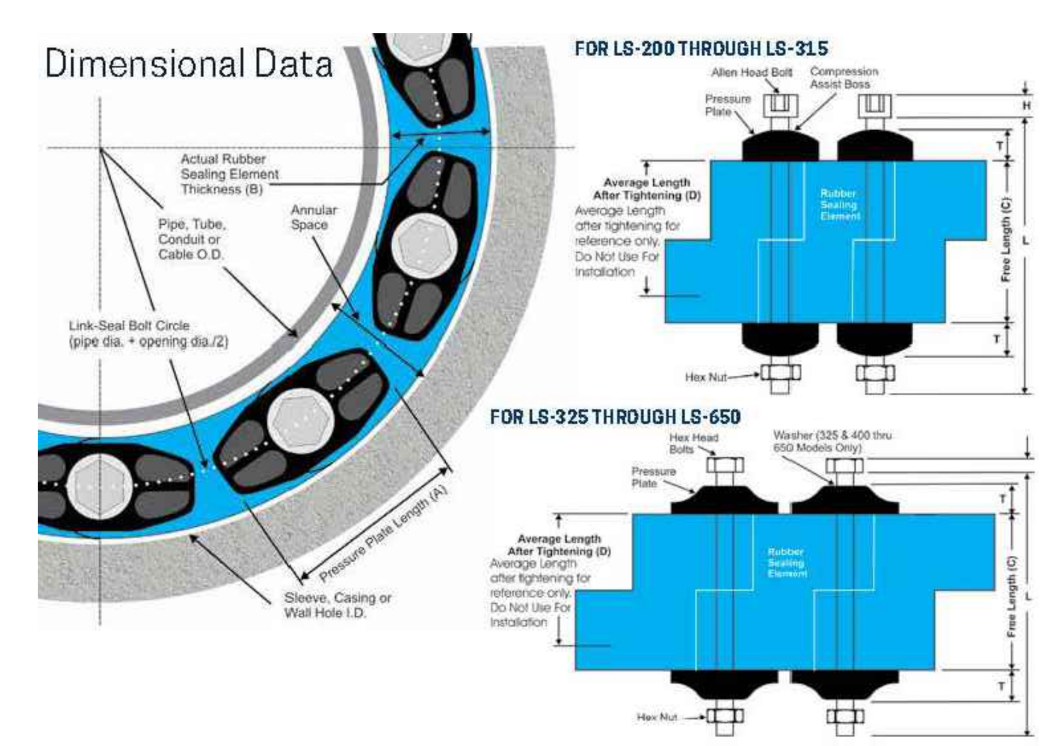
TYP. BLOCKOUT OPTION 2



LINK-SEAL® MODULAR SEALS WITH CAST OR CORE DRILLED WALL OPENING MANUFACTURED BY PIPELINE SEAL & INSULATOR, INC.
HOUSTON, TEXAS, U.S.A.
TEL: 800-423-2410
E-MAIL: INFO@PSIPSI.COM



LINK-SEAL MODULAR SEAL



*DIMENSIONAL DATA FOR MODELS C, L, O, S-316, S61, LS-316 & OS-316

LINK-SEAL® Model No.	Rubber Sealing Elements: Actual Thinckness (B)	Free Length (C)	Avg. Length After Tighening (D)	Pressure Plates: (A)	(T)	Bolts: Allen Head Hex Across Flats	(H)	Thread Size	(L)	Weight for 10 Link Sections (lbs)	Min. Required Seating Width
LS 200 *	0.48"	1.75"	1.38"	1.06"	0.31"	4mm Allen (0.157")	4.95mm (0.195")	M5 0.8	65mm (2.559")	0.70	2.25"
LS 275 *	0.61"	1.75"	1.38"	0.97"	0.31"	4mm Allen (0.157")	4.95mm (0.195")	M5 0.8	65mm (2.559")	0.75	2.25"
LS 300 *	0.69"	2.37"	1.87"	1.56"	0.44"	6mm Allen (0.236")	7.87mm (0.310")	M8 1.25	90mm (3.543")	2.15	3.00"
LS 315 *	0.81"	2.37"	1.87"	1.44"	0.44"	6mm Allen (0.236")	7.87mm (0.310")	M8 1.25	90mm (3.543")	2.30	3.00"
LS 325 *	0.88"	2.63"	2.00"	3.13"	1.00"	13mm (0.511")	5.30mm (0.215")	M8 1.25	110mm (4.33")	5.50	4.00"
LS 340 *	1.00"	2.70"	2.25"	1.48"	0.66"	13mm (0.511")	5.30mm (0.215")	M8 1.25	110mm (4.33")	3.30	4.00"
LS 360 *	1.24"	2.70"	2.25"	2.05"	0.77"	13mm (0.511")	5.30mm (0.215")	M8 1.25	110mm (4.33")	5.10	4.00"
LS 400 *	1.38"	3.50"	2.75"	3.50"	1.06"	17mm (0.669")	6.40mm (0.250")	M10 1.5	130mm (5.118")	12.00	5.00"
LS 410 *	1.43"	3.37"	2.87"	2.52"	0.88"	17mm (0.669")	6.40mm (0.250")	M10 1.5	130mm (5.118")	8.20	5.00"
LS 425 *	1.06"	3.00"	2.25"	3.50"	1.19"	17mm (0.669")	6.40mm (0.250")	M10 1.5	130mm (5.118")	10.00	5.00"
LS 475 *	1.56"	3.38"	2.63"	2.63"	0.88"	17mm (0.669")	6.40mm (0.250")	M10 1.5	130mm (5.118")	10.00	5.00"
LS 500 *	2.25"	3.75"	2.75"	3.63"	1.06"	19mm (0.748")	7.50mm (0.300")	M12 1.75	140mm (5.511")	22.50	5.00"
LS 525 *	2.06"	3.75"	2.87"	3.63"	1.06"	19mm (0.748")	7.50mm (0.300")	M12 1.75	140mm (5.511")	21.00	5.00"
LS 575 *	1.81"	3.75"	3.00"	3.00"	1.00"	19mm (0.748")	7.50mm (0.300")	M12 1.75	140mm (5.511")	15.50	5.00"
LS 615 *	3.09"	4.00"	3.00"	6.00"	1.90"	24mm (0.944")	10.57mm (0.416")	5/8 11	185mm (7.280")	60.60	6.00"
LS 650 *	2.71"	3.98"	3.00"	3.96"	1.19"	19mm (0.748")	7.50mm (0.300")	M12 1.75	140mm (5.511")	26.10	6.00"

1 LINK-SEAL MODULAR SEALS
SCALE: NTS *AT STRUCTURAL SLAB & WALL BLOCKOUTS*

TYP. BLOCKOUT OPTION 2 EXAMPLE IMAGE

THIS IS A DIAGRAM SHOWING THE GENERAL PLACEMENT OF PLUMBING AT EACH BLOCKOUT. CONTRACTOR SHALL FIELD VERIFY EXACT POOL PLUMBING PLACEMENT THROUGH WALLS AND STRUCTURAL SLAB.

Installation Techniques - LINK-SEAL® Modular Seals

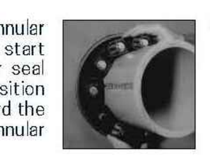
1. Center the pipe, cable or conduit in wall opening or casing. Make sure the pipe will be adequately supported on both ends. LINK-SEAL® modular seals are **not** intended to support the weight of the pipe.

2. Loosen rear pressure plate with nut just enough so links move freely. Connect both ends of belt around the pipe.

3. Check to be sure all bolt heads are facing the installer. Extra slack or sag is normal. Do **not** remove links if extra slack exists.

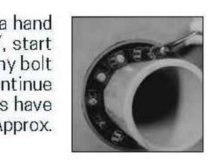
NOTE: On smaller diameter pipe, links may need to be stretched.

4. Slide belt assembly into annular space. For larger size belts, start inserting LINK-SEAL® modular seal assembly at the 6 o'clock position and work both sides up toward the 12 o'clock position in the annular space.

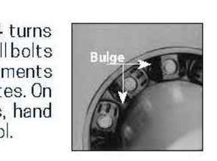


5. LS-200 through LS-315 Using a hand socket allen head or off-set wrench ONLY, start at 12 o'clock. Do not tighten any bolt more then 4 turns at a time. Continue in a clockwise manner until links have been uniformly compressed. (Approx. 2 or 3 rotations)

5a. LS-325 through LS-650 Using a hand socket or off-set wrench ONLY, start at 12 o'clock. Do not tighten any bolt more than 4 turns at a time. Continue in a clockwise manner until links have been uniformly compressed (Approx. 2 or 3 rotations).



6. Make 2 or 3 more passes at 4 turns per bolt MAXIMUM, tightening all bolts clockwise until all sealing elements **"bulge"** around all pressure plates. On type 316 stainless steel bolts, hand tighten ONLY without power tool.



7. If the seal doesn't appear to be correct using the instructions provided, call GPT at 1-800-423-2410.

Installation Complete

Installation Notes: The LINK-SEAL® modular seal bolt heads are usually recessed below the wall opening or the edge of casing pipe and therefore a socket or offset wrench must be used.

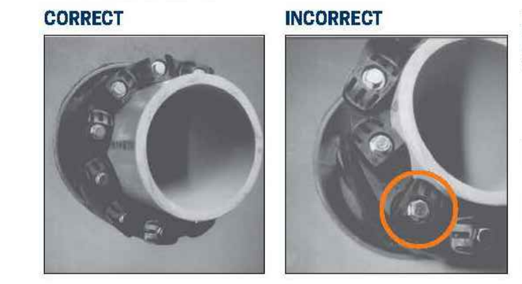
Installation Techniques - LINK-SEAL® Modular Seals

ALWAYS WEAR PPE WHEN USING LINK-SEAL® MODULAR SEALS

LINK-SEAL® Modular Seal - Do's

1. Make sure pipe is centered.
2. Install the belt with the pressure plates evenly spaced.
3. Install the exact number of links indicated in sizing charts.
4. Check to make sure pipe is supported properly during backfill operations. **NOTE**: LINK-SEAL® modular seals are not intended to support the weight of the pipe.
5. Make sure seal assembly and pipe surfaces are free from dirt.
6. For tight fits, use non-polluting liquid detergent to assist installation.

CORRECT **INCORRECT**



If the seal doesn't appear to be correct using the techniques provided, Call GPT at 1-800-423-2410.

LINK-SEAL® Modular Seal - Don'ts

1. Don't Install the belt with the pressure plates aimed in irregular directions. (Staggered)
2. Don't Install LINK-SEAL® modular seals where weld-beads or other irregular surfaces exist without consideration of the sealing requirements.
3. Don't torque each bolt completely before moving on to the next.
4. Don't use high speed power tools (450 rpm or more)
5. Do not use power tools on LINK-SEAL® modular seal 316 stainless steel bolts.
6. Don't use grease installing LINK-SEAL® modular seals.

Hand Tools: Review provided chart below. (Tools not provided.) Tools can be purchased from hardware store, auto parts store, or home improvement store.

LINK-SEAL® Model	Tool Size/ Type Req.	Bolt Head Type
LS-200, LS-275	4mm, Allen	
LS-300, LS-315	6mm, Allen	
LS-325, LS-340, LS-360	13mm, Hex	
LS-400, LS-410, LS-425, LS-475	17mm, Hex	
LS-500, LS-525, LS-575	19mm, Hex	
LS-615	30mm, Hex	
LS-650	19mm, Hex	

STEEL AND PLASTIC PIPE WITH SAME OUTSIDE DIAMETER (IPS)

