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 HORZONTALLY FROM THE WATER (680.26(C)).

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

THE STRUCTURAL REINFORCING STEEL OF A CONCERTE 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

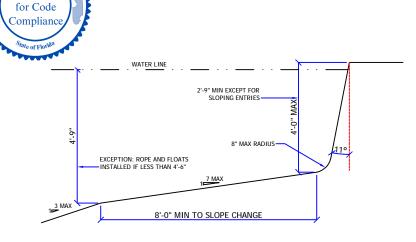
THE EQUIPOTENTIAL BONDING GRID CAN BE CONSTRUCTED WITH 8 AWG BARE SOLID COPPER CONDUCTORS BONDED TO EA OTHER AT ALL POINTS OF CROSSING BY EXOTHERMIC WELDING, LISTED PRESSURE CONNECTORS OF THE SET SCREW OR COMPRESSION TYPE, LISTED CLAMPS, OR OTHER LISTED FITTINGS (250.8).

THE EQUIPOTENTIAL BONDING GRID MUST COVER THE CONTOUR OF THE PERMANENTLY INSTALLED POOL, OUTDOOR SPA OR HOT TUB AND DECK EXTENDING 3 FEET HORIZONTALY 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

WATER LEVEL **OPTIONAL** 8x8 FTG W/ (1) #3 CONT. 6" WALL & FLOOR, 3000 PSI #3 STEEL REBAR 12" O.C. EA WAY NOTE: SOIL MUST BE COMPACTED TO 90% IN MAX 12" LIFTS 6x6 #10-10 WIRE **TYPICAL** MESH, REFER TO NEC FOR BONDING & **GROUNDING REQ'MNTS**



FLOOR SLOPE DETAIL NTS

Reviewed

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"
MIN OVERLAP IS 18".

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:

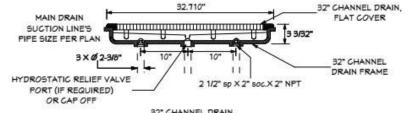
 1. MINIMUM 48" HEIGHT
- 2. 2" MAX VERTICAL CLEARANCE BETWEEN GRADE & BARRIER BOTTOM.
- 3. MAX OPENING SHALL NOT ALLOW PASSAGE OF 4" SPHERE.
- 4. FENCE POSTS WILL BE LOCATED ON POOL-SIDE OF FENCE.
- 5. GATE WILL BE SELF-LOCKING WITH APPROVED LOCKING DEVICE.

** 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 & 166 GPM-ON WALL W/ 2½" PLUMBING OUTER 2 PORTS: 306 GPM- ON FLOOR & 212 GPM-ON WALL W/ 2½" PLUMBING

"NOT APPROVED FOR THREE PORT CONNECTION" (DO NOT EXCEED MAX. FLOW-SUCTION RATE) CAP OFF UNUSED PORT(S)

OPEN AREA OF SUCTION COVER: 38.79 SQ. IN



32" CHANNEL DRAIN,
FLAT COVER

38.79 SQUARE INCH OPEN AREA

SKIMMER
OPENING

VERTICAL #3 @ EA SIDE OF SKIMMER
TIED TO TOP ROW AND 2nd ROW

TOP ROW #3

2nd ROW #3

SKIMMER OPENING DETAIL

GENERAL NOTES:

- 1) Per UL listing, pool motors require GFCI protection
- 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.

Riddle Consulting Engineers, Inc.

civil mechanical Paul D. Riddle, P.E. Senior Engineer COA: 00004759

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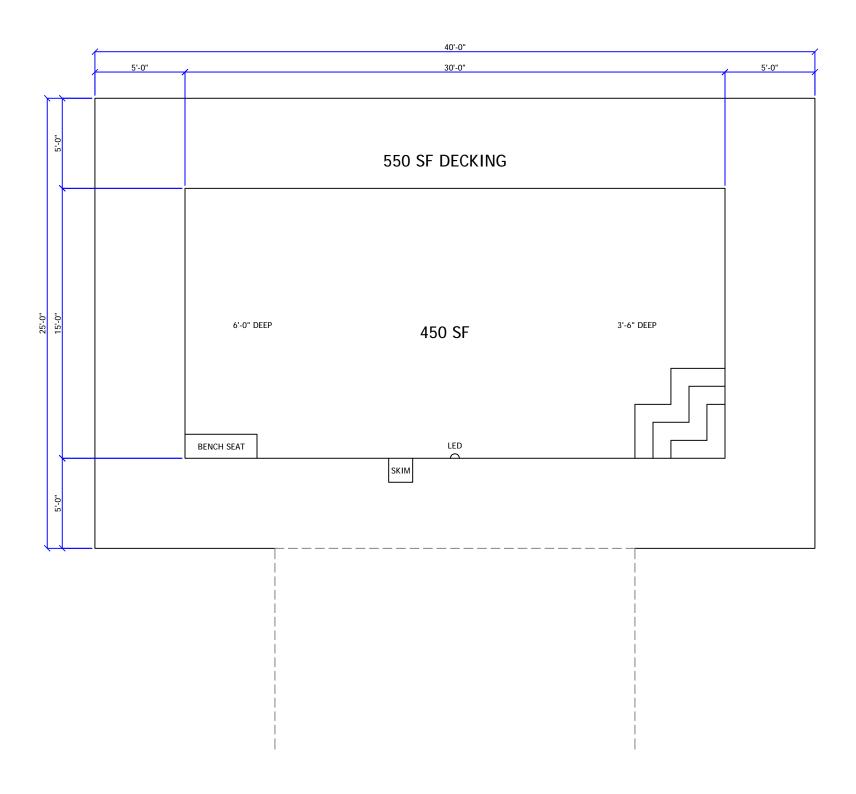
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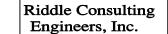
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A CUSTOM DESIGN FOR THE DICKS RESIDENCE AQUATIC ART POOLS AND SPAS

