

. . . Fire Protection by Computer Design

Residential Fire Protection
64 Daggett Hill Rd.
Greene, ME 04236
946-3473

Job Name : 432-434 FORE STREET BLDG
Building : WOOD STUCTURE
Location : 3RD FLR-UNIT 3C LOFT
System : WET
Contract : C17002
Data File : 432-434 Fore St Bldg- 3rd Flr Mezz Sidewalls-Hyd Calc.WXF

Hydraulic Design Information Sheet

Name - 432-434 FORE STREET APT'S Date - 2/6/2017
 Location - 3RD FLR-UNIT 3C LOFT
 Building - WOOD STUCTURE System No. - WET
 Contractor - RESIDENTIAL FIRE PROTECTION Contract No. - C17002
 Calculated By - T. PRAY Drawing No. - 2 OF 2
 Construction: (X) Combustible () Non-Combustible Ceiling Height - VARIES
 Occupancy - APARTMENT (RESIDENTIAL)

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

M	Area of Sprinkler Operation	- 4 SPRK	System Type	Sprinkler/Nozzle
	Density	- .1	(X) Wet	Make VIKING
D	Area Per Sprinkler	- 171	() Dry	Model VK486
E	Elevation at Highest Outlet	- 45.55'	() Deluge	Size 7/16
S	Hose Allowance - Inside	-	() Preaction	K-Factor 4.0
I	Rack Sprinkler Allowance	-	() Other	Temp.Rat.155
G	Hose Allowance - Outside	- 0		

N Note

Calculation Flow Required - 71.22 Press Required - 91.24 AT ALV
 Summary C-Factor Used: 120 Overhead 140 Underground

W	Water Flow Test:	Pump Data:	Tank or Reservoir:
A	Date of Test - 10/7/2016		Cap. -
T	Time of Test - N/A	Rated Cap.-	Elev.-
E	Static Press - 103	@ Press -	
R	Residual Press - 90	Elev. -	Well
S	Flow - 490		Proof Flow
U	Elevation - 4.58		

P Location - ALRM VALVE RISER

L Source of Information - INSPECTION TAG, 2" MAIN DRAIN TEST

C	Commodity	Class	Location
O	Storage Ht.	Area	Aisle W.
M	Storage Method:	%	Palletized % Rack
	() Single Row	() Conven. Pallet	() Auto. Storage () Encap.
S	() Double Row	() Slave Pallet	() Solid Shelf () Non
T	() Mult. Row		() Open Shelf

R K Flue Spacing Clearance:Storage to Ceiling
 A Longitudinal Transverse

E Horizontal Barriers Provided:

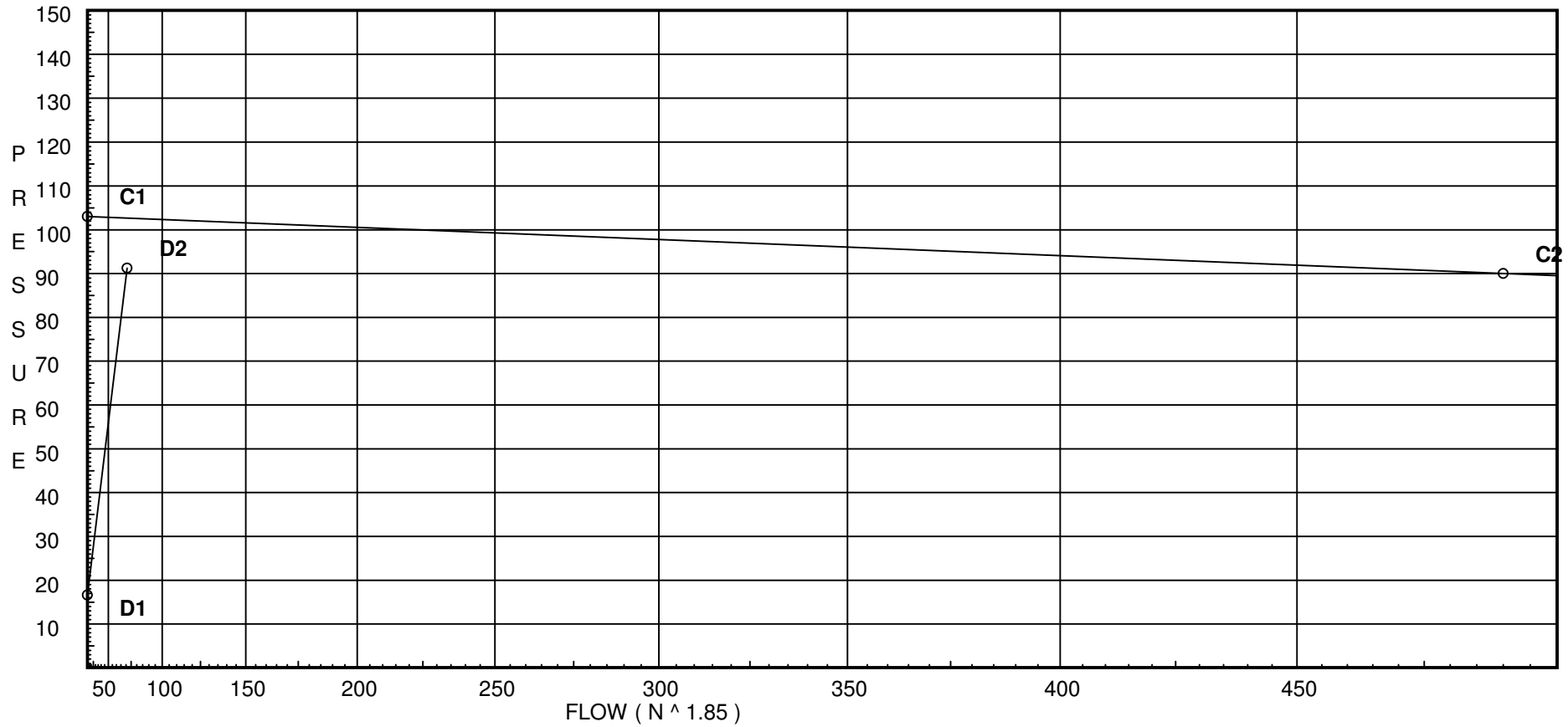
Water Supply Curve (C)

