

EQUIPOTENTIAL BONDING GRID:

ALL METAL PARTS SPECIFIED IN 680.26(B) MUST BE BONDED TO AN EQUIPOTENTIAL BONDING GRID WITH A SOLID COPPER CONDUCTOR NOT SMALL THAN 8 AWG. THE TERMINATION OF THE BONDING CONDUCTOR MUST BE MADE BY EXOTHERMIC WELDING, LISTED PRESSURE CONNECTORS, OR LISTED CLAMPS THAT ARE LABELED AS SUITABLE FOR THE PURPOSE. THE QUIPOTENTIAL BONDING GRID MUST EXTEND UNDER PAVED WALKING SURFACES FOR 3 FEET HORIZONTALLY FROM THE WATER (680.26(C)).

THE EQUIPOTENTIAL BONDING GRID MUST BE FORMED FROM EITHER OR BOTH OF:

THE STRUCTURAL REINFORCING STEEL OF A CONCRETE PERMANENTLY INSTALLED POOL, OUTDOOR SPA, OR OUTDOOR HOT TUB, TIED TOGETHER BY THE USUAL STEEL TIE WIRES.

THE METAL WALLS OF A PERMANENTLY INSTALLED POOL, OUTDOOR SPA, OR OUTDOOR HOT TUB

THE EQUIPOTENTIAL BONDING GRID CAN BE CONSTRUCTED WITH 8 AWG BARE SOLID COPPER CONDUCTORS BONDED TO EA OTHER AT ALL POINTS OF CROSSING BY EXOTHERMIC WELDING, LISTED PRESSURE CONNECTORS OF THE SET SCREW OR COMPRESSION TYPE, LISTED CLAMPS, OR OTHER LISTED FITTINGS (250.8).

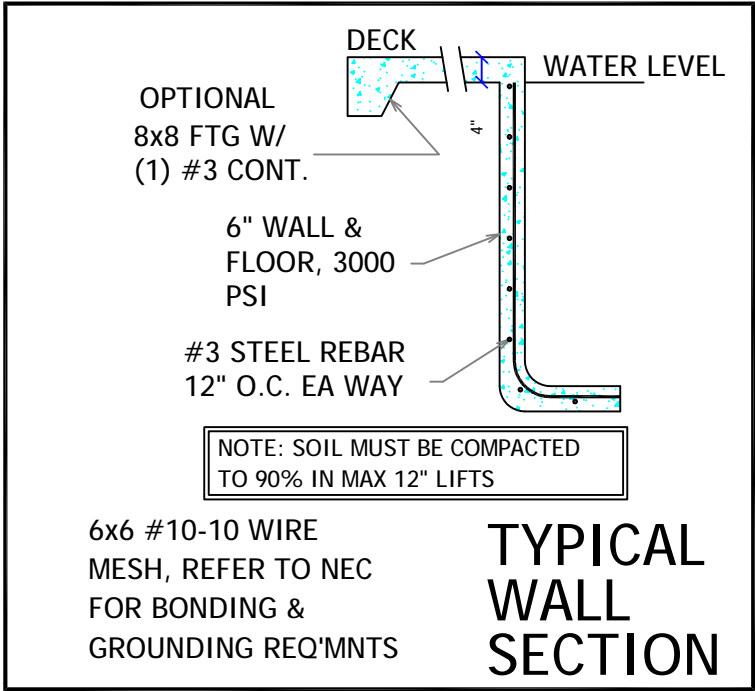
THE EQUIPOTENTIAL BONDING GRID MUST COVER THE CONTOUR OF THE PERMANENTLY INSTALLED POOL, OUTDOOR SPA OR HOT TUB AND DECK EXTENDING 3 FEET HORIZONTALLY FROM THE WATER. THE EQUIPOTENTIAL BONDING GRID MUST BE ARRANGED IN A 1-FOOT BY 1-FOOT NETWORK OF 8 AWG CONDUCTORS, WITH A TOLERANCE OF 4 INCHES.

