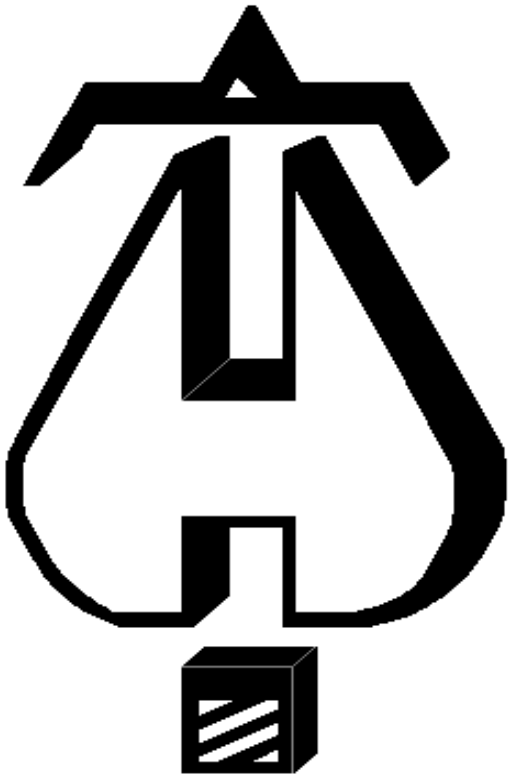


. . . Fire Protection by Computer Design

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

Job Name : MOTHERHOUSE SENIOR HOUSING
Building : WOOD FRAMED
Location : 1ST FLOOR- LOBBY AREA
System : 1
Contract : C17011
Data File : MOTHERHOUSE-1ST FLR-LOBBY SW.WXF

Hydraulic Design Information Sheet

Name - MOTHERHOUSE SENIOR HOUSING Date - 7/27/2017
Location - 1ST FLOOR- LOBBY AREA
Building - WOOD FRAMED System No. - 1
Contractor - RESIDENTIAL FIRE PROTECTION Contract No. - C17011
Calculated By - T. PRAY Drawing No. - 1 OF 5
Construction: (X) Combustible ( ) Non-Combustible Ceiling Height - 9'-7"
Occupancy - LIGHT HAZARD

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 - 933	System Type	Sprinkler/Nozzle
Density - .1	(X) Wet	Make VIKING
Area Per Sprinkler - 120	( ) Dry	Model VK305
Elevation at Highest Outlet - 126.59	( ) Deluge	Size 1/2"
Hose Allowance - Inside -	( ) Preaction	K-Factor 5.6
Rack Sprinkler Allowance -	( ) Other	Temp.Rat.155
Hose Allowance - Outside - 100		

Note

Calculation Summary: Flow Required - 171.1 Press Required - 55.92 AT BOR
C-Factor Used: 120 Overhead 140 Underground

WATER SUPPLY

Water Flow Test:	Pump Data:	Tank or Reservoir:
Date of Test - 6/2/2017		Cap. -
Time of Test - 6:30 AM	Rated Cap.-	Elev.-
Static Press - 58	@ Press -	
Residual Press - 56	Elev. -	Well
Flow - 1061		Proof Flow
Elevation - 123		

Location - HYDRANTS ARE LOCATED ON STEVENS AVE, SEE PLOT PLAN

Source of Information - PORTLAND WATER DISTRICT

COMMODITY STORAGE

Commodity Class Location
Storage Ht. Area Aisle W.
Storage Method: Solid Piled % Palletized % Rack

( ) Single Row ( ) Conven. Pallet ( ) Auto. Storage ( ) Encap.
( ) Double Row ( ) Slave Pallet ( ) Solid Shelf ( ) Non
( ) Mult. Row ( ) Open Shelf

Flue Spacing Clearance:Storage to Ceiling
Longitudinal Transverse

Horizontal Barriers Provided:

Water Supply Curve (C)

