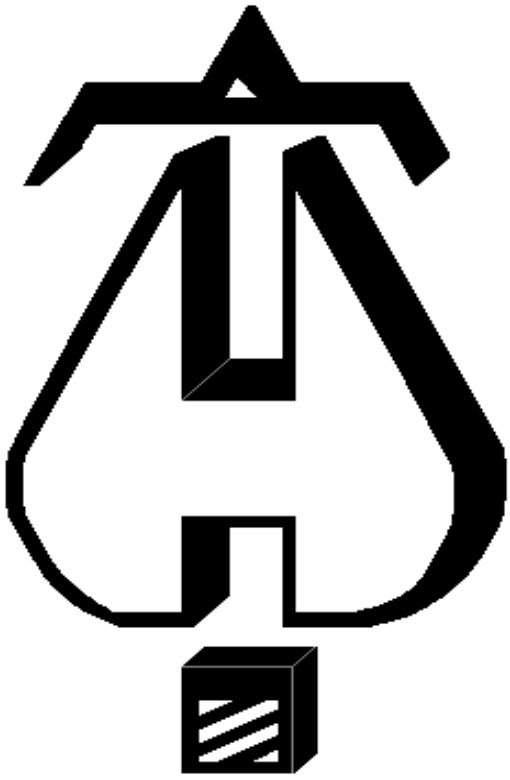


. . . Fire Protection by Computer Design

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

Job Name : 48 WILMOT STREET APT'S
Building : WOOD STRUCTURE
Location : BASEMENT
System : WET
Contract : 16025
Data File : 48 WILMOT ST APT-HYD CALC-BASEMENT.WXF

Hydraulic Design Information Sheet

Name - 48 WILMOT STREET APT
Date - 9/2/16
Location - BASEMENT
Building - WOOD STRUCTURE
System No. - WET
Contractor - RESIDENTIAL FIRE PROTECTION
Contract No. - 16025
Calculated By -
Drawing No. - 1 OF 2
Construction: (X) Combustible ( ) Non-Combustible
Ceiling Height - 6'-6 1/2
Occupancy - BASEMENT

SYSTEM DESIGN

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

Area of Sprinkler Operation	- 946	System Type	Sprinkler/Nozzle
Density	- .15	( ) Wet	Make VIKING
Area Per Sprinkler	- 130	( ) Dry	Model VK300
Elevation at Highest Outlet	-	( ) Deluge	Size 1/2"
Hose Allowance - Inside	-	( ) Preaction	K-Factor 5.6
Rack Sprinkler Allowance	-	( ) Other	Temp.Rat.200
Hose Allowance - Outside	- 250		

Note

Calculation Summary: Flow Required - 478.92 Press Required - 85.06 AT TEST
C-Factor Used: 120 Overhead 150 Underground

WATER SUPPLY

Water Flow Test:		Pump Data:		Tank or Reservoir:
Date of Test	- 6/20/2012			Cap. -
Time of Test	- N/A	Rated Cap.-		Elev.-
Static Press	- 96	@ Press	-	
Residual Press	- 94	Elev.	-	Well
Flow	- 1352			Proof Flow
Elevation	- 99.0			

Location - HYDRANTS ARE LOCATED ON WILMOT STREET, 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)

