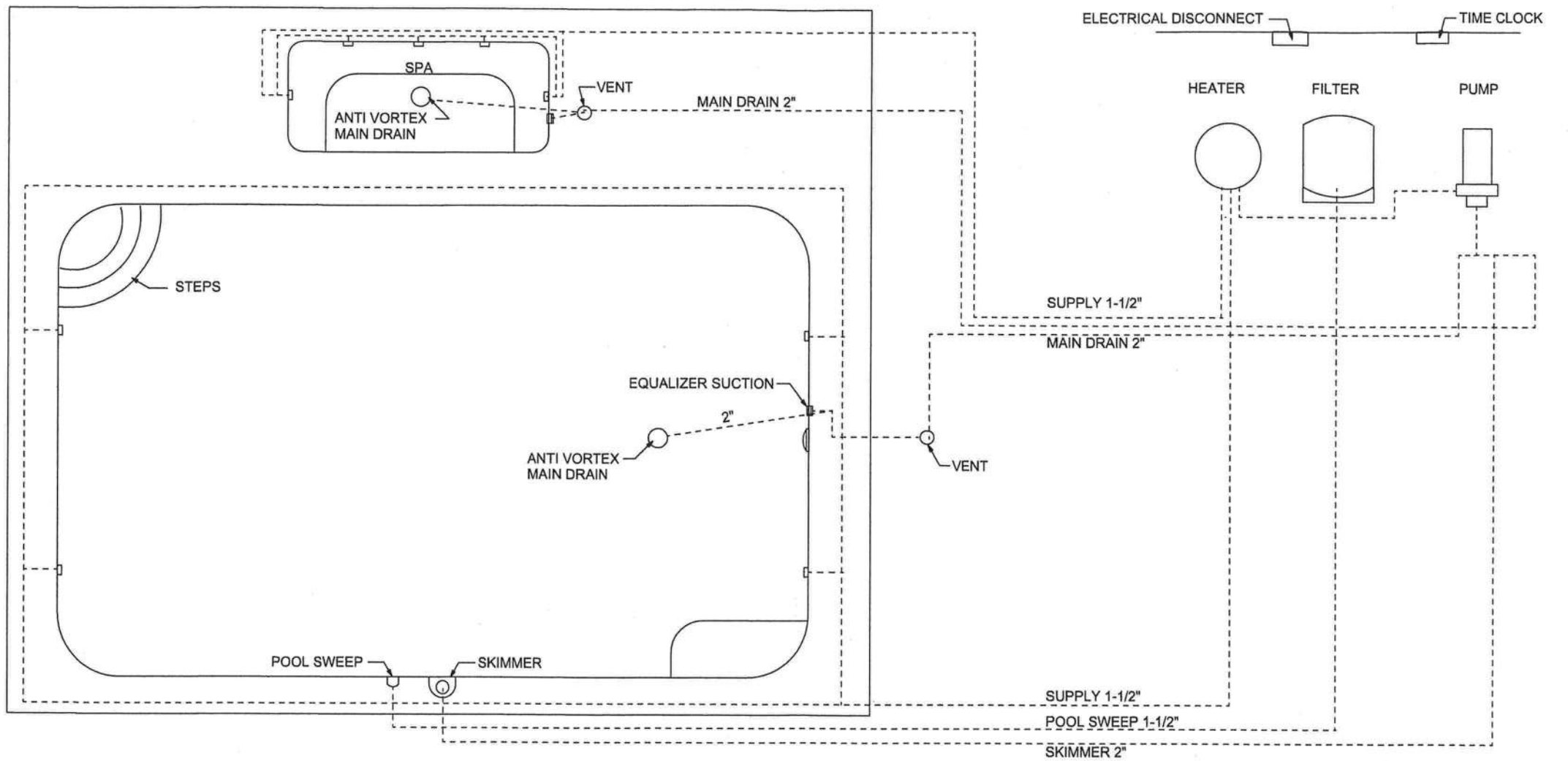
ALL POOL CONSTRUCTION TO COMPLY WITH
ANSI/ APSP-7 & FBC 2007 & 2009 AMENDMENTS.

MAIN DRAINS SHALL MEET
FBC 2007 # 424.2.6.6.4 & ANSI/APSP-7
MAIN DRAIN COVERS SHALL MEET
ASME A112.19.8.M 2007



TYPICAL LAYOUT
NTS

FOOTINGS FOR SCREEN OR OTHER ACCESSORY STRUCTURES BY OTHERS

POOL WALL & FLOOR CONCRETE TO BE 3000 PSI. MIN.

POOL DECK CONCRETE TO BE 2500 PSI. MIN

ALL PIPING SHALL BE SCH 40 PVC PIPE

ALL SUCTION DEVICES WALL FITTINGS, MAIN DRAINS. ETC. SHALL BE 2" DIA. SCH 40 PVC PIPE.

MAX SUCTION PIPE VELOCITY SIX FEET PER SECOND.

