ANSI/ASP-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
1. Calculate Pool Volume: x x 7.48 (gal./cubic foot) =
 2. Determine preferred Turnover Time in hours: x 60 (minutes / hour) =
(Hours) (Turnover in Minutes) 3. Determine Max Flow Rate: /
(Volume in gallons) (Turnover Minutes) (Pool Flow Rate) (Feature Flow Rate) (System Flow Rate) 4. Spa Jets: x gpm per jet = flow rate.
(Number of jets) (Jet Flow) (Total Jet 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 inch to keep velocity @ 8 fps max. at gpm Maximum System Flow Rate.
Return Piping to be inch to keep velocity @10 fps max. at gpm Maximum System Flow Rate.
Determine Simplified TDH:
1. Distance from pool to pump in feet:
2. Friction loss (in suction pipe) in inch pipe per 1 ft. @ gpm = (from pipe flow/friction loss chart)
3. Friction loss (in return pipe) in inch pipe per 1 ft. @ gpm = (from pipe flow/friction loss chart)
 Length of suction pipe x ft. of head/1 ft of pipe = TDH suction pipe
5. Length of return pipe x ft. of head/1 ft of pipe = TDH return pipe
TDH in Piping: Filter loss in TDH (from filter data sheet): Heater loss in TDH (from heater data sheet): Total all other loss: Total Simplified TDU
Selected Pump and Main Drain Cover:
Pump selection using pump curve for Simplified TDH & System Flow Rate
Main Drain Cover (System Flow Rate must not exceed approved cover flow rate)
(Make and Model) Notes: Minimum system flow based on minimum flow per skimmer of 35 gpm.
Determine the Number and Type of Required In Floer Suction Outlets:
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)
Suction outlets @ gpm max. flow (see note 3)
Aquastar Channel Drain @ 316 gpm max. flow rate
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<u>TDH Calculation Options</u> For each pump							
↓ ↓	Check one						
	<u>Simplified Total Dynamic Head (STDH)</u> Complete STDH Worksheet – Fill in all blanks						
	Total Dynamic Head (TDH) Complete Program or other calcs. Fill in required blanks on worksheet & attached calculations.						

		•	^	Inc	nes Mei	cury (V	acuum	Gauge	4.4	40	40
		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
<u>-1)</u>	1	2.3	4.6	5.8	9.1	11.4	13.6	15.9	18.1	20.4	22.7
	2	4.6	6.9	6.1	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	34.4	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	34.5	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	58.9
	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	62.5	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	78.0
	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	90.5	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	83.1	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
าร	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

Notes:	
INULES.	

- 1. If a variable speed pump is used, use the maximum pump flow in calculations.
- 2. For side wall drains, use appropriate side wall drain flow as published by the manufacturer.
- 3. Insert the manufacturer's name and approved 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 A112.12.8 and be embossed with that edition approval.
- 6. Pump & Filter make, model and location c not change without submitting revised pla and TDH worksheet.

Flow and Friction Loss Per Foot										
Schedule 40 PVC Pipe										
Velocity – Feet Per Second										
Pipe Size	6fbs		8 ft	DS	10 fbs					
1"	16 gpm	0.25'	21 gpm	0.66'	26 gpm	0.94'				
1.5"	37 gpm	0.16'	50 gpm	0.28'	62 gpm	0.48'				
2"	62 gpm	0.15'	82 gpm	0.25'	103 gpm	0.40'				
2.5"	88 gpm	0.09'	117 gpm	0.15'	146 gpm	0.23'				
3"	138 gpm	0.09'	181 gpm	0.14'	227 gpm	0.23'				
4"	234 gpm	0.06'	313 gpm	0.10'	392 gpm	0.15'				
6"	534 gpm	0.04'	712 gpm	0.04'	890 gpm	0.10'				

Swimming Pool Specification for:

Permit # _____

Total Head In Feet Conversion Chart

Job Address: _____