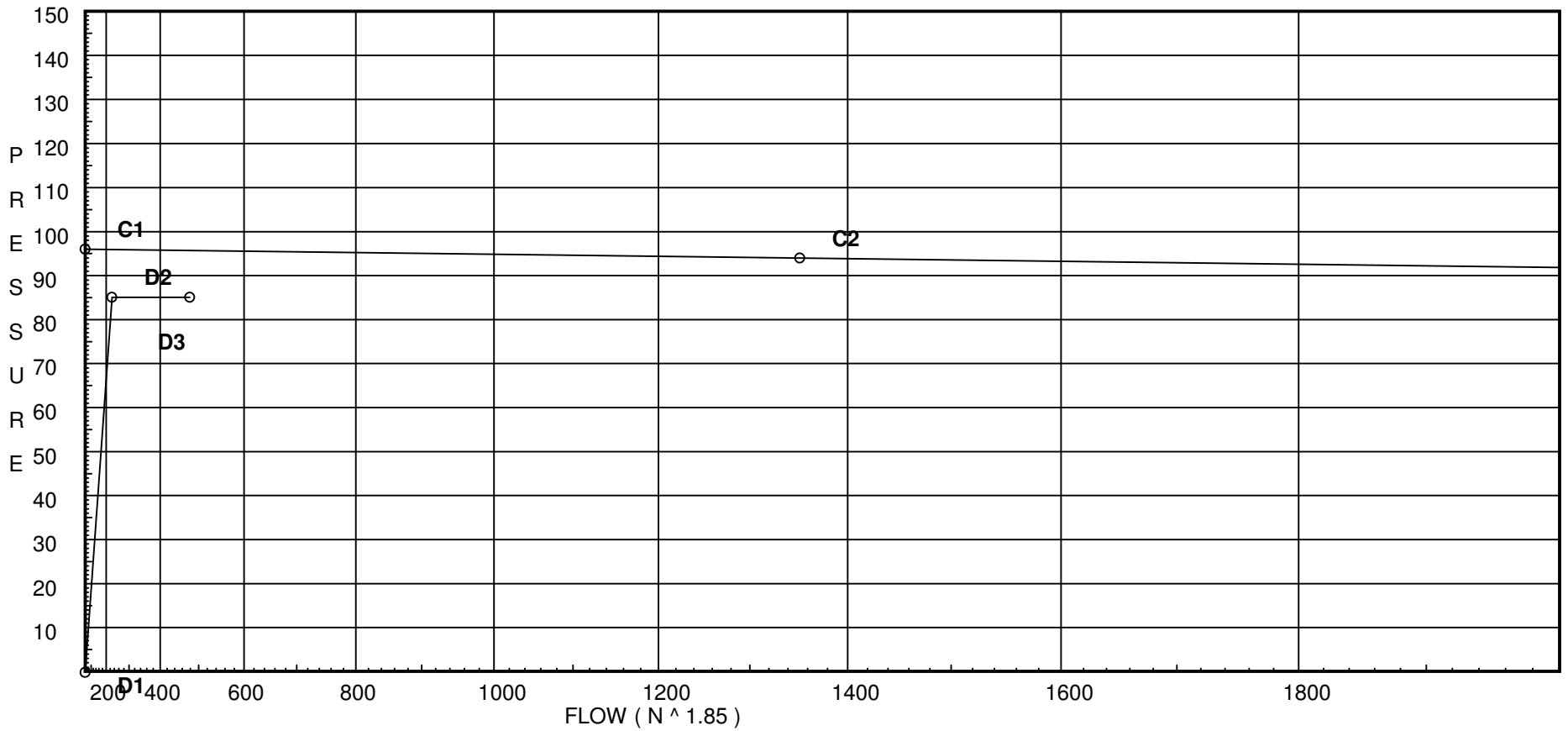
Residential Fire Protection
48 WILMOT STREET APT'S

Date 8/30/16

City Water Supply:
- C1 - Static Pressure : 96
- C2 - Residual Pressure: 94
- C2 - Residual Flow : 1352

Demand:

D1 - Elevation	:	-0.165
D2 - System Flow	:	228.916
D2 - System Pressure	:	85.055
Hose (Adj City)	:	_____
Hose (Demand)	:	250
D3 - System Demand	:	478.916
Safety Margin	:	10.652



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
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.
1	98.62	5.6	12.13	na	19.5	0.15	130	7.0
2	98.62	5.6	12.87	na	20.09	0.15	130	7.0
3	98.62	5.6	15.63	na	22.14	0.15	130	7.0
4	98.62	5.6	17.15	na	23.19	0.15	130	7.0
5	98.62	5.6	18.79	na	24.27	0.15	130	7.0
6	98.62	5.6	21.4	na	25.91	0.15	130	7.0
7	98.62	5.6	13.53	na	20.6	0.15	130	7.0
8	98.62	5.6	14.9	na	21.62	0.15	130	7.0
9	98.62	5.6	19.65	na	24.83	0.15	130	7.0
10	98.62	5.6	22.86	na	26.78	0.15	130	7.0
59	98.62		28.34	na				
57	98.62		28.41	na				
58	98.62		39.8	na				
60	97.95		44.02	na				
TR	97.95		46.99	na				
BFP	93.95		54.81	na				
BR	93.95		64.85	na				
TEST	99.0		85.06	na	250.0			