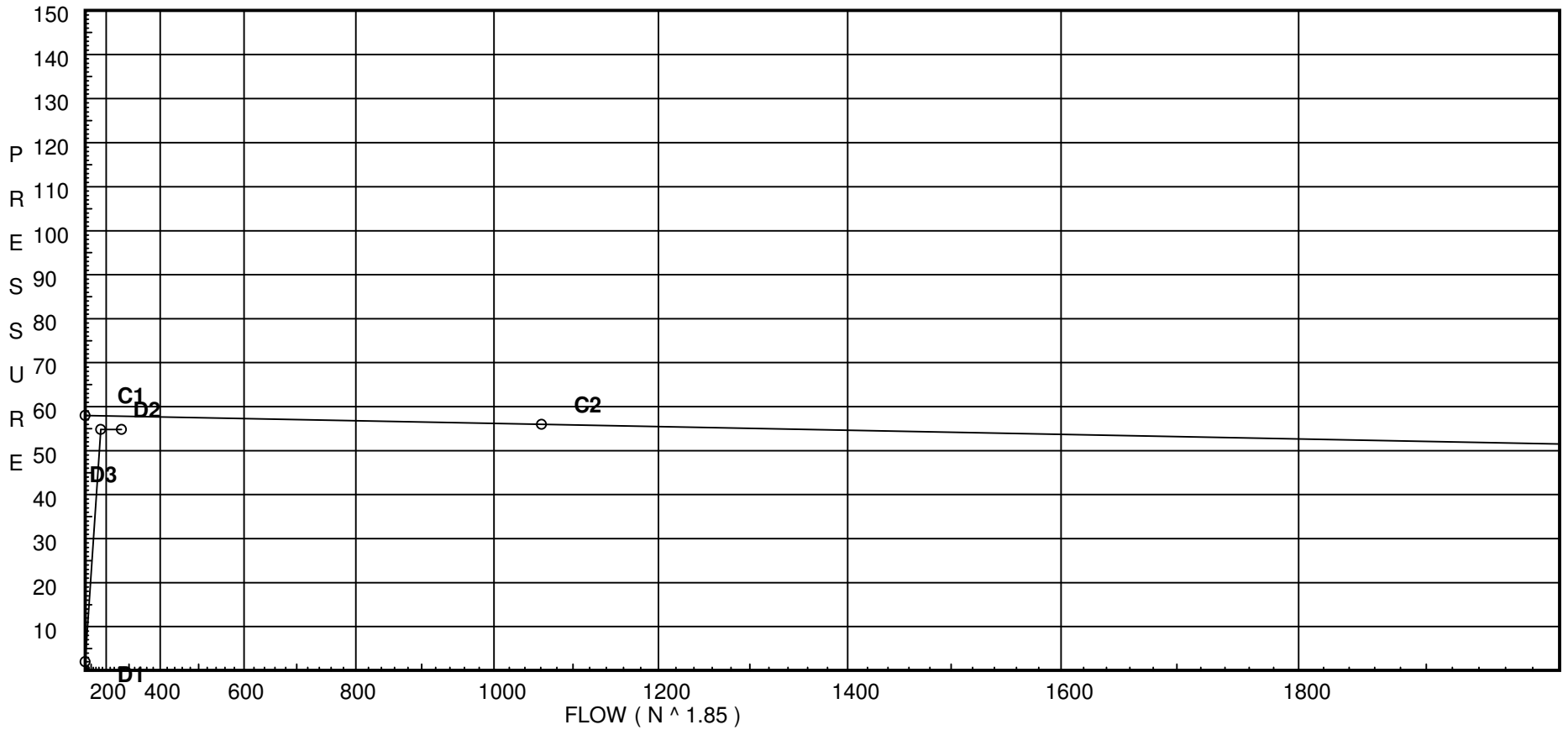
Residential Fire Protection
MOTHERHOUSE SENIOR HOUSING

Date 7/27/2017

City Water Supply:
- C1 - Static Pressure : 58
- C2 - Residual Pressure: 56
- C2 - Residual Flow : 1061

Demand:

