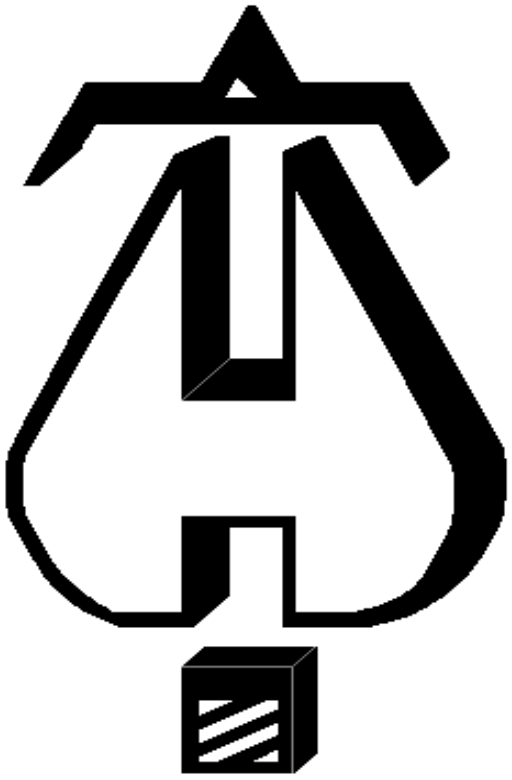


. . . Fire Protection by Computer Design

Residential Fire Protection
64 Daggett Hill Rd.
Greene, ME 04236
(207)946-343

Job Name : THOMAS STREET APARTMENTS
Building : WOOD STRUCTURE
Location : 1ST FLOOR- OFFICE SPACE
System : 1
Contract : C16021
Data File : THOMAS ST APT- 1ST FLR SS SIDEWALLS.WXF

Hydraulic Design Information Sheet

Name - 32 THOMAS STREET APARTMENTS Date - 8/23/16
Location - 1ST FLOOR- OFFICE SPACE
Building - WOOD STRUCTURE System No. - 1
Contractor - RSIDENTIAL FIRE PROTECTION Contract No. - C16021
Calculated By - T. PRAY Drawing No. - 1 OF 2
Construction: (X) Combustible ( ) Non-Combustible Ceiling Height - 12'-0"
Occupancy - OFFICE SPACE

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	- 960 SF	System Type	Sprinkler/Nozzle
Density	- .1	(X) Wet	Make VIKING
Area Per Sprinkler	- 149	( ) Dry	Model VK305
Elevation at Highest Outlet	- 111.96	( ) 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 - 261.91 Press Required - 44.59 AT TEST
C-Factor Used: 120 Overhead 140 Underground

WATER SUPPLY

Water Flow Test:		Pump Data:		Tank or Reservoir:
Date of Test	- 8/22/16			Cap. -
Time of Test	- 11:30 AM	Rated Cap.-		Elev.-
Static Press	- 51	@ Press	-	
Residual Press	- 49	Elev.	-	Well
Flow	- 903			Proof Flow
Elevation	- 100			

Location - HYDRANTS ARE LOCATED ON THOMAS STREET, SEE PLOT PLAN

Source of Information - PORTLAND WATER DISTRICT

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)

