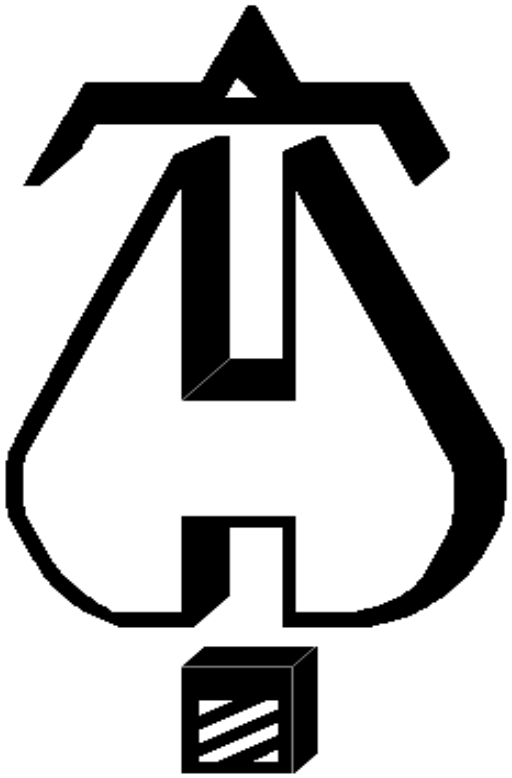


. . . Fire Protection by Computer Design

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

Job Name : MOTHERHOUSE SENIOR HOUSING
Building : WOOD FRAMED
Location : 5TH FLOOR- APARTMENT UNIT (AREA #3)
System : 1
Contract : C17011
Data File : MOTHERHOUSE-5TH FLR-UNIT #2.WXF

Hydraulic Design Information Sheet

Name - MOTHER SENIOR HOUSING — Date - 7/27/2017
Location - 5TH FLOOR- APARTMENT UNIT (AREA #3)
Building - WOOD FRAMED — System No. - 1
Contractor - RESIDENTIAL FIRE PROTECTION — Contract No. - C17011
Calculated By - T. PRAY — Drawing No. - 5 OF 5
Construction: (X) Combustible ( ) Non-Combustible — Ceiling Height - 9'-0"
Occupancy - RESIDENTIAL

SYSTEM DESIGN

(X) NFPA 13 (X) Lt. Haz. Ord.Haz.Gp. ( ) 1 ( ) 2 ( ) 3 ( ) Ex.Haz.
( ) NFPA 231 ( ) NFPA 231C ( ) Figure Curve
Other RESIDENTIAL SPRINKLERS
Specific Ruling — Made By — Date

Area of Sprinkler Operation - 4 SPRK'S	System Type	Sprinkler/Nozzle
Density - .0508	(X) Wet	Make VIKING
Area Per Sprinkler - 256	( ) Dry	Model VK486
Elevation at Highest Outlet - 173.75	( ) Deluge	Size 7/16"
Hose Allowance - Inside -	( ) Preaction	K-Factor 4.0
Rack Sprinkler Allowance -	( ) Other	Temp.Rat.155
Hose Allowance - Outside - 100		

Note

Calculation Summary: Flow Required - 52.57 Press Required - 51.97 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)