D1 - Elevation	:	1.988
D2 - System Flow	:	171.101
D2 - System Pressure	:	54.840
Hose (Adj City)	:	_____
Hose (Demand)	:	100
D3 - System Demand	:	271.101
Safety Margin	:	3.000



Fittings Used Summary

Fitting Legend

Abbrev.	Name	½	¾	1	1¼	1½	2	2½	3	3½	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
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
G	Generic Gate Valve	0	0	0	0	0	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
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
L	Long Turn Elbow	1	1	2	2	2	3	4	5	5	6	8	9	13	16	18	24	27	30	34	40
N	CPVC 90'Ell Harvel-Spears	7	7	7	8	9	11	12	13	0	0	0	0	0	0	0	0	0	0	0	0
O	CPVC Tee - Branch	3	3	5	6	8	10	12	15	0	0	0	0	0	0	0	0	0	0	0	0
R	CPVC Coupling Tee - Run	1	1	1	1	1	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0
S	Generic Swing Check Valve	4	5	5	7	9	11	14	16	19	22	27	32	45	55	65	76	87	98	109	130
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
Z	Generic Flow Switch	2	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61

Pressure / Flow Summary - STANDARD

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
DO01	0.0	4.9	7.04	na	13.0	0.0508	256	7.0
50	126.59	5.6	7.0	na	14.82	0.1	120	7.0
51	126.59	5.6	7.9	na	15.74	0.1	120	7.0
52	126.59	5.6	11.32	na	18.84	0.1	120	7.0
53	126.59	5.6	13.5	na	20.58	0.1	120	7.0
54	126.59	5.6	7.21	na	15.03	0.1	120	7.0
55	126.59	5.6	8.08	na	15.92	0.1	100	7.0
56	126.59	5.6	11.0	na	18.58	0.1	100	7.0
57	126.59	5.6	12.84	na	20.06	0.1	100	7.0
100	126.59		16.57	na				
58	126.59	4	12.88	na	14.35	0.0508	256	10.6
59	126.59	K = K @ EQ01	12.92	na	17.18			
100A	126.59		17.23	na				
101	125.92		22.99	na				
102	125.92		34.64	na				
103	125.92		40.69	na				
104	125.92		41.77	na				
105	125.92		47.84	na				
106	125.92		49.25	na				
604	125.92		51.73	na				
605	125.92		52.15	na				
TOR	122.58		53.92	na				
HDR	118.92		55.92	na				
6UG	117.42		56.6	na				
TEST	122.0		54.84	na	100.0			

The maximum velocity is 17.42 and it occurs in the pipe between nodes 101 and 102

