



. . . Fire Protection by Computer Design

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

Job Name : 767 CONGRESS STREET HC2
Building : 767 CONGRESS STREET
Location : PORTLAND, MAINE 04102
System : #1AREA#2
Contract :
Data File : 767 CONGRESS STREET HC2.WXF

Hydraulic Design Information Sheet

Name - 767 CONGRESS STREET Date - 5/13/14
Location - PORTLAND, MAINE 04102
Building - 767 CONGRESS STREET System No. - #1AREA#2
Contractor - Contract No. -
Calculated By - MIKE NOBLIT Drawing No. - FP-3
Construction: (X) Combustible () Non-Combustible Ceiling Height - 4'-0"
Occupancy - ATTIC

S (X) NFPA 13 (X) Lt. Haz. Ord.Haz.Gp. () 1 () 2 () 3 () Ex.Haz.
Y () NFPA 231 () NFPA 231C () Figure Curve

S Other

T Specific Ruling Made By Date

E
M Area of Sprinkler Operation - AREA System Type Sprinkler/Nozzle
Density - .10 (X) Wet Make TYCO
D Area Per Sprinkler - 130 () Dry Model TY-FRB
E Elevation at Highest Outlet - 44.5 () Deluge Size 1/2"
S Hose Allowance - Inside - () Preaction K-Factor 5.6
I Rack Sprinkler Allowance - () Other Temp.Rat.212
G Hose Allowance - Outside - 100

N Note

Calculation Flow Required - 194.973 Press Required - 47.190 At Test
Summary C-Factor Used: 120 Overhead 140 Underground

W Water Flow Test: Pump Data: Tank or Reservoir:
A Date of Test - 8/16/2010 Cap. -
T Time of Test - Rated Cap.- Elev.-
E Static Press - 55 @ Press -
R Residual Press - 0 Elev. - Well
Flow - 1186 Proof Flow
S Elevation - 0

U Location -

P
L Source of Information - PORTLAND WATER DISTRICT
Y

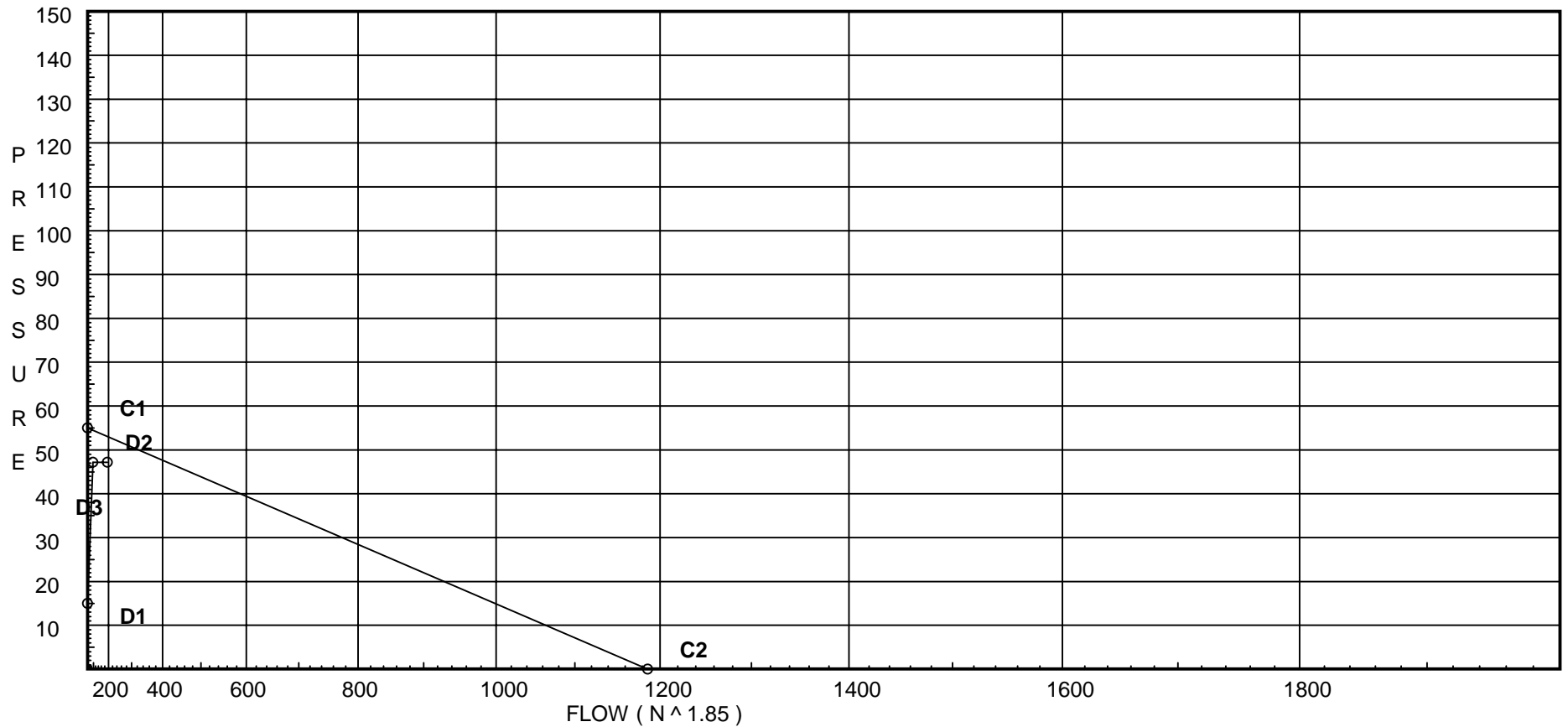
Water Supply Curve (C)