Pipe Size (Nom.)	Actual O.D. (Inches)	CENTURY-LINE® SLEEVE: Model Number	LINK-SEAL® Size	Links Per Seal	STEEL SLEEVE: Model Number	LINK-SEAL® Size	Links Per Seal	CAST OR CORE BIT DRILLED HOLE: Hole I.D.	LINK-SEAL® Size	Links Per Seal
½	0.840	CS 2 *	LS 200 ***	4	WS 2 15 S *	LS 275 ***	5	2.000	LS 200 ***	4
¾	1.050	CS 3 *	LS 315 ***	4	WS 2 ½ 20 S *	LS 275 ***	6	3.000	LS 315 ***	4
1	1.315	CS 3 *	LS 300 ***	4	WS 2 ½ 20 S *	LS 200 ***	5	3.000	LS 300 ***	4
1¼	1.660	CS 3 *	LS 275 ***	7	WS 3 21 S *	LS 275 ***	8	3.000	LS 275 ***	8
1½	1.900	CS 3½ *	LS 275 ***	8	WS 3 21 S *	LS 200 ***	7	4.000	LS 315 ***	6
2	2.375	CS 4 *	LS 300 ***	6	WS 3 ½ 22 S *	LS 200 ***	8	4.000	LS 300 ***	6
2½	2.875	CS 4 *	LS 200 ***	9	WS 4 23 S *	LS 200 ***	9	4.000	LS 200 ***	9
3	3.500	CS 5 *	LS 300 ***	8	WS 6 28 S *	LS 360 ***	7	5.000	LS 300 ***	8
3½	4.000	CS 6 *	LS 340 ***	10	WS 6 28 S *	LS 340 ***	9	6.000	LS 315 ***	10
4	4.500	CS 6 *	LS 300 ***	10	WS 6 28 S *	LS 300 ***	10	6.000	LS 300 ***	10
5	5.563	CS 8 *	LS 360 ***	10	WS 8 32 S *	LS 340 ***	13	8.000	LS 340 ***	13
6	6.625	CS 10 *	LS 475 ***	10	WS 10 36 S *	LS 475 ***	10	10.000	LS 475 ***	10
8	8.625	CS 12 *	LS 475 ***	12	WS 12 37 S *	LS 475 ***	12	12.000	LS 475 ***	12
10	10.750	CS 14 *	LS 410 ***	15	WS 14 37 S *	LS 425 ***	10	14.000	LS 475 ***	14
12	12.750	CS 16 *	LS 475 ***	17	WS 16 37 S *	LS 425 ***	12	16.000	LS 475 ***	17
14	14.000	CS 16 *	LS 340 ***	30	WS 18 37 S *	LS 475 ***	18	18.000	LS 575 ***	16
16	16.000	CS 20 *	LS 410 ***	21	WS 20 37 S *	LS 475 ***	21	20.000	LS 575 ***	18
18	18.000	CS 22 *	LS 340 ***	38	WS 22 37 S *	LS 475 ***	23	22.000	LS 575 ***	20
20	20.000	CS 25 *	LS 500 ***	18	WS 24 37 S *	LS 475 ***	25	24.000	LS 475 ***	26
22	22.000	CS 25 *	LS 360 ***	34	WS 26 37 S *	LS 475 ***	28	26.000	LS 575 ***	24
24	24.000	CC 30 **	LS 500 ***	21	WS 28 37 S *	LS 475 ***	30	28.000	LS 475 ***	31
26	26.000	CC 30 **	LS 400 ***	23	WS 30 37 S *	LS 400 ***	23	30.000	LS 575 ***	28
28	28.000	CC 32 **	LS 400 ***	25	WS 32 37 S *	LS 400 ***	25	32.000	LS 575 ***	30
30	30.000	CC 36 **	LS 500 ***	26	WS 34 37 S *	LS 400 ***	27	34.000	LS 575 ***	32
32	32.000	CC 38 **	LS 500 ***	28	WS 36 37 S *	LS 400 ***	29	36.000	LS 575 ***	34
34	34.000	CC 38 **	LS 400 ***	30	WS 40 37 S *	LS 500 ***	29	38.000	LS 575 ***	36
36	36.000	CC 42 **	LS 500 ***	31	WS 42 37 S *	LS 500 ***	31	40.000	LS 575 ***	38
42	42.000	CC 48 **	LS 500 ***	36	WS 48 37 S *	LS 500 ***	36	46.000	LS 575 ***	44
48	48.000	CC 54 **	LS 500 ***	40	WS 53 37 S *	LS 525 ***	40	52.000	LS 575 ***	50

* = Specify sleeve length in inches ** = See CELL-CAST® Page 25 *** = Specify LS Model C, S 316, L...etc when ordering (Example LS 475 C 17) Technically there is no limit to the pipe size that can be sealed using LINK-SEAL® modular seals. Please contact factory for sizes not listed and for CS model plastic sleeves for walls less than 8" thick.
NOTE: Contact GPT (1 800 423 2410) or your local distributor if your pipe sizing solution is not listed in the provided charts

GPT | 11

LORAX DESIGN GROUP
8021 SANTA FE DRIVE
OVERLAND PARK, KS 66204
WWW.LORAXDESIGNGROUP.COM

STATE OF MISSOURI
JAMES M. GRANICH
NUMBER PE-2014023909
PROFESSIONAL ENGINEER
10/13/2025

DOUGLAS STATION
NW SLOAN & NE SYCAMORE ST
LEE'S SUMMIT, MO 64086

REVISION:

10/13/2025

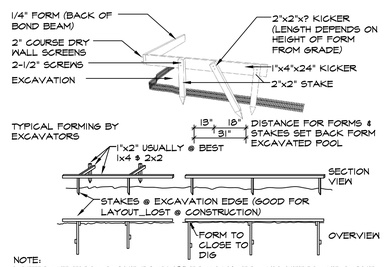
POOL STRUCTURAL NOTES

W101

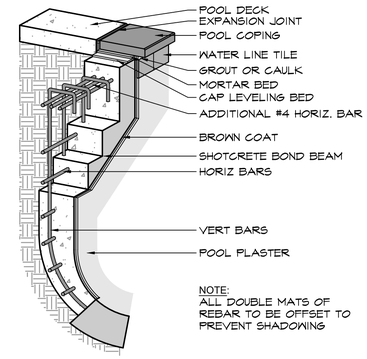
POOL WALL AND FLOOR REINFORCING SCHEDULE:								
WATER DEPTH	SPRING LINE	RADIUS "R"	POOL WALL				FLOOR SLAB	
			THICKNESS "T"	SOIL SIDE VERT. REINF.	SOIL SIDE HORIZ. REINF.	POOL SIDE WALL REINF.	THICKNESS	REINF.
0' TO 5'-0"	0'-0" TO 3'-9"	3"	8" MIN UNLESS NOTED OTHERWISE	#4 @ 12" O.C.	#4 @ 12" O.C.	-	8" MIN.	#4 @ 12" O.C. E.W.
5'-0" TO 8'-0"	3'-6" TO 7'-6"	6"	12" MIN	#4 @ 12" O.C.	#4 @ 12" O.C.	TO MATCH SOIL SIDE	8" MIN.	#4 @ 12" O.C. E.W.
8'-0" TO 10'-0"	6'-2" TO 8'-2"	1'-10"	12" MIN	#4 @ 9" O.C.	#4 @ 12" O.C.	TO MATCH SOIL SIDE	8" MIN.	#4 @ 12" O.C. E.W.

POOL REINFORCING SCHEDULE NOTES:
1 SEE POOL PLAN FOR SECTIONS AND DETAILS AT THE SHALLOW AREAS OF THE POOL.
2 THE SPRINGLINE ELEVATION IS THE VERTICAL WATER DEPTH WHERE THE RADIUS LENGTH INTERSECTS THE SURFACE OF THE POOL FLOOR.
3 PROVIDE 2" OF CONCRETE, OR GUNITE COVER ON ALL WALL REINFORCING BARS.
4 SUPPORT FLOOR SLAB REINFORCING BARS ON BAR SUPPORTS @ 36" O.C. EACH WAY WITH CONCRETE BLOCK OR CHAIRS PER ACI 301. SEE DETAILS FOR BAR SUPPORT HEIGHTS.
5 REINFORCING STEEL SHOWN IN SCHEDULE IS MINIMUM REQUIRED. CONTRACTOR SHALL PROVIDE ADDITIONAL STEEL AS REQUIRED PER SECTIONS

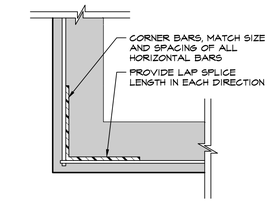
1 POOL REINFORCING SHEDULE
SCALE: NTS



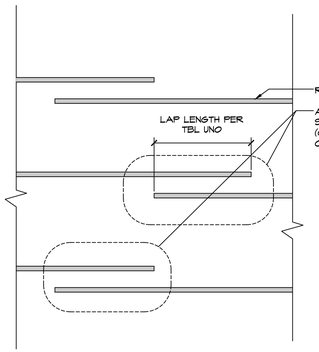
2 STRUCTURAL FRAMING FORMWORK
SCALE: NTS



3 BOND BEAM REBAR VIGNETTE
SCALE: NTS ILLUSTRATIVE VIEW



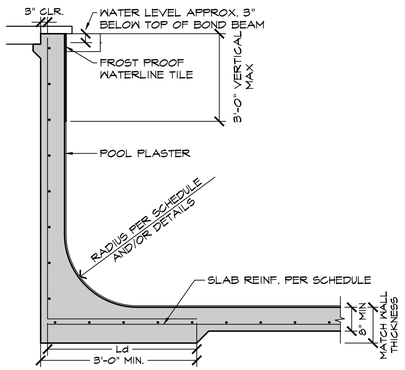
4 CORNER BAR DETAIL
SCALE: NTS



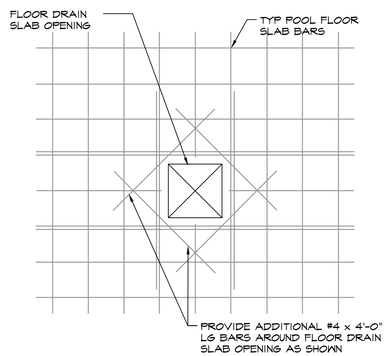
DETAIL NOTES
1. f'c=4,000 PSI (27.5 KPA)
2. Fy PER TABLE BELOW.
3. CLASS B SPLICES [ACI318 12.15.1]
4. INCREASE LAP 20% FOR EPOXY-COATED BARS
5. INCREASE LAP 30% FOR LIGHTWEIGHT CONCRETE

MIN REINFORCING LAP LENGTH (Ld)				
BAR SIZE	NOMINAL DIA	GRADE	Fy, MIN YIELD STRENGTH	MIN LAP LENGTH
#3	3/8" (10 MM)	40	40,000 PSI (300 MPA)	20" (500 MM)
#4	1/2" (13 MM)	60	60,000 PSI (300 MPA)	25" (625 MM)
#5	5/8" (16 MM)	60	60,000 PSI (420 MPA)	32" (800 MM)
#6	3/4" (19 MM)	60	60,000 PSI (420 MPA)	38" (950 MM)
[ASTM A615 (A615M)]				[ACI318 12.15.1]

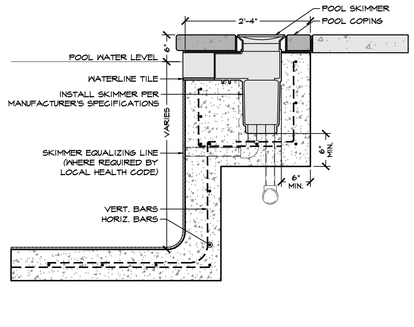
5 SHOTCRETE NON-CONTACT LAP SPLICES
SCALE: NTS



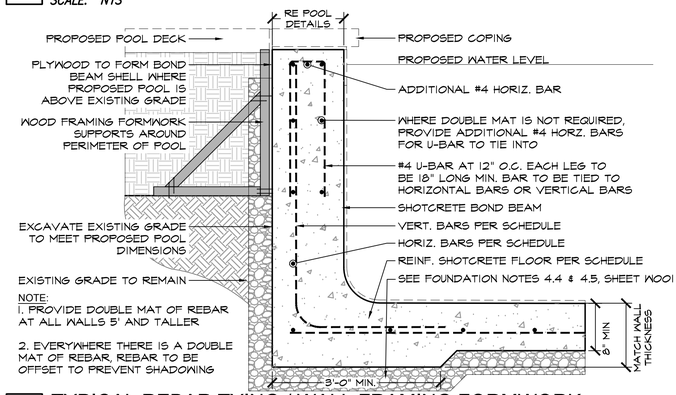
6 WALL TO BOTTOM TRANSITION
SCALE: 1/2" = 1'-0" SECTION



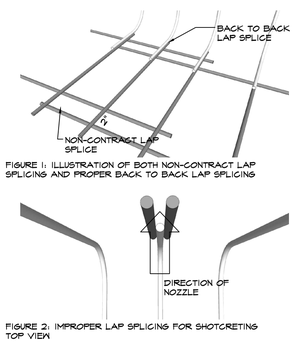
7 TYPICAL REBAR AT POOL DRAIN
SCALE: 1" = 1'-0" SECTION



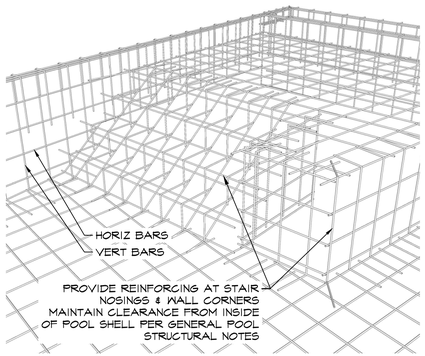
8 REINFORCING AT SKIMMER
SCALE: N.T.S. CROSS SECTION



9 TYPICAL REBAR TYING / WALL FRAMING FORMWORK
SCALE: NTS SECTION

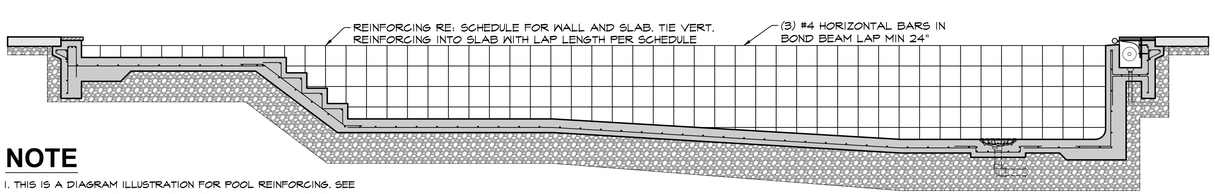


10 LAP SPLICING SHOTCRETE
SCALE: NTS ILLUSTRATIVE VIEW



11 TYPICAL REBAR LAYOUT
SCALE: N.T.S. VIGNETTE

12 NOT USED
SCALE: N.T.S.



NOTE

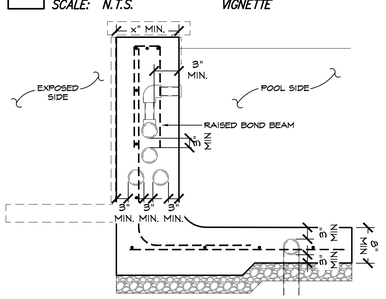
1. THIS IS A DIAGRAM ILLUSTRATION FOR POOL REINFORCING. SEE POOL PLAN AND CROSS SECTIONS FOR DEPTHS AND SLOPES

2. FOOTING DESIGNS ARE BASED ON AN ASSUMED STABLE, NON-EXPANSIVE SOIL WITH AN ALLOWABLE FOUNDATION PRESSURE OF 1500 PSF WITH A MAXIMUM DIFFERENTIAL SETTLEMENT OF ½ INCH. CONTRACTOR SHALL HIRE A GEOTECHNICAL ENGINEER TO DETERMINE WHETHER OR NOT SOIL MEETS THIS MINIMUM CRITERIA AND IF IT DOES NOT, SHALL NOTIFY ENGINEER SO THAT THE FOUNDATION MAY BE REDESIGNED ACCORDINGLY.