EXCEPTION: THE EQUIPOTENTIAL BONDING GRID SHALL NOT BE REQ'D TO BE INSTALLED UNDER THE BOTTOM OR VERTICALLY ALONG THE WALLS OF VINYL LINED POLYMER WALL, FIBERGLASS COMPOSITE, OR OTHER POOLS CONSTRUCTED OF NON-CONDUCTIVE MATERIALS.

ANY METAL PARTS OF THE POOL, INCLUDING METAL STRUCTURAL SUPPORTS, SHALL BE BONDED IN ACCORDANCE WITH 680.26(B). POURED CONCRETE, PNEUMATICALLY-APPLIED CONCRETE, AND CONCRETE BLOCK SHALL BE CONSIDERED CONDUCTIVE MATERIAL

- GENERAL NOTES:
- 1) Per UL listing, pool motors require GFCI protection
 - 2) FSPA requires the motor controller to be capable of 2 speeds, a time clock will not satisfy this unless it has 2 trip settings.
 - 3) If heater installed (other than solar), it must comply with FBC-EC403.9.1 & have a cover per 403.9.3 (this applies to mechanical (not solar) heaters---cover required)
 - 4) Outdoor swimming pools shall be provided with a barrier complying with Sections R4501.17.1.1 through R4501.17.1.14.
 - 5) NEC 680.26(C) requires a conductive metal part of 9 sq., in. in direct contact with the pool water.
 - 6) R4501.17.1.9 All doors and windows providing direct access from the home to the pool shall be equipped with an exit alarm complying with UL 2017 that has a minimum sound pressure rating of 85 dB at 10 feet.

STEPS: MIN. TREAD 10" x 12", 7" MIN RISER, 12" MAX RISER. INTERMEDIATE TREADS AND RISERS TO BE UNIFORM.



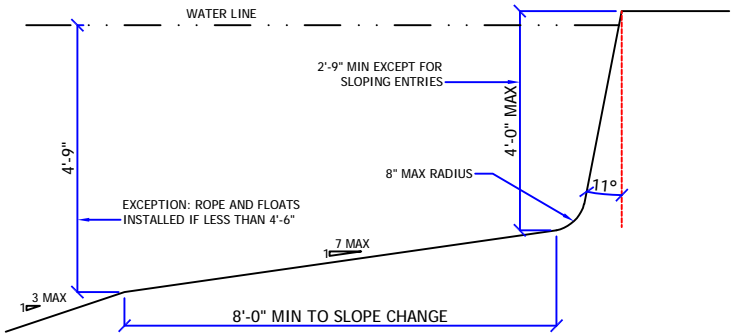
NOTE: IF ANY PART OF THE POOL ENCROACHES UPON THE ANGLE OF REPOSE, PLACE STEEL @ 6" o.c. EA WAY IN AREAS OF QUESTION

- ENGINEERING NOTES:
1. ALL WORK IS TO COMPLY WITH ALL APPLICABLE CODES & ORDINANCES.
 2. CONSTRUCTED OF 3000 PSI CONCRETE OR EQUAL WITH #3 REBAR 12" O.C. EACH WAY, TIED AT EVERY OTHER INTERSECTION. MIN COVER FOR REBAR IS 2.5"
 - 3.N/A

4. ASSUMED SOIL BEARING = 2 KSF
5. CIRCULATION SYSTEMS, COMPONENTS, & EQUIPMENT SHALL COMPLY W/ NSF 50.
6. INSTALL CONTROL JOINTS @ 20'-0" ON CENTER IN POOL DECKING.
7. PLANS TO CONFORM TO NEC 2020
8. 2023 FBC RESIDENTIAL 8th EDITION APSP13
9. CONCRETE STAIRS ARE 12" TREAD WIDTH AND 10" MAXIMUM HEIGHT
10. ALL CONSTRUCTION SHALL COMPLY WITH ANSI 5-03, 2020 NEC ARTICLE 680, & ANSI-NSPI 3-99 IN-GROUND SPA CONSTR.