FREEDOM FIRE PROTECTION INC.
767 CONGRESS STREET HC2

Page 2
Date 5/13/14

City Water Supply:
C1 - Static Pressure : 55
C2 - Residual Pressure: 0
C2 - Residual Flow : 1186

Demand:
D1 - Elevation : 14.942
D2 - System Flow : 94.973
D2 - System Pressure : 47.190
Hose (Adj City) : _____
Hose (Demand) : 100
D3 - System Demand : 194.973
Safety Margin : 5.861



Fittings Used Summary

FREEDOM FIRE PROTECTION INC.
767 CONGRESS STREET HC2

Page 3
Date 5/13/14

Fitting Legend

Abbrev.	Name	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	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
Zac	Ames 2000SS	Fitting generates a Fixed Loss Based on Flow																			

Pressure / Flow Summary - STANDARD

FREEDOM FIRE PROTECTION INC.
767 CONGRESS STREET HC2

Page 4
Date 5/13/14

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
201	44.5	5.6	8.84	na	16.65	0.1	130	7.0
203	44.5	5.6	7.67	na	15.51	0.1	130	7.0
202	44.5	5.6	8.61	na	16.43	0.1	130	7.0
23	44.5		9.3	na				
204	44.5	5.6	8.03	na	15.87	0.1	130	7.0
206	44.5	5.6	7.0	na	14.82	0.1	130	7.0
205	44.5	5.6	7.86	na	15.7	0.1	130	7.0
22	44.5		8.5	na				
21	42.5		10.67	na				
20	42.5		11.58	na				
11	42.5		14.42	na				
10	42.5		18.5	na				
9	40.5		19.83	na				
8	30.75		27.48	na				
7	30.75		29.26	na				
6	20.0		35.09	na				
5	20.0		37.07	na				
4	8.33		43.37	na				
3	8.33		43.66	na				
2	8.33		45.28	na				
1	0.0		51.11	na				
TEST	10.0		47.19	na	100.0			

The maximum velocity is 14.97 and it occurs in the pipe between nodes 20 and 11

Final Calculations - One-Line

FREEDOM FIRE PROTECTION INC.
767 CONGRESS STREET HC2

Page 5
Date 5/13/14

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
201	8.836	5.60	16.65	16.65	6.18	1.049	0.050	1T	5.0	5.050	120	0.0927	0.468	0.0	0.0	9.304	23
23	9.304	5.46	0.0	16.65													
203	7.671	5.60	15.51	15.51	5.76	1.049	9.500	1E	2.0	11.500	120	0.0813	0.935	0.0	0.0	8.606	202
202	8.606	5.60	16.43	31.94	6.85	1.38	8.583		0.0	8.583	120	0.0813	0.698	0.0	0.0	9.304	23
23	9.304		16.64	48.58	10.42	1.38	2.000	1T	6.0	8.000	120	0.1769	1.415	0.866	0.0	11.585	20
20	11.585	14.27	0.0	48.58													
204	8.034	5.60	15.87	15.87	5.89	1.049	0.500	1T	5.0	5.500	120	0.0849	0.467	0.0	0.0	8.501	22
22	8.501	5.44	0.0	15.87													
206	7.000	5.60	14.82	14.82	5.50	1.049	9.500	1E	2.0	11.500	120	0.0747	0.859	0.0	0.0	7.859	205
205	7.859	5.60	15.70	30.52	6.55	1.38	8.583		0.0	8.583	120	0.0748	0.642	0.0	0.0	8.501	22
22	8.501		15.87	46.39	9.95	1.38	2.000	1T	6.0	8.000	120	0.1624	1.299	0.866	0.0	10.666	21
21	10.666		0.0	46.39	7.31	1.61	12.000		0.0	12.000	120	0.0766	0.919	0.0	0.0	11.585	20
20	11.585		48.58	94.97	14.97	1.61	1.830	1T	8.0	9.830	120	0.2884	2.835	0.0	0.0	14.420	11
11	14.420		0.0	94.97	13.71	1.682	2.660	1E1T	14.849	17.509	120	0.2330	4.080	0.0	0.0	18.500	10
10	18.500		0.0	94.97	13.71	1.682	2.000		0.0	2.000	120	0.2330	0.466	0.866	0.0	19.832	9
9	19.832		0.0	94.97	13.71	1.682	9.750	1E	4.95	14.700	120	0.2331	3.426	4.223	0.0	27.481	8
8	27.481		0.0	94.97	14.97	1.61	2.166	1E	4.0	6.166	120	0.2884	1.778	0.0	0.0	29.259	7
7	29.259		0.0	94.97	8.34	2.157	10.750	1E	6.153	16.903	120	0.0694	1.173	4.656	0.0	35.088	6
6	35.088		0.0	94.97	8.34	2.157	10.166	1E1T	18.46	28.626	120	0.0694	1.987	0.0	0.0	37.075	5
5	37.075		0.0	94.97	8.34	2.157	11.660	1E	6.153	17.813	120	0.0694	1.236	5.054	0.0	43.365	4
4	43.365		0.0	94.97	5.59	2.635	3.000	1E	8.237	11.237	120	0.0262	0.294	0.0	0.0	43.659	3
3	43.659		0.0	94.97	5.59	2.635	45.500	2E	16.474	61.974	120	0.0262	1.623	0.0	0.0	45.282	2
2	45.282		0.0	94.97	2.14	4.26	8.330	1Zac	0.0	8.330	120	0.0025	0.021	3.608	2.201	51.112	1
1	51.112		0.0	94.97	2.31	4.1	150.000	2E	29.067	179.067	140	0.0023	0.409	-4.331	0.0	47.190	TEST
TEST	47.190	28.38	100.00	194.97													