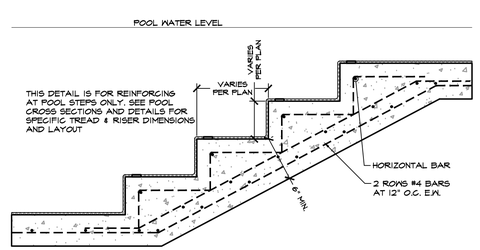
3. DOUBLE MAT OF REBAR SHALL BE PROVIDE AT ALL SHOTCRETE WALLS 5' AND GREATER IN HEIGHT. REBAR TO BE OFFSET TO PREVENT SHADOWING

4. DOUBLE MAT OF REBAR SHALL BE PROVIDED AT ALL SHOTCRETE WALL GREATER THAN 12" THICK. REBAR TO BE OFFSET TO PREVENT SHADOWING

13 TYPICAL POOL REINFORCING CROSS SECTION
SCALE: NTS



14 BOND BEAM PLUMBING CLEARANCES
SCALE: N.T.S. CROSS SECTION



15 REINFORCING AT POOL STEPS
SCALE: N.T.S. CROSS SECTION

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STATE OF MISSOURI
JAMES M. GRANICH
NUMBER PE-2014023909
PROFESSIONAL ENGINEER
10/13/2025

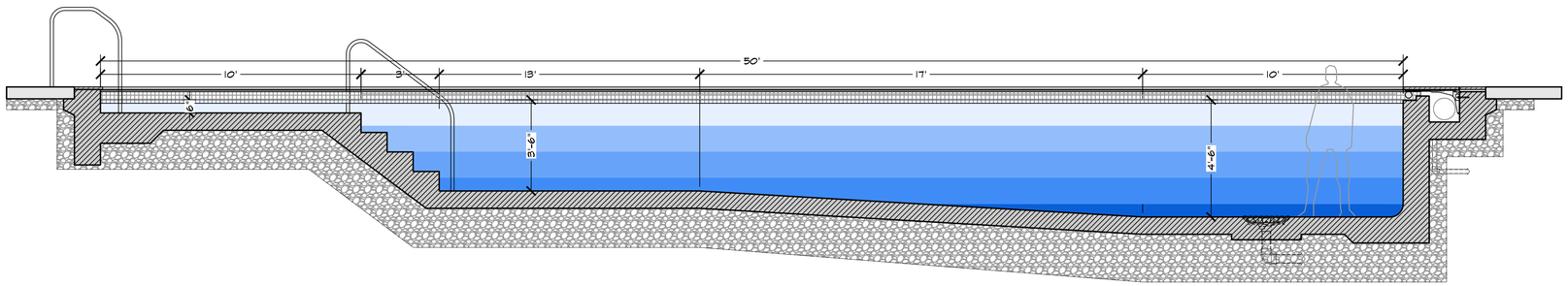
DOUGLAS STATION
NW SLOAN & NE SYCAMORE ST
LEE'S SUMMIT, MO 64086

REVISION:

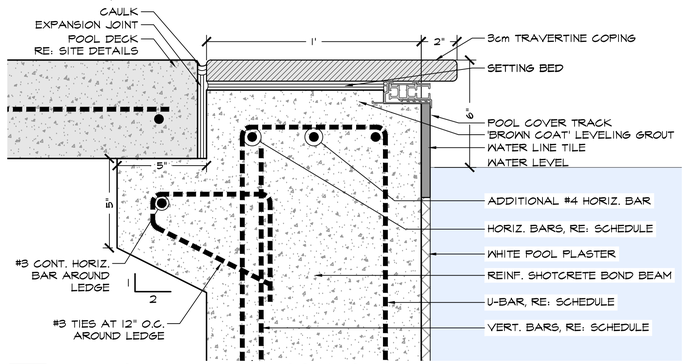
10/13/2025

POOL STRUCTURAL DETAILS

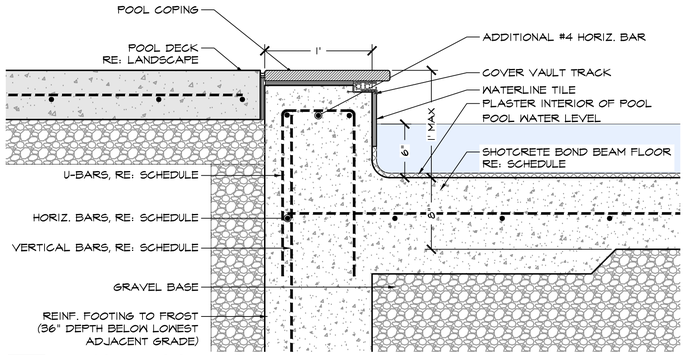
W102



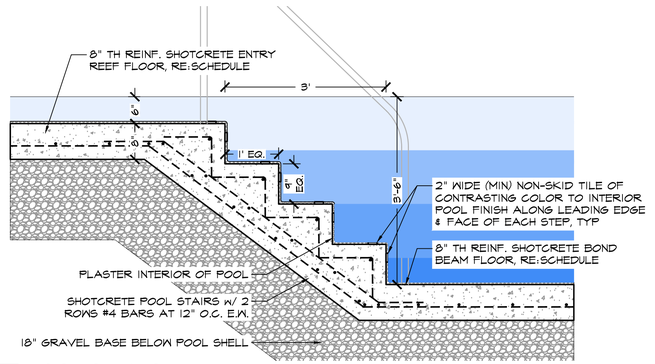
1 POOL CROSS SECTION
SCALE: 3/8" = 1'-0" SECTION



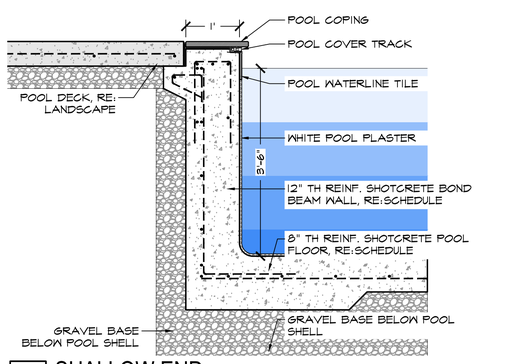
2 TYP. BOND BEAM AND COPING
SCALE: 3" = 1'-0" SECTION



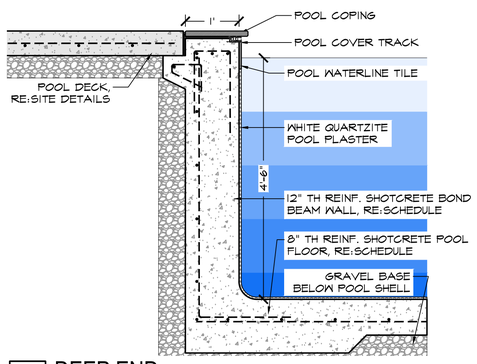
3 TYPICAL POOL ENTRY REEF
SCALE: 1-1/2" = 1'-0" SECTION



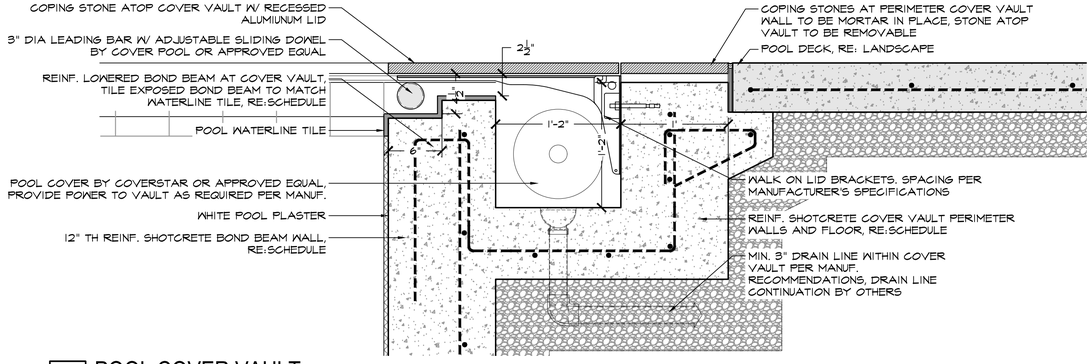
4 POOL STAIRS
SCALE: 3/4" = 1'-0" SECTION



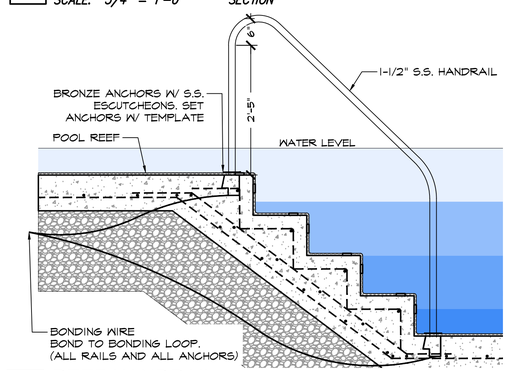
5 SHALLOW END
SCALE: 3/4" = 1'-0" SECTION



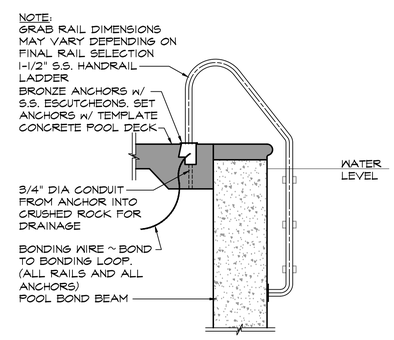
6 DEEP END
SCALE: 3/4" = 1'-0" SECTION



7 POOL COVER VAULT
SCALE: 1-1/2" = 1'-0" SECTION



8 REEF HANDRAIL
SCALE: 1" = 20'-0" SECTION



9 LADDER DETAIL
SCALE: 3/4" = 1'-0" SECTION

LORAX DESIGN GROUP
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STATE OF MISSOURI
JAMES M. GRANICH
NUMBER PE-2014023909
PROFESSIONAL ENGINEER
10/13/2025

DOUGLAS STATION
NW SLOAN & NE SYCAMORE ST
LEE'S SUMMIT, MO 64086

REVISION:

10/13/2025

POOL CROSS SECTIONS

W103

1. CALL 811 FROM ANYWHERE IN THE USA AND YOUR CALL WILL BE ROUTED TO YOUR LOCAL ONE-CALL CENTER WHERE OPERATORS WILL ASK YOU FOR THE LOCATION OF YOUR DIGGING/DRILLING JOB AND ROUTE YOUR CALL TO THE AFFECTED UTILITY COMPANIES. YOUR LOCAL UTILITY COMPANIES WILL THEN SEND A PROFESSIONAL LOCATOR TO YOUR JOB TO MARK CONFLICTS WITHIN A FEW DAYS.

2. CALL AT LEAST 3 DAYS BEFORE EXCAVATING TO AVOID SERIOUS FINES AND REPAIR EXPENSES. MARK THE PLANNED EXCAVATION AREAS WITH WHITE PAINT. PAINT SHALL BE WATER-BASED QUIK-MARK BY KRYLON OR EQUAL.

3. PROVIDE: ADDRESS, CITY, COUNTY, FOREMAN'S NUMBER, COMPANY, NATURE OF WORK, DATE WORK WILL BEGIN, PERMIT NUMBER, THOMAS GUIDE PAGE AND GRIDS.

4. UTILITY MARKERS GENERALLY EXPIRE AFTER 14 DAYS AFTER WHICH THE PROCESS MUST BE REPEATED. NO EXCAVATION PERMIT IS VALID WITHOUT FIRST CALLING 811. HAND-DIG TO 24" ON EITHER SIDE OF ALL UTILITIES. IT IS THE CONTRACTOR'S AND SUBCONTRACTOR'S RESPONSIBILITY TO EACH CALL 811.

5. EXCAVATION REQUIREMENTS VARY DEPENDING ON LOCAL LAWS. COLOR CODES MAY VARY AND LOCAL REQUIREMENTS SHALL SUPERSEDE THIS GENERAL WARNING. FOR MORE INFORMATION, CHECK OUT THE COMMON GROUND ALLIANCE AT WWW.CALL811.COM.

6. COLOR KEY:
   WHITE - PROPOSED EXCAVATION
   PINK - TEMP. SURVEY MARKINGS
   RED - ELECTRIC
   YELLOW - GAS/OIL/STEAM
   ORANGE - COMMUNICATIONS/CATV
   BLUE - WATER
   PURPLE - RECLAIMED WATER
   GREEN - SEWER

Know what's **below.**
Call before you dig.

