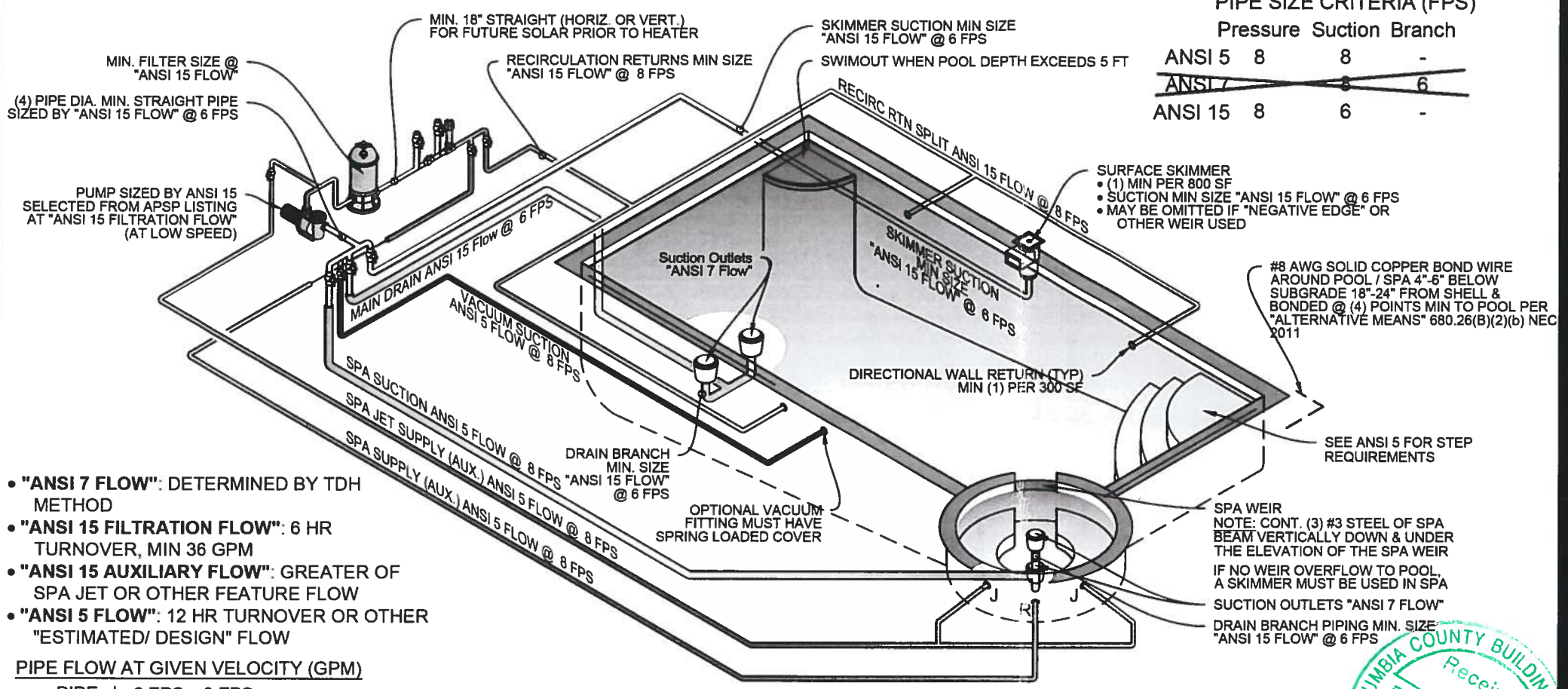
COMPLIES WITH 2017 FBC 6TH ED, ALL VOLUMES



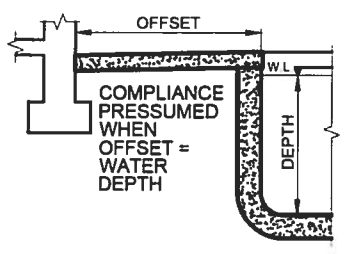
PIPE SIZE CRITERIA (FPS)

