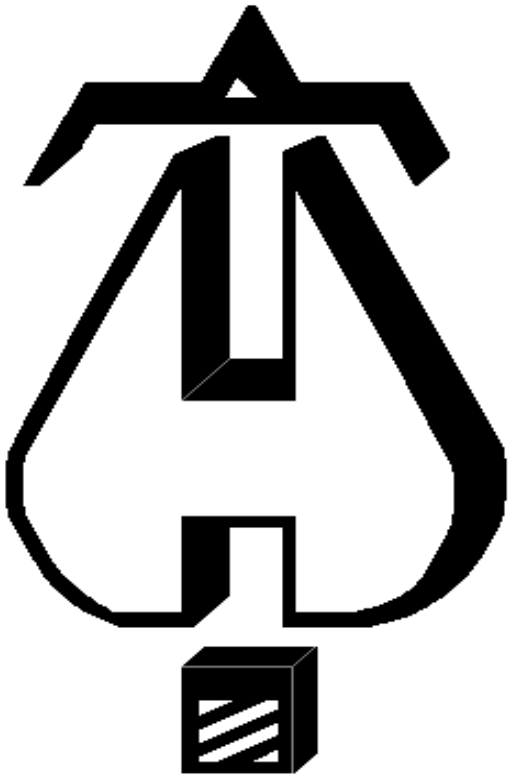


. . . Fire Protection by Computer Design

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

Job Name : MOTHERHOUSE SENOIR HOUSING
Building : WOOD FRAMED
Location : 1ST FLOOR- COMMUNITY ROOM AREA
System : 1
Contract : C17011
Data File : MOTHERHOUSE-1ST FLR-COMMUNITY RM.WXF

Hydraulic Design Information Sheet

Name - MOTHERHOUSE SENIOR HOUSING Date - 7/27/2017
Location - 1ST FLOOR- COMMUNITY ROOM 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'-6"
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	- 943	System Type	Sprinkler/Nozzle
Density	- .1	(X) Wet	Make VIKING
Area Per Sprinkler	- 154	( ) Dry	Model VK305
Elevation at Highest Outlet	- 126.25	( ) 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 - 160.04 Press Required - 44.09 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	- 122			

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)

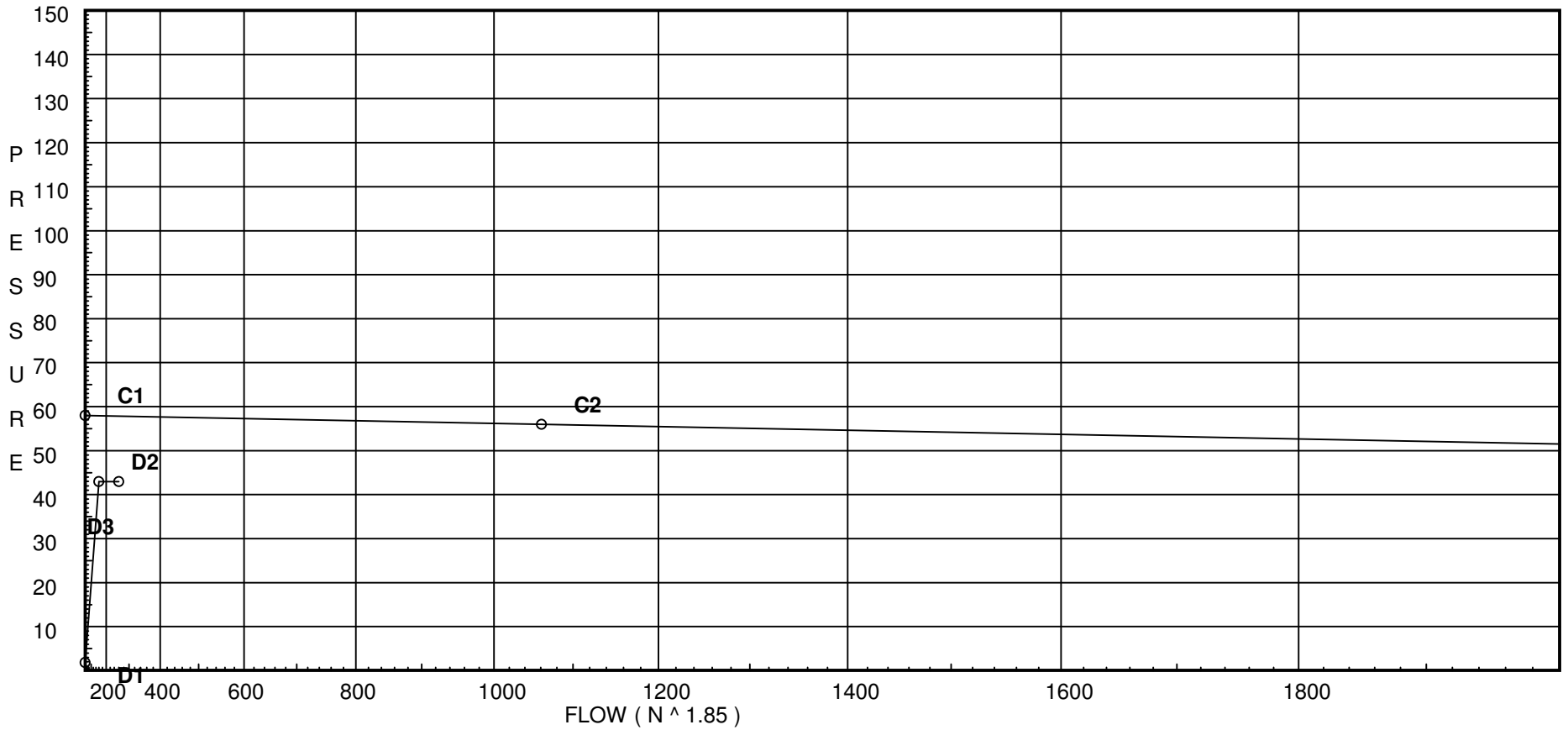
Residential Fire Protection
MOTHERHOUSE SENOIR HOUSING

