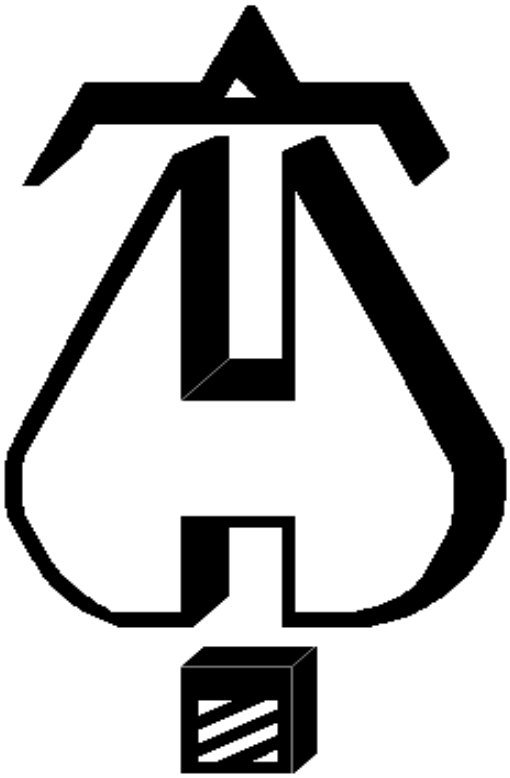


. . . Fire Protection by Computer Design

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

Job Name	:	EAST END LOFTS HC3
Building	:	273 CONGRESS STREET
Location	:	PORTLAND, MAINE 04101
System	:	#1 AREA #3
Contract	:	
Data File	:	EAST END LOFTS HC3.WXF

Hydraulic Design Information Sheet

Name - EAST END LOFTS Date - 5/6/16
Location - PORTLAND, MAINE 04101
Building - 273 CONGRESS STREET System No. - #1 AREA #3
Contractor - Contract No. -
Calculated By - MIKE NOBLIT Drawing No. - FP-2
Construction: (X) Combustible ( ) Non-Combustible Ceiling Height - VARIES
Occupancy - ATTIC

SYSTEM DESIGN

(X) NFPA 13 (X) Lt. Haz. Ord.Haz.Gp. ( ) 1 ( ) 2 ( ) 3 ( ) Ex.Haz.
( ) NFPA 231 ( ) NFPA 231C ( ) Figure Curve
Other
Specific Ruling Made By Date

Area of Sprinkler Operation - 7 SPRINKS	System Type	Sprinkler/Nozzle	
Density - .10	( ) Wet	Make TYCO	
Area Per Sprinkler - 192	(X) Dry	Model BB1	
Elevation at Highest Outlet - 32.66	( ) Deluge	Size 1/2"	
Hose Allowance - Inside -	( ) Preaction	K-Factor 5.6	
Rack Sprinkler Allowance -	( )	Temp.Rat.212	
Hose Allowance - Outside - 100			

Note

Calculation Summary: Flow Required - 280.202 Press Required - 78.877 At Test
C-Factor Used: 100 Overhead 140 Underground

WATER SUPPLY

Water Flow Test:	Pump Data:	Tank or Reservoir:
Date of Test - 8/4/2012		Cap. -
Time of Test -	Rated Cap.-	Elev.-
Static Press - 86	@ Press -	
Residual Press - 0	Elev. -	Well
Flow - 1528		Proof Flow
Elevation - 0		

Location -

Source of Information - PORTLAND WATER DISTRICT

Water Supply Curve (C)