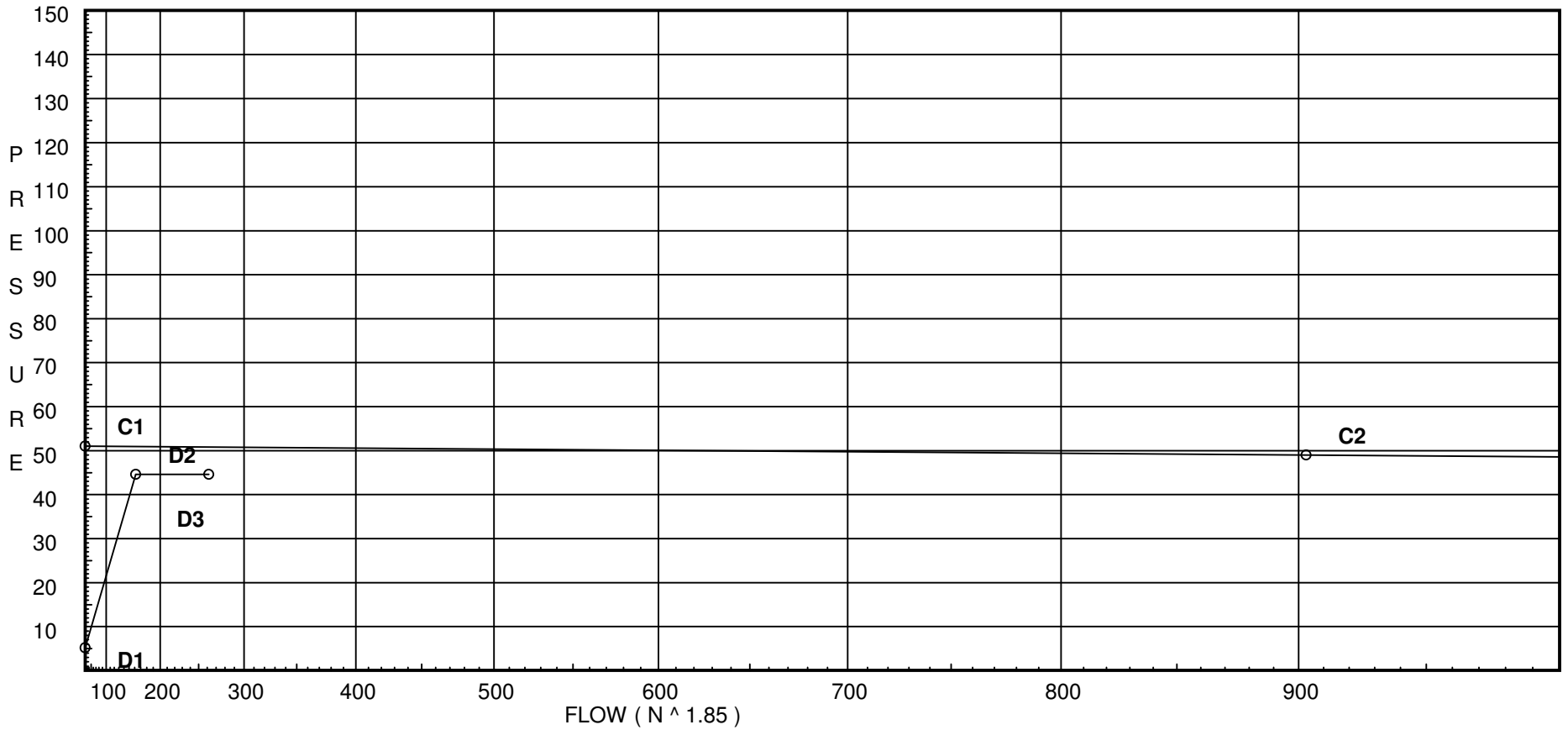
Residential Fire Protection
THOMAS STREET APARTMENTS

Date 8/23/2016

City Water Supply:
- C1 - Static Pressure : 51
- C2 - Residual Pressure: 49
- C2 - Residual Flow : 903

Demand:

D1 - Elevation	:	5.180
D2 - System Flow	:	161.908
D2 - System Pressure	:	44.594
Hose (Adj City)	:	_____
Hose (Demand)	:	100
D3 - System Demand	:	261.908
Safety Margin	:	6.203



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
E	90' Standard Elbow	2	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61
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
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

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
120	111.96	5.6	7.08	na	14.9	0.1	149	7.0
121	111.96	5.6	7.99	na	15.82	0.1	149	7.0
122	110.67	5.6	10.06	na	17.77	0.1	149	7.0
123	111.96	5.6	7.83	na	15.67	0.1	149	7.0
124	111.96	5.6	8.83	na	16.64	0.1	149	7.0
159	110.67		11.06	na				
125	110.67	5.6	11.98	na	19.38	0.1	149	7.0
126	111.96	5.6	12.25	na	19.6	0.1	149	7.0
127	111.96	5.6	12.31	na	19.64	0.1	149	7.0
162	110.67		13.33	na				
163	110.67		16.4	na				
28	111.96	5.6	16.11	na	22.48	0.1	149	7.0
164	110.67		17.34	na				
155	110.67		22.1	na				
TOR	97.88		36.98	na				
HDR	97.88		41.39	na				
BFP	97.88		41.39	na				
6UG	97.88		45.41	na				
TEST	100.0		44.59	na	100.0			

