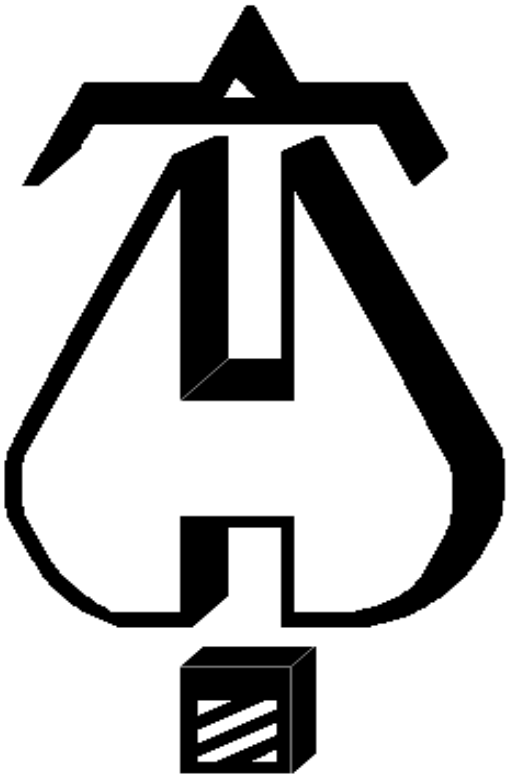


. . . Fire Protection by Computer Design

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

Job Name : 243 STATE STREET HC1
Building : 243 STATE STREET
Location : PORTLAND, MAINE 04101
System : #1 AREA #1
Contract :
Data File : 243 State Street HC.WXF

HYDRAULIC DESIGN INFORMATION SHEET

Name - 243 STATE STREET Date - 7/12/11
Location - PORTLAND, MAINE 04101
Building - 243 STATE STREET 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 VARIES
OCCUPANCY - APARTMENTS

SYSTEM DESIGN

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

Listed Flow at Start Point - 16 Gpm System Type
Listed Pres. at Start Point - 14.5 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 - 39'-4"Feet Size 1/2" K-Factor 4.2
Note: Temperature Rating 155

Calculation Summary — Gpm Required 32.351 Psi Required 48.696 At Test
C-Factor Used: Overhead 120 Underground

WATER SUPPLY

Water Flow Test:
Date of Test -
Time of Test -
Static (Psi) -
Residual (Psi) -
Flow (Gpm) -
Elevation -

Pump Data:
Rated Cap. 50
@ Psi 50
Elev.
Other

Tank or Reservoir:
Cap.
Elev.

Well
Proof Flow Gpm

PLAY

Location:

Source of Information:

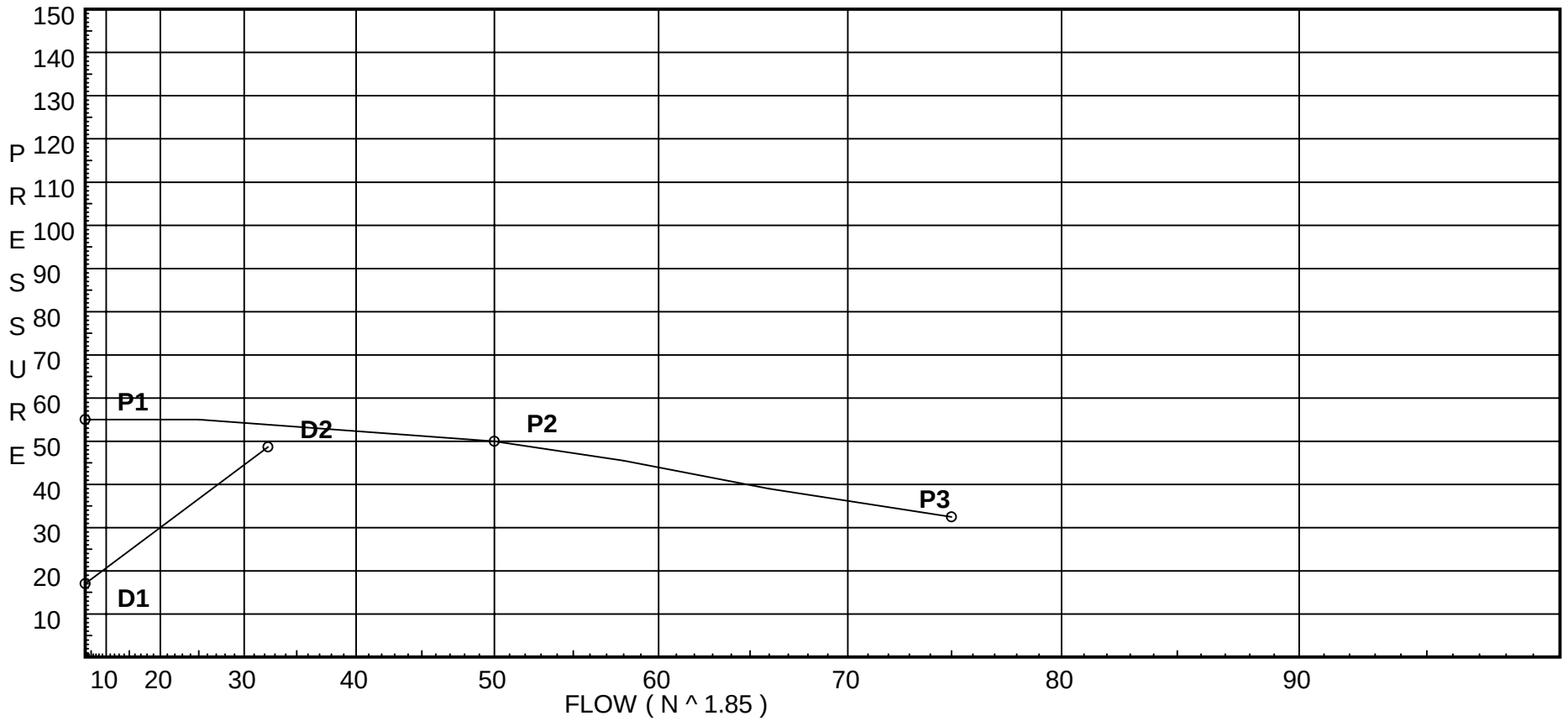
FREEDOM FIRE PROTECTION INC.
243 STATE STREET HC1