	Pressure	Suction	Branch
ANSI 5	8	8	-
ANSI 7		8	6
ANSI 15	8	6	-

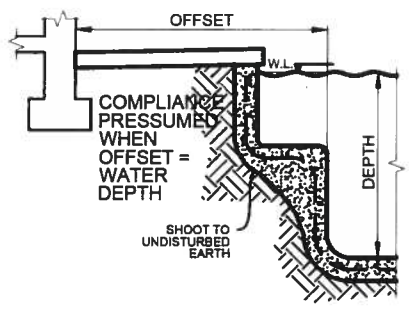
- **"ANSI 7 FLOW"**: DETERMINED BY TDH METHOD
- **"ANSI 15 FILTRATION FLOW"**: 6 HR TURNOVER, MIN 36 GPM
- **"ANSI 15 AUXILIARY FLOW"**: GREATER OF SPA JET OR OTHER FEATURE FLOW
- **"ANSI 5 FLOW"**: 12 HR TURNOVER OR OTHER "ESTIMATED/ DESIGN" FLOW

PIPE FLOW AT GIVEN VELOCITY (GPM)

PIPE	6 FPS	8 FPS
1"	16	22
1-1/2"	38	51
2"	63	84
2-1/2"	90	119
3"	138	184
4"	238	317
6"	540	720



"ANGLE OF REPOSE" OR SEE CONTRACTOR PLAN



PROXIMITY TO STRUCTURE

FBC NO LONGER REQUIRES EXCAVATIONS OUT OF THE "ANGLE OF REPOSE PLUS 1 FT". THE CURRENT REQUIREMENT IN 2017 FBC 6TH ED, SECTION 1804.1 STATES THAT "EXCAVATIONS SHALL NOT REDUCE LATERAL SUPPORT FROM ANY FOUNDATION." THEREFORE THE FOLLOWING IS REQUIRED:

1. WHEN THE POOL DECK DISTANCE IS EQUAL TO OR GREATER THAN WATER DEPTH, NO MITIGATION OF THE SHELL STRUCTURE IS REQUIRED.
2. WHEN THE POOL DECK DISTANCE IS EQUAL TO OR GRATER THAN THE WATER DEPTH, THERE IS NO SHORING OR FOUNDATION SUPPORT INITIALLY REQUIRED,
3. WHEN THE POOL DECK DISTANCE IS LESS THAN THE WATER DEPTH, THE ENGINEER SHALL PROVIDE A MITIGATION SPECIFICATION, EITHER TO PROTECT THE FOUNDATION DURING EXCAVATION OR STRENGTHEN THE SHELL FROM STRUCTURE LOADS.
4. IF DURING EXCAVATION, SOIL CONDITIONS APPEAR TO LEAD TO LOSS OF FOUNDATION SUPPORT, THE CONTRACTOR SHALL CEASE EXCAVATION AND CONTACT THE ENGINEER FOR MITIGATION SPECIFICATIONS.
5. IF AFTER EXCAVATION THE CONTRACTOR OR INSPECTOR FIND A LOSS OR THREATENED LOSS OF SOIL SUPPORT AT THE FOUNDATION, CONTACT THE ENGINEER FOR A MITIGATION SPECIFICATION.

TYPICAL RESIDENTIAL POOL / SPA SCHEMATIC PLAN & NOTES

SCALE: N.T.S.

NOTES:

- This plan is schematic & piping shall be connected to provide a functioning system.
- Pool piping shall hold a static water or air pressure not less than 35 psi for 15 minutes, per R4501.12.1
- Pools shall have pumps selected to provide minimum 12 hr. turnover & maximum 6 hour turnover.
- Determine pipe sizing from attached work sheets.
- Spa piping determined from attached work sheets.
- The dual main drains shall have a minimum separation of 3 ft, unless one is located on the vertical wall or a single unblockable drain is used.
- All suction covers shall meet ANSI/ASME A112.19.8-2007
- All piping shall be NSF-PW approved & meet the requirements of Florida Building Code 6TH Ed, 2017.
- Electrical equipment, wiring, & installation shall conform to the National Electrical Code 2014 Edition.
- Bonding of pool steel & light to footing steel shall be continued to & include all pumps & heaters.
- Temporary fencing shall be installed & maintained until permanent child safety features are installed.
- There shall be a passing electrical & child safety final inspection prior to filling the pool or spa with water.
- Pool shall meet the applicable criteria in ANSI/APSP 3,4,5,6, 7 & 15 standards.
- Regardless of the criteria here, the project shall comply with all sections of the FBC 6th Edition - Residential, Building, Mechanical, Plumbing & Gas Codes, as applicable respectively & amended.

