



. . . 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 : #1AREA#2
Contract :
Data File : RESIDENCE HOUSING HC2.WXF

Hydraulic Design Information Sheet

Name - RESIDENCE HOUSING Date - 8/5/14
Location - PORTLAND, MAINE 04101
Building - 133 YORK STREET System No. - #1AREA#2
Contractor - Contract No. -
Calculated By - MIKE NOBLIT Drawing No. - FP-2
Construction: (X) Combustible () Non-Combustible Ceiling Height - 7'-2"
Occupancy - CONDOMINIUMS

S (X) NFPA 13 () Lt. Haz. Ord.Haz.Gp. (X) 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 - .15 (X) Wet Make TYCO
D Area Per Sprinkler - 130 () Dry Model TY-FRB
E Elevation at Highest Outlet - 6.166 () Deluge Size 1/2"
S Hose Allowance - Inside - () Preaction K-Factor 5.6
I Rack Sprinkler Allowance - () Other Temp.Rat.155
G Hose Allowance - Outside - 250
N

Note

Calculation Flow Required - 451.115 Press Required - 83.419 At Test
Summary C-Factor Used: 120 Overhead 140 Underground

W Water Flow Test: Pump Data: Tank or Reservoir:
A Date of Test - 5/11/13 Cap. -
T Time of Test - Rated Cap.- Elev.-
E Static Press - 108 @ Press -
R Residual Press - 102 Elev. - Well
Flow - 1537 Proof Flow
S Elevation -

U
P Location -

P
L Source of Information - PORTLAND WATER DISTRICT
Y

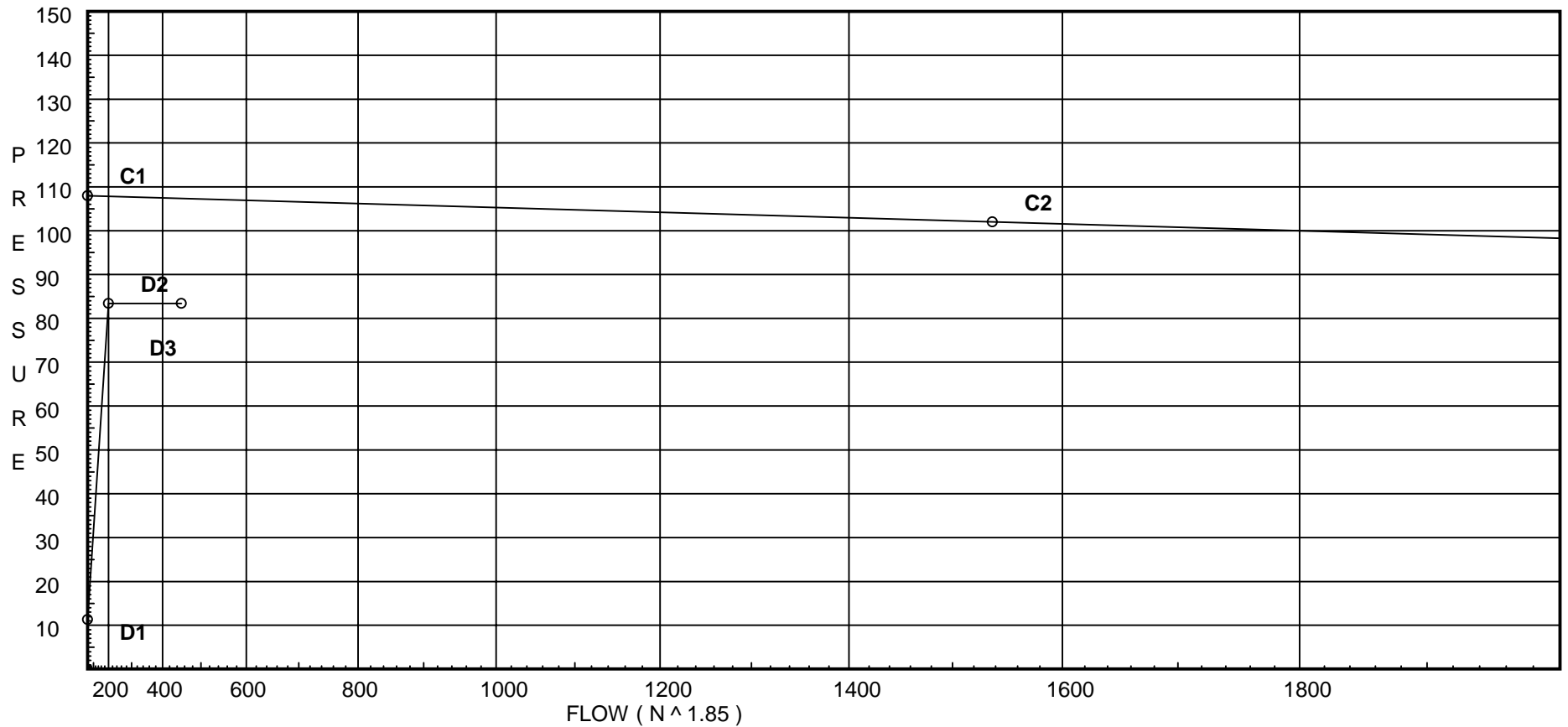
Water Supply Curve (C)