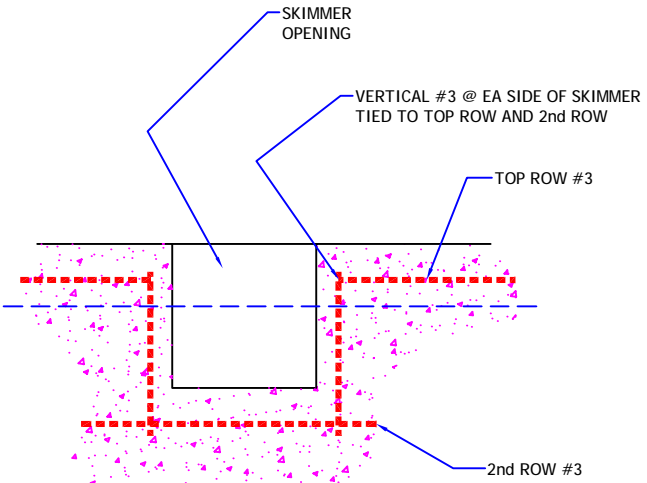
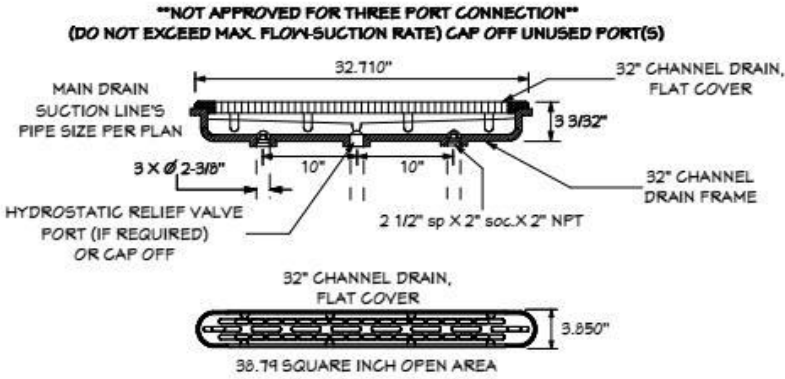
*11. ENGINEERS DESIGN IS FOR STRUCTURAL ONLY. DESIGN OF PIPING/EQUIPMENT ETC.

- BY POOL CONTRACTOR
- FENCE REQUIREMENTS:
1. MINIMUM 48" HEIGHT
 2. 2" MAX VERTICAL CLEARANCE BETWEEN GRADE & BARRIER BOTTOM.
 3. MAX OPENING SHALL NOT ALLOW PASSAGE OF 4" SPHERE.
 4. FENCE POSTS WILL BE LOCATED ON POOL-SIDE OF FENCE.
 5. GATE WILL BE SELF-LOCKING WITH APPROVED LOCKING DEVICE.



FLOOR SLOPE DETAIL NTS

MODEL
** CUSTOM MOLDED PRODUCTS : CMP# 25506-32X-000 32" CHANNEL DRAIN COVER
W/ CMP# 25506-320-010 SUMP -3 PORTS**
ONE PORT CENTER: 200 GPM- ON FLOOR & 168 GPM-ON WALL W/ 2 1/2" PLUMBING
OUTER 2 PORTS: 308 GPM- ON FLOOR & 212 GPM-ON WALL W/ 2 1/2" PLUMBING
OPEN AREA OF SUCTION COVER: 38.19 SQ. IN.



SKIMMER OPENING DETAIL

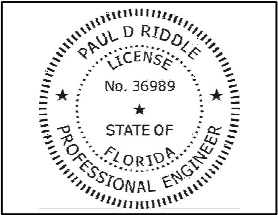
Riddle Consulting Engineers, Inc.