SEE INFORMATION ATTACHED TO THIS PERMIT PACKAGE FOR SITE SPECIFIC DETAILS SHOWING ANSI 7 & 15 AND FBC COMPLIANCE

INFORMATION ON THIS SHEET COMPLIES WITH 6TH ED 2017 FBC, ALL VOLUMES, INCLUDING 2017 FBC ENERGY CONSERVATION CODE

FUN-STATE POOLS, INC.

KIMES ENGINEERING AND MANAGEMENT SERVICES, INC
3990 SR 64 E., Bradenton, FL 34208
Office: 941-749-0311, Fax: 941-746-7391
kent@kimesengineering.com
P.E. 33678, C.A. 27189

DATE:	REVISIONS:

DWG. BY:	MCM	PRINTED:	16-Feb-18
CHKD. BY:	JKK	SCALE:	AS NOTED
DATE:	15-Feb-18		

STATE OF FLORIDA PROFESSIONAL ENGINEER

2017 6th ED FBC

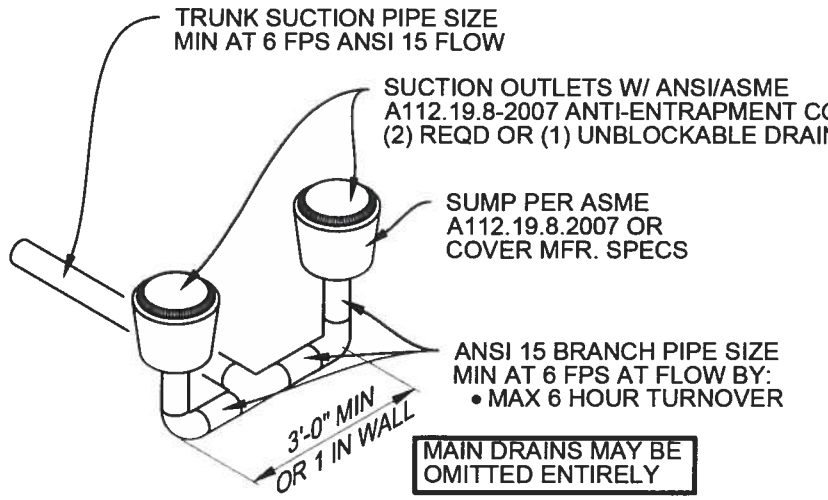
TYPICAL PLAN & SECTIONS FOR RESIDENTIAL POOL/SPA

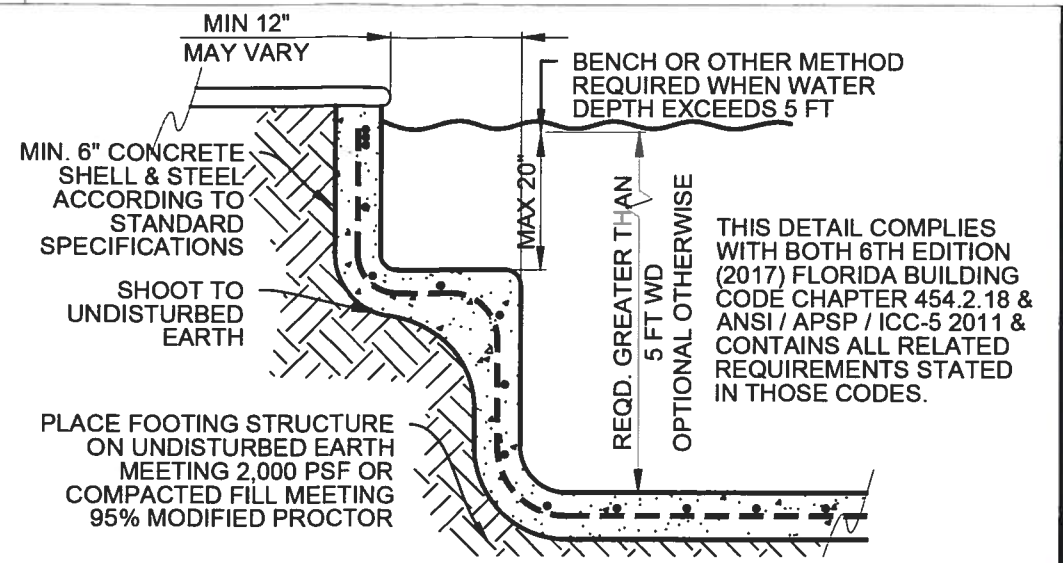
S1

SHEET OF

ORIG. DWG: 17"x11" (ANSI B)

