

. . . Fire Protection by Computer Design

FREEDOM FIRE PROTECTION INC.
209 QUAKER RIDGE ROAD
CASCO, MAINE 04015
207-627-4109

Job Name : 457 ISLAND AVENUE
Building : 457 ISLAND AVENUE, PEAKS ISLAND
Location : PORTLAND, MAINE 04108
System : #1 AREA #1
Contract :
Data File : 457 ISLAND AVENUE HC.WXF

HYDRAULIC DESIGN INFORMATION SHEET

Name - 457 ISLAND AVENUE Date - 3/6/12
Location - PORTLAND, MAINE 04108
Building - 457 ISLAND AVENUE, PEAKS ISLAND System No. - #1 AREA #1
Contractor - FREEDOM FIRE PROTECTION Contract No. -
Calculated By - MICHAEL NOBLIT Drawing No. - FP-1
Construction: (X) Combustible () Non-Combustible Ceiling Height 8'-0"
OCCUPANCY - HOME

S Type of Calculation: (X)NFPA 13 Residential ()NFPA 13R (X)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 - 14 Gpm System Type
Listed Pres. at Start Point - 11.1 Psi (X) Wet () Dry
D MAXIMUM LISTED SPACING 14' x 14' () Deluge () PreAction
E Domestic Flow Added - 0 Gpm Sprinkler or Nozzle
S Additional Flow Added - 0 Gpm Make TYCO Model LFII
I Elevation at Highest Outlet - 22'-0"Feet Size 1/2" K-Factor 4.2
G Note: Temperature Rating 155
N

Calculation Gpm Required 28.053 Psi Required 60.601 At Test
Summary C-Factor Used: Overhead 150 Underground 140

W Water Flow Test: Pump Data: Tank or Reservoir:
A Date of Test - 8/19/2004 Rated Cap. Cap.
T Time of Test - @ Psi Elev.
E Static (Psi) - 94 Elev.
R Residual (Psi) - 27 Other Well
Flow (Gpm) - 290 Proof Flow Gpm
S Elevation -

P Location:
P
L Source of Information: PORTLAND WATER DISTRICT
Y

Water Supply Curve (C)

FREEDOM FIRE PROTECTION INC.
457 ISLAND AVENUE

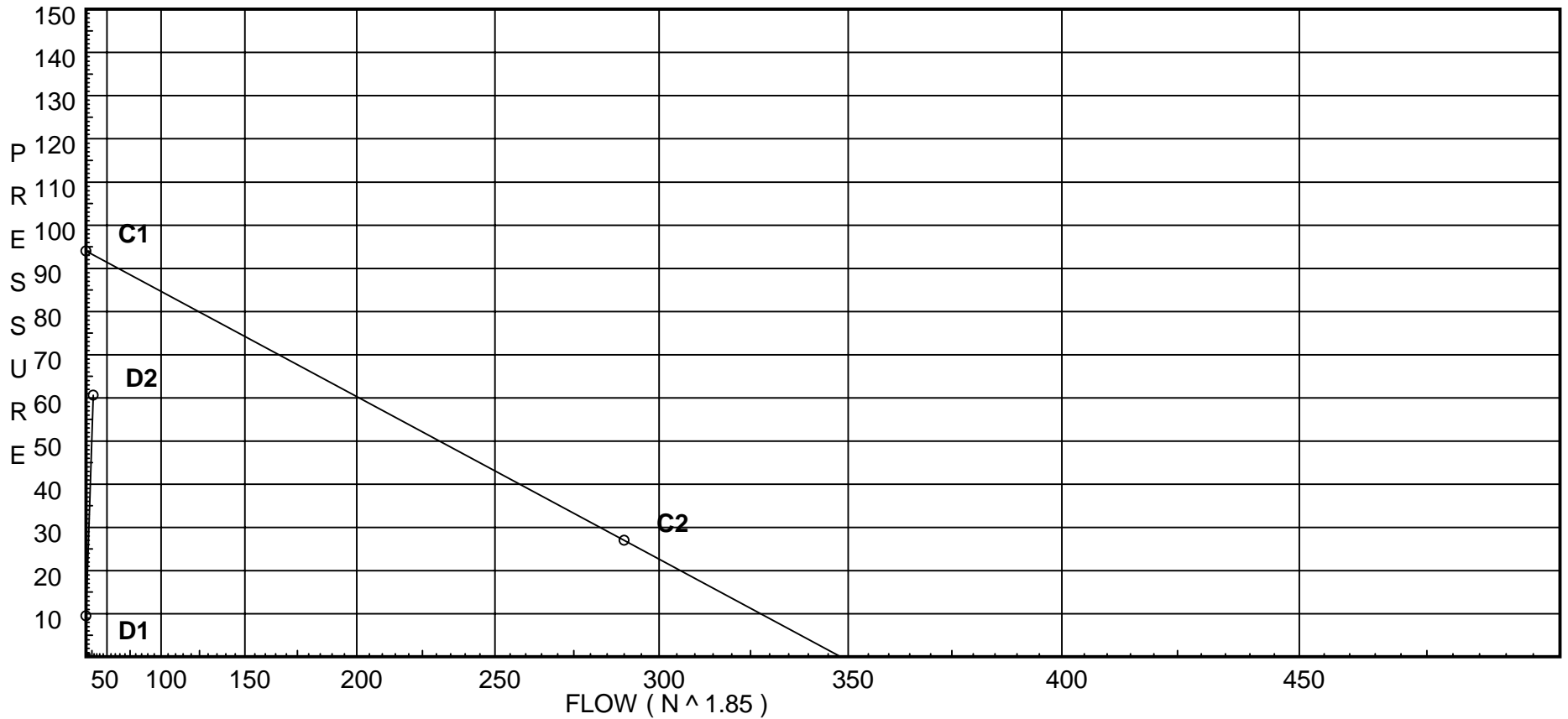
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City Water Supply:

