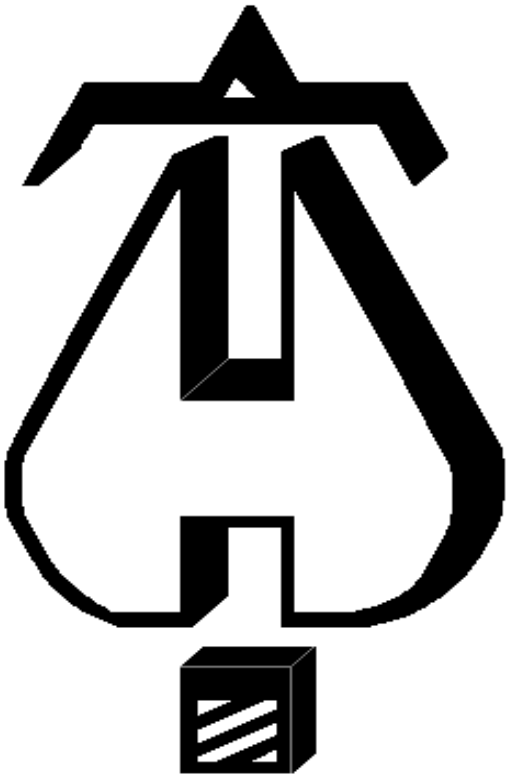


. . . Fire Protection by Computer Design

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

Job Name : 243 STATE STREET HC2
Building : 243 STATE STREET
Location : PORTLAND, MAINE 04101
System : #1 AREA #2
Contract :
Data File : 243 State Street HC2.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 #2
Contractor - FREEDOM FIRE PROTECTION Contract No. -
Calculated By - MICHAEL NOBLIT Drawing No. - FP-2
Construction: (X) Combustible ( ) Non-Combustible Ceiling Height 10'-0"
OCCUPANCY - APARTMENTS

SYSTEM DESIGN

Type of Calculation: (X)NFPA 13 Residential (X)NFPA 13R ( )NFPA 13D
Number of Sprinklers Flowing: ( )1 ( )2 ( )4 (X)3
( )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 16 x 16 ( ) Deluge ( ) PreAction
Domestic Flow Added - 0 Gpm Sprinkler or Nozzle
Additional Flow Added - 0 Gpm Make TYCO Model LFII
Elevation at Highest Outlet - 29'-4"Feet Size 1/2" K-Factor 4.2
Note: Temperature Rating 155

Calculation Summary — Gpm Required 49.344 Psi Required 44.081 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

Location:

Source of Information:

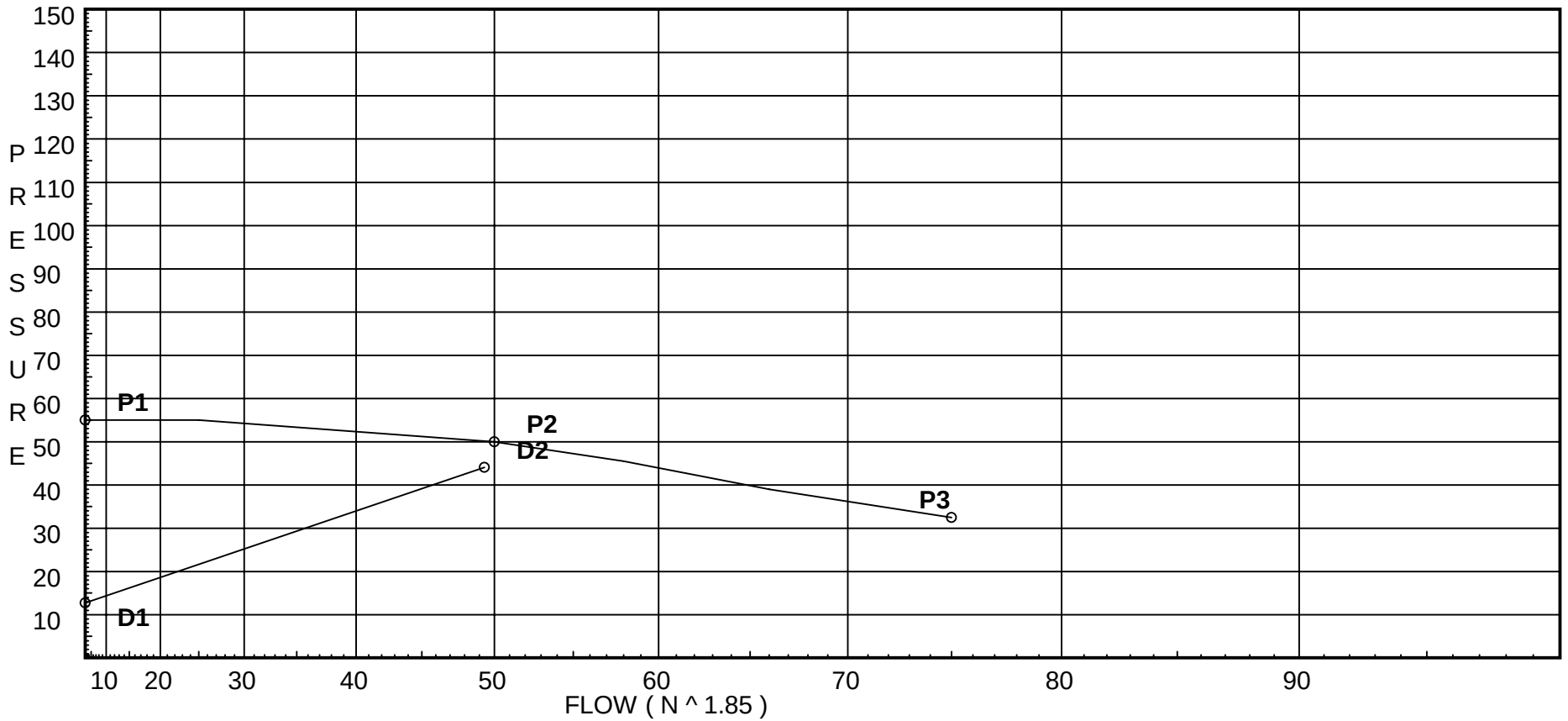
FREEDOM FIRE PROTECTION INC.
243 STATE STREET HC2

