

. . . Fire Protection by Computer Design

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

Job Name : RESIDENCE HOUSING
Building : 133 YORK STREET
Location : PORTLAND, MAINE 04101
System : #1 AREA#1
Contract :
Data File : RESIDENCE HOUSING HC1.WXF

HYDRAULIC DESIGN INFORMATION SHEET

Name - RESIDENCE HOUSING Date - 8/5/14
Location - PORTLAND, MAINE 04101
Building - 133 YORK STREET System No. - #1 AREA#1
Contractor - Contract No. -
Calculated By - MIKE NOBLIT Drawing No. - FP-3
Construction: (X) Combustible () Non-Combustible Ceiling Height 8'-6"
OCCUPANCY - CONDOMINIUMS

S Type of Calculation: (X)NFPA 13 Residential (X)NFPA 13R ()NFPA 13D
Y Number of Sprinklers Flowing: ()1 ()2 (X)4 ()
S ()Other
T ()Specific Ruling Made by Date
E
M Listed Flow at Start Point - 14 Gpm System Type
Listed Pres. at Start Point - 10.1 Psi (X) Wet () Dry
D MAXIMUM LISTED SPACING 14' x 14' () Deluge () PreAction
E Domestic Flow Added - Gpm Sprinkler or Nozzle
S Additional Flow Added - 100 Gpm Make TYCO Model FLII
I Elevation at Highest Outlet - 37.33Feet Size 1/2" K-Factor 4.4
G Note: Temperature Rating 155
N

Calculation Gpm Required 158.421 Psi Required 85.247 At Test
Summary C-Factor Used: Overhead 150 Underground 140

W Water Flow Test: Pump Data: Tank or Reservoir:
A Date of Test - 5/11/2013 Rated Cap. Cap.
T Time of Test - @ Psi Elev.
E Static (Psi) - 108 Elev.
R Residual (Psi) - 102 Other Well
Flow (Gpm) - 1537 Proof Flow Gpm
S Elevation - -20

P Location:
P
L Source of Information: PORTLAND WATER DISTRICT
Y

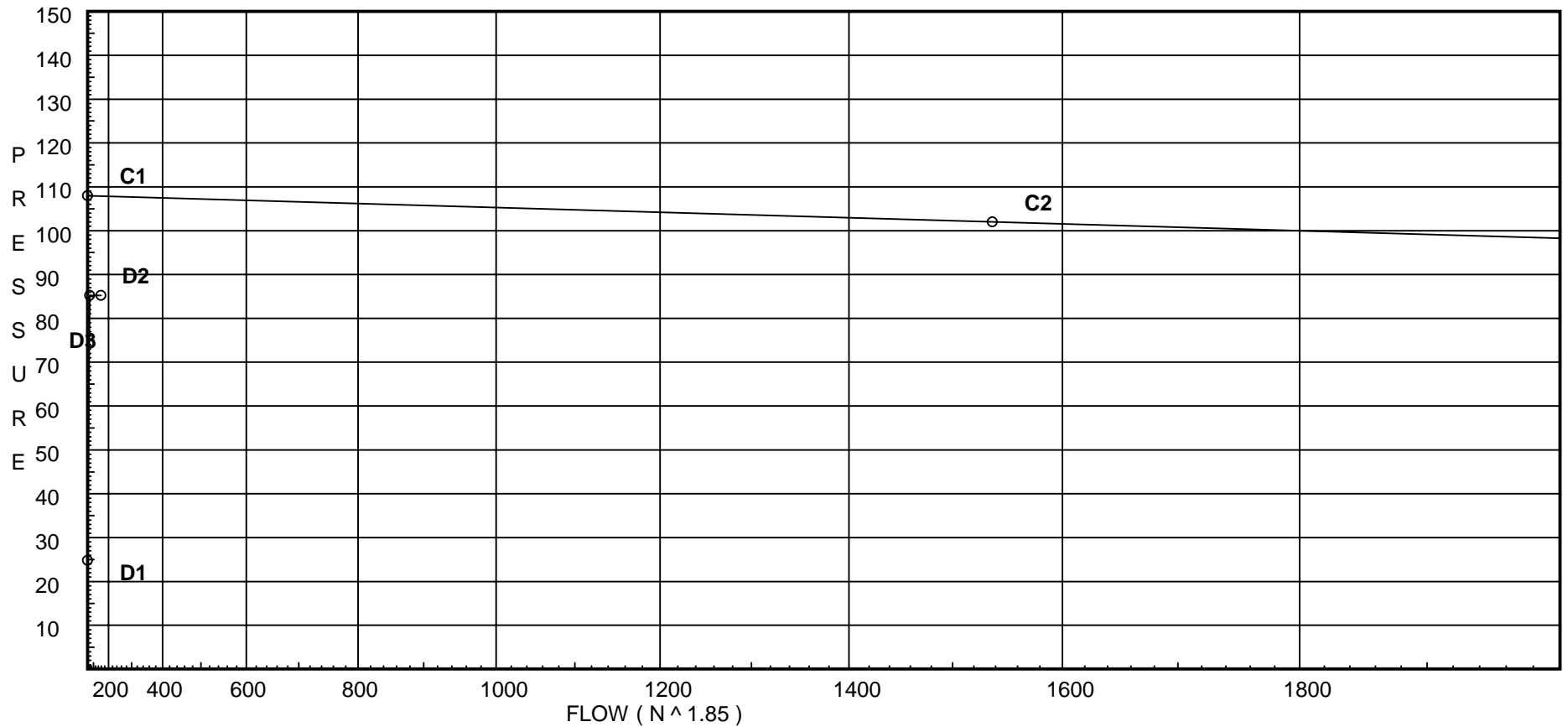
Water Supply Curve (C)