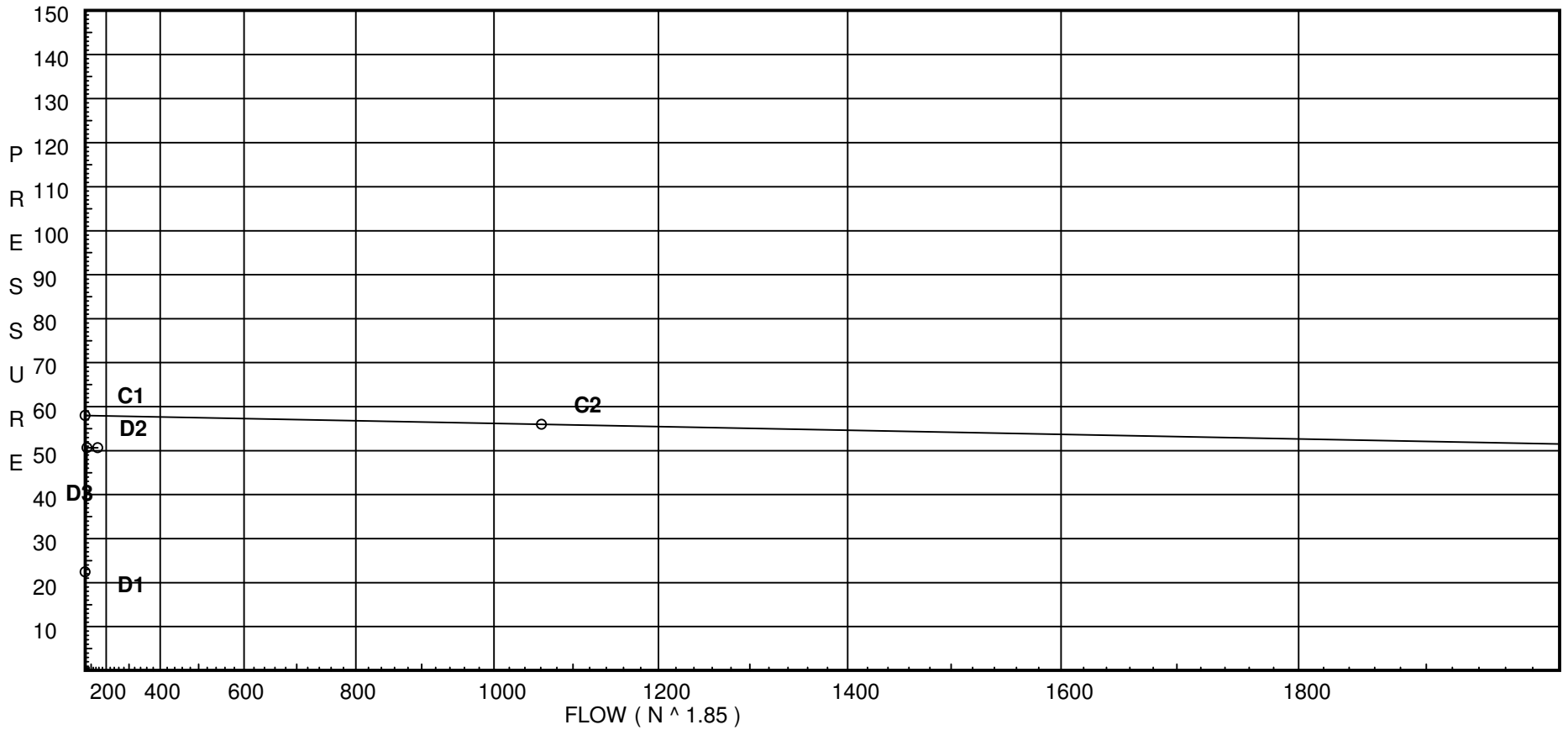
Residential Fire Protection
MOTHERHOUSE SENIOR HOUSING

Date 7/27/2017

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

Demand:

D1 - Elevation	:	22.413
D2 - System Flow	:	52.571
D2 - System Pressure	:	50.666
Hose (Adj City)	:	
Hose (Demand)	:	100
D3 - System Demand	:	152.571
Safety Margin	:	7.279



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.
10A	171.0	4	10.7	na	13.08	0.0508	256	10.6
11A	173.75	4	10.6	na	13.02	0.0508	256	10.6
509	173.25		11.29	na				
12A	173.75	4	10.75	na	13.11	0.0508	256	10.6
510	173.25		11.46	na				
13A	173.75	4	11.14	na	13.35	0.0508	256	10.6
511	173.75		11.6	na				
512	173.25		12.12	na				
513	173.25		16.31	na				
514	173.25		16.62	na				
515	173.25		28.08	na				
600	173.25		28.25	na				
601	161.92		33.17	na				
602	150.58		38.09	na				
603	138.5		43.33	na				
604	126.42		48.59	na				
605	125.92		48.86	na				
TOR	122.58		50.34	na				
HDR	118.92		51.97	na				
6UG	117.42		52.62	na				
TEST	122.0		50.67	na	100.0			