Residential Fire Protection
432-434 FORE STREET BLDG

Page 2
Date 2/6/17

City Water Supply:
C1 - Static Pressure : 103
C2 - Residual Pressure: 90
C2 - Residual Flow : 490

Demand:
D1 - Elevation : 16.622
D2 - System Flow : 71.216
D2 - System Pressure : 91.239
Hose (Adj City) : _____
Hose (Demand) : _____
D3 - System Demand : 71.216
Safety Margin : 11.395



Fittings Used Summary

Residential Fire Protection
432-434 FORE STREET BLDG

Page 3
Date 2/6/17

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	
A	Generic Alarm Valve	0	0	0	0	0	0	7.7	21.5	0	17	17	27	29	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	
F	45' Elbow	1	1	1	1	2	2	3	3	3	4	5	7	9	11	13	17	19	21	24	28	
I	90' Grvd-Vic Elbow #10	0	0	2	3	4	3.5	6	5	8	7	8.5	10	13	17	20	23	25	33	36	40	
J	90'Tee-Branch Grv Vic #20	0	0	4.5	6	8	8.5	10.8	13	17	16	21	25	33	41	50	65	78	88	98	120	
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	

Pressure / Flow Summary - STANDARD

Residential Fire Protection
432-434 FORE STREET BLDG

Page 4
Date 2/6/17

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
20	35.46	4	20.04	na	17.91	0.1	171	7.0
21	42.96	4	18.28	na	17.1	0.1	171	7.0
22	45.55	4	19.89	na	17.84	0.1	130	7.0
50	44.71		20.33	na				
23	44.71	4	21.09	na	18.37	0.1	130	7.0
51	45.79		30.1	na				
52	40.21		50.95	na				
53	33.29		63.54	na				
14	25.59		71.59	na				
15	25.59		76.1	na				
100	6.79		90.02	na				
TOR	7.33		90.01	na				
ALV	4.58		91.24	na				

The maximum velocity is 15.28 and it occurs in the pipe between nodes 23 and 51

Final Calculations - Hazen-Williams

Residential Fire Protection
432-434 FORE STREET BLDG

Page 5
Date 2/6/17

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
20 to 21	17.91	1.049 120		0.0	14.000	20.039			K Factor = 4.00	
	17.91	0.1061		0.0	0.0	-3.248				
21 to 50	17.10	1.38 120	3E 1T	9.0 6.0	14.210 15.000	18.276 -0.758			K Factor = 4.00	
	35.01	0.0964		0.0	29.210	2.816			Vel = 7.51	
	0.0 35.01						20.334		K Factor = 7.76	
22 to 50	17.84	1.049 120		0.0	0.750	19.891			K Factor = 4.00	
	17.84	0.1053		0.0	0.0	0.364				
50 to 23	35.01	1.38 120		0.0	3.670	20.334				
	52.85	0.2065		0.0	0.0	0.0			Vel = 11.34	
23 to 51	18.37	1.38 120	2E 2T	6.0 12.0	8.410 18.000	21.092 -0.468			K Factor = 4.00	
	71.22	0.3587		0.0	26.410	9.473			Vel = 15.28	
51 to 52	0.0	1.38 120	4E 2T	12.0 12.0	27.410 24.000	30.097 2.417				
	71.22	0.3587		0.0	51.410	18.439			Vel = 15.28	
52 to 53	0.0	1.38 120	4E 1T	12.0 6.0	8.745 18.000	50.953 2.997				
	71.22	0.3587		0.0	26.745	9.593			Vel = 15.28	
53 to 14	0.0	1.61 120	2T	16.0 0.0	11.840 16.000	63.543 3.335				
	71.22	0.1693		0.0	27.840	4.714			Vel = 11.22	
14 to 15	0.0	1.61 120	3E	12.0 0.0	14.620 12.000	71.592 0.0				
	71.22	0.1693		0.0	26.620	4.507			Vel = 11.22	
15 to 100	0.0	1.61 120	2F 2E	4.0 8.0	14.160 20.000	76.099 8.142				
	71.22	0.1693	1T	8.0	34.160	5.784			Vel = 11.22	
100 to TOR	0.0	4.26 120	6I 2J	55.302 42.135	50.760 97.437	90.025 -0.234				
	71.22	0.0015		0.0	148.197	0.219			Vel = 1.60	
TOR to ALV	0.0	4.26 120	1A	22.384 0.0	2.750 22.384	90.010 1.191				
	71.22	0.0015		0.0	25.134	0.038			Vel = 1.60	
	0.0 71.22						91.239		K Factor = 7.46	