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ENGINEER'S SEAL

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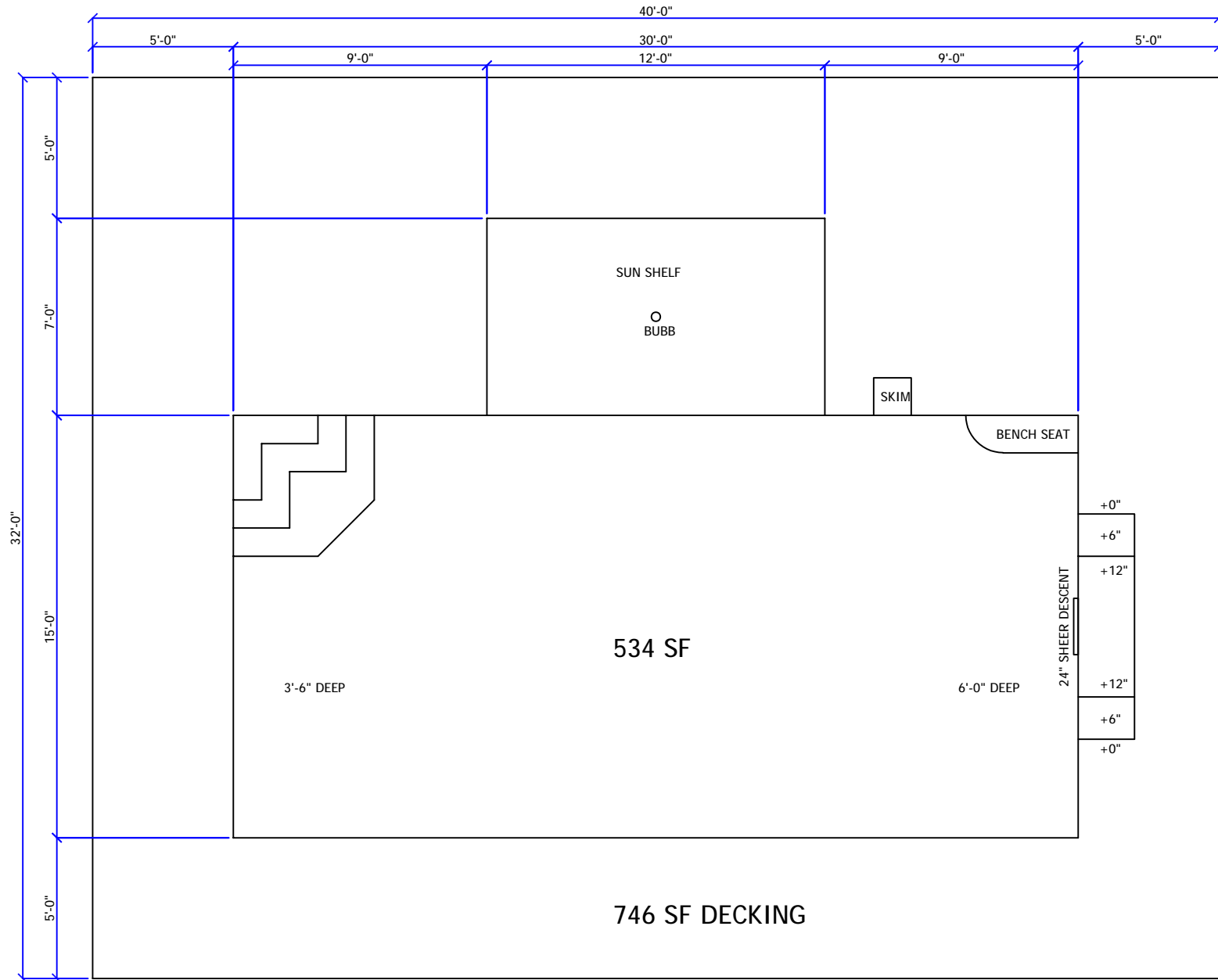
DATE Dec. 16, 24

PROJECT DATA

A CUSTOM POOL
DESIGN FOR
WALKER



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3/16" = 1'-0" SCALE



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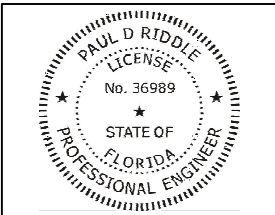