C1 - Static Pressure : 94
C2 - Residual Pressure: 27
C2 - Residual Flow : 290

Demand:

D1 - Elevation : 9.528
D2 - System Flow : 28.0535
D2 - System Pressure : 60.601
Hose (Adj City) : _____
Hose (Demand) : _____
D3 - System Demand : 28.0535
Safety Margin : 32.509



Fittings Used Summary

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Fitting Legend

Abbrev.	Name	½	¾	1	1¼	1½	2	2½	3	3½	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
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
Zaa	Ames 2000B	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.
101	22.0	4.2	11.21	na	14.06	0.05	0.001	11.1
8	22.0		11.88	na				
7	4.0		20.45	na				
102	22.0	4.2	11.1	na	13.99	0.05	0.001	11.1
6	22.0		11.45	na				
5	4.0		20.22	na				
4	4.0		20.67	na				
3	4.0		20.9	na				
2	4.0		24.59	na				
1	0.0		31.05	na				
0	0.0		57.57	na				
TEST	0.0		60.6	na				

The maximum velocity is 20.64 and it occurs in the pipe between nodes 1 and 0

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
101 to 8	14.06	1.101 150	4E 15.3	3.660 15.301	11.207 0.0			K Factor = 4.20	
8 to 7	14.06	0.0355 1.101 150	0.0	18.961	0.673			Vel = 4.74	
8 to 7	0.0	1.101 150	1E 3.825	18.000	11.880				
7 to 3	14.06	0.0354 1.049 120	0.0	21.825	0.773			Vel = 4.74	
7 to 3	0.0	1.049 120	1T 5.0	1.660	20.449				
3	14.06	0.0679	0.0	6.660	0.452			Vel = 5.22	
	0.0 14.06					20.901		K Factor = 3.08	
102 to 6	13.99	1.101 150	1T 9.563	0.500	11.100			K Factor = 4.20	
6 to 5	13.99	0.0352 1.101 150	0.0	10.062	0.354			Vel = 4.71	
6 to 5	0.0	1.101 150	1T 9.563	18.000	11.454				
5 to 4	13.99	0.0351 1.049 120	0.0	27.562	0.968			Vel = 4.71	
5 to 4	0.0	1.049 120	1T 5.0	1.660	20.218				
4 to 3	13.99	0.0673 1.049 120	0.0	6.660	0.448			Vel = 5.19	
4 to 3	0.0	1.049 120	0.0	3.500	20.666				
3 to 2	13.99	0.0671 1.049 120	0.0	3.500	0.235			Vel = 5.19	
3 to 2	14.06	1.049 120	1E 2.0	13.166	20.901				
2 to 1	28.05	0.2434 1.049 120	0.0	15.166	3.691			Vel = 10.41	
2 to 1	0.0	1.049 120	1Zaa 0.0	3.000	24.592			* Fixed loss = 4	
1 to 0	28.05	0.2433 0.745 150	0.0	3.000	0.730			Vel = 10.41	
1 to 0	0.0	0.745 150	1T 3.7	15.000	31.054				
0 to TEST	28.05	0.8526 1.101 150	0.0	20.550	17.521			* Fixed loss = 9	
0 to TEST	0.0	1.101 150	1E 1.85	5.550	9.000			Vel = 20.64	
0 to TEST	0.0	6.16 140	0.0	800.000	57.575			* Fixed loss = 3	
TEST	28.05	0.0	0.0	800.000	0.026			Vel = 0.30	
	0.0 28.05					60.601		K Factor = 3.60	