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
DO01	13.00	1.049	1T	5.0	1.170	7.044		K Factor = 4.90
to		120		0.0	5.000	0.0		
EQ01	13.0	0.0587		0.0	6.170	0.362		Vel = 4.83
	0.0							
	13.00					7.406		K Factor = 4.78
50	14.82	1.049		0.0	12.000	7.000		K Factor = 5.60
to		120		0.0	0.0	0.0		
51	14.82	0.0747		0.0	12.000	0.896		Vel = 5.50
51	15.73	1.049		0.0	12.000	7.896		K Factor = 5.60
to		120		0.0	0.0	0.0		
52	30.55	0.2850		0.0	12.000	3.420		Vel = 11.34
52	18.84	1.38		0.0	12.000	11.316		K Factor = 5.60
to		120		0.0	0.0	0.0		
53	49.39	0.1822		0.0	12.000	2.187		Vel = 10.59
53	20.58	1.61	1E	4.0	14.710	13.503		K Factor = 5.60
to		120		0.0	4.000	0.0		
100	69.97	0.1639		0.0	18.710	3.066		Vel = 11.03
	0.0							
	69.97					16.569		K Factor = 17.19
54	15.03	1.049		0.0	11.420	7.208		K Factor = 5.60
to		120		0.0	0.0	0.0		
55	15.03	0.0768		0.0	11.420	0.877		Vel = 5.58
55	15.93	1.049		0.0	10.000	8.085		K Factor = 5.60
to		120		0.0	0.0	0.0		
56	30.96	0.2920		0.0	10.000	2.920		Vel = 11.49
56	18.57	1.38		0.0	10.000	11.005		K Factor = 5.60
to		120		0.0	0.0	0.0		
57	49.53	0.1832		0.0	10.000	1.832		Vel = 10.62
57	20.07	1.61	1E	4.0	11.000	12.837		K Factor = 5.60
to		120	1T	8.0	12.000	0.0		
100	69.6	0.1623		0.0	23.000	3.732		Vel = 10.97
100	69.97	2.157		0.0	4.670	16.569		
to		120		0.0	0.0	0.0		
100A	139.57	0.1415		0.0	4.670	0.661		Vel = 12.25
	0.0							
	139.57					17.230		K Factor = 33.62
58	14.35	1.049		0.0	0.670	12.877		K Factor = 4.00
to		120		0.0	0.0	0.0		
59	14.35	0.0701		0.0	0.670	0.047		Vel = 5.33
59	17.18	1.049	2T	10.0	4.250	12.924		K Factor @ node EQ01
to		120		0.0	10.000	0.0		
100A	31.53	0.3022		0.0	14.250	4.306		Vel = 11.70
100A	139.57	2.157	3I	12.922	13.620	17.230		
to		120		0.0	12.922	0.290		
101	171.1	0.2062		0.0	26.542	5.473		Vel = 15.02
101	0.0	2.003	2O	20.0	33.500	22.993		
to		150	6R	6.0	26.000	0.0		
102	171.1	0.1957		0.0	59.500	11.647		Vel = 17.42

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
102	-81.51	2.003	1O	10.0	79.290	34.640		
to		150	13R	13.0	23.000	0.0		
103	89.59	0.0591		0.0	102.290	6.049		Vel = 9.12
103	0.0	2.003		0.0	18.210	40.689		
to		150		0.0	0.0	0.0		
104	89.59	0.0591		0.0	18.210	1.077		Vel = 9.12
	0.0							
	89.59					41.766		K Factor = 13.86
102	81.51	2.003	2O	20.0	97.500	34.640		
to		150	1N	11.0	46.000	0.0		
104	81.51	0.0497	15R	15.0	143.500	7.126		Vel = 8.30
104	89.59	2.423	1O	12.0	50.460	41.766		
to		150	8R	16.0	28.000	0.0		
105	171.1	0.0775		0.0	78.460	6.078		Vel = 11.91
105	0.0	2.635	1I	8.237	9.840	47.844		
to		120		0.0	8.237	0.0		
106	171.1	0.0778		0.0	18.077	1.406		Vel = 10.07
106	0.0	2.635	1Z	8.237	3.000	49.250		
to		120	1S	19.22	28.830	0.0		
604	171.1	0.0778	1G	1.373	31.830	2.476		Vel = 10.07
604	0.0	4.26	4I	36.868	20.170	51.726		
to		120		0.0	36.868	0.0		
605	171.1	0.0075		0.0	57.038	0.428		Vel = 3.85
605	0.0	4.026	2F	8.0	14.000	52.154		
to		120	1E	10.0	18.000	1.447		
TOR	171.1	0.0099		0.0	32.000	0.316		Vel = 4.31
TOR	0.0	4.026	1A	17.0	3.670	53.917		
to		120	1G	2.0	39.000	1.585		
HDR	171.1	0.0099	1T	20.0	42.670	0.421		Vel = 4.31
HDR	0.0	7.981	1S	45.0	11.000	55.923		
to		120	1E	18.0	63.000	0.650		
6UG	171.1	0.0004		0.0	74.000	0.026		Vel = 1.10
6UG	0.0	6.16	1L	12.911	180.000	56.599		
to		140	1G	4.304	60.252	-1.984		
TEST	171.1	0.0009	1T	43.037	240.252	0.225		Vel = 1.84
	100.00							Qa = 100.00
	271.10					54.840		K Factor = 36.61