1 DIGGING / DRILLING ALERT
SCALE: N.T.S.

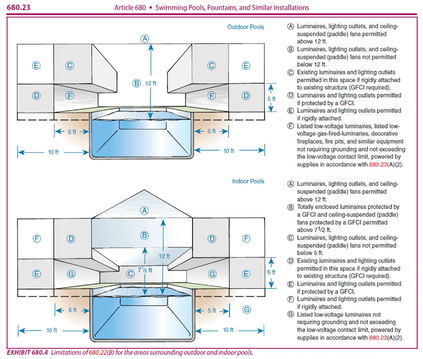
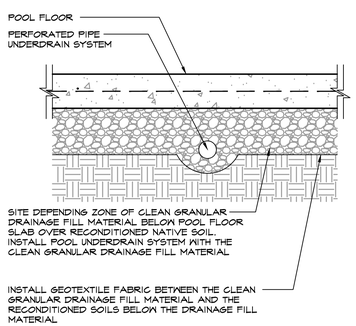


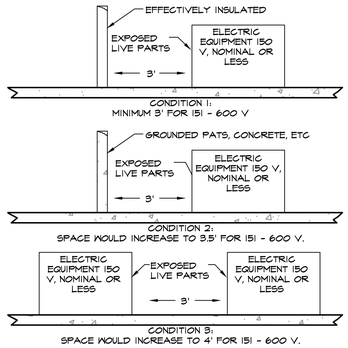
EXHIBIT 680.4 Limitations of 680.22(B) for the areas surrounding outdoor and indoor pools.

2 REQUIRED POOL CLEARANCES
SCALE: NTS *SECTION*

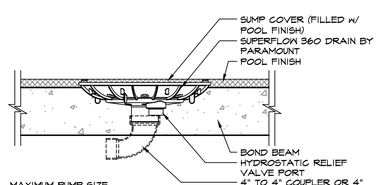


7 TYPICAL UNDERDRAIN DETAIL
SCALE: 1" = 1'-0" *SECTION*

3 PLACEMENT OF PANEL BOARD
SCALE: NTS *SECTION*

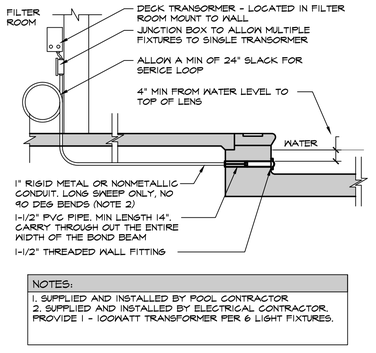


8 PARAMOUNT SUPERFLOW 360 DRAIN
SCALE: NTS *SECTION*



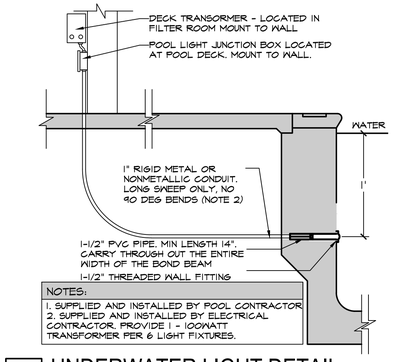
NOTE:
- FOR SINGLE OR MULTIPLE DRAIN USE. WHEN TWO OR MORE SUCTION FITTING ARE USED ON A COMMON SUCTION LINE, THEY MUST BE SEPARATED BY A MIN OF 3 FEET
- POOL FINISH SHOULD NEVER EXCEED TOP OF SUMP
- WHEN FILLING SUMP COVER, MAKE SURE IT IS COMPLETELY LEVEL AND DOES NOT BOW OR SINK
- DRAIN COVERS ARE NOT TO BE PLACED ON SEATING AREAS OR BACKRESTS. THIS PRODUCT CAN BE USED ON FLOOR ONLY

4 UNDERWATER LIGHT DETAIL
SCALE: NTS *SECTION*



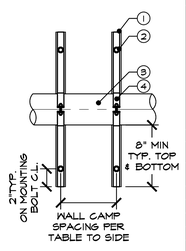
NOTES:
1. SUPPLIED AND INSTALLED BY POOL CONTRACTOR
2. SUPPLIED AND INSTALLED BY ELECTRICAL CONTRACTOR. PROVIDE 1 - 100WATT TRANSFORMER PER 6 LIGHT FIXTURES.

9 UNDERWATER LIGHT DETAIL
SCALE: NTS *SECTION*



NOTES:
1. SUPPLIED AND INSTALLED BY POOL CONTRACTOR
2. SUPPLIED AND INSTALLED BY ELECTRICAL CONTRACTOR. PROVIDE 1 - 100WATT TRANSFORMER PER 6 LIGHT FIXTURES.

5 PIPE WALL HANGER
SCALE: NTS

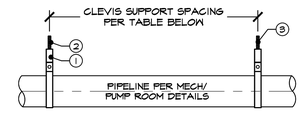


DETAIL KEYNOTES
1. 'STRUTTECH' SERIES 200 TYPE VF PROTRUDED CHANNEL - MOUNT TO WALL w/ (2) ½" DIA 304 SS BOLTS AS SHOWN
2. MOUNTING BOLTS SHALL BE IMBEDDED IN CONCRETE WALL 5" MIN
3. PIPELINE PER MECHANICAL/PUMP ROOM DETAILS
4. 'STRUTTECH' #304 S.S. CLAMP w/ BOLTS PER TABLE BELOW

CLAMP SIZES

PIPE SIZES	MAX. SPACING	CLAMP MODEL #
1½" AND SMALLER	3'-0"	FC-FFI150-SS
2"	5'-0"	FC-FFI200-SS
3"	8'-0"	FC-FFI300-SS
4"	12'-0"	FC-FFI400-SS
6"	12'-0"	FC-FFI600-SS
8"	10'-0"	FC-FFI800-SS
10"	5'-0"	FC-FFI1000-SS
12"	5'-0"	FC-FFI1200-SS

6 PIPE CEILING HANGER
SCALE: NTS

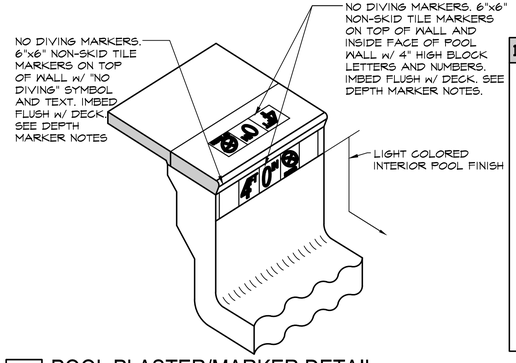


DETAIL KEYNOTES
1. POLYESTER OR VINYLESTER FIBERGLASS ADJUSTABLE RING CLEVIS HANGER PER 'STRUTTCH' TO SIZE SHOWN ON TABLE BELOW
2. ADJUST BOLT LENGTH TO MATCH DIMS SHOWN ON MECH/PUMP ROOM DETAILS
3. 304 STAINLESS STEEL SUPPORT BOLT PER 'STRUTTECH' TO SIZE SHOWN ON TABLE BELOW

HANGER SIZES

PIPE SIZES	MAX. SPACING	BOLT MODEL #	SIZE
1½" & SMALLER	3'-0"	AL-300	½" DIA
2"	5'-0"	AL-300	½" DIA
3"	8'-0"	AL-300	½" DIA
4" TO 6"	12'-0"	AL-625	⅝" DIA
8"	8'-0"	AL-625	⅝" DIA
12" TO 24"	5'-0"	AL-625	1" DIA

10 POOL PLASTER/MARKER DETAIL
SCALE: NTS *SECTION*



DEPTH / WARNING MARKER NOTES:

1. DEPTH MARKERS SHALL BE LOCATED A MAXIMUM OF 25'-0" OR LESS CENTER TO CENTER AROUND THE FULL PERIMETER OF THE SWIMMING POOL.

2. THE MAXIMUM DEPTH OF THE SWIMMING POOL SHALL BE MARKED ON BOTH SIDES OF THE SWIMMING POOL AT THE MAIN DRAIN.

3. THE DEPTH SHALL BE MARKED AT 6" DEPTH INTERVALS. SEE DEPTH MARKERS SCHEDULE ON POOL PLAN DRAWING FOR MORE INFORMATION.

4. "NO DIVING" SYMBOL TILES SHALL BE LOCATED ON THE DECK WITH EACH SET OF DEPTH MARKERS IN 0" TO 5'-0" OF WATER.

5. LETTER, NUMBER AND GRAPHIC MARKERS SHALL BE SLIP RESISTANT, OF A CONTRASTING COLOR FROM THE DECK AND AT LEAST 4" IN HEIGHT

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STATE OF MISSOURI
KURT L. KRAMSINGER
NUMBER LA-2003018227
LANDSCAPE ARCHITECT
10.13.2025

DOUGLAS STATION
NW SLOAN & NE SYCAMORE ST
LEE'S SUMMIT, MO 64086

REVISION:

10/13/2025

POOL DETAILS

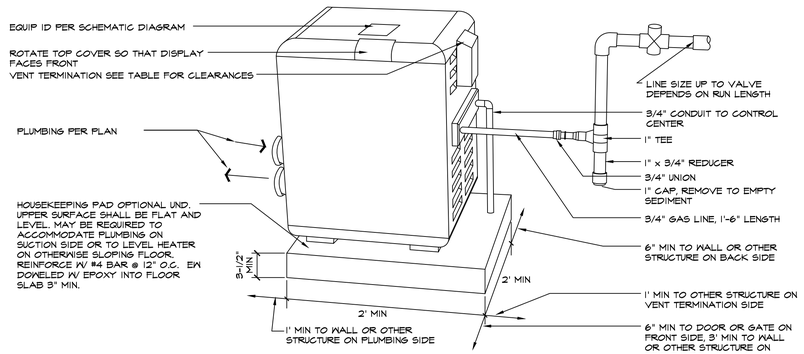
W104

DETAIL NOTES:

1. INSTALL ALL EQUIPMENT PER MANUFACTURER'S INSTRUCTIONS.
2. INSTALL BONDING PER NEC 680.26
3. INSTALL PER LOCAL CODES. THIS MAY REQUIRE THE ADDITION OF A PRESSURE RELIEF VALVE NOT TO EXCEED 50 PSI

VENT TERMINATION CLEARANCES	
DESCRIPTION	MIN CLEARANCE DIM
VERTICAL THROUGH ROOF	2' (600MM) ABOVE ALL STRUCTURES WITHIN 10' (3,000MM)
VERTICAL TO UNDERSIDE OF ROOF OR DECK OVERHANG	3' (900MM)
CLEARANCE FROM WALLS	6" (150MM)
CLEARANCE FROM ANY OPENING INTO A BUILDING	4' (1,200MM)
CLEARANCE FROM ELECTRIC METERS, PANELS, GAS METERS, REGULATORS, AND RELIEF EQUIPMENT	4' (1200MM)
CLEARANCE FROM PROPERTY LINE	1'-6" (450MM)
CLEARANCE FROM A/C OR HEAT PUMP	3' (900MM)
CLEARANCE ABOVE FINISHED GRADE AND NORMAL SNOW LEVEL	1' (300MM)

TYPE "B" DOUBLE-WALL VENT W/ TYPE "B" DOUBLE-WALL CONNECTOR IN FEET					
VENT SIZE	MODEL 175 HEIGHT MIN/MAX	MODEL 200 HEIGHT MIN/MAX	MODEL 250 HEIGHT MIN/MAX	MODEL 300 HEIGHT MIN/MAX	MODEL 350 HEIGHT MIN/MAX
6"	6' / 100'	6' / 100'	18' / 100'	30' / 100'	NOT REC.
7"	6' / 100'	6' / 100'	8' / 100'	10' / 100'	15' / 100'
8"	6' / 100'	6' / 100'	6' / 100'	6' / 100'	8' / 100'
9" & 10"	6' / 50'	6' / 50'	6' / 50'	6' / 100'	8' / 100'
TYPE "B" DOUBLE-WALL VENT W/ SINGLE WALL CONNECTOR IN FEET					
VENT SIZE	MODEL 175 HEIGHT MIN/MAX	MODEL 200 HEIGHT MIN/MAX	MODEL 250 HEIGHT MIN/MAX	MODEL 300 HEIGHT MIN/MAX	MODEL 350 HEIGHT MIN/MAX
6"	6' / 15'	6' / 15'	6' / 15'	NOT REC.	NOT REC.
7"	6' / 8'	6' / 8'	6' / 8'	10' / 20'	15' / 50'
8"	NOT REC.	NOT REC.	NOT REC.	6' / 20'	8' / 20'
9"	NOT REC.	NOT REC.	NOT REC.	NOT REC.	6' / 6'
10"	NOT REC.	NOT REC.	NOT REC.	NOT REC.	NOT REC.



3 TYPICAL HEATER INSTALLATION

SCALE: NTS

POLYETHYLENE (PE) GAS LINE BURIAL DEPTHS		
LOCATION	NORMAL SOIL	CONSOLIDATED ROCK
SERVICE LINES: PRIVATE PROPERTY	18"	18"
SERVICE LINES: UNDER STREETS, ROADS, AND DRIVEWAYS	24"	18"
TRANSMISSION LINES AND MAINS CLASS 1 LOCATION	30"	18"
TRANSMISSION LINES AND MAINS: CLASS 2, 3, AND 4 LOCATION	36"	24"
TRANSMISSION LINES AND MAINS: DRAINAGE DITCHES OF PUBLIC ROADS AND RAILROAD CROSSINGS	36"	24"
TRANSMISSION LINES AND MAINS: NAVIGABLE RIVERS, STREAMS OR HARBORS (MEASURED TOP OF PIPE TO NATURAL BOTTOM)	48"	24"

DETAIL NOTES:

7. A HYDROSTATIC PRESSURE TEST SHALL HOLD MIN 20 PSI WITH ZERO DROP IN 72 HOURS.

8. PE 2406/2708 MOPE YELLOW PIPE BY CHARTER PLASTICS.

9. PROPANE MAX OPERATING PRESSURE IS 30 PSI @ 73.4½F

DETAIL NOTES:

1. POLYETHYLENE PIPE SHALL CONFORM TO ASTM D2513-05D STANDARD SPECIFICATION FOR THERMOPLASTIC GAS PRESSURE PIPE, TUBING, AND FITTINGS.