The maximum velocity is 31.61 and it occurs in the pipe between nodes BR and TEST

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
1	19.50	1.049		0.0	6.000	12.125		K Factor = 5.60
to		120		0.0	0.0	0.0		
2	19.5	0.1242		0.0	6.000	0.745		Vel = 7.24
2	20.09	1.049		0.0	6.000	12.870		K Factor = 5.60
to		120		0.0	0.0	0.0		
3	39.59	0.4603		0.0	6.000	2.762		Vel = 14.70
3	22.14	1.38		0.0	5.500	15.632		K Factor = 5.60
to		120		0.0	0.0	0.0		
4	61.73	0.2753		0.0	5.500	1.514		Vel = 13.24
4	23.19	1.61		0.0	7.000	17.146		K Factor = 5.60
to		120		0.0	0.0	0.0		
5	84.92	0.2346		0.0	7.000	1.642		Vel = 13.38
5	24.27	1.61		0.0	7.000	18.788		K Factor = 5.60
to		120		0.0	0.0	0.0		
6	109.19	0.3733		0.0	7.000	2.613		Vel = 17.21
6	25.91	2.067		0.0	42.750	21.401		K Factor = 5.60
to		120		0.0	0.0	0.0		
57	135.1	0.1639		0.0	42.750	7.008		Vel = 12.92
	0.0							
	135.10					28.409		K Factor = 25.35
7	20.60	1.049		0.0	10.000	13.528		K Factor = 5.60
to		120		0.0	0.0	0.0		
8	20.6	0.1374		0.0	10.000	1.374		Vel = 7.65
8	21.61	1.049		0.0	9.170	14.902		K Factor = 5.60
to		120		0.0	0.0	0.0		
9	42.21	0.5183		0.0	9.170	4.753		Vel = 15.67
9	24.83	1.38		0.0	10.000	19.655		K Factor = 5.60
to		120		0.0	0.0	0.0		
10	67.04	0.3207		0.0	10.000	3.207		Vel = 14.38
10	26.78	1.61		0.0	19.420	22.862		K Factor = 5.60
to		120		0.0	0.0	0.0		
59	93.82	0.2819		0.0	19.420	5.475		Vel = 14.79
59	0.0	1.61	1E	4.0	42.590	28.337		
to		120	1T	8.0	12.000	0.290		
60	93.82	0.2819		0.0	54.590	15.391		Vel = 14.79
	0.0							
	93.82					44.018		K Factor = 14.14
57	135.10	1.61	1E	4.0	16.580	28.409		
to		120		0.0	4.000	0.0		
58	135.1	0.5535		0.0	20.580	11.391		Vel = 21.29
58	0.0	2.067	2E	10.0	13.960	39.800		
to		120		0.0	10.000	0.290		
60	135.1	0.1639		0.0	23.960	3.928		Vel = 12.92
60	93.82	2.067	1E	5.0	1.830	44.018		
to		120		0.0	5.000	0.0		
TR	228.92	0.4348		0.0	6.830	2.970		Vel = 21.89
TR	0.0	2.067	1Z	5.0	4.000	46.988		
to		120	1E	5.0	10.000	1.732		
BFP	228.92	0.4349		0.0	14.000	6.088		Vel = 21.89

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
BFP	0.0	2.067	1E	5.0	2.000	54.808		
to		120		0.0	5.000	7.000		* Fixed loss = 7
BR	228.92	0.4349		0.0	7.000	3.044		Vel = 21.89
BR	0.0	1.72	1G	0.617	25.000	64.852		
to		150	1T	6.174	6.792	-2.187		
TEST	228.92	0.7043		0.0	31.792	22.390		Vel = 31.61
	250.00							Qa = 250.00
	478.92					85.055		K Factor = 51.93