

HYDRAULIC DESIGN INFORMATION SHEET

Name - 124-126 VERANDA STREET Date - 4-2-15
Location - PORTLAND, MAINE
Building - 2ND FLOOR System No. - 1
Contractor - MAINE INVESTMENT PROPERTIES Contract No. - C15004
Calculated By - SJC Drawing No. - 1 OF 1
Construction: (X) Combustible () Non-Combustible Ceiling Height 8 FT
OCCUPANCY - RESIDENTIAL / DUPLEX

S Type of Calculation: ()NFPA 13 Residential (X)NFPA 13R ()NFPA 13D
Y Number of Sprinklers Flowing: ()1 (X)2 ()4 ()
S ()Other
T ()Specific Ruling Made by Date
E
M Listed Flow at Start Point - 13 Gpm System Type
Listed Pres. at Start Point - 10.6 Psi (X) Wet () Dry
D MAXIMUM LISTED SPACING 16 x 16 () Deluge () PreAction
E Domestic Flow Added - 0 Gpm Sprinkler or Nozzle
S Additional Flow Added - 0 Gpm Make VIKING Model VK486
I Elevation at Highest Outlet - 22 Feet Size 1/2" K-Factor 4.0
G Note:SAFETY MARGIN 50.67 PSI Temperature Rating 155
N

Calculation Gpm Required 26.620 Psi Required 50.253 At Test
Summary C-Factor Used: Overhead 150 Underground 120

W Water Flow Test: Pump Data: Tank or Reservoir:
A Date of Test - 3-9-2012 Rated Cap. Cap.
T Time of Test - @ Psi Elev.
E Static (Psi) - 102 Elev.
R Residual (Psi) - 20 Other Well
Flow (Gpm) - 1150 Proof Flow Gpm
S Elevation - 0

P Location: VERANDA STREET AT FAIRFIELD STREET

L Source of Information: PORTLAND WATER DISTRICT

Y

Water Supply Curve (C)

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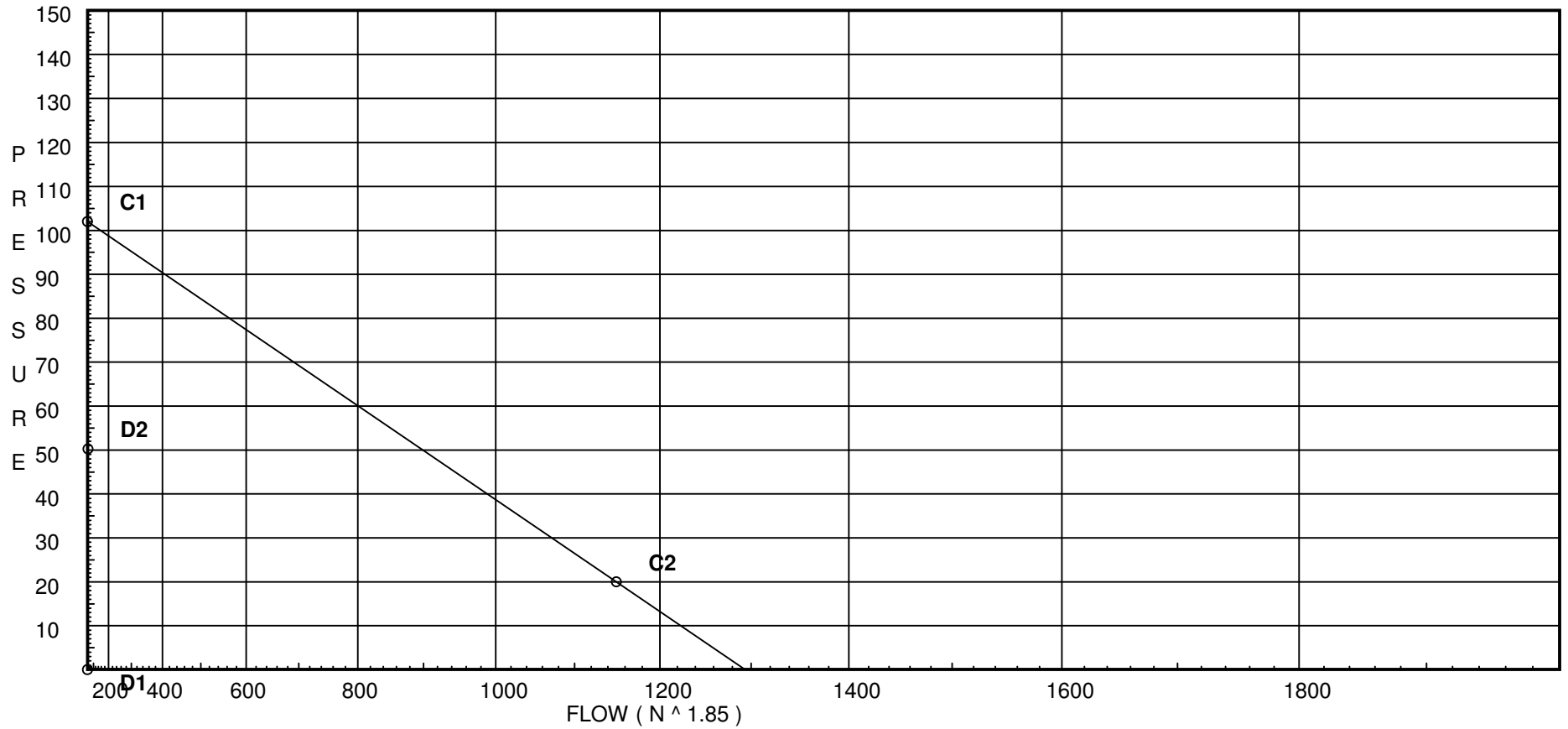
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City Water Supply:

C1 - Static Pressure : 102
C2 - Residual Pressure: 20
C2 - Residual Flow : 1150

Demand:

D1 - Elevation : _____
D2 - System Flow : 26.6204
D2 - System Pressure : 50.253
Hose (Adj City) : _____
Hose (Demand) : _____
D3 - System Demand : 26.6204
Safety Margin : 51.670



Fittings Used Summary

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Fitting Legend

Abbrev.	Name	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	8	10	12	14	16	18	20	24
E	90' Standard Elbow	2	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61
N	CPVC 90'El Harvel-Spears	7	7	7	8	9	11	12	13	0	0	0	0	0	0	0	0	0	0	0	0
O	CPVC Tee - Branch	3	3	5	6	8	10	12	15	0	0	0	0	0	0	0	0	0	0	0	0
T	90' Flow thru Tee	3	4	5	6	8	10	12	15	17	20	25	30	35	50	60	71	81	91	101	121
Z	Generic Flow Switch	2	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61
Zwa	Watts 007	Fitting generates a Fixed Loss Based on Flow																			

Pressure / Flow Summary - STANDARD

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Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
1	22.0	4	10.6	na	13.02	0.1	130	10.6
2	22.0	4	11.56	na	13.6	0.1	130	10.6
10	22.0		12.3	na				
11	22.0		13.92	na				
12	22.0		15.51	na				
13	22.0		24.07	na				
TR	1.0		40.83	na				
BR	1.0		48.08	na				
TEST	22.0		50.25	na				

The maximum velocity is 14.24 and it occurs in the pipe between nodes 11 and 12

Final Calculations - Hazen-Williams

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Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
1 to 10	13.02 13.02	0.874 150 0.0947	1N 7.0 1O 3.0	8.000 10.000 18.000	10.600 0.0 1.705		K Factor = 4.00 Vel = 6.96		
	0.0 13.02					12.305	K Factor = 3.71		
2 to 11	13.60 13.6	0.874 150 0.1026	2O 6.0 1N 7.0	10.000 13.000 23.000	11.556 0.0 2.359		K Factor = 4.00 Vel = 7.27		
	0.0 13.60					13.915	K Factor = 3.65		
10 to 11	13.02 13.02	0.874 150 0.0947	1N 7.0 0.0	10.000 7.000 17.000	12.305 0.0 1.610		Vel = 6.96		
11 to 12	13.60 26.62	0.874 150 0.3556	1O 3.0 0.0	1.500 3.000 4.500	13.915 0.0 1.600		Vel = 14.24		
12 to 13	0.0 26.62	0.874 150 0.3555	1T 8.053 1E 4.026	12.000 12.078 24.078	15.515 0.0 8.560		Vel = 14.24		
13 to TR	0.0 26.62	1.049 120 0.2209	1T 5.0 2E 4.0	25.666 9.000 34.666	24.075 9.095 7.656		Vel = 9.88		
TR to BR	0.0 26.62	1.049 120 0.2208	1Z 2.0 1Zwa 0.0	3.660 2.000 5.660	40.826 6.000 1.250		* Fixed loss = 6 Vel = 9.88		
BR to TEST	0.0 26.62	0.911 150 0.2905	1T 3.801 0.0	35.000 3.801 38.801	48.076 -9.095 11.272		Vel = 13.10		
	0.0 26.62					50.253	K Factor = 3.76		