ALL ELECTRICAL DESIGN BY OTHERS
ANY ELECTRICAL COMPONENTS SHOWN ON DRAWINGS ARE FOR DIAGRAMATICAL PURPOSE ONLY.

MICHAEL EDWARD DRISCOLL
LICENSE
No 43922
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

7-28-10
MICHAEL E. DRISCOLL P.E.
FL REG. #43922

7-29-10

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CUSTOM DRAFTING
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GAINESVILLE, FL. 32609
PH (352) 485-1942 (352) 494-2041

SHEET:
4

ANSI/APSP-7 2006 Specifies three methods for determining the maximum system flow rate. The following simplified TDH calculation is one of the methods specified.

Simplified Total Dynamic Head (TDH) Calculation Worksheet

Determine Maximum System Flow Rate:

Minimum Flow Rate Required: 35 gpm Per Skimmer (Required: 1 skimmer per 800 sf of surf. area)

1. Calculate Pool Volume: 460 (Surf. Area) x 4.5 (Avg. Depth) x 7.48 (gal./cubic foot) = 15,484 (Vol. in gal.)
2. Determine preferred Turnover Time in hours: 8 (Hours) x 60 (min. / hr.) = 480 (Turnover in Min.)
3. Determine Max Flow Rate: 15,484 (Vol. in gal.) / 480 (Turnover Mins.) = 32.26 (Pool Flow Rate) + .58 (Feature Flow Rate) = 32.84 (System Flow Rate)
4. Spa Jets: _____ (No. of Jets) x _____ (Jet Flow) gpm per jet = _____ (Total Jet Flow Rate) flow rate.

(For single pump pool/spa combo, use the higher of No. 3 or No. 4 in the following calculations for the pool & spa)

Determine Pipe Sizes:

Branch Piping to be [ ] inch to keep velocity @ 6 fps max. at _____ gpm Maximum System Flow Rate.

Trunk Piping to be [2"] inch to keep velocity @ 8 fps max. at 82 gpm Maximum System Flow Rate.

Return Piping to be [2"] inch to keep velocity @ 10 fps max. at 103 gpm Maximum System Flow Rate.

Determine Simplified TDH:

1. Distance from pool to pump in feet: 50
2. Friction loss (in suction pipe) in 2" inch pipe per 1 ft. @ 82 gpm = .10 (from pipe flow/friction loss chart)
3. Friction loss (in return pipe) in 2" inch pipe per 1 ft. @ 103 gpm = .14 (from pipe flow/friction loss chart)
4. 50 (Length of Suct. Pipe) x .10 (Ft of head/1 ft of Pipe) = 5 (TDH Suct. Pipe)
5. 50 (Length of Return Pipe) x .14 (Ft of head/1 ft of Pipe) = 8 (TDH Return Pipe)

TDH in Piping:	13
Filter loss in TDH (from filter data sheet):	7
Heater loss in TDH (from heater data sheet):	0
Total all other loss:	39.3
Total Dynamic Head (TDH):	59.3

Selected Pump and Main Drain Cover:

Pump selection [VS-SVRS PENTAIR / 011017] (Pump model and size in Horsepower) using pump curve for TDH & System Flow Rate

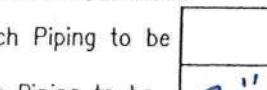
Main Drain Cover [AQUA STAR 32CDFL XXX] (Make and Model) (System Flow Rate must not exceed approved cover flow rates)

Notes: Minimum system flow based on min. flow per skimmer of 35 gpm.

Determine the Number and Type of Required In-Floor Suction Outlets:

Check all that apply.

- [ ] 2 _____ suction outlets @ _____ gpm max. flow (see note 2).
- [ ] 3 _____ suction outlets @ _____ gpm max. flow (see note 3).
- [x] 2 32" channel drain 32CDFLXXX @ 170 gpm w/ 2/2" ports (see note 4).



TDH Calculation Options

For each pump

Check one.

- [ ] Simplified Total Dynamic Head (STDH) — Complete STDH Worksheet – Fill in all blanks.
- [ ] Total Dynamic Head (TDH) — Complete Program or other calcs. Fill in required blanks on worksheet & attach calculations.
- [ ] Maximum Flow Capacity of the new or replacement pump.

Notes

1. If a variable speed pump is used, use the max. pump flow in calculations.
2. For side wall drains, use appropriate side wall drain flow as published by manufacturer.
3. Insert manufacturer's name and aproved maximum flow
4. See installation instructions for number of ports to be used.
5. In-Floor suction outlet cover/grate must conform to most recent edition of ASME/ANSI A112.19.8 and be embossed with that edition approval.
6. Pump, Filter & Heater make and model cannot changed, and equipment location cannot be moved closer to pool without submitting a revised plan and TDH calculation worksheet for approval.

