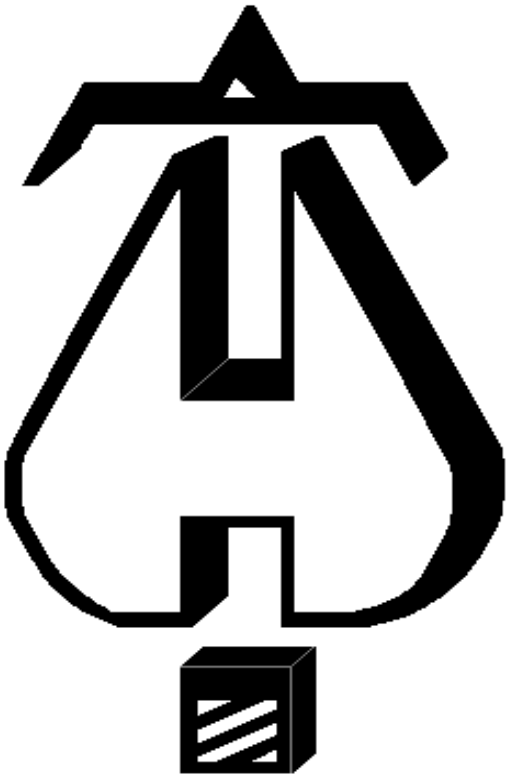


. . . Fire Protection by Computer Design

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

Job Name : RICK HOLDEN RESIDENCE HC1
Building : 20 BALLPARK LANE
Location : PORTLAND, MAINE 04103
System : #1 AREA #1
Contract :
Data File : Rick Holden Residence HC1.WXF

HYDRAULIC DESIGN INFORMATION SHEET

Name - RICK HOLDEN RESIDENCE Date - 4/20/12
Location - PORTLAND, MAINE 04103
Building - 20 BALLPARK LANE System No. - #1 AREA #1
Contractor - FREEDOM FIRE PROTECTION Contract No. -
Calculated By - MICHAEL NOBLIT Drawing No. - FP-2
Construction: (X) Combustible ( ) Non-Combustible Ceiling Height 8'-3"
OCCUPANCY - HOUSE

SYSTEM DESIGN

Type of Calculation: (X)NFPA 13 Residential ( )NFPA 13R (X)NFPA 13D
Number of Sprinklers Flowing: ( )1 (X)2 ( )4 ( )
( )Other
( )Specific Ruling Made by Date

Listed Flow at Start Point - 14 Gpm System Type
Listed Pres. at Start Point - 10.1 Psi (X) Wet ( ) Dry
MAXIMUM LISTED SPACING 14 x 14 ( ) Deluge ( ) PreAction
Domestic Flow Added - 0 Gpm Sprinkler or Nozzle
Additional Flow Added - 0 Gpm Make TYCO Model LFII
Elevation at Highest Outlet - 25'-7"Feet Size 1/2" K-Factor 4.4
Note: Temperature Rating 155

Calculation Summary — Gpm Required 28.197 Psi Required 57.879 At Test
C-Factor Used: Overhead 150 Underground 150

WATER SUPPLY

Water Flow Test:	Pump Data:	Tank or Reservoir:
Date of Test - 1/24/2012	Rated Cap.	Cap.
Time of Test -	@ Psi	Elev.
Static (Psi) - 63	Elev.	
Residual (Psi) - 0	Other	Well
Flow (Gpm) - 838		Proof Flow Gpm
Elevation -		

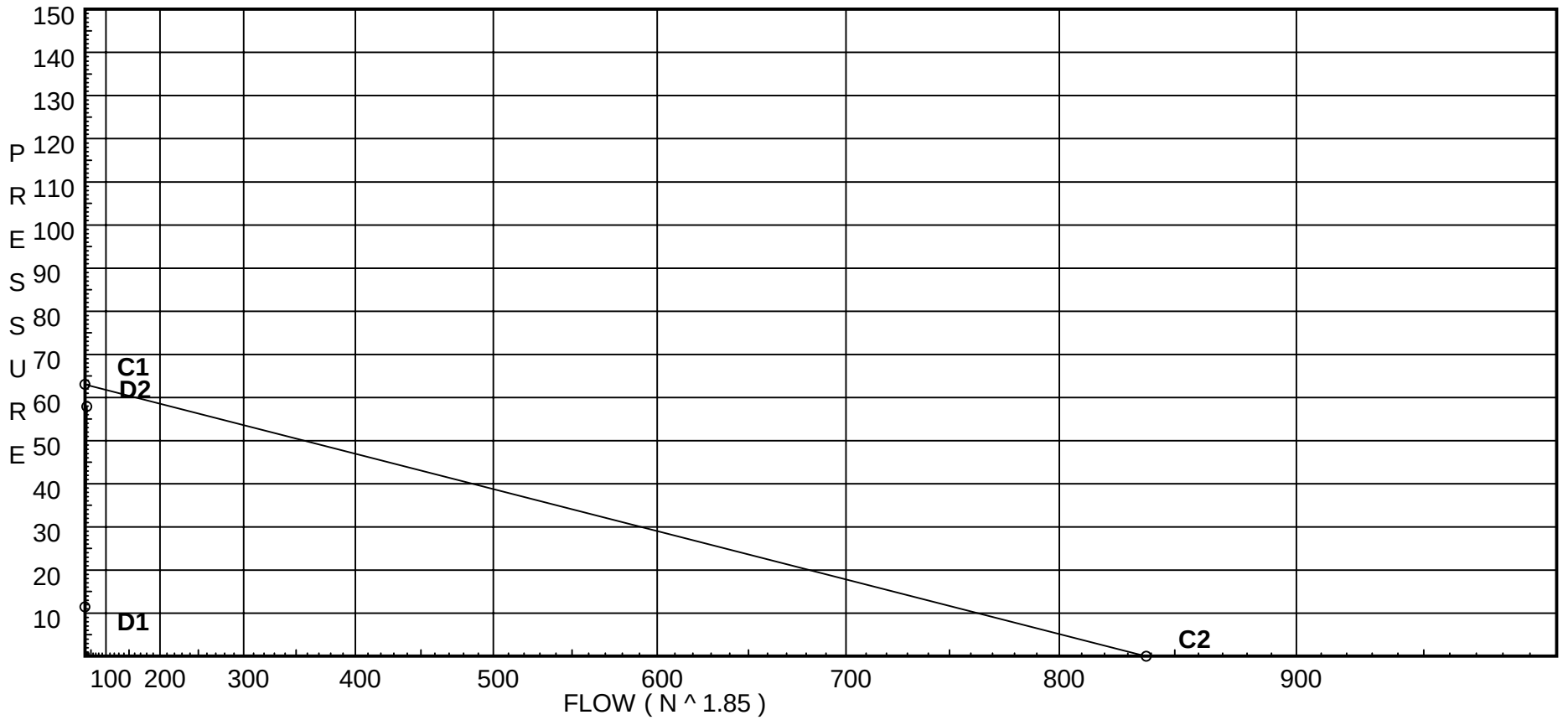
Location:

Source of Information: PORTLAND WATER DISTRICT

City Water Supply:
- C1 - Static Pressure : 63
- C2 - Residual Pressure: 0
- C2 - Residual Flow : 838

Demand:

D1 - Elevation	:	11.423
D2 - System Flow	:	28.1969
D2 - System Pressure	:	57.879
Hose (Adj City)	:	
Hose (Demand)	:	
D3 - System Demand	:	28.1969
Safety Margin	:	5.003



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																			

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
101	26.375	4.4	10.1	na	13.98	0.05	0.001	10.1
102	26.375	4.4	10.44	na	14.21	0.05	0.001	10.1
9	26.375		10.45	na				
8	18.292		15.48	na				
7	18.292		18.94	na				
6	18.292		22.35	na				
5	18.292		22.9	na				
4	7.166		30.39	na				
3	7.166		33.91	na				
2	7.166		39.31	na				
1	0.0		47.35	na				
0	0.0		57.88	na				
TEST	0.0		57.88	na				

The maximum velocity is 10.47 and it occurs in the pipe between nodes 4 and 3

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	13.98	1.101	1T	9.563	0.500	10.100		K Factor = 4.40
to		150		0.0	9.562	0.0		
9	13.98	0.0351		0.0	10.062	0.353		Vel = 4.71
	0.0							
	13.98					10.453		K Factor = 4.32
102	14.21	1.101		0.0	0.500	10.435		K Factor = 4.40
to		150		0.0	0.0	0.0		
9	14.21	0.0360		0.0	0.500	0.018		Vel = 4.79
9	13.99	1.101	1E	3.825	8.083	10.453		
to		150		0.0	3.825	3.501		
8	28.2	0.1285		0.0	11.908	1.530		Vel = 9.50
8	0.0	1.101	1E	3.825	13.500	15.484		
to		150	1T	9.563	13.387	0.0		
7	28.2	0.1284		0.0	26.887	3.453		Vel = 9.50
7	0.0	1.101	1T	9.563	17.000	18.937		
to		150		0.0	9.562	0.0		
6	28.2	0.1285		0.0	26.562	3.412		Vel = 9.50
6	0.0	1.101	1E	3.825	0.500	22.349		
to		150		0.0	3.825	0.0		
5	28.2	0.1286		0.0	4.325	0.556		Vel = 9.50
5	0.0	1.101	1T	9.563	11.166	22.905		
to		150		0.0	9.562	4.819		
4	28.2	0.1284		0.0	20.728	2.662		Vel = 9.50
4	0.0	1.049	1T	5.0	9.330	30.386		
to		120		0.0	5.000	0.0		
3	28.2	0.2456		0.0	14.330	3.520		Vel = 10.47
3	0.0	1.049	1E	2.0	20.000	33.906		
to		120		0.0	2.000	0.0		
2	28.2	0.2457		0.0	22.000	5.405		Vel = 10.47
2	0.0	1.38	1Zaa	0.0	6.166	39.311		
to		120		0.0	0.0	7.637		* Fixed loss = 4.533
1	28.2	0.0645		0.0	6.166	0.398		Vel = 6.05
1	0.0	1.329	1E	2.375	120.000	47.346		
to		150	1T	4.75	7.125	4.000		* Fixed loss = 4
0	28.2	0.0514		0.0	127.125	6.530		Vel = 6.52
0	0.0	8.27	1T	55.354	250.000	57.876		
to		140		0.0	55.354	0.0		
TEST	28.2	0.0		0.0	305.354	0.003		Vel = 0.17
	0.0							
	28.20					57.879		K Factor = 3.71