1 of 4



POOL EQUIPMENT





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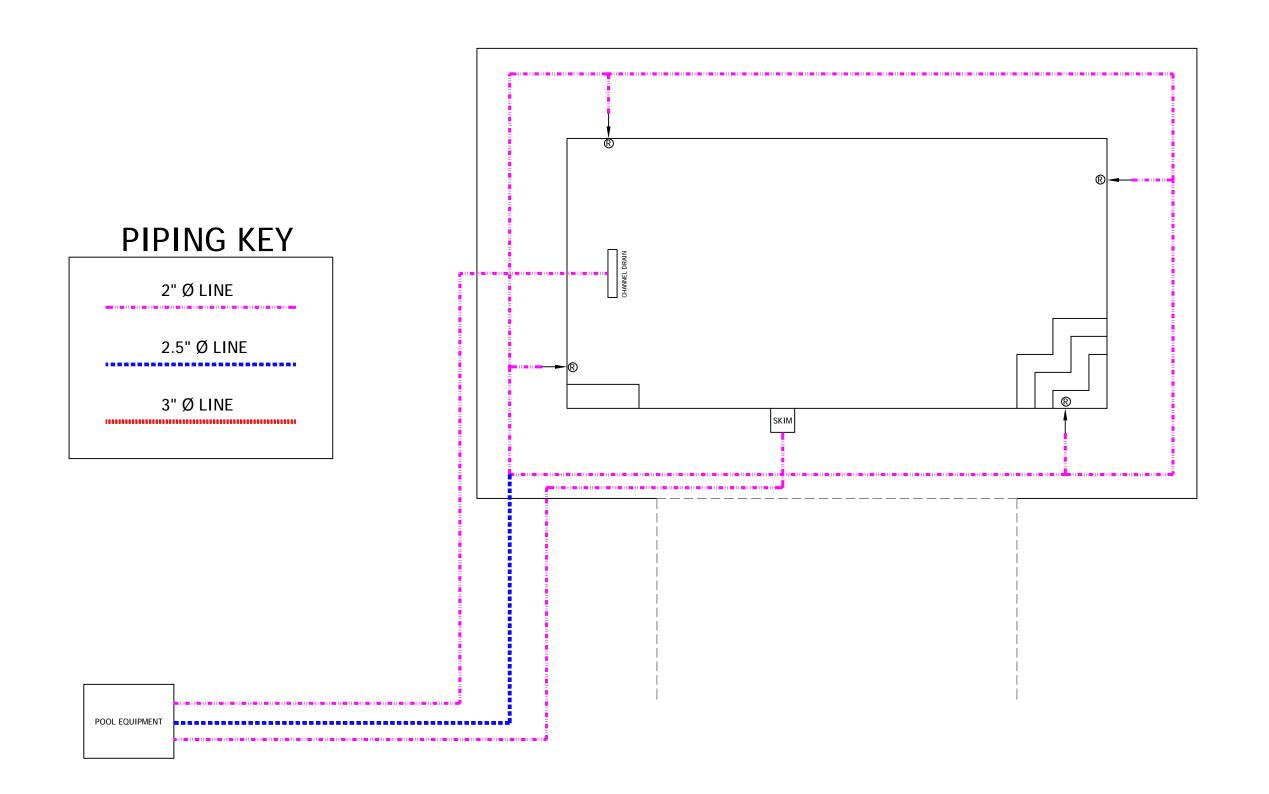
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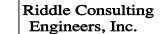
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2 of 4 3/16" = 1'-0" SCALE







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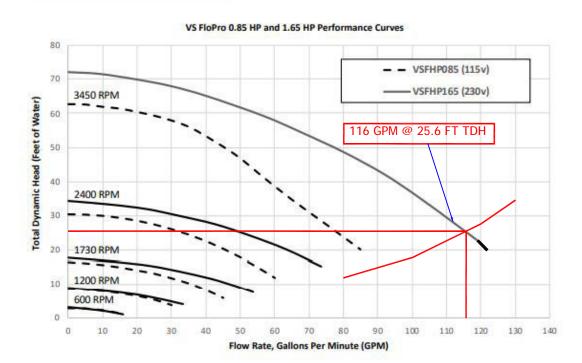
A CUSTOM DESIGN FOR THE DICKS RESIDENCE AQUATIC ART POOLS AND SPAS