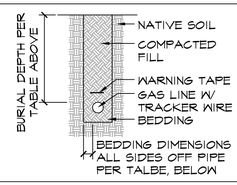
2. POLYETHLENE PIPE DIMENSIONS SHALL BE BASED ON IRON PIPE SIZE STANDARDS INSTEAD OF COPPER TUBE SIZE PER TABLE BELOW

3. POLYETHYLENE COLOR SHALL BE YELLOW.

4. GAS PLUMBING SHALL BE INSTALLED WITH AN ELECTRICALLY CONTINUOUS INSULATED NUMBER 18 AWG COPPER TRACER WIRE TERMINATING ABOVE GRADE AT ALL ENDS OF THE GAS LINES.

5. PVC AND COPPER SHALL NOT BE USED FOR GAS PLUMBING.

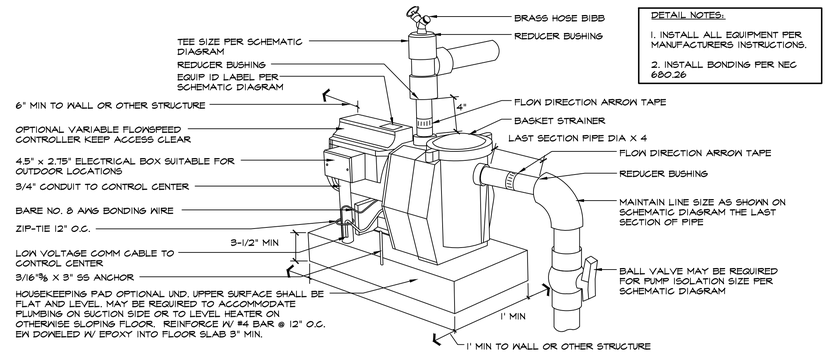
6. APPROVED PLASTIC-TO-METAL TRANSITION GITTINGS SHALL BE USED TO RISE ABOVE GRADE.



POLYETHYLENE (PE) PIPE SPECIFICATIONS						
NOMINAL SIZE	OUTSIDE DIA (IPS STD)	MIN WALL THICHNESS	DIA RATIO (DR)	MIN BEND RADIUS	NET GAS MAX PRESS	MIN BEDDING DIMENSIONS
1/2"	0.830"	0.091"	9.3	18"	81 PSI	2"
3/4"	1.060"	0.096"	11	21"	68 PSI	2"
1"	1.315"	0.120"	11	27"	68 PSI	2"
1-1/4"	1.360"	0.151"	11	34"	68 PSI	2"
1-1/2"	1.900"	0.173"	11	38"	68 PSI	2"
2"	2.375"	0.216"	11	48"	68 PSI	2"
3"	3.500"	0.304"	11.5	84"	64 PSI	3"
4"	4.500"	0.333"	13.5	108"	54 PSI	4"
5"	6.625"	0.491"	13.5	160"	54 PSI	6"

7 POLYETHELINE GAS PIPING

SCALE: NTS ILLUSTRATIVE VIEW



DETAIL NOTES:

1. INSTALL ALL EQUIPMENT PER MANUFACTURERS INSTRUCTIONS.
2. INSTALL BONDING PER NEC 680.26

1 TYPICAL PUMP INSTALLATION

SCALE: NTS

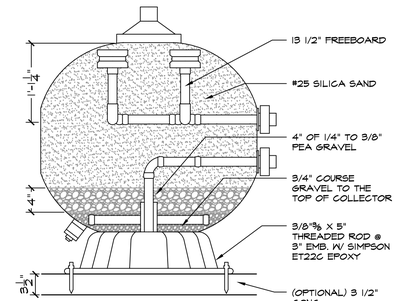
METAL FLUE COLALR	PART NO.
4 x 6"	711101-0016
4 x 8"	711101-0017

1. SEE TABLE 10, TO DETERMINE ALLOWABLE VENT SIZES FOR YOUR HEATER.
NOTICE: TABLE 10 IS FOR INSTALLATIONS IN WHICH THE TOTAL LATERAL VENT LENGTH (THAT IS HORIZONTAL DISTANCE FROM THE FLUE COLLAR TO THE COLLAR TO THE MAIN VERTICAL PORTION OF THE VENT) IS LESS THAN 1/2 THE TOTAL VENT HEIGHT (THE VERTICAL DISTNACE FROM THE FLUE COLLAR TO THE VENT TERMINATION) AND WHICH HAVE THREE OR LESS ELBOWS IN THE SYSTEM. FOR VENTING SYSTEMS WHICH DO NOT MEET THESE CONDITIONS, CONSULT THE NATIONAL FUEL GAS CODE, ANSI Z223.1 (U.S.).

READ "VERTICAL VENTING - NEGATIVE PRESSURE" BEFORE USING THIS TABLE.

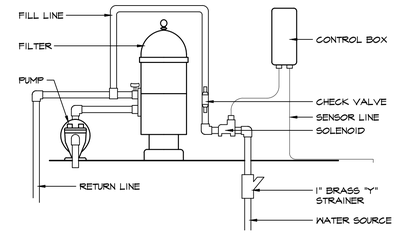
TABLE 10 - PERMITTED MINIMUM AND MAXIMUM VENT HEIGHTS BY SIZE AND HEATER MODEL

TYPE "B" DOUBLE-WALL VENT WITH TYPE"B" DOUBLE-WALL CONNECTOR IN FEET (METERS)					
VENT SIZE	MODEL 175 HEIGHT MIN./MAX.	MODEL 200 HEIGHT MIN./MAX.	MODEL 250 HEIGHT MIN./MAX.	MODEL 300 HEIGHT MIN./MAX.	MODEL 400 HEIGHT MIN./MAX.
6"	6' (1.8)/100' (30.5)	6' (1.8)/100' (30.5)	18' (5.5)/100' (30.5)	30' (9)/100' (30.5)	NOT REC
7"	6' (1.8)/100' (30.5)	6' (1.8)/100' (30.5)	8' (2.4)/100' (30.5)	10' (3)/100' (30.5)	15' (4.6)/100' (30.5)
8"	6' (1.8)/100' (30.5)	6' (1.8)/100' (30.5)	6' (1.8)/100' (30.5)	6' (1.8)/100' (30.5)	8' (2.4)/100' (30.5)
9" AND 10"	6' (1.8)/50' (15.3)	6' (1.8)/50' (15.3)	6' (1.8)/50' (15.3)	6' (1.8)/100' (30.5)	6' (1.8)/100' (30.5)
TYPE "B" DOUBLE-WALL VENT WITH SINGLE-WALL CONNECTOR IN FEET (METERS)					
VENT SIZE	MODEL 175 HEIGHT MIN./MAX.	MODEL 200 HEIGHT MIN./MAX.	MODEL 250 HEIGHT MIN./MAX.	MODEL 300 HEIGHT MIN./MAX.	MODEL 400 HEIGHT MIN./MAX.
6"	6' (1.8)/15' (4.6)	6' (1.8)/15' (4.6)	6' (1.5)/15' (4.6)	NOT REC	NOT REC
7"	6' (1.8)/8' (2.4)	6' (1.8)/8' (2.4)	6' (2.4)/8' (2.4)	10' (3)/20' (6)	15' (4.6)/50' (15.3)
8"	NOT REC	NOT REC	NOT REC	6' (1.8)/20' (6)	8' (2.4)/20' (6)
9"	NOT REC	NOT REC	NOT REC	NOT REC	6' (1.8)/6' (1.8)
10"	NOT REC	NOT REC	NOT REC	NOT REC	NOT REC



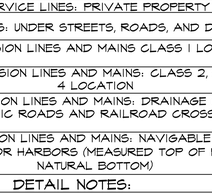
2 SAND FILTER INSTALLATION

SCALE: NTS



5 LEVOLOR INSTALLATION

SCALE: NTS



NOTE:
1. LOCATE VACUUM RELIEF ASSEMBLY PER PLAN. IF FIELD CONDITIONS PREVENT CRITICAL ELEVATIONS TO BE ACHIEVED AT THE DESIRED LOCATION, NOTIFY THE DESIGNER IMMEDIATELY. DO NOT INSTALL VALVE HORIZONTALLY.

2. THE TYPE SS SPRING MAY PREMATURELY FAIL IN SALTWATER APPLICATIONS. IT IS ADVISABLE TO KEEP A SPARE VACUUM RELIEF VALVE ON HAND.

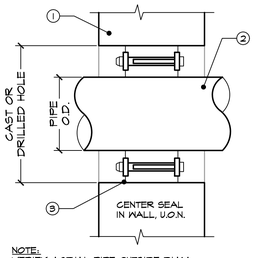
3. VACUUM RELIEF VALVE BY WATTS INDUSTRIES, INC. (WWW.WATTS.COM) OR APPROVED EQUAL.

8 VACUUM RELIEF ASSEMBLY

SCALE: NTS SECTION

4 PIPE/WALL SEAL (LINK SEAL)

SCALE: NTS



NOTE:
VERIFY ACTUAL PIPE OUTSIDE DIAM. DIM. PRIOR TO ORDERING SEAL

PIPE AND EQUIPMENT SUPPORT:
-FLOOR PENETRATIONS
-WALL PENETRATIONS
-PIPE SUPPORTS
-NOISE AND VIBRATION SUPPRESSION

DETAIL KEYNOTES
1. CAST-IN-PLACE CONCRETE OR MASONRY WALL AS DETAILED ELSEWHERE
2. PIPE AS SHOWN ON PLAN AND AS DETAILED ELSEWHERE
3. PIPE SEAL PER "LINK-SEAL" TO SIZE SHOWN ON TABLE - INSTALL PER MFR. REQUIREMENTS

PIPE SIZE (NORMAL)	OUTSIDE DIA (IPS O.D.)	CAST OR DRILLED CONC. HOLE INSIDE DIAM. (I.D.)	LINK SEAL PRODUCT #	NO. OF LINKS PER SEAL
1/2"	0.810	2.0	LS-200	4
3/4"	1.050	2.5	LS-215	5
1"	1.315	3.0	LS-300	4
1-1/4"	1.660	3.0	LS-315	7
1-1/2"	1.900"	3.5	LS-300	5
2"	2.375	4.0	LS-300	6
2-1/2"	2.875	4.0	LS-300	6
3"	3.500	5.0	LS-300	6
3-1/2"	4.000	6.0	LS-325	5
4"	4.500	6.0	LS-300	10
5"	5.563	8.0	LS-425	6
6"	6.625	10.0	LS-475	10
8"	8.625	12.0	LS-400	10
10"	10.75	14.0	LS-400	10
12"	12.75	16.0	LS-400	10
14"	14.00	16.0	LS-325	15
16"	16.00	18.0	LS-325	17
18"	18.00	23.0	LS-500	16
20"	20.00	25.0	LS-500	18
22"	22.00	27.0	LS-500	19
24"	24.00	29.0	LS-500	21
26"	26.00	31.0	LS-500	23
28"	28.00	33.0	LS-500	24
30"	30.00	35.0	LS-500	26
32"	32.00	37.0	LS-500	28
34"	34.00	39.0	LS-500	29
36"	36.00	41.0	LS-500	30

6 PIPE/WALL SEAL (LINK SEAL)

SCALE: NTS

MAX FLOW RATES (PER OUTLET) MOUNTING POSITIONS (xxx=COLOR SUFFIX)					
MODEL	32CDLTxxx (AND 32CDLTFRxxx, 32CDLTVxxx)	32CDAVxxx (AND 32CDAVFRxxx, 32CDAVVxxx, 32CDAVAGxxx)	32FDxxx (MIN. 2" PIPE)	32CDBTxxx, 32CDBTFRxxx	32CDPHxxx (AND 32CDPHFRxxx, 32CDPHVxxx, 32CDPHTSxxx) (MIN 2" PIPE)
FLOOR	316 GPM @ 3.9 FPS	196 GPM @ 1.3 FPS	286 GPM @ 3.4 FPS	120 GPM @ 1.2 FPS	120 GPM @ 1.2 FPS
WALL	208 GPM @ 2.6 FPS	192 GPM @ 1.2 FPS	136 GPM @ 1.9 FPS	N.A.	N.A.

ACCEPTABLE PIPE SIZE FOR MAXIMUM RECOMMENDED SYSTEM FLOW RATE PER APSP-7 (6FEET/SECOND IN THE BRANCH LINE)				
PIPE SIZE	1½"	2"	2½"	3"
FLOW RATE IN GPM	45	80	110	160

WATER VELOCITY AND FLOW RATES
THE MAX WATER VELOCITY THROUGH DRAIN COVERS IS LIMITED BY LOCAL REGULATIONS, FOR EXAMPLE SOME STATE HEALTH DEPARTMENTS LIMIT THE VELOCITY THROUGH PUBLIC DRAIN COVERS TO 1.5' PER SECOND. THIS VELOCITY IS LOWER THAN THE FLOW RATING PROVIDED BY THE ANSI/APSP-16 2011 CERTIFICATION, THEREFORE THE LOCAL LIMIT APPLIES NAD MUST BE FOLLOWED. NEVER EXCEED THE FLOW RATING LISTED ON THE COVER EVEN IF THE LOCAL CODE DOES NOT PROVIDE A VELOCITY LIMIT.