Flow and Friction Loss Per Foot

Schedule 40 PVC Pipe

Pipe Size	Velocity – Feet Per Second					
	6 fps		8 fps		10 fps	
1"	16 gpm	0.14'	21 gpm	0.23'	26 gpm	0.35'
1.5"	37 gpm	0.08'	50 gpm	0.14'	62 gpm	0.21'
2"	62 gpm	0.06'	82 gpm	0.10'	103 gpm	0.16'
2.5"	88 gpm	0.05'	117 gpm	0.09'	146 gpm	0.13'
3"	136 gpm	0.04'	181 gpm	0.07'	227 gpm	0.10'
4"	234 gpm	0.03'	313 gpm	0.05'	392 gpm	0.07'
6"	534 gpm	0.02'	712 gpm	0.03'		

Total Head In Feet Conversion Chart

PSI (Pressure Gauge) / Inches Mercury (Vacuum Gauge)

PSI	0	2	4	6	8	10	12	14	16	18
0	0.0	2.3	4.5	6.8	9.0	11.3	13.6	15.8	18.1	20.3
1	2.3	4.6	6.8	9.1	11.4	13.6	15.9	18.1	20.4	22.7
2	4.6	6.9	9.1	11.4	13.7	15.9	18.2	20.4	22.7	25.0
3	6.9	9.2	11.5	13.7	16.0	18.2	20.5	22.8	25.0	27.3
4	9.2	11.5	13.8	16.0	18.3	20.5	22.8	25.1	27.3	29.6
5	11.5	13.8	16.1	18.3	20.6	22.8	25.1	27.4	29.6	31.9
6	13.9	16.1	18.4	20.6	22.9	25.2	27.4	29.7	31.9	34.2
7	16.2	18.4	20.7	23.0	25.2	27.5	29.7	32.0	34.3	36.5
8	18.5	20.7	23.0	25.3	27.5	29.8	32.0	34.3	36.6	38.8
9	20.8	23.1	25.3	27.6	29.8	32.1	34.3	36.6	38.9	41.1
10	23.1	25.4	27.6	29.9	32.1	34.4	36.7	38.9	41.2	43.4
11	25.4	27.7	29.9	32.2	34.5	36.7	39.0	41.2	43.5	45.8
12	27.7	30.0	32.2	34.5	36.8	39.0	41.3	43.5	45.8	48.1
13	30.0	32.3	34.6	36.8	39.1	41.3	43.6	45.9	48.1	50.4
14	32.3	34.6	36.9	39.1	41.4	43.6	45.9	48.2	50.4	52.7
15	34.6	36.9	39.2	41.4	43.7	45.9	48.2	50.5	52.7	55.0
16	37.0	39.2	41.5	43.7	46.0	48.3	50.5	52.8	55.0	57.3
17	39.3	41.5	43.8	46.1	48.3	50.6	52.8	55.1	57.4	59.6
18	41.6	43.8	46.1	48.4	50.6	52.9	55.1	57.4	59.7	61.9
19	43.9	46.2	48.4	50.7	52.9	55.2	57.4	59.7	62.0	64.2
20	46.2	48.5	50.7	53.0	55.2	57.5	59.8	62.0	64.3	66.5
21	48.5	50.8	53.0	55.3	57.6	59.8	62.1	64.3	66.6	68.9
22	50.8	53.1	55.3	57.6	59.9	62.1	64.4	66.6	68.9	71.2
23	53.1	55.4	57.7	59.9	62.2	64.4	66.7	69.0	71.2	73.5
24	55.4	57.7	60.0	62.2	64.5	66.7	69.0	71.3	73.5	75.8
25	57.8	60.0	62.3	64.5	66.8	69.1	71.3	73.6	75.8	78.1
26	60.1	62.3	64.6	66.8	69.1	71.4	73.6	75.9	78.1	80.4
27	62.4	64.6	66.9	69.2	71.4	73.7	75.9	78.2	80.5	82.7
28	64.7	66.9	69.2	71.5	73.7	76.0	78.2	80.5	82.8	85.0
29	67.0	69.3	71.5	73.8	76.0	78.3	80.5	82.8	85.1	87.3
30	69.3	71.6	73.8	76.1	78.3	80.6	82.9	85.1	87.4	89.6
31	71.6	73.9	76.1	78.4	80.7	82.9	85.2	87.4	89.7	92.0
32	73.9	76.2	78.4	80.7	83.0	85.2	87.5	89.7	92.0	94.3
33	76.2	78.5	80.7	83.0	85.3	87.5	89.8	92.0	94.3	96.6
34	78.5	80.8	83.1	85.3	87.6	89.8	92.1	94.4	96.6	98.9
35	80.9	83.1	85.4	87.6	89.9	92.2	94.4	96.7	98.9	101.2

NOTE: FIELD TDH MUST BE EQUAL TO OR HIGHER THAN THE CALCULATED TDH.

1-29-10 Date

Contractors Signature

Michael S. Canto Contractors Printed Name

CPC1457306 Contractors Cert. No.

352-332-7665 Contractors Telephone No.

Date

Fun State Pools Inc 352•POOL

Tillis Gibson

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Swimming Pool Specification For:

Mike & Diane Lominack
2419 SW Ichetucknee Ave
Lake City FL. 32024

Scale: None