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Project No. : **2605893**
Project Name : **COLE**
Project Address : **312 SW THISTLEWOOD LN, FORT WHITE, FLORIDA, 32038**

POOL HYDRAULICS WORKSHEET

DESIGN CIRCULATION FLOW PARAMETERS:

1. Pool circulation volume : $V := 408\ ft^2 \cdot 4\ ft + 12\ ft \cdot 6\ ft \cdot 6\ in = 12477.506\ gal$

2. Preferred turnover rate: $t := 6\ hr = 360\ min$

3. Pool circulation flow rate : $Q_p := \frac{V}{t} = 34.66\ gpm$

Add water feat. flow rate $Q_{wf} := 0\ gpm$

Total circulation flow rate $Q_c := Q_p + Q_{wf} = 34.66\ gpm$

Minimum design flow rate $Q_{min} := 36\ gpm$

Pool pump flow rate $Q := \mathrm{Trunc}\left(\max\left(Q_c, Q_{min}\right), 1\ gpm\right) + 1\ gpm = 36\ gpm$

RICHARD EDWARD WALKER LICENSE No. 61240 STATE OF FLORIDA PROFESSIONAL ENGINEER

RICHARD E. WALKER State of Florida, Professional Engineer, License No. 61240. This item has been digitally signed and sealed by Richard E. Walker, P.E. on the date adjacent to the seal using a SHA-1 authentication code. Printed copies of this document are not considered signed and sealed and the signature must be verified on electronic copies.

Digitally signed by Richard E Walker
Date: 2026.03.04 12:28:08-05'00'

Richard E. Walker, P.E. # 61240

PIPE SIZES & SIMPLIFIED TDH:

Pool pump max. flow rate: $Q = 36\ gpm$

FLOW AND FRICTION LOSSES PER FOOT - SCH. 40 PVC PIPE						
Pipe size (in)	Velocity					
	6 ft/s		8 ft/s		10 ft/s	
	gpm	ft	gpm	ft	gpm	ft
1	16	0.14	21	0.23	26	0.35
1 1/2	37	0.08	50	0.14	62	0.21
2	62	0.06	82	0.1	103	0.16
2 1/2	88	0.05	117	0.09	146	0.13
3	138	0.04	181	0.07	227	0.1
4	234	0.03	313	0.05	392	0.07
5	534	0.02	712	0.03	890	0.05

Pipe Sizes Per 2023 FBC, 8th Edition:

Main Drain Piping: 2.0" to keep velocity @ **8fps** max at flow rate = $82\ gpm$ max.

Skimmer/ Vac line Piping: 2.0" to keep velocity @ **8fps** max at flow rate = $82\ gpm$ max.

Filter Return Piping: 2.0" to keep velocity @ **10fps** max at flow rate = $103\ gpm$ max.

The distance of the pool equipment pad from the nearest edge of the pool = $20\ ft$. (max.)

1. Friction loss (in suction/trunk pipe) in 2.0" pipe per ft at $f_{suction} := 0.1$

2. Friction loss (in return pipe) in 2.0" pipe per ft at $f_{return} := 0.16$

3. Length of suction pipe $L_{suction} := 70\ ft$

   TDH in suction pipe $TDH_{suction} := L_{suction} \cdot f_{suction} = 7\ ft$

4. Length of return pipe $L_{return} := 100\ ft$

   TDH in return pipe $TDH_{return} := L_{return} \cdot f_{return} = 16\ ft$

5. TDH in Piping $TDH_{piping} := TDH_{suction} + TDH_{return} = 23\ ft$

6. Filter loss in TDH $TDH_{filter} := 7\ ft$

7. Heater loss in TDH $TDH_{heater} := 0\ ft$

8. All other losses $TDH_{other} := 14\ ft$ ...head losses in fittings, etc

9. Total simplified TDH $TDH := TDH_{piping} + TDH_{filter} + TDH_{heater} + TDH_{other} = 44\ ft$

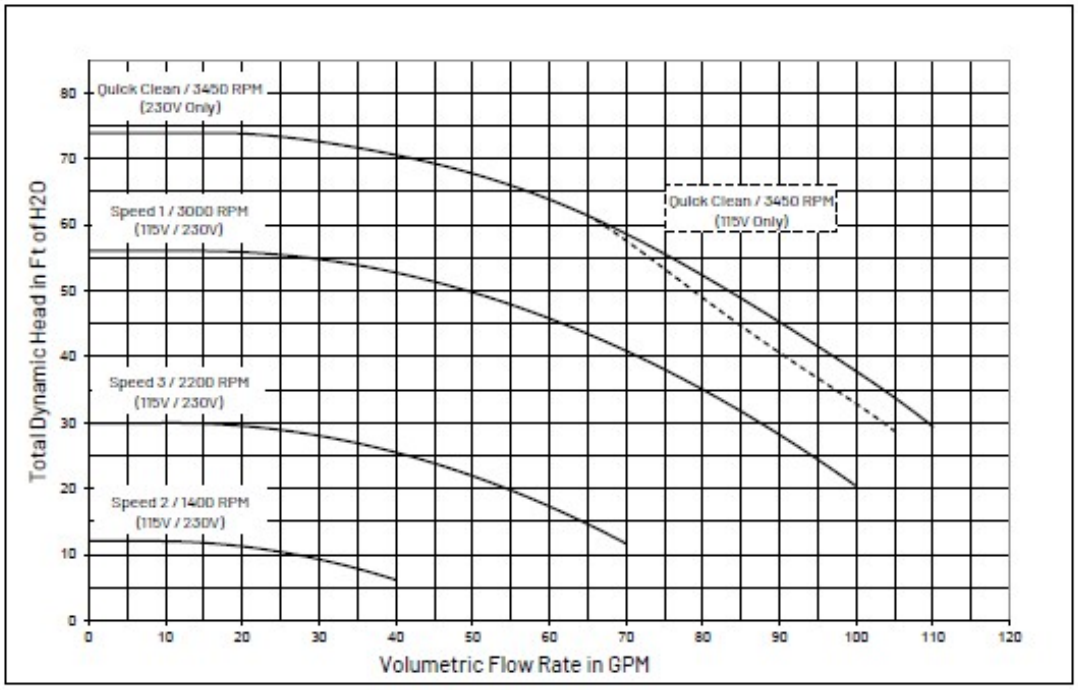
Filter (As Listed or Equal): Pentair CCRP 150 Cartridge

Pool Recir. Pump (As Listed or Equal):

Manufacturer : Pentair Model : Superflo VS Size / HP = 1.5

Maximum flow rate, $Q = 36$ *gpm* Total simplified TDH, $TDH = 44$ *ft*

PERFORMANCE CURVES



Main Drain Cover (As Listed or Equal):

Manufacturer : CMP Model : 25506-32X-VGBA

Max. cover flow rate (floor) = 184 gpm Cover Replacement Date = 7 years

Notes :

1. In flow suction outlets cover/grate must conform to most recent edition of ASME/ANSI A112.19.8 and be embossed with that edition approval. Single drains shall be unblockable.
2. Center to center spacing of multiple drains shall be at least 3'-0".
3. Pump and Filter make, model and location cannot change without submitting a revised plan TDH worksheet.