The maximum velocity is 7.59 and it occurs in the pipe between nodes 511 and 512

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
10A	13.08	1.049	2T	10.0	10.330	10.699		K Factor = 4.00
to		120	3E	6.0	16.000	-0.974		
509	13.08	0.0593		0.0	26.330	1.562		Vel = 4.86
	0.0							
	13.08					11.287		K Factor = 3.89
11A	13.02	1.049	2E	4.0	4.000	10.600		K Factor = 4.00
to		120		0.0	4.000	0.217		
509	13.02	0.0588		0.0	8.000	0.470		Vel = 4.83
509	13.09	1.38		0.0	3.000	11.287		
to		120		0.0	0.0	0.0		
510	26.11	0.0560		0.0	3.000	0.168		Vel = 5.60
	0.0							
	26.11					11.455		K Factor = 7.71
12A	13.11	1.049	1E	2.0	1.250	10.747		K Factor = 4.00
to		120	1T	5.0	7.000	0.217		
510	13.11	0.0595		0.0	8.250	0.491		Vel = 4.87
510	26.11	1.61		0.0	6.375	11.455		
to		120		0.0	0.0	-0.217		
511	39.22	0.0563		0.0	6.375	0.359		Vel = 6.18
	0.0							
	39.22					11.597		K Factor = 11.52
13A	13.35	1.097	1E	2.487	0.500	11.141		K Factor = 4.00
to		120	1T	6.217	8.704	0.0		
511	13.35	0.0495		0.0	9.204	0.456		Vel = 4.53
511	39.22	1.682		0.0	3.960	11.597		
to		120		0.0	0.0	0.217		
512	52.57	0.0778		0.0	3.960	0.308		Vel = 7.59
512	-25.58	1.442	3I	11.148	61.010	12.122		
to		120	2J	14.864	26.012	0.0		
513	26.99	0.0481		0.0	87.022	4.186		Vel = 5.30
513	0.0	1.442		0.0	6.460	16.308		
to		120		0.0	0.0	0.0		
514	26.99	0.0480		0.0	6.460	0.310		Vel = 5.30
	0.0							
	26.99					16.618		K Factor = 6.62
512	25.59	1.442	4E	14.864	66.000	12.122		
to		120	3T	22.296	37.160	0.0		
514	25.59	0.0436		0.0	103.160	4.496		Vel = 5.03
514	26.98	1.682	4T	39.599	107.290	16.618		
to		120		0.0	39.599	0.0		
515	52.57	0.0780		0.0	146.889	11.462		Vel = 7.59
515	0.0	3.26	1Z	9.408	3.000	28.080		
to		120	1S	21.503	52.414	0.0		
600	52.57	0.0031	1G	1.344	55.414	0.172		Vel = 2.02
			1T	20.159				
600	0.0	4.26		0.0	11.330	28.252		
to		120		0.0	0.0	4.907		
601	52.57	0.0009		0.0	11.330	0.010		Vel = 1.18

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
601	0.0	4.26		0.0	11.340	33.169		
to		120		0.0	0.0	4.911		
602	52.57	0.0009		0.0	11.340	0.010		Vel = 1.18
602	0.0	4.26		0.0	12.080	38.090		
to		120		0.0	0.0	5.232		
603	52.57	0.0008		0.0	12.080	0.010		Vel = 1.18
603	0.0	4.26	1J	21.067	12.580	43.332		
to		120		0.0	21.067	5.232		
604	52.57	0.0008		0.0	33.647	0.028		Vel = 1.18
604	0.0	4.26	4I	36.868	20.170	48.592		
to		120		0.0	36.868	0.217		
605	52.57	0.0008		0.0	57.038	0.048		Vel = 1.18
605	0.0	4.026	2F	8.0	14.000	48.857		
to		120	1E	10.0	18.000	1.447		
TOR	52.57	0.0011		0.0	32.000	0.035		Vel = 1.32
TOR	0.0	4.026	1A	17.0	3.670	50.339		
to		120	1G	2.0	39.000	1.585		
HDR	52.57	0.0011	1T	20.0	42.670	0.048		Vel = 1.32
HDR	0.0	7.981	1S	45.0	11.000	51.972		
to		120	1E	18.0	63.000	0.650		
6UG	52.57	0.0		0.0	74.000	0.002		Vel = 0.34
6UG	0.0	6.16	1L	12.911	180.000	52.624		
to		140	1G	4.304	60.252	-1.984		
TEST	52.57	0.0001	1T	43.037	240.252	0.026		Vel = 0.57
	100.00							Qa = 100.00
	152.57					50.666		K Factor = 21.43