PIPING-GENERAL
FOR NEW INSTALLATIONS, THE PIPING BETWEEN DRAINS MUST BE SIZED TO LIMIT THE VELOCITY TO 6 FEET PER SECOND. THIS LIMIT APPLIES TO THE BRANCH PIPING AND ALL FITTINGS BETWEEN MULTIPLE OUTLETS AND THE TREE LEADING BACK TO THE PUMP. IF CODE REQUIRES A LOWER WATER VELOCITY, COMPLY WITH THE CODE. SEE THE CHART ABOVE FOR INFORMATION ON PIPE SIZE FLOW RATINGS AT 6 FEET PER SECOND.

9 GENERAL PIPING NOTES

SCALE: NTS ILLUSTRATIVE VIEW

LORAX DESIGN GROUP
8021 SANTA FE DRIVE
OVERLAND PARK, KS 66204
WWW.LORAXDESIGNGROUP.COM

STATE OF MISSOURI
KURT L. KRATSINGER
NUMBER LA-2003018227
LANDSCAPE ARCHITECT
10.13.2025

DOUGLAS STATION
NW SLOAN & NE SYCAMORE ST
LEE'S SUMMIT, MO 64086

REVISION:

10/13/2025

POOL DETAILS

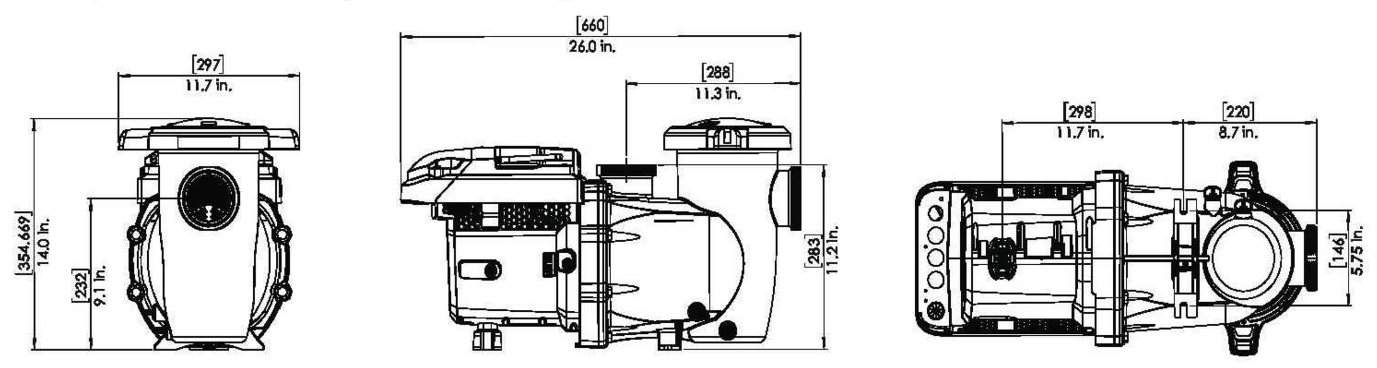
W105

Technical Specifications (3 HP Models)

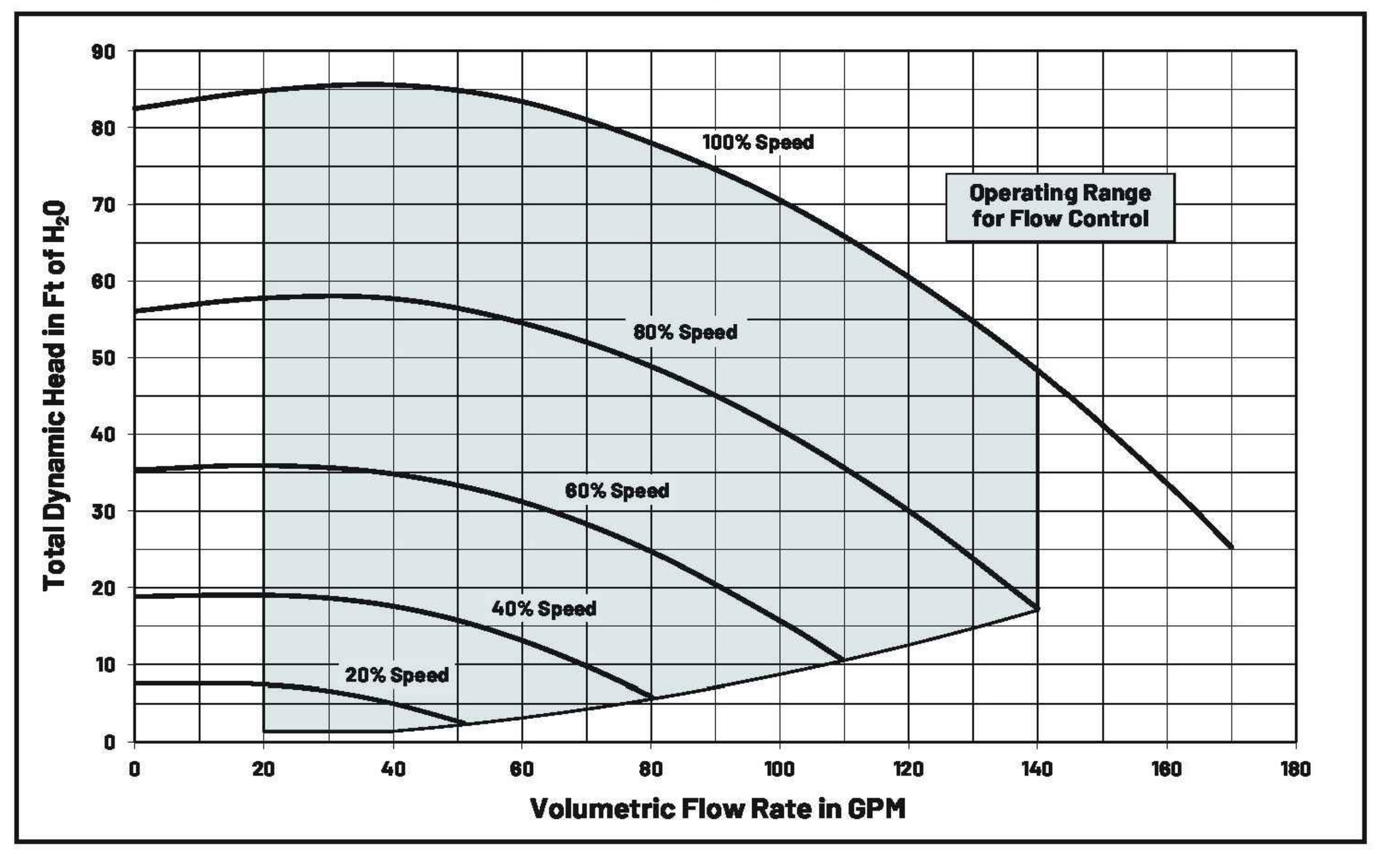
Input Voltage Nominal	208-230 VAC
Input Current	12.4/11.2 Amps
Input Frequency	1PH, L1-L2 or L-N, 50 or 60 Hz
Max Input Watts	2590 W
Max Shaft Horsepower	3.0 HP
Speed Range	450 - 3450 RPM

Environmental Enclosure Rating	NEMA Type 3 / IPX5
Ambient Condition Range	
Storage	-40°C to +60°C (-40°F to 140°F)
Operating	0-50°C (32-122°F)
Humidity	Relative 0-95% Non-Condensing

Pump Dimensions (3 HP Models)



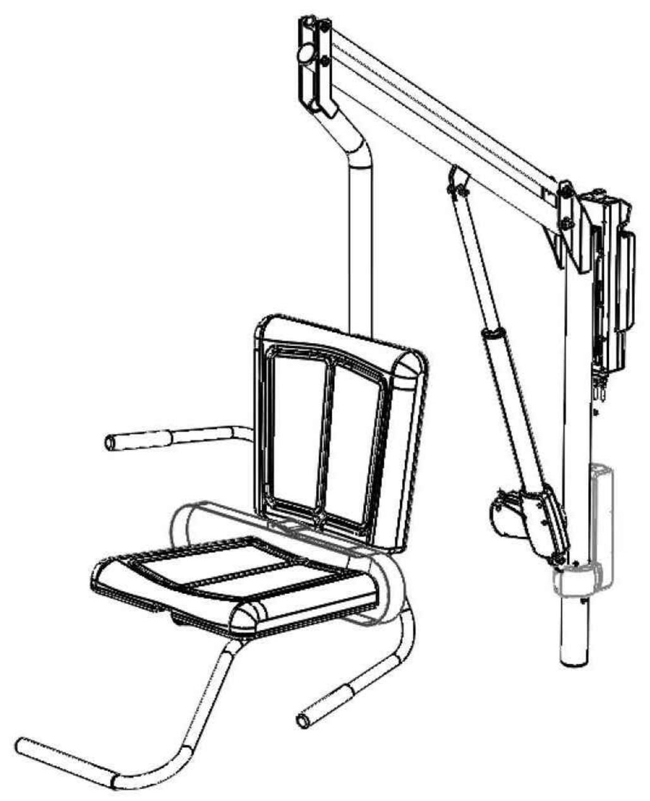
Pump Performance Curves (3 HP Models)



1 PENTAIR INTELLIFLO 3 3HP PUMP
SCALE: NTS

Motion Trek 350

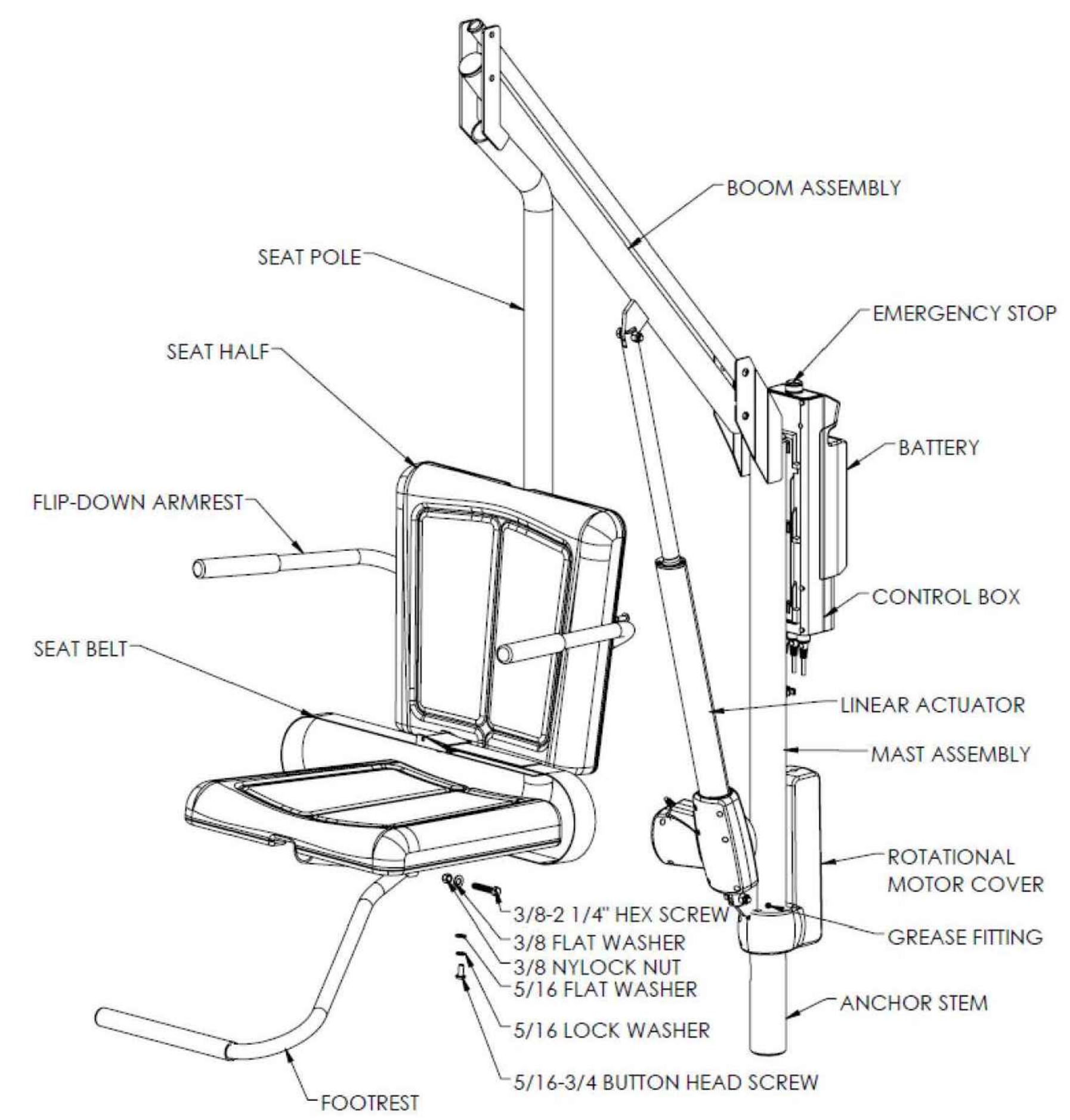
153121



SPECTRUM Aquatics
A PLAYCORE Company

7100 Spectrum Lane ~ Missoula MT 59808
800.791.8056 ~ www.spectrumproducts.com

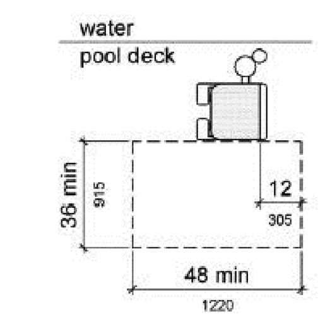
Components and Hardware:



SOME HARDWARE OMITTED FOR CLARITY
HANDSET, ANCHOR, AND CHARGING ACCESSORIES NOT SHOW

Installation Overview
Read all instructions before attempting to assemble or install the lift.