FREEDOM FIRE PROTECTION INC.
RESIDENCE HOUSING

Page 2
Date 8/5/14

City Water Supply:
C1 - Static Pressure : 108
C2 - Residual Pressure: 102
C2 - Residual Flow : 1537

Demand:
D1 - Elevation : 24.830
D2 - System Flow : 58.421
D2 - System Pressure : 85.247
Hose (Adj City) : _____
Hose (Demand) : 100
D3 - System Demand : 158.421
Safety Margin : 22.664



Fittings Used Summary

FREEDOM FIRE PROTECTION INC.
RESIDENCE HOUSING

Page 3
Date 8/5/14

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	0	0	7	10	0	12	9	10	12	19	21	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.
RESIDENCE HOUSING

Page 4
Date 8/5/14

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
101	37.33	4.4	12.73	na	15.7	0.05	0.001	10.1
22	37.33		13.38	na				
21	28.5		17.75	na				
20	28.5		18.2	na				
19	28.5		18.67	na				
102	37.33	4.4	11.17	na	14.71	0.05	0.001	10.1
24	37.33		11.56	na				
23	28.5		15.87	na				
103	37.33	4.4	10.17	na	14.03	0.05	0.001	10.1
26	37.33		10.53	na				
25	28.5		14.8	na				
104	37.33	4.4	10.1	na	13.98	0.05	0.001	10.1
18	37.33		10.45	na				
17	28.5		14.72	na				
16	28.5		15.02	na				
15	28.5		15.3	na				
14	28.5		16.42	na				
13	28.5		19.52	na				
12	28.5		28.61	na				
11	28.5		33.22	na				
10	26.5		37.23	na				
9	26.5		47.64	na				
8	26.5		54.34	na				
7	6.166		65.54	na				
6	6.166		68.19	na				
5	6.166		68.2	na				
4	6.166		68.4	na				
3	0.0		76.46	na				
2	0.0		76.58	na				
1	0.0		76.58	na				
0	-20.0		85.24	na				
TEST	-20.0		85.25	na	100.0			

