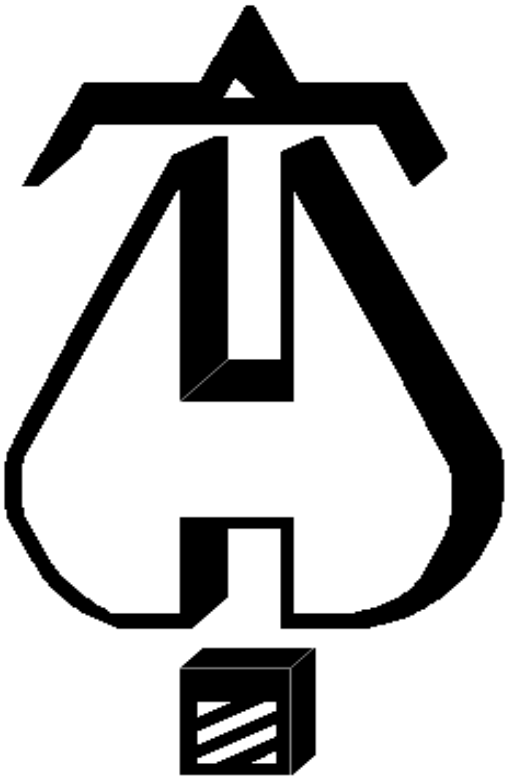


. . . Fire Protection by Computer Design

FPSS
278 HARRIS ROAD
MINOT MAINE 04258
207-393-7422

Job Name : 60 HUNTIGTON AVE. PORTLAND
Building : 60 HUNTINGTON AVE. PORTLAND, ME
Location : 2ND FLOOR BEDROOMS
System : 1
Contract :
Data File : 60 HUNTINGTON AVE PORTLAND w-meter.WXF

HYDRAULIC DESIGN INFORMATION SHEET

Name - 60 HUNTINGTON AVE. Date - 12-19-13
Location - 2ND FLOOR BEDROOMS
Building - 60 HUNTINGTON AVE. PORTLAND, ME System No. - 1
Contractor - RICHARD MARTIN PLUMBING & HEATING Contract No. -
Calculated By - TIM FORTIN Drawing No. - SP-1
Construction: (X) Combustible ( ) Non-Combustible Ceiling