The maximum velocity is 15.79 and it occurs in the pipe between nodes 125 and 162

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
120	14.90	1.049		0.0	12.000	7.079		K Factor = 5.60
to		120		0.0	0.0	0.0		
121	14.9	0.0755		0.0	12.000	0.906		Vel = 5.53
121	15.82	1.38	3E	9.0	11.080	7.985		K Factor = 5.60
to		120		0.0	9.000	0.559		
122	30.72	0.0757		0.0	20.080	1.521		Vel = 6.59
122	17.77	1.38		0.0	5.670	10.065		K Factor = 5.60
to		120		0.0	0.0	0.0		
159	48.49	0.1762		0.0	5.670	0.999		Vel = 10.40
	0.0							
	48.49					11.064		K Factor = 14.58
123	15.67	1.049		0.0	12.000	7.833		K Factor = 5.60
to		120		0.0	0.0	0.0		
124	15.67	0.0829		0.0	12.000	0.995		Vel = 5.82
124	16.64	1.38	2E	6.0	8.170	8.828		K Factor = 5.60
to		120	1T	6.0	12.000	0.559		
159	32.31	0.0831		0.0	20.170	1.677		Vel = 6.93
159	48.49	1.61		0.0	4.290	11.064		
to		120		0.0	0.0	0.0		
125	80.8	0.2138		0.0	4.290	0.917		Vel = 12.73
125	19.39	1.61		0.0	4.250	11.981		K Factor = 5.60
to		120		0.0	0.0	0.0		
162	100.19	0.3184		0.0	4.250	1.353		Vel = 15.79
	0.0							
	100.19					13.334		K Factor = 27.44
126	19.60	2.067		0.0	12.000	12.251		K Factor = 5.60
to		120		0.0	0.0	0.0		
127	19.6	0.0046		0.0	12.000	0.055		Vel = 1.87
127	19.65	2.067	2E	10.0	8.170	12.306		K Factor = 5.60
to		120	1T	10.0	20.000	0.559		
162	39.25	0.0166		0.0	28.170	0.469		Vel = 3.75
162	100.18	2.067	1T	10.0	7.670	13.334		
to		120		0.0	10.000	0.0		
163	139.43	0.1738		0.0	17.670	3.071		Vel = 13.33
163	0.0	2.157	1I	4.307	2.330	16.405		
to		120		0.0	4.307	0.0		
164	139.43	0.1412		0.0	6.637	0.937		Vel = 12.24
	0.0							
	139.43					17.342		K Factor = 33.48
28	22.48	1.38	1E	3.0	6.875	16.109		K Factor = 5.60
to		120	1T	6.0	9.000	0.559		
164	22.48	0.0425		0.0	15.875	0.674		Vel = 4.82
164	139.43	2.157	2I	8.615	6.500	17.342		
to		120	1J	10.461	19.076	0.0		
155	161.91	0.1862		0.0	25.576	4.762		Vel = 14.22
155	0.0	2.157	5I	21.537	28.590	22.104		
to		120		0.0	21.537	5.539		
TOR	161.91	0.1862		0.0	50.127	9.333		Vel = 14.22

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
TOR	0.0	2.157	1G	1.231	4.000	36.976		
to		120	1Z	6.153	19.691	0.0		
HDR	161.91	0.1862	1T	12.307	23.691	4.411		Vel = 14.22
HDR	0.0	4.26		0.0	0.500	41.387		
to		120		0.0	0.0	0.0		
BFP	161.91	0.0080		0.0	0.500	0.004		Vel = 3.64
BFP	0.0	4.26		0.0	3.000	41.391		
to		120		0.0	0.0	4.000		* Fixed loss = 4
6UG	161.91	0.0067		0.0	3.000	0.020		Vel = 3.64
6UG	0.0	6.16	1L	12.911	60.000	45.411		
to		140	1G	4.304	60.252	-0.918		
TEST	161.91	0.0008	1T	43.037	120.252	0.101		Vel = 1.74
	100.00							Qa = 100.00
	261.91					44.594		K Factor = 39.22