Pump Data:

P1 - Pump Churn Pressure	:	55
P2 - Pump Rated Pressure	:	50
P2 - Pump Rated Flow	:	50
P3 - Pump Pressure @ Max Flow	:	32.5
P3 - Pump Max Flow	:	75

Demand:

D1 - Elevation	:	17.034
D2 - System Flow	:	32.3506
D2 - System Pressure	:	48.696
Hose (Adj City)	:	
Hose (Demand)	:	
D3 - System Demand	:	32.3506
Safety Margin	:	5.123



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
S	Generic Swing Check Vlv	4	5	5	7	9	11	14	16	19	22	27	32	45	55	65	76	87	98	109	130
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

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
101	39.33	4.2	15.17	na	16.36	0.05	0.001	14.5
102	39.33	4.2	14.5	na	15.99	0.05	0.001	14.5
9	39.33		14.97	na				
8	39.33		15.66	na				
7	39.33		21.55	na				
6	39.33		22.1	na				
5	29.33		27.77	na				
4	29.33		30.19	na				
3	7.66		41.88	na				
2	7.66		44.07	na				
1	1.0		48.18	na				
TEST	0.0		48.7	na				

The maximum velocity is 12.01 and it occurs in the pipe between nodes 8 and 7

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	16.36	1.049	1T	5.0	0.500	15.168		K Factor = 4.20
to		120		0.0	5.000	0.0		
8	16.36	0.0898		0.0	5.500	0.494		Vel = 6.07
	0.0							
	16.36					15.662		K Factor = 4.13
102	15.99	1.049	1T	5.0	0.500	14.500		K Factor = 4.20
to		120		0.0	5.000	0.0		
9	15.99	0.0860		0.0	5.500	0.473		Vel = 5.94
9	0.0	1.049		0.0	8.000	14.973		
to		120		0.0	0.0	0.0		
8	15.99	0.0861		0.0	8.000	0.689		Vel = 5.94
8	16.36	1.049	1E	2.0	11.583	15.662		
to		120	1T	5.0	7.000	0.0		
7	32.35	0.3167		0.0	18.583	5.886		Vel = 12.01
7	0.0	1.38	1T	6.0	0.660	21.548		
to		120		0.0	6.000	0.0		
6	32.35	0.0833		0.0	6.660	0.555		Vel = 6.94
6	0.0	1.38	1T	6.0	10.000	22.103		
to		120		0.0	6.000	4.331		
5	32.35	0.0833		0.0	16.000	1.333		Vel = 6.94
5	0.0	1.38	2E	6.0	17.083	27.767		
to		120	1T	6.0	12.000	0.0		
4	32.35	0.0833		0.0	29.083	2.423		Vel = 6.94
4	0.0	1.38	1T	6.0	21.660	30.190		
to		120		0.0	6.000	9.385		
3	32.35	0.0833		0.0	27.660	2.305		Vel = 6.94
3	0.0	1.38	1T	6.0	20.330	41.880		
to		120		0.0	6.000	0.0		
2	32.35	0.0833		0.0	26.330	2.194		Vel = 6.94
2	0.0	1.38	1S	7.0	7.660	44.074		
to		120		0.0	7.000	2.884		
1	32.35	0.0834		0.0	14.660	1.222		Vel = 6.94
1	0.0	1.38		0.0	1.000	48.180		
to		120		0.0	0.0	0.433		
TEST	32.35	0.0830		0.0	1.000	0.083		Vel = 6.94
	0.0							
	32.35					48.696		K Factor = 4.64