Date 7/27/2017

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

Demand:

D1 - Elevation	:	1.841
D2 - System Flow	:	160.044
D2 - System Pressure	:	42.981
Hose (Adj City)	:	_____
Hose (Demand)	:	100
D3 - System Demand	:	260.044
Safety Margin	:	14.871



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
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
L	Long Turn Elbow	1	1	2	2	2	3	4	5	5	6	8	9	13	16	18	24	27	30	34	40
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	5.6	7.0	na	14.82	0.1	148	7.0
60	126.25	5.6	14.05	na	20.99	0.1	110	7.0
61	126.25	5.6	15.62	na	22.13	0.1	110	7.0
61A	126.25		18.78	na				
62	126.25	5.6	7.56	na	15.4	0.1	154	7.0
63	126.25	5.6	7.83	na	15.67	0.1	154	7.0
111A	126.25		8.55	na				
64	126.25	5.6	12.28	na	19.62	0.1	110	7.0
65	126.25	5.6	14.38	na	21.24	0.1	110	7.0
66	126.25	5.6	15.91	na	22.34	0.1	110	7.0
67	126.25	K = K @ EQ01	17.35	na	22.65			
68	126.25		18.56	na				
110	126.25		19.22	na				
111	126.25		19.33	na				
112	126.25		20.2	na				
113	126.25		20.54	na				
114	126.25		22.19	na				
115	126.25		24.38	na				
119	126.25		26.66	na				
106	126.25		36.53	na				
604	126.42		39.82	na				
605	125.92		40.41	na				
TOR	122.58		42.14	na				
HDR	118.92		44.09	na				
6UG	117.42		44.77	na				
TEST	122.0		42.98	na	100.0			