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	:	12.703
D2 - System Flow	:	49.3439
D2 - System Pressure	:	44.081
Hose (Adj City)	:	
Hose (Demand)	:	
D3 - System Demand	:	49.3439
Safety Margin	:	6.086



FREEDOM FIRE PROTECTION INC.
243 STATE STREET HC2

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.
201	29.33	4.2	15.61	na	16.59	0.05	0.001	14.5
27	29.33		17.24	na				
26	29.33		17.36	na				
203	29.33	4.2	14.5	na	15.99	0.05	0.001	14.5
202	29.33	4.2	15.92	na	16.76	0.05	0.001	14.5
25	29.33		16.62	na				
24	29.33		17.05	na				
23	29.33		17.43	na				
22	29.33		19.16	na				
21	17.67		29.24	na				
20	17.67		31.43	na				
2	7.66		37.91	na				
1	1.0		43.47	na				
TEST	0.0		44.08	na				

The maximum velocity is 10.58 and it occurs in the pipe between nodes 23 and 22

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
201	16.59	1.049	4E	8.0	9.750	15.608		K Factor = 4.20
to		120		0.0	8.000	0.0		
27	16.59	0.0921		0.0	17.750	1.635		Vel = 6.16
27	0.0	1.38	1E	3.0	2.000	17.243		
to		120		0.0	3.000	0.0		
26	16.59	0.0242		0.0	5.000	0.121		Vel = 3.56
26	0.0	1.38		0.0	2.830	17.364		
to		120		0.0	0.0	0.0		
23	16.59	0.0244		0.0	2.830	0.069		Vel = 3.56
	0.0							
	16.59					17.433		K Factor = 3.97
203	15.99	1.049	1E	2.0	9.500	14.500		K Factor = 4.20
to		120	1T	5.0	7.000	0.0		
202	15.99	0.0861		0.0	16.500	1.420		Vel = 5.94
202	16.76	1.38	1E	3.0	5.250	15.920		K Factor = 4.20
to		120		0.0	3.000	0.0		
25	32.75	0.0852		0.0	8.250	0.703		Vel = 7.02
25	0.0	1.38	1E	3.0	2.000	16.623		
to		120		0.0	3.000	0.0		
24	32.75	0.0852		0.0	5.000	0.426		Vel = 7.02
24	0.0	1.38		0.0	4.500	17.049		
to		120		0.0	0.0	0.0		
23	32.75	0.0853		0.0	4.500	0.384		Vel = 7.02
23	16.59	1.38	1T	6.0	3.500	17.433		
to		120		0.0	6.000	0.0		
22	49.34	0.1819		0.0	9.500	1.728		Vel = 10.58
22	0.0	1.38	1T	6.0	21.660	19.161		
to		120		0.0	6.000	5.050		
21	49.34	0.1820		0.0	27.660	5.033		Vel = 10.58
21	0.0	1.38	1E	3.0	3.000	29.244		
to		120	1T	6.0	9.000	0.0		
20	49.34	0.1819		0.0	12.000	2.183		Vel = 10.58
20	0.0	1.38	1T	6.0	5.830	31.427		
to		120		0.0	6.000	4.335		
2	49.34	0.1819		0.0	11.830	2.152		Vel = 10.58
2	0.0	1.38	1S	7.0	7.660	37.914		
to		120		0.0	7.000	2.884		
1	49.34	0.1820		0.0	14.660	2.668		Vel = 10.58
1	0.0	1.38		0.0	1.000	43.466		
to		120		0.0	0.0	0.433		
TEST	49.34	0.1820		0.0	1.000	0.182		Vel = 10.58
	0.0							

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*******	Notes	******
49.34				44.081			K Factor = 7.43		