The maximum velocity is 21.69 and it occurs in the pipe between nodes 11 and 10

Final Calculations - One-Line

FREEDOM FIRE PROTECTION INC.
RESIDENCE HOUSING

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
101	12.728	4.40	15.70	15.7	5.29	1.101	1.500	1E1T	13.388	14.888	150	0.0435	0.647	0.0	0.0	13.375	22
22	13.375		0.0	15.7	5.29	1.101	8.830	1E	3.825	12.655	150	0.0435	0.551	3.824	0.0	17.750	21
21	17.750		0.0	15.7	5.29	1.101	0.750	1T	9.563	10.313	150	0.0434	0.448	0.0	0.0	18.198	20
20	18.198		0.0	15.7	5.29	1.101	1.330	1T	9.563	10.893	150	0.0434	0.473	0.0	0.0	18.671	19
19	18.671		0.0	15.7	5.29	1.101	9.916	1T	9.563	19.479	150	0.0435	0.847	0.0	0.0	19.518	13
13	19.518	3.55	0.0	15.70													
102	11.173	4.40	14.71	14.71	4.96	1.101	0.500	1T	9.563	10.063	150	0.0386	0.388	0.0	0.0	11.561	24
24	11.561		0.0	14.71	4.96	1.101	8.830	1E	3.825	12.655	150	0.0386	0.488	3.824	0.0	15.873	23
23	15.873		0.0	14.71	4.96	1.101	4.750	1T	9.563	14.313	150	0.0385	0.551	0.0	0.0	16.424	14
14	16.424	3.63	0.0	14.71													
103	10.171	4.40	14.03	14.03	4.73	1.101	0.500	1T	9.563	10.063	150	0.0353	0.355	0.0	0.0	10.526	26
26	10.526		0.0	14.03	4.73	1.101	8.830	1E	3.825	12.655	150	0.0354	0.448	3.824	0.0	14.798	25
25	14.798		0.0	14.03	4.73	1.101	4.750	1T	9.563	14.313	150	0.0353	0.505	0.0	0.0	15.303	15
15	15.303	3.59	0.0	14.03													
104	10.100	4.40	13.98	13.98	4.71	1.101	0.500	1T	9.563	10.063	150	0.0351	0.353	0.0	0.0	10.453	18
18	10.453		0.0	13.98	4.71	1.101	8.830	1E	3.825	12.655	150	0.0352	0.445	3.824	0.0	14.722	17
17	14.722		0.0	13.98	4.71	1.101	4.750	1E	3.825	8.575	150	0.0350	0.300	0.0	0.0	15.022	16
16	15.022		0.0	13.98	4.71	1.101	8.000		0.0	8.000	150	0.0351	0.281	0.0	0.0	15.303	15
15	15.303		14.04	28.02	9.44	1.101	8.830		0.0	8.830	150	0.1270	1.121	0.0	0.0	16.424	14
14	16.424		14.70	42.72	14.40	1.101	11.166		0.0	11.166	150	0.2771	3.094	0.0	0.0	19.518	13
13	19.518		15.70	58.42	19.69	1.101	8.830	1T	9.563	18.393	150	0.4943	9.092	0.0	0.0	28.610	12
12	28.610		0.0	58.42	19.69	1.101	5.500	1E	3.825	9.325	150	0.4944	4.610	0.0	0.0	33.220	11
11	33.220		0.0	58.42	21.69	1.049	2.000	1E	3.022	5.022	150	0.6256	3.142	0.866	0.0	37.228	10
10	37.228		0.0	58.42	21.69	1.049	9.083	1T	7.555	16.638	150	0.6257	10.410	0.0	0.0	47.638	9
9	47.638		0.0	58.42	21.69	1.049	4.660	2E	6.044	10.704	150	0.6257	6.697	0.0	0.0	54.335	8
8	54.335		0.0	58.42	8.44	1.682	20.330	1E	4.95	25.280	120	0.0949	2.398	8.807	0.0	65.540	7
7	65.540		0.0	58.42	8.44	1.682	23.000	1E	4.95	27.950	120	0.0948	2.651	0.0	0.0	68.191	6
6	68.191		0.0	58.42	5.13	2.157	0.330		0.0	0.330	120	0.0273	0.009	0.0	0.0	68.200	5
5	68.200		0.0	58.42	5.13	2.157	1.000	1E	6.153	7.153	120	0.0282	0.202	0.0	0.0	68.402	4
4	68.402		0.0	58.42	3.44	2.635	6.166	1Zac1B	9.61	15.776	120	0.0106	0.168	2.670	5.218	76.458	3
3	76.458		0.0	58.42	1.42	4.1	100.000	2E	29.067	129.067	140	0.0009	0.120	0.0	0.0	76.578	2
2	76.578		0.0	58.42	0.16	12.34	300.000	1T	93.767	393.767	140	0.0	0.002	0.0	0.0	76.580	1
1	76.580		0.0	58.42	0.16	12.34	250.000	1T	93.767	343.767	140	0.0	0.002	8.662	0.0	85.244	0
0	85.244		0.0	58.42	0.16	12.34	600.000	1T	93.767	693.767	140	0.0	0.003	0.0	0.0	85.247	TEST
TEST	85.247	17.16	100.00	158.42													