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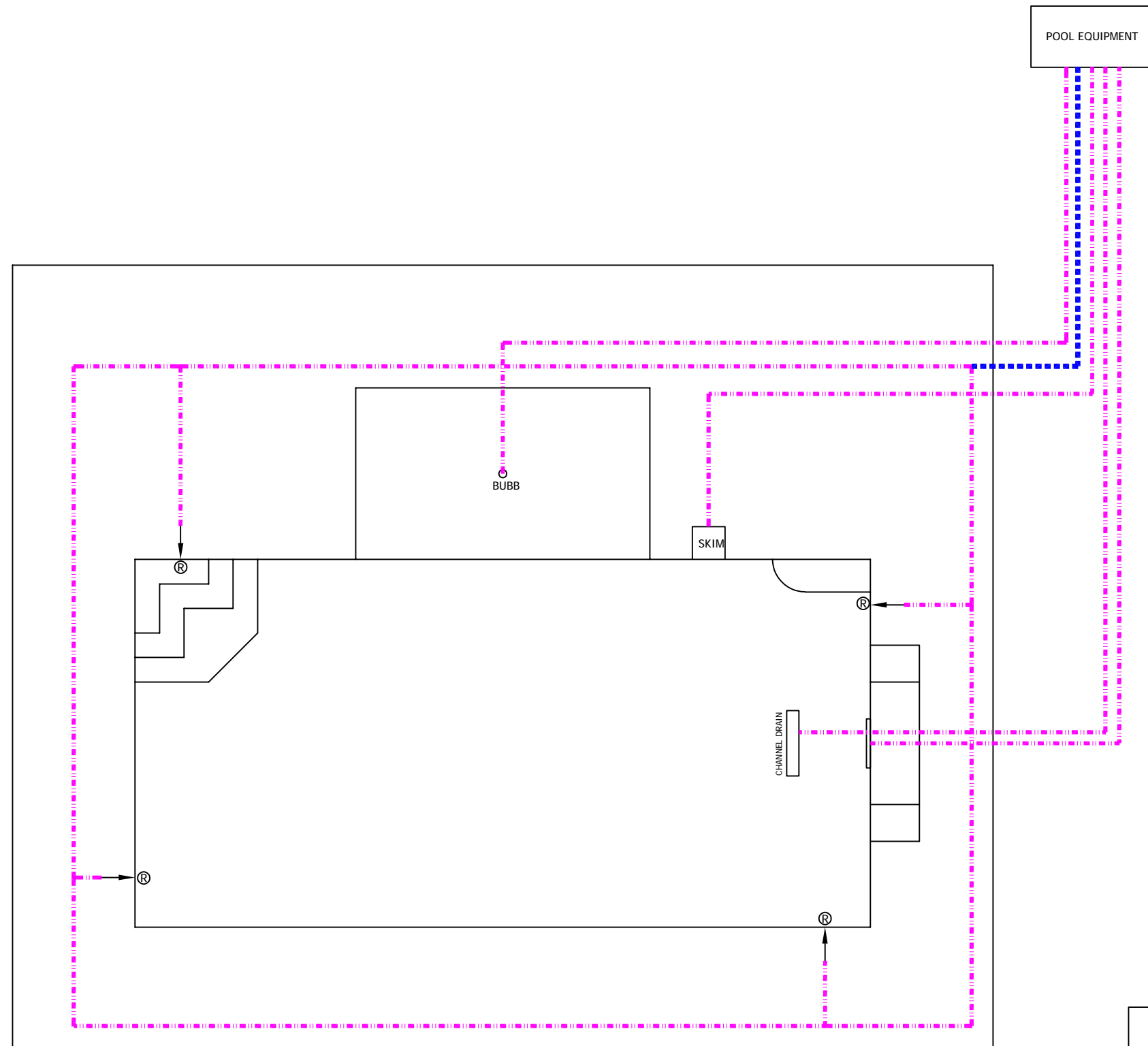
WALKER