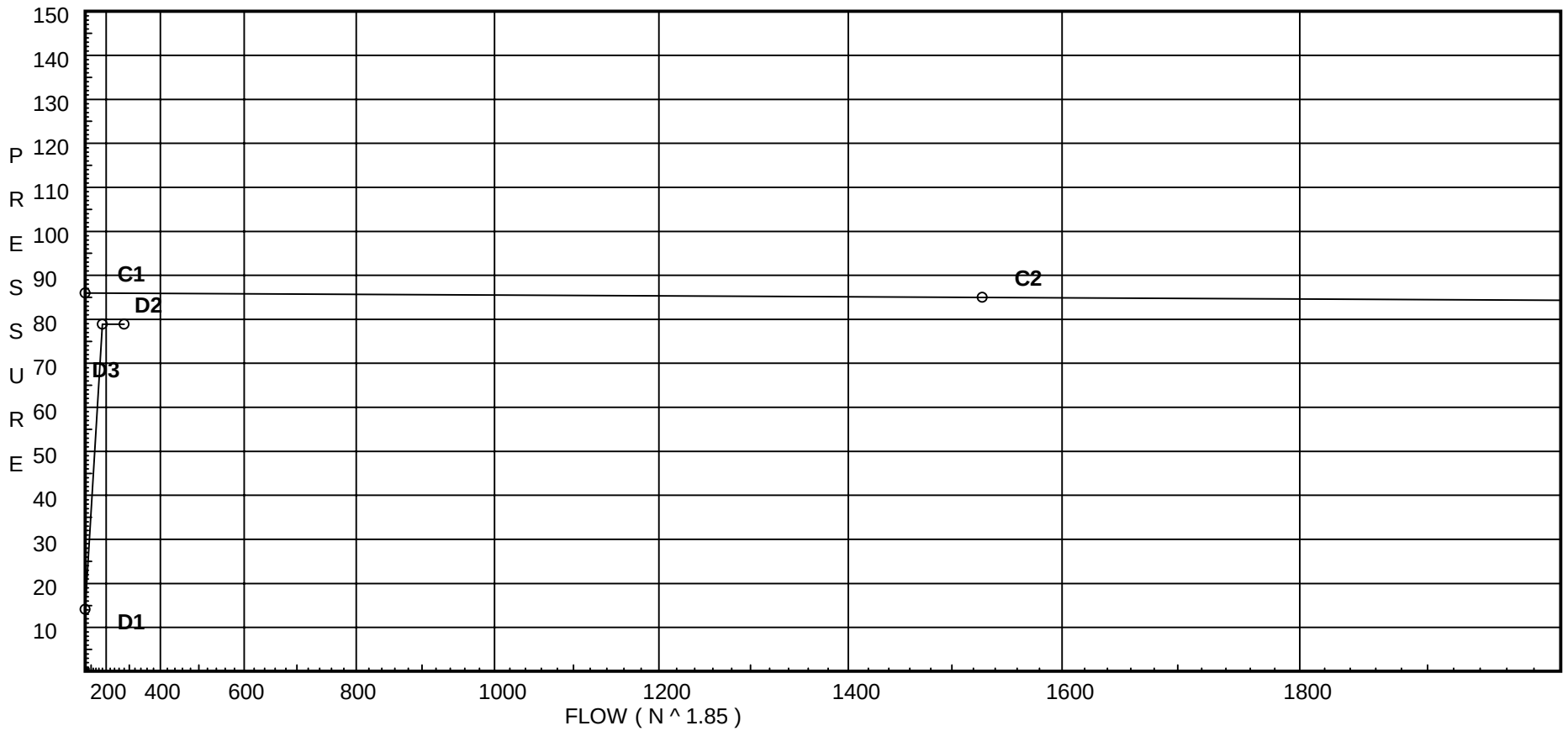
FREEDOM FIRE PROTECTION INC.
EAST END LOFTS HC3

Date 5/6/16

City Water Supply:
- C1 - Static Pressure : 86
- C2 - Residual Pressure: 85
- C2 - Residual Flow : 1528

Demand:

D1 - Elevation	:	14.145
D2 - System Flow	:	180.202
D2 - System Pressure	:	78.876
Hose (Adj City)	:	_____
Hose (Demand)	:	100
D3 - System Demand	:	280.202
Safety Margin	:	7.080



Fittings Used Summary

FREEDOM FIRE PROTECTION INC.
EAST END LOFTS HC3

Fitting Legend

Abbrev.	Name	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8	10	12	14	16	18	20	24
B	Generic Butterfly Valve	0	0	0	0	7	7	7	10	0	12	9	10	12	19	21	0	0	0	0	0
D	Generic Dry Pipe Valve	0	0	0	0	0	0	9.5	17	0	28	0	47	0	0	0	0	0	0	0	0
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
Zac	Ames 2000SS	Fitting generates a Fixed Loss Based on Flow																			