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

Demand:
D1 - Elevation : 11.332
D2 - System Flow : 201.115
D2 - System Pressure : 83.420
Hose (Adj City) : _____
Hose (Demand) : 250
D3 - System Demand : 451.115
Safety Margin : 23.959



Fittings Used Summary

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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

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Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
201	6.166	5.6	22.42	na	26.52	0.15	130	7.0
203	6.166	5.6	18.03	na	23.78	0.15	130	7.0
202	6.166	5.6	19.4	na	24.67	0.15	130	7.0
204	6.166	5.6	16.68	na	22.87	0.15	130	7.0
206	6.166	5.6	13.36	na	20.47	0.15	130	7.0
205	6.166	5.6	14.4	na	21.25	0.15	130	7.0
207	6.166	5.6	15.16	na	21.81	0.15	130	7.0
209	6.166	5.6	12.13	na	19.5	0.15	130	7.0
208	6.166	5.6	13.08	na	20.25	0.15	130	7.0
34	6.166		16.32	na				
33	6.166		17.95	na				
32	6.166		24.08	na				
31	6.166		47.2	na				
30	6.166		59.37	na				
5	6.166		64.69	na				
4	6.166		66.68	na				
3	0.0		73.51	na				
2	0.0		74.7	na				
1	0.0		74.71	na				
0	-20.0		83.39	na				
TEST	-20.0		83.42	na	250.0			

The maximum velocity is 31.7 and it occurs in the pipe between nodes 32 and 31

Final Calculations - One-Line

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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	22.422	5.60	26.52	26.52	9.84	1.049	2.583	1T	5.0	7.583	120	0.2193	1.663	0.0	0.0	24.085	32
32	24.085	5.40	0.0	26.52													
203	18.031	5.60	23.78	23.78	8.83	1.049	7.660		0.0	7.660	120	0.1792	1.373	0.0	0.0	19.404	202
202	19.404	5.60	24.67	48.45	17.99	1.049	7.000		0.0	7.000	120	0.6687	4.681	0.0	0.0	24.085	32
32	24.085	9.87	0.0	48.45													
204	16.684	5.60	22.87	22.87	8.49	1.049	2.583	1T	5.0	7.583	120	0.1670	1.266	0.0	0.0	17.950	33
33	17.950	5.40	0.0	22.87													
206	13.359	5.60	20.47	20.47	7.60	1.049	7.660		0.0	7.660	120	0.1359	1.041	0.0	0.0	14.400	205
205	14.400	5.60	21.25	41.72	15.49	1.049	7.000		0.0	7.000	120	0.5071	3.550	0.0	0.0	17.950	33
33	17.950	9.85	0.0	41.72													
207	15.164	5.60	21.81	21.81	8.10	1.049	2.583	1T	5.0	7.583	120	0.1528	1.159	0.0	0.0	16.323	34
34	16.323	5.40	0.0	21.81													
209	12.125	5.60	19.50	19.5	7.24	1.049	7.660		0.0	7.660	120	0.1242	0.951	0.0	0.0	13.076	208
208	13.076	5.60	20.25	39.75	14.76	1.049	7.000		0.0	7.000	120	0.4639	3.247	0.0	0.0	16.323	34
34	16.323		21.81	61.56	9.70	1.61	12.583		0.0	12.583	120	0.1293	1.627	0.0	0.0	17.950	33
33	17.950		64.59	126.15	19.88	1.61	12.583		0.0	12.583	120	0.4876	6.135	0.0	0.0	24.085	32
32	24.085		74.97	201.12	31.70	1.61	16.000	1E	4.0	20.000	120	1.1556	23.111	0.0	0.0	47.196	31
31	47.196		0.0	201.12	17.66	2.157	13.000	3E1T	30.767	43.767	120	0.2781	12.170	0.0	0.0	59.366	30
30	59.366		0.0	201.12	17.66	2.157	6.830	1T	12.307	19.137	120	0.2781	5.322	0.0	0.0	64.688	5
5	64.688		0.0	201.12	17.66	2.157	1.000	1E	6.153	7.153	120	0.2781	1.989	0.0	0.0	66.677	4
4	66.677		0.0	201.12	11.83	2.635	6.166	1Zac1B	9.61	15.776	120	0.1049	1.655	2.671	2.511	73.514	3
3	73.514		0.0	201.12	4.89	4.1	100.000	2E	29.067	129.067	140	0.0092	1.182	0.0	0.0	74.696	2
2	74.696		0.0	201.12	0.54	12.34	300.000	1T	93.767	393.767	140	0.0	0.017	0.0	0.0	74.713	1
1	74.713		0.0	201.12	0.54	12.34	250.000	1T	93.767	343.767	140	0.0	0.015	8.662	0.0	83.390	0
0	83.390		0.0	201.12	0.54	12.34	600.000	1T	93.767	693.767	140	0.0	0.030	0.0	0.0	83.420	TEST
TEST	83.420	49.39	250.00	451.12													