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PIPING KEY

2" Ø LINE

2.5" Ø LINE

3" Ø LINE

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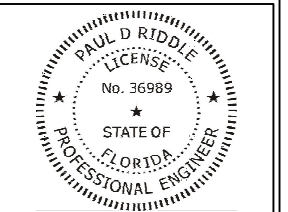


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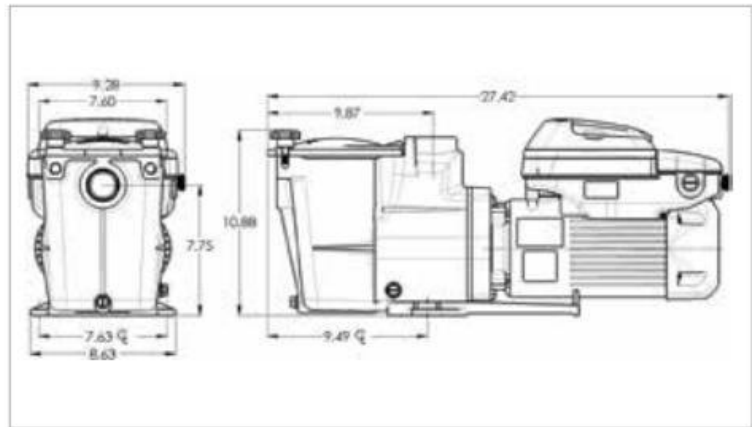
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SUPER PUMP VS 700 DIMENSIONS (INCHES)

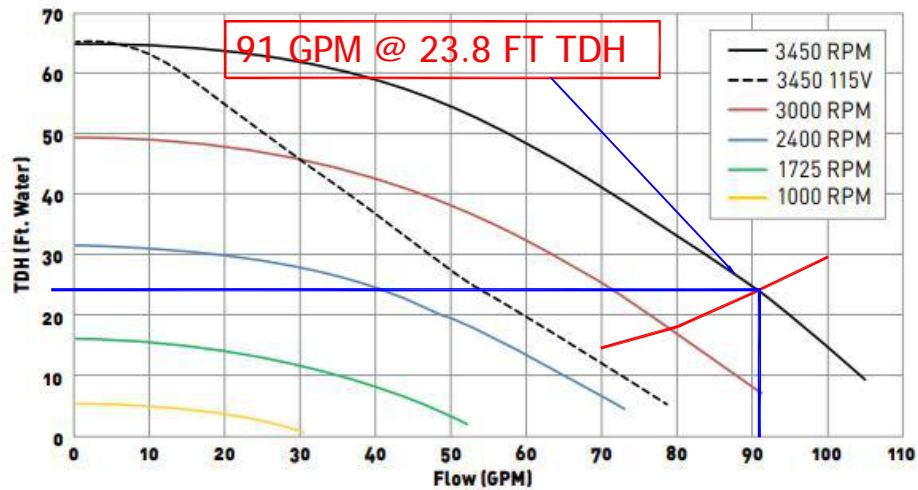


*Compared to single-speed pumps.

SPECIFICATIONS

MODEL NUMBER	STAND ALONE	RELAY CONTROL	HAYWARD [®] AUTOMATION	TOTAL HP	VOLTAGE	WARRANTY
SP2670020VSP	.	.	.	1.65	230/115V	3 years

SUPER PUMP VS 700 PERFORMANCE COMPARISON



AQUATIC ART
12/16/2024

WALKER

MINIMUM FLOW REQ'D = 76.70 GPM
POOL VOLUME : SURFACE AREA X AVG DEPTH X 7.48 GAL / CF
VOL = 534 SF X 4.75 FT DEEP 18973.02 Gallons
TURNOVER TIME: No. Hours X 60 min / ho e
6 hours x 60= 360 minutes
MAX POOL FLOW RATE: GALLONS / TURNOVER = FLOW RATE
18973.02 GAL / 360 minutes = 52.7028333 GPM
POOL FEATURES