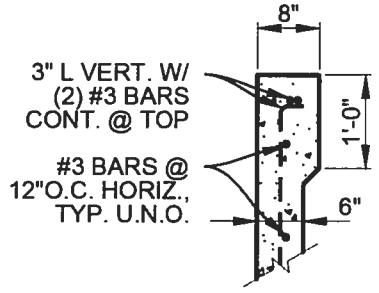
\\kimessrv\Company Shared Docs\2017 FBC 6TH ED\2017 FBC KE Std Eng - R2 20180215.dwg





TYPICAL RESIDENTIAL BENCH SECTION

SCALE: N.T.S.

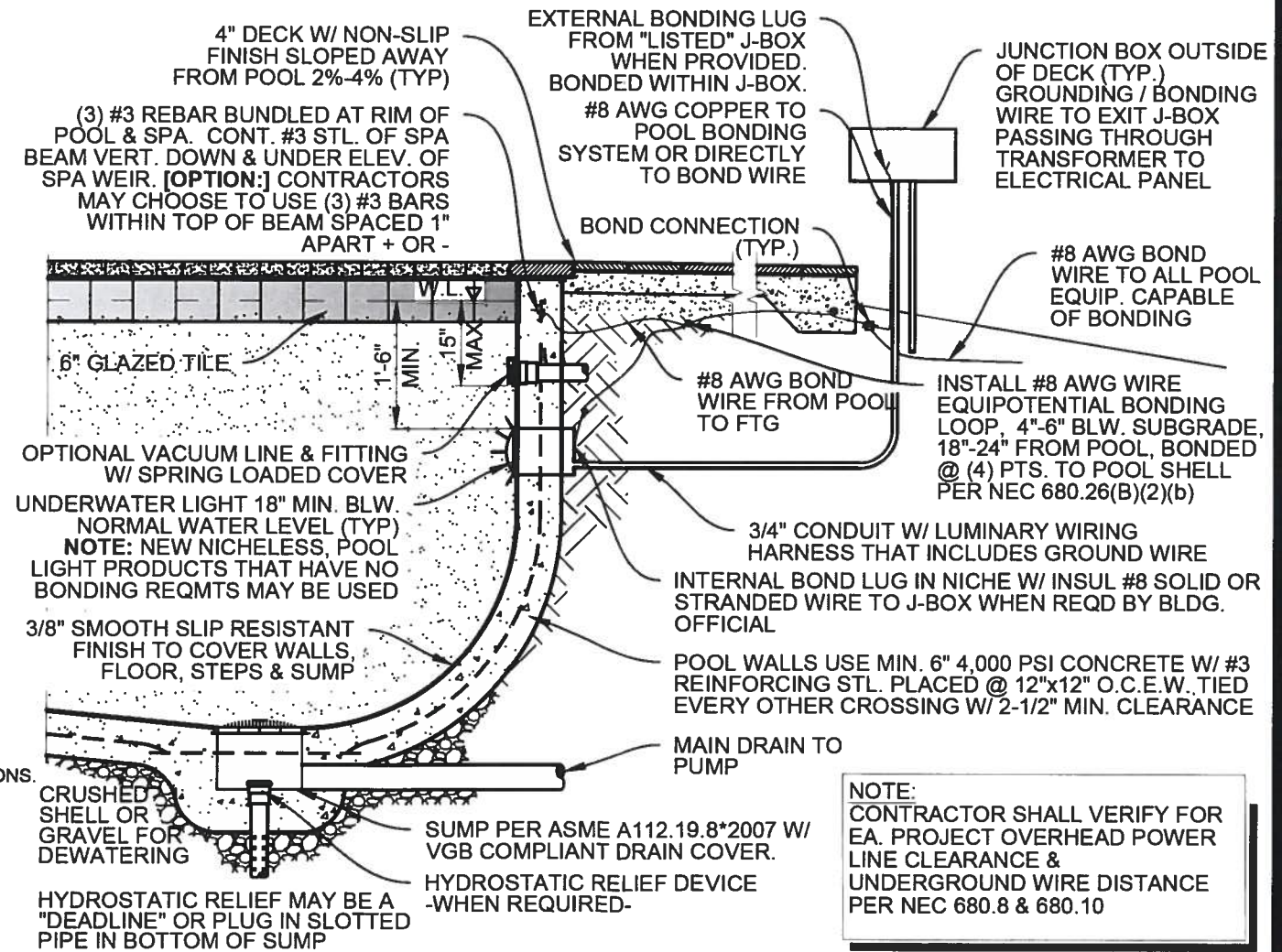


POOL BEAM (8"x12" OPTION)

SCALE: N.T.S.