3 of 4
3/16" = 1'-0" SCALE

SPECIFICATIONS

Model No.	THP	WEF ⁵	Voltage	Max Watts	Amps	Union Size	Rec. Pipe Size	Carton Weight	Overall Length
VSFHP165JEP VSFHP165AUT	1.65	9.118	230VAC	1,600 W	10.5	2" × 2"	1 1/2 - 2 1/2"	46 lbs	24"
VSFHP085JEP VSFHP085AUT	0.85	11.900	115VAC	975 W	10.0	2" × 2"	1 1/2 - 2"	46 lbs	24"

PERFORMANCE



AQUATIC ART DICKS 6/12/2025 ______

MINIMUM FLOW REQ'D = 44.41 GPM

POOL VOLUME: SURFACE AREA X AVG DEPTH X 7.48 GAL / CF

450 SF X 4.75 FT DEEP 15988.5 Gallons No. Hours X 60 min / ho e TURNOVER TIME:

6 hours x 60= 360 minutes

MAX POOL FLOW RATE: GALLONS / TURNOVER = FLOW RATE

15988.5 GAL/ 360 minutes = 44,4125 GPM

POOL FEATURES

JETS, SHEER DE **0** WATER FEATURE GPM EA = 0 GPM TOTAL SUGGESTED POOL FLOW RATE: 44.41 GPM

V = 1.318 C R^.63 S^.54

SUPPLY (RETURN) PIPING 2.5 in = NOMINAL DIAMETER 2 in = NOMINAL DIAMETER 2.45 in = D ACTUAL diam 2.05 in = D ACTUAL diam 0.2038 ft = D diam 0.1706 ft = D diam

140 = C, coefficient of roughness 140 = C, coefficient of roughness

4.6951 in^2 = A pipe 3.2910 in^2 = A pipe $0.0326 \text{ ft}^2 = A \text{ pipe}$ 0.0229 ft^2 = A pipe

58.00 gpm = 116.00 gpm / line 0.258467 cfs 0.1292335 cfs 116.00 gpm = TOTAL FLOW IN 1 LINES 2 No of Suction Pipes

0.2585 cfs = Q flow M 0.1292 cfs = Q flow rate 7.9272 f/sec = V = Velocity 5.6547 f/sec = V = Velocity

0.0509 ft = R = Hydraulic Radius = A / P 0.0426 ft = R = Hydraulic Radius = A / P

0.0949 ft/ft = S hydraulic gradient 0.0624 ft/ft = S hydraulic gradient 33 ft = pipe length average 49 ft = pipe length average 3.13 ft = hf = head loss due to friction 3.06 ft = hf = head loss due to friction 1.36 psi 0.0135525 1.32 psi 0.0132446

> PSI **BRANCH Pmodel** FLOW STR 25.6 11.092593 2 in @ 6 fps max BRANCH = 61.54 GPM **GPM** FT PSI 2 in @ 8 fps max TRUNK = 82.06 GPM 80.00 12.1 5.24 2 in @ 10 fps max RETURN = 102.57 GPM 100.00 18.5 8.01 27.7 11.99 3 in @ 3 fps max RETURN = 67.95 GPM MAIN 120.00 14.85 DRAIN 130.00 34.3 17.84

OTHER PRESSURE LOSSES 140.00 41.2 6.98 FT = FILTER TDH LOSS

JANDY PRO SERIES CS150-250 CARTRIDGE FILTER 0.00 FT = HEATER TDH LOSS

6.98 FT = TOTAL TDH LOSS

MINOR LOSSES (SUPPLY & SUCTION COMBINED) h (lost) = KL * V^2 / (2*g) h (lost) ft PAUL D. RIDDLE 2 ea = # tees thru side outlet 3.42 2 ea = # gate valves 1.95 P.E. No. 36989, FL 1 ea = # check valves 0.2 0.20 RIDDLE CONSULTING ENGINEEERS **0** THERAPY JET 21.73 0.00 1720 SE COUNTY HWY 484 0 ea = # 45 deg ELL 0.00 BELLEVIEW, FLORIDA 344TO 0.4 6 ea = # 90 deg ELL 0.75 4.39 CERT OF AUTH: 4759 0 ea = Reducer D2= 0.00 D1/D2= 4.89 0.5 0.0871791 TOTAL = 9.95 ft

ELEVATION DIFFERENCE

0.00 ft = delta Z

2.51 FT = TOTAL FRICTION HEAD LOSS AFTER SPLIT @ LOOP

25.62 FT = TOTAL HEAD LOSS IN SYSTEM @ 116.00 GPM

11.09 PSI

PUMP SELECTION: **JANDY 1.65 VS PUMP** VARIABLE SPEED model:

SUCTION OUTLET COVER: MUST EXCEED

32" CHANNEL DRAIN OR 2 OUTLET COVERS

116.00 GPM FLOW RATE

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® Riddle Consulting Engineers, Inc.



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