Clear Deck Space:
To be compliant with ADA guidelines, the lift must be installed in a location that is clear from obstacles and other hazards. Clear deck space is defined by the figure to the right. This rectangle is 48" long (along the pool wall) and 36" wide.



Pool/Spa Depth:
To comply with ADA guidelines the lift must be installed where the water depth does not exceed 48". If the entire pool is deeper than 48" this requirement does not apply.

Anchor Location/Installation:
The lift anchor centerline must be no less than 6", but no greater than 22" from the pool/spa wall (or any feature that sticks out past the pool/spa wall, such as a coping). The lift is installed in a single 2.375" I.D. anchor.

New Construction Anchor Installation

a. Place the anchor in the desired location following above guidelines.

b. Locate a bonding source to bond (ground) the anchor. The steel rebar-bonding grid of the pool deck is the best choice for bonding the anchor. Attach a No. 8 solid copper wire (NEC Section 680-22) from the bonding bolt on the base of the anchor to the bonding grid.

c. Secure anchor in place at the proper height – anchor may be cemented in place. Set the anchor so that the finished top is 1/8" to 1/4" below finished deck level – allowing for anchor cap to be put in place when the lift is not in use.

d. Use the carpenter's level to level the anchor making sure the lift mast will be vertically straight up and down (perpendicular to the deck) in all directions. It is important that the mast be vertically straight to ensure ease of rotation when the lift is fully loaded.

e. Place tape over the anchor hole before pouring concrete deck – not allowing concrete to enter anchor opening.

f. Pour concrete deck and finish.

Allow the concrete to cure for at least 7-days before installing and using the lift.

2 ADA CHAIR LIFT BY SPECTRUM AQUATICS
SCALE: N.T.S. MANUF. CUT SHEET

SPECIFICATIONS (CONTINUED)

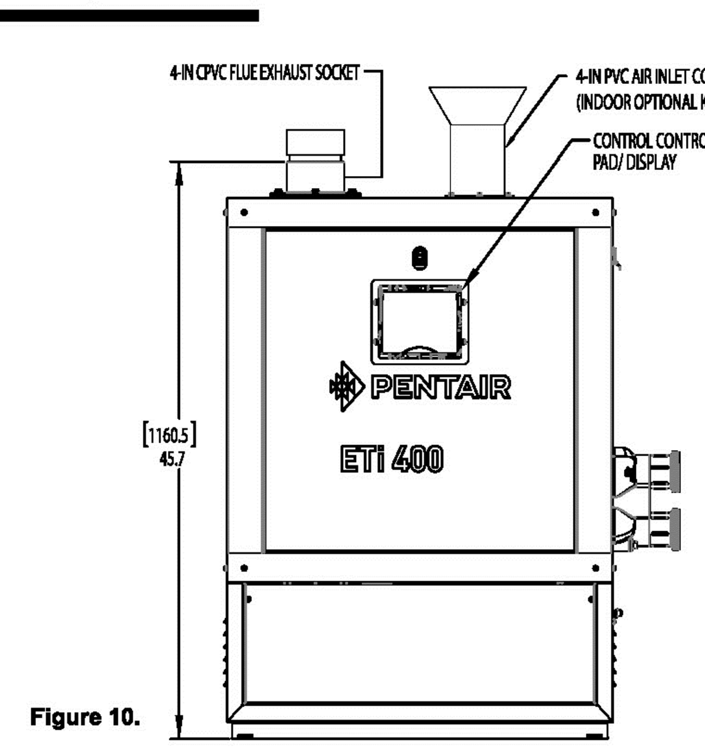


Figure 10.

Heater Front View

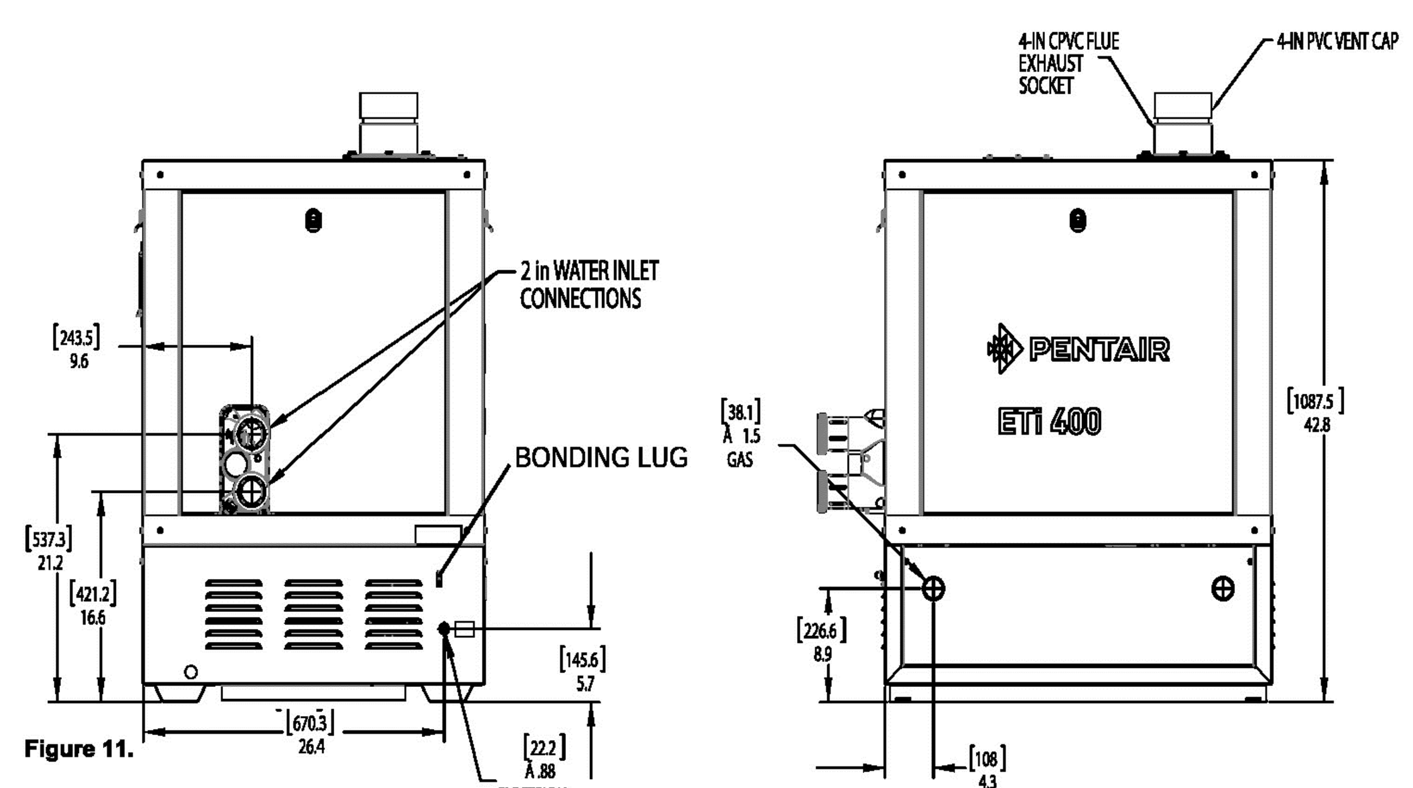


Figure 11.

Heater Plumbing Side

Heater Rear View

3 PENTAIR ETI 400 HEATER
SCALE: NTS

PLUMBING CONNECTIONS

The heater has the unique capability of direct schedule 40 PVC plumbing connections. A set of bulkhead fittings is included with the heater to ensure conformity with Pentair's recommended PVC plumbing procedure. Other plumbing connections can be used. See Figure 12 for plumbing connections.

⚠CAUTION

Before operating the heater on a new installation, turn on the circulation pump and bleed all the air from the filter using the air relief valve on top of the filter. Water should flow freely through the heater. Do not operate the heater unless water in the pool/spa is at the proper level. If a manual by-pass is installed, temporarily close it to ensure that all air is purged from the heater.

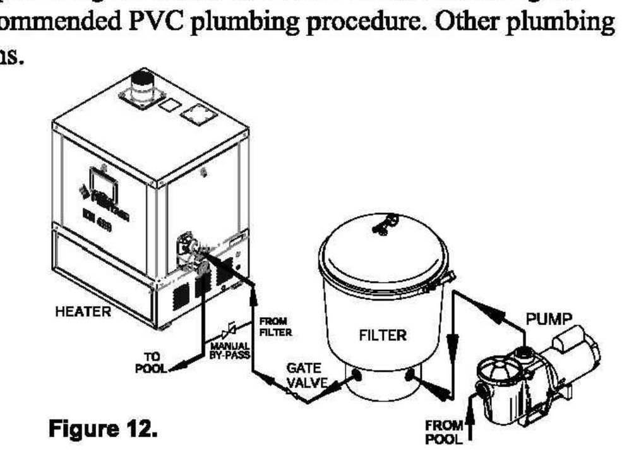


Figure 12.

WATER CONNECTIONS

The heater requires proper water flow and pressure for its operation. See Figure 13 for the recommended installation. The filter pump discharges to the filter, the filter discharges to the heater, and the heater discharges directly to the pool or spa.

A manual bypass valve should be installed before the heater when the pump flow exceeds 120 GPM (454 LPM). **See WATER FLOW RATE Table 1 on page 21** for setting of the manual by-pass valve.

Make sure that the outlet plumbing from the heater contains no shut-off valves or other flow restrictions that could prevent flow through the heater (except for pool installations as noted below, or winterizing valves where needed). To switch flow between the pool and spa, use a diverter valve. Do not use any valve that can shut off the flow.

Install the chemical feeder downstream of the heater. Install a chemical resistant one-way check valve between the heater and the chemical feeder to prevent back-siphoning through the heater when the pump is off.

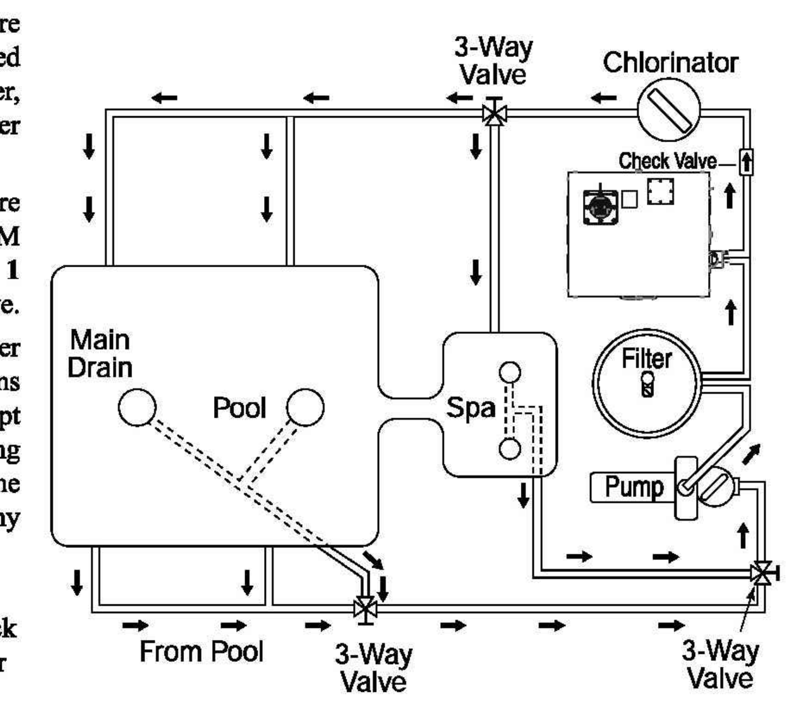


Figure 13.

Note: For Multiple Heater installation, see page 20.