GENERAL NOTES:
a. *D* = INSIDE DIA. OF PIPE
b. ALL DIMENSIONS SHOWN ARE MINIMUMS.
c. ALL HIDDEN LINES INDICATE SUGGESTED SUMP CONFIGURATIONS.

NOTES:
- FIELD BUILD SUMPS MEETING THESE CRITERIA REQD WHEN MFR POTS NOT USED
- MAY OMIT IF LISTED COVER DOCUMENTATION STATES OTHER CLEARANCE TO SUCTION PIPE REQD



NOTE:
CONTRACTOR SHALL VERIFY FOR EA. PROJECT OVERHEAD POWER LINE CLEARANCE & UNDERGROUND WIRE DISTANCE PER NEC 680.8 & 680.10

SUMP SECTIONS PER ASME A112.19.8-2007

SCALE: N.T.S.

POOL DEEP END SECTION

THIS IS ONLY GOOD FOR MAX 6 FT DEEP SOIL SUPPORTED POOL SHELLS- SEE SUPPLEMENTAL SPECIFICATIONS FOR DEEPER OR APPURTENANT STRUCTURES

SCALE: N.T.S.

811 KNOW WHAT'S BELOW ALWAYS CALL 811 BEFORE YOU DIG
It's free! It's fast. It's the law.
www.callsunshine.com

NOTE

1. APPROVED PRODUCT SPECIFICATION MAY DIFFER FROM FIELD BUILT SUMPS SHOWN ON THIS PAGE

ADDITIONAL STRUCTURAL NOTES

- Use minimum ASTM A815 Grade 40 Steel
- Lap #3 bars minimum 15"
- Lap #5 bars minimum 25"
- 6" Shell thickness and 2-1/2" concrete coverage are minimums
- Use 4,000 psi concrete
- Contractor / Owner required to:
  - Contact Engineer if pool not placed on undisturbed and de-watered earth that can meet 2,000 psf bearing capacity.
  - When buried debris is encountered or questionable conditions are indicated at the work site prior / during construction, a subsurface consultant shall conduct boring(s) in the area of the pool to confirm soil bearing capacity, clear of buried debris, & verifying ground water level
  - All modified soils & earth fill under perspective pool area shall meet a soil density and compaction minimum of 95% modified proctor without settlement.

INFORMATION ON THIS SHEET COMPLIES WITH 6TH ED 2017 FBC, ALL VOLUMES, INCLUDING 2017 FBC ENERGY CONSERVATION CODE

FUN-STATE POOLS, INC.

KIMES ENGINEERING AND MANAGEMENT SERVICES, INC
3990 SR 64 E., Bradenton, FL 34208
Office: 941-749-0311, Fax: 941-746-7391
kent@kimesengineering.com
P.E. 33678, C.A. 27189

DATE:	REVISIONS:

DWG. BY:	MCM	PRINTED:	15-Feb-18
CHKD. BY:	JKK	SCALE:	AS NOTED
DATE:	29- DEC-17		

KENT KIMES LICENSE NO. 33678 STATE OF FLORIDA PROFESSIONAL ENGINEER

2017 6th ED FBC

TYPICAL PLAN SECTIONS FOR RESIDENTIAL POOL/SPA

S2

SHEET OF

ORIG. DWG: 17"x11" (ANSI B)

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: 452 (Surf. Area) x 4.75 (Avg. Depth) x 7.48 (gal./cubic foot) = 16060 (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: 16060 (Vol. in gal.) / 480 (Turnover Mins.) = 33.5 (Pool Flow Rate) + — (Feature Flow Rate) = 33.5 (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: 10'
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 = .16 (from pipe flow/friction loss chart)
4. 10' (Length of Suct. Pipe) x 1.0 (Ft of head/1 ft of Pipe) = 1.0 (TDH Suct. Pipe)
5. 10' (Length of Return Pipe) x 1.6 (Ft of head/1 ft of Pipe) = 1.6 (TDH Return Pipe)

TDH in Piping: 2.6

Filter loss in TDH (from filter data sheet): 7

Heater loss in TDH (from heater data sheet): 7.48

Total all other loss: 20.08

Total Dynamic Head (TDH): 37.16

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 [Waterway 640-132xv] (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.