The maximum velocity is 16.01 and it occurs in the pipe between nodes 61 and 61A

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	14.82	1.049	1T	5.0	0.670	7.000		K Factor = 5.60
to		120		0.0	5.000	0.0		
EQ01	14.82	0.0748		0.0	5.670	0.424		Vel = 5.50
	0.0							
	14.82					7.424		K Factor = 5.44
60	20.99	1.049		0.0	11.000	14.052		K Factor = 5.60
to		120		0.0	0.0	0.0		
61	20.99	0.1423		0.0	11.000	1.565		Vel = 7.79
61	22.13	1.049		0.0	5.875	15.617		K Factor = 5.60
to		120		0.0	0.0	0.0		
61A	43.12	0.5392		0.0	5.875	3.168		Vel = 16.01
61A	0.0	2.157	1T	12.307	14.670	18.785		
to		120		0.0	12.307	0.0		
110	43.12	0.0161		0.0	26.977	0.434		Vel = 3.79
	0.0							
	43.12					19.219		K Factor = 9.84
62	15.40	1.049	1T	5.0	7.330	7.562		K Factor = 5.60
to		120		0.0	5.000	0.0		
111A	15.4	0.0803		0.0	12.330	0.990		Vel = 5.72
	0.0							
	15.40					8.552		K Factor = 5.27
63	15.67	1.049	1T	5.0	3.670	7.833		K Factor = 5.60
to		120		0.0	5.000	0.0		
111A	15.67	0.0829		0.0	8.670	0.719		Vel = 5.82
111A	15.40	1.049		0.0	12.670	8.552		
to		120		0.0	0.0	0.0		
64	31.07	0.2940		0.0	12.670	3.725		Vel = 11.53
64	19.62	1.38		0.0	11.000	12.277		K Factor = 5.60
to		120		0.0	0.0	0.0		
65	50.69	0.1913		0.0	11.000	2.104		Vel = 10.87
65	21.24	1.61	1T	8.0	20.670	14.381		K Factor = 5.60
to		120		0.0	8.000	0.0		
111	71.93	0.1725		0.0	28.670	4.945		Vel = 11.34
	0.0							
	71.93					19.326		K Factor = 16.36
66	22.34	1.049		0.0	9.000	15.913		K Factor = 5.60
to		120		0.0	0.0	0.0		
67	22.34	0.1597		0.0	9.000	1.437		Vel = 8.29
67	22.65	1.38		0.0	7.920	17.350		K Factor @ node EQ01
to		120		0.0	0.0	0.0		
68	44.99	0.1534		0.0	7.920	1.215		Vel = 9.65
68	0.0	1.61	1T	8.0	14.580	18.565		
to		120		0.0	8.000	0.0		
112	44.99	0.0724		0.0	22.580	1.634		Vel = 7.09
	0.0							
	44.99					20.199		K Factor = 10.01
110	43.12	2.157		0.0	10.000	19.219		
to		150		0.0	0.0	0.0		
111	43.12	0.0107		0.0	10.000	0.107		Vel = 3.79

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
111	71.93	2.157	1J	10.461	1.790	19.326		
to		120		0.0	10.461	0.0		
113	115.05	0.0989		0.0	12.251	1.212		Vel = 10.10
	0.0							
	115.05					20.538		K Factor = 25.39
112	44.99	2.157	1J	10.461	9.000	20.199		
to		120		0.0	10.461	0.0		
113	44.99	0.0174		0.0	19.461	0.339		Vel = 3.95
113	115.05	2.157		0.0	9.080	20.538		
to		120		0.0	0.0	0.0		
114	160.04	0.1823		0.0	9.080	1.655		Vel = 14.05
114	0.0	2.157		0.0	12.000	22.193		
to		120		0.0	0.0	0.0		
115	160.04	0.1822		0.0	12.000	2.187		Vel = 14.05
115	0.0	2.157		0.0	12.500	24.380		
to		120		0.0	0.0	0.0		
119	160.04	0.1822		0.0	12.500	2.278		Vel = 14.05
119	0.0	2.635	2J	29.654	80.960	26.658		
to		120	2I	16.474	62.602	0.0		
106	160.04	0.0688	1T	16.474	143.562	9.870		Vel = 9.42
106	0.0	2.635	1Z	8.237	3.580	36.528		
to		120	1S	19.22	45.304	-0.074		
604	160.04	0.0688	1G	1.373	48.884	3.361		Vel = 9.42
			2I	16.474				
604	0.0	4.26	4I	36.868	20.170	39.815		
to		120		0.0	36.868	0.217		
605	160.04	0.0066		0.0	57.038	0.378		Vel = 3.60
605	0.0	4.026	2F	8.0	14.000	40.410		
to		120	1E	10.0	18.000	1.447		
TOR	160.04	0.0087		0.0	32.000	0.279		Vel = 4.03
TOR	0.0	4.026	1A	17.0	3.670	42.136		
to		120	1G	2.0	39.000	1.585		
HDR	160.04	0.0087	1T	20.0	42.670	0.372		Vel = 4.03
HDR	0.0	7.981	1S	45.0	11.000	44.093		
to		120	1E	18.0	63.000	0.650		
6UG	160.04	0.0003		0.0	74.000	0.023		Vel = 1.03
6UG	0.0	6.16	1L	12.911	180.000	44.766		
to		140	1G	4.304	60.252	-1.984		
TEST	160.04	0.0008	1T	43.037	240.252	0.199		Vel = 1.72
	100.00							Qa = 100.00
	260.04					42.981		K Factor = 39.66