JETS, SHEER DE 1 WATER FEATURE GPM EA = 24 GPM
TOTAL SUGGESTED POOL FLOW RATE: 76.70 GPM
V = 1.318 C R^{0.63} S^{0.54}

SUPPLY (RETURN) PIPING

2.5 in = NOMINAL DIAMETER
2.45 in = D ACTUAL diam
0.2038 ft = D diam
140 = C, coefficient of roughness
4.6951 in² = A pipe
0.0326 ft² = A pipe
91.00 gpm / line 0.2027629 cfs
91.00 gpm = TOTAL FLOW IN 1 LINES
0.2028 cfs = Q flow M
6.2188 f/sec = V = Velocity
0.0509 ft = R = Hydraulic Radius = A / P

SUCTION PIPING

2 in = NOMINAL DIAMETER
2.05 in = D ACTUAL diam
0.1706 ft = D diam
140 = C, coefficient of roughness
3.2910 in² = A pipe
0.0229 ft² = A pipe
45.50 gpm = 0.1013815 cfs
2 No. of Suction Pipes
0.1014 cfs = Q flow rate
4.4360 f/sec = V = Velocity
0.0426 ft = R = Hydraulic Radius = A / P

0.0605 ft/ft = S hydraulic gradient
17 ft = pipe length average
1.03 ft = hf = head loss due to friction
0.45 psi 0.0044539
0.0398 ft/ft = S hydraulic gradient
37 ft = pipe length average
1.47 ft = hf = head loss due to friction
0.64 psi 0.0063801

BRANCH P model	FLOW GPM	STR FT	PSI	FT	PSI
2 in @ 6 fps max BRANCH =	61.54 GPM	70.00	14.3	6.19	
2 in @ 8 fps max TRUNK =	82.06 GPM	80.00	18.0	7.79	
2 in @ 10 fps max RETURN =	102.57 GPM	90.00	23.6	10.22	
3 in @ 3 fps max RETURN =	67.95 GPM MAIN	100.00	29.4	12.73	
	DRAIN		0.0	0.00	

OTHER PRESSURE LOSSES

2.50 FT = FILTER TDH LOSS
11.00 FT = HEATER TDH LOSS
13.50 FT = TOTAL TDH LOSS

PRESSURE LOSS IN HAYWARD SWIMCLEAR C200
JANDY JE3000 HEAT PUMP HEATER

MINOR LOSSES (SUPPLY & SUCTION COMBINED)

h (lost) = KL * V ² / (2*g)	K	h (lost) ft
2 ea = # tees thru side outlet	1.75	2.10
2 ea = # gate valves	1	1.20
1 ea = # check valves	0.2	0.12
0 THERAPY JET	21.73	0.00
0 ea = # 45 deg ELL	0.4	0.00
6 ea = # 90 deg ELL	0.75	2.70
0 ea = Reducer D2=	0.5	0.0871791
	TOTAL =	6.13 ft

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ELEVATION DIFFERENCE

0.00 ft = delta Z

model

1.68 FT = TOTAL FRICTION HEAD LOSS AFTER SPLIT @ LOOP

23.81 FT = TOTAL HEAD LOSS IN SYSTEM @ 91.00 GPM
10.31 PSI

PUMP SELECTION :

model: HAYWARD 1.65 HP VS

model: VARIABLE SPEED

SUCTION OUTLET COVER: MUST EXCEED 91.00 GPM FLOW RATE

model: 32" CHANNEL DRAIN OR 2 OUTLET COVERS

SYSTEM FLOW RATE MUST NOT EXCEED APPROVED COVER FLOW RATE

PER FBC 2023 8TH EDITION ANSI / APSP 13

MOTOR TO BE GFCI PROTECTED PER NEC 680.21®

O.K.

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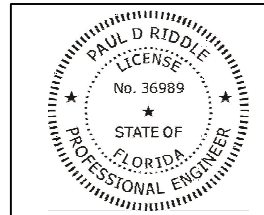


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