- [ ] ◎ 3'-0" ◎ — 2 [ ] suction outlets @ [ ] gpm max. flow (see note 2).
- [ ] ◎ ◎ ◎ — 3 [ ] suction outlets @ [ ] gpm max. flow (see note 3).
- [X] [1-32"] — [Waterway 640-132xv] channel drain @ [175] 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	0.06'	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) vs. 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.

7/17/19 Date

x Michael Canto Contractors Signature

Michael S. Canto Contractors Printed Name

CPC1457306 Contractors Cert. No.

_____ Date

Voice (352) 332-7665
Fax (352) 332-0266
mike@funstatepoolsinc.com

Fun State Pools Inc. 352•POOL

Michael Canto

www.funstatepoolsinc.com
3601 N.W. 97th Blvd. • Gainesville, Florida 32606

Swimming Pool Specification For:

Peter Geiberg
760 Holly Ter
Lake City FL

Fun State Pools Inc.
332-POOL

3601 N.W. 97th Blvd.
Gainesville, Florida 32606

REF. NO._____

19-11

POOL SHAPE Rectangle JOB NO._____
SIZE 14 X 28 DEPTH 3.5 TO 6 PERM 96 AREA 452
DECK 904 DECK SURFACE SUN DECK DECK-O-DRAIN 67
COPING NO CANTILEVER yes
TILE 6" x 6" COLOR owner
STEP COLOR NO COLOR NO
TURNOVER 8H FILTER TYPE PLM SIZE 150 PUMP VS+SVRS
SKIMMER yes INLETS 5 MAIN DRAIN yes
GRAB RAILS NO HAND RAIL NO LADDER NO
POOL LIGHT STD. VOLTS 110 WATTS 400
DIVING BOARD NO SIZE NO
AUTOMATIC CHLORINATOR SALT TIMER NO FILL LINE NO
CLEANING EQUIPMENT MANUAL SWIMOUT yes SIZE SUN SHELF JETS NO
ROPE & FLOATS NO ROPE ANCHORS NO
AUTOMATIC CLEANING SYSTEM NO POOL HEATER NO
GAS LINE BY: OWN SLIDE NO SIZE NO

SPA SPECIFICATIONS

SIZE 10'x8' DEPTH 3' JETS 6
BLOWER NO SKIMMER NO LIGHT STD.
SPILLWAY yes HEATER 333K BTU MAIN DRAIN yes
SCREEN ENCLOSURE owner ROOF owner DOORS owner
ALUM. ROOF owner GUTTER owner
REMOVE FENCE owner REPLACE FENCE owner TEMP. FENCE owner
TREE REMOVAL owner STUMP REMOVAL owner
SHRUBS owner SAVE owner HAUL AWAY owner
SEPTIC TANK owner SEWER LINE owner
POWER LINE owner RELOCATE owner
GAS LINE owner WATER LINE owner
SPRINKLERS owner REROUTE owner CAP owner
PHONE LINE owner ACCESS PERMISSION owner
RETAINING WALL owner

Custom Design...FUN-STATE POOLS

NAME SEE
ADDRESS OTHER
CITY PAGE PHONE:_____

Part 2 of contract dated_____ for pool at:
LOT_____ BLOCK_____ SUB_____
BOOK_____ PAGE_____
ALSO DESCRIBED AS_____
CUSTOMER'S SIGNATURE_____
DWN. BY RICK DATE_____ CHK. BY_____

14 x 28 6 x 6'
① Pool & Spa - $50,000.00

• LEAVE DIRT

② No footer

③ Fencing/alarm(s) by owner

Equipotential Bonding Grid as per NEC 680-26 (Code) Note - Pool shall be wired as per NEC and all metal within 5' of pool shall be bonded.

Note - Angle of repose of existing foundation shall not be disturbed by pool excavation without engineering.

COLUMBIA COUNTY BUILDING DEPARTMENT
PLANS EXAMINER
FILE COPY
Received for Code Compliance

"GUY-BEE"

Peter and Holly Giebeig
760 Holly Terrace
Lake City FL
386-365-1179
gatormd@giebeigfamilymed.com
X Peter Giebeig

Fun State Pools
332-POOL

PLOT PLAN
SCALE: 1/8" = 1'0"