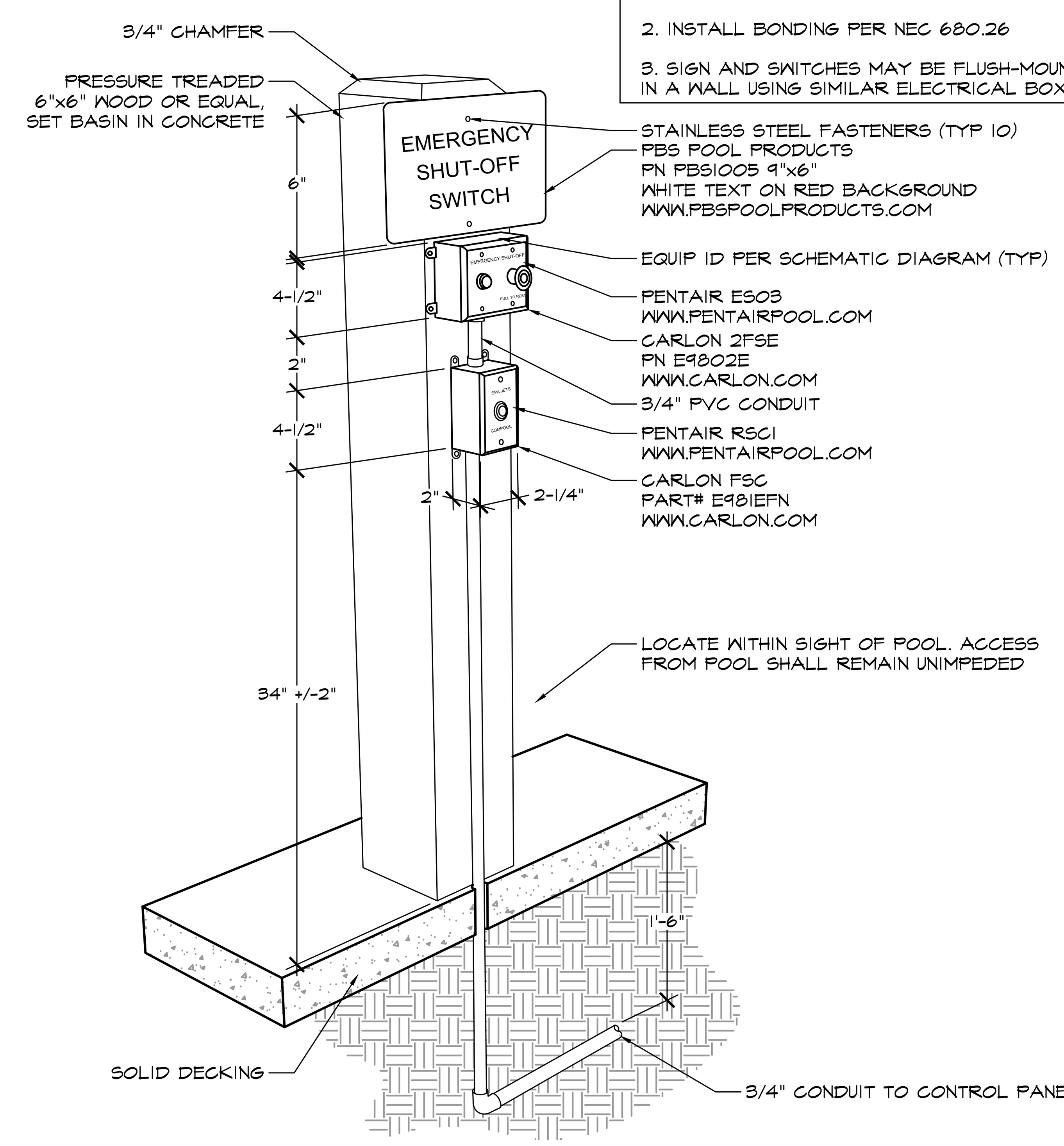
NOTICE: If the heater is plumbed in backwards, it will cycle continuously. Make sure piping from filter is not reversed when installing heater.

Connect the heater directly to 2 in PVC pipe, using the provided unions. Heat sinks are not required. The low thermal mass of the heater will prevent overheating of the piping connected to the pump even if the heater shuts down unexpectedly.

Occasionally a two-speed pump will not develop enough pressure on the low speed to operate the heater. In this case, run the pump at high speed only to operate the heater. If this does not solve the problem, do not try to run the heater. Instead, correct the installation.

Do not operate the heater while an automatic pool cleaner is also operating. If the circulation pump suction is plugged (for example by leaves), there may not be adequate flow to the heater. Do not rely on the pressure switch in this case.

DETAIL NOTES
1. INSTALL ALL EQUIPMENT PER MANUFACTURER'S INSTRUCTIONS.
2. INSTALL BONDING PER NEC 680.26
3. SIGN AND SWITCHES MAY BE FLUSH-MOUNT IN A WALL USING SIMILAR ELECTRICAL BOXES



4 EMERGENCY SHUT-OFF
SCALE: NTS SECTION

LORAX DESIGN GROUP
8021 SANTA FE DRIVE
OVERLAND PARK, KS 66204
WWW.LORAXDESIGNGROUP.COM

STATE OF MISSOURI
KURT L. KRASINGER
NUMBER
LA-2003016227
LANDSCAPE ARCHITECT

[illegible]
10.13.2025

DOUGLAS STATION
NW SLOAN & NE SYCAMORE ST
LEE'S SUMMIT, MO 64086

REVISION:

10/13/2025

POOL DETAILS

W106

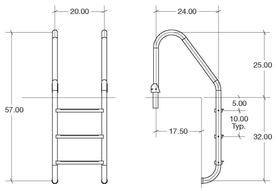
Snap-Lok Ladder

- Tubing: 1.90" OD
- Wall Thickness: .049"
- Stainless Steel: 304 or 316L Marine Grade* (add –MG to part number)
- Treads: LTDF-101 Plastic (Econoline) or LTDF-103 Stainless Steel (Elite)
- Bends: 6" Radius
- Recommended anchors: AS-100B (order separately)
- Recommended escutcheon: EP-100F (order separately)
- Stainless steel hinge brackets (60-713) are bolted to ladder frames with stainless steel bolts and acorn nuts.

* Minimum requirement for salt pools is 316L Marine Grade

					Shipping		
Econoline	Shipping Weight	Elite	Shipping Weight	Description	Length	Width	Height
SLF-24E-3B	24 lbs	SLF-24S-3B	25 lbs	3-step ladder	61"	29"	2"

Note:
- Frames extend 6½" from the pool wall. Frame is secured to the pool deck with two anchor sockets on 20" centers (Elite model) or 19" centers (Econoline model). The lower end of the frame is bent to meet the pool wall and fitted with two white rubber bumpers (WRB-100A).



1 S.R. SMITH SNAP-LOK LADDER

SCALE: NTS

Concrete Cover Housing

Concrete cover housing may be shaped and formed free hand or shot around a form. Walls must be straight and plumb, make housing square to pool. Steel cover housing walls same as pool. Do not allow rebound to be used for housing walls.

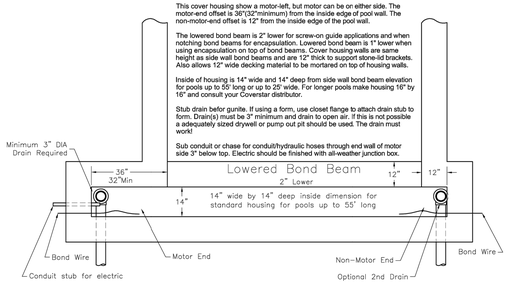
This cover housing show a motor-left, but motor can be on either side. The motor-end offset is 36"(32"minimum) from the inside edge of pool wall. The non-motor-end offset is 12" from the inside edge of the pool wall.

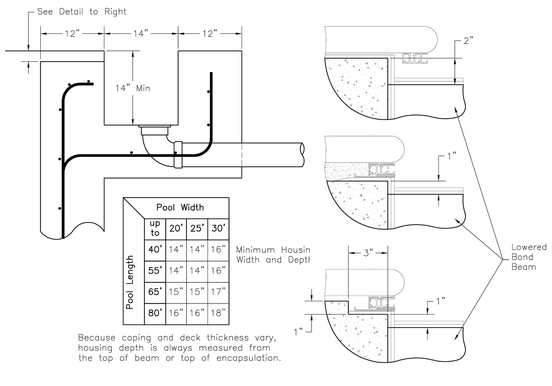
The lowered bond beam is 2" lower for screw-on guide applications and when notching bond beams for encapsulation. Lowered bond beam is 1" lower when using encapsulation on top of bond beams. Cover housing walls are same height as side wall bond beams and are 12" thick to support stone-lid brackets. Also allows 12" wide decking material to be mortared on top of housing walls.

Inside of housing is 14" wide and 14" deep from side wall bond beam elevation for pools up to 55' long or up to 25' wide. For longer pools make housing 16" by 16" and consult your Coverstar distributor.

Stub drain befor gunite. If using a form, use closet flange to attach drain stub to form. Drain(s) must be 3" minimum and drain to open air. If this is not possible a adequately sized drywell or pump out pit should be used. The drain must work!

Sub conduit or chase for conduit/hydraulic hoses through end wall of motor side 3" below top. Electric should be finished with all-weather junction box.



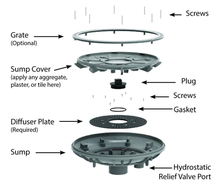


4 COVERSTAR POOL COVER

SCALE: NTS

SUPERFLOW/OPENFLOW 360 PEBBLE TOP DRAIN DESIGN

INDIVIDUAL PARTS INCLUDED:



NOTICE

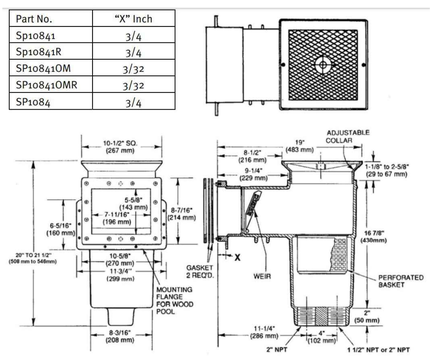
Maximum Pump Size
SuperFlow 360 (WITH grate attached) is rated for a maximum flow of 384 GPM.
OpenFlow 360 (WITHOUT the grate attached) is rated for a maximum flow rate of 324 GPM.

While system flow rates will vary with pump size and the Total Head Loss for a given system, virtually any modern pump is capable of exceeding this limit, therefore it is the responsibility of the system designer to make sure it is not possible to exceed the maximum flow rates listed above.

2 SUPERFLO 360 DRAIN

SCALE: NTS

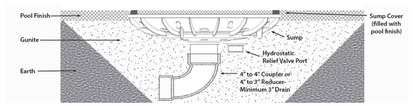
Part No.	"X" Inch
Sp10841	3/4
Sp10841R	3/4
SP10841OM	3/32
SP10841OMR	3/32
SP1084	3/4



5 HAYWARD 1082 SKIMMER

SCALE: NTS

INSTALLATION INSTRUCTIONS



1. Install sump in pool/spa floor. See detailed instruction on pages 6 & 7.
2. Fill Sump Cover with the same pool/spa finish so that it's completely level with cover. It is important that finish is completely level and does NOT bow up or sink in.
3. Remove vinyl construction cover label in the center of sump and the eight vinyl dots covering the eight screw holes.
4. For SuperFlow 360 WITH GRATE: attach Grate & Sump Cover to Sump with the (8) 2-inch screws supplied.
   For OpenFlow 360 WITHOUT GRATE: attach Sump Cover to Sump with the (8) 1.5-inch screws supplied.

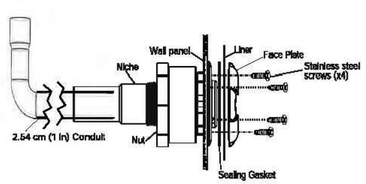
NOTICE

- For Single or Multiple drain use. When two or more suction fittings are used on a common suction line, they must be separated by a minimum of three feet.
- Pool finish should never exceed top of sump.
- When filling sump cover, make sure it is completely level and does not bow or sink.
- Drain covers are not to be placed on seating areas or backrests. This product can be used on floor only.
- Replace covers and screws within five installed years.
- Please use appropriate tools for installation (Phillips screwdriver).
- Please consult your standard head-loss curve to assist with installation. The head loss is dependent upon pipe length, pipe size, pump, distance from equipment, etc. that we cannot determine.

Installing GloBrite® Color Light Niche in a Vinyl Pool

To install the GloBrite color light niche in a vinyl liner pool:

1. Drill a 7.62 cm (3 in) hole in the desired location for the light vinyl niche.
2. From the inside of the pool, insert the vinyl niche through the 7.62 cm (3 in) hole.
3. Install the plastic nut onto the back of the niche. Hand tighten the nut to secure the niche in place.
4. Place the sealing gasket onto the front of the niche as shown below.
5. Install the vinyl liner.
6. Install the conduit. See Figure 2 on page 8.
7. Using the alignment tabs on the niche, carefully align the faceplate to the niche. Once the faceplate is properly aligned, pierce liner through faceplate and install the screws one at a time.
8. Using a No. 2 Phillips head screwdriver, hand tighten each retaining screw to secure the cover. DO NOT OVER TIGHTEN THE SCREWS. DO NOT USE A POWER TOOL TO SECURE THE SCREWS. Over tightening or using a motorized screwdriver on the sealing ring screws can over torque the screw threads and damage the niche housing and/or vinyl liner seal.



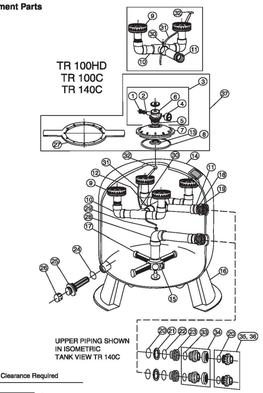
6 GLOBRITE LIGHT

SCALE: NTS

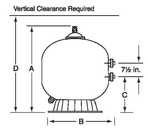
16

TRITON® 100HD, 100C & 140C FIBERGLASS SAND FILTER
Replacement Parts

TR100HD
TR100C
TR140C



Vertical Clearance Required

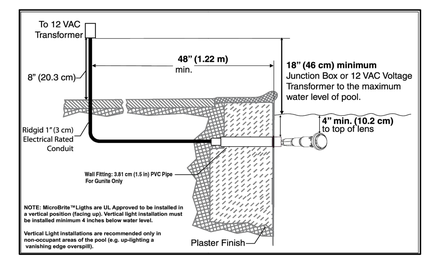


MODEL	A DIM.	B DIM.	C DIM.	D DIM.
TR100HD	39¾ in.	30½ in.	16¼ in.	41¼ in.
TR100C	39¾ in.	30½ in.	16½ in.	43¾ in.
TR140C	45¼ in.	36½ in.	18¾ in.	49¼ in.

TRITON® Fiberglass Sand Filter Installation and User's Guide

3 PENTAIR SAND FILTERS

SCALE: NTS



7 MICROBRITE LIGHT

SCALE: NTS *CUT SHEET*

LORAX DESIGN GROUP
8021 SANTA FE DRIVE
OVERLAND PARK, KS 66204
WWW.LORAXDESIGNGROUP.COM

STATE OF MISSOURI
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NW SLOAN & NE SYCAMORE ST
LEE'S SUMMIT, MO 64086

REVISION:

10/13/2025

POOL DETAILS

W107