Pressure / Flow Summary - STANDARD

FREEDOM FIRE PROTECTION INC.
EAST END LOFTS HC3

Date 5/6/16

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
307	32.66	5.6	20.0	na	25.04	0.1	192	20.0
306	32.66	5.6	20.05	na	25.07	0.1	192	20.0
305	32.66	5.6	20.23	na	25.19	0.1	192	20.0
304	32.66	5.6	20.61	na	25.42	0.1	192	20.0
303	32.66	5.6	21.26	na	25.82	0.1	192	20.0
302	32.66	5.6	22.25	na	26.42	0.1	192	20.0
301	32.66	5.6	23.66	na	27.24	0.1	192	20.0
45	32.66		36.63	na				
44	26.66		42.53	na				
43	26.66		46.38	na				
42	14.42		53.86	na				
41	14.42		58.2	na				
40	3.0		66.46	na				
3	3.0		68.04	na				
2	3.0		71.84	na				
1	0.0		78.79	na				
TEST	0.0		78.88	na	100.0			

The maximum velocity is 15.82 and it occurs in the pipe between nodes 301 and 45

Final Calculations - One-Line

FREEDOM FIRE PROTECTION INC.
EAST END LOFTS HC3

Ref Pt.	Press Total	K Fact.	Flow Added	Flow Total	Vel	Pipe Diam.	Pipe Length	Fit Sum.	Fit Length	Tot Len	C Fac	Pf perUL	Tot Pf	Elev Press	Fixed Loss	Next Press	Next Ref
307	20.000	5.60	25.04	25.04	2.20	2.157	6.000		0.0	6.000	100	0.0083	0.050	0.0	0.0	20.050	306
306	20.050	5.60	25.08	50.12	4.40	2.157	6.000		0.0	6.000	100	0.0297	0.178	0.0	0.0	20.228	305
305	20.228	5.60	25.19	75.31	6.61	2.157	6.000		0.0	6.000	100	0.0633	0.380	0.0	0.0	20.608	304
304	20.608	5.60	25.42	100.73	8.84	2.157	6.000		0.0	6.000	100	0.1085	0.651	0.0	0.0	21.259	303
303	21.259	5.60	25.82	126.55	11.11	2.157	6.000		0.0	6.000	100	0.1653	0.992	0.0	0.0	22.251	302
302	22.251	5.60	26.41	152.96	13.43	2.157	6.000		0.0	6.000	100	0.2348	1.409	0.0	0.0	23.660	301
301	23.660	5.60	27.24	180.2	15.82	2.157	32.000	1T	8.783	40.783	100	0.3180	12.970	0.0	0.0	36.630	45
45	36.630		0.0	180.2	15.82	2.157	6.000	1E	4.392	10.392	100	0.3179	3.304	2.599	0.0	42.533	44
44	42.533		0.0	180.2	10.60	2.635	20.330	2E	11.758	32.088	100	0.1200	3.850	0.0	0.0	46.383	43
43	46.383		0.0	180.2	10.60	2.635	12.250	1E	5.879	18.129	100	0.1200	2.175	5.301	0.0	53.859	42
42	53.859		0.0	180.2	10.60	2.635	30.330	1E	5.879	36.209	100	0.1200	4.344	0.0	0.0	58.203	41
41	58.203		0.0	180.2	10.60	2.635	11.420	1B1D	16.167	27.587	100	0.1200	3.310	4.946	0.0	66.459	40
40	66.459		0.0	180.2	10.60	2.635	2.000	1T	16.474	18.474	120	0.0856	1.582	0.0	0.0	68.041	3
3	68.041		0.0	180.2	10.60	2.635	5.750	1Zac1E	8.237	13.987	120	0.0856	1.197	0.0	2.599	71.837	2
2	71.837		0.0	180.2	10.60	2.635	31.750	1B3E	34.321	66.071	120	0.0856	5.658	1.299	0.0	78.794	1
1	78.794		0.0	180.2	1.94	6.16	40.000	2E	40.168	80.168	140	0.0010	0.082	0.0	0.0	78.876	TEST
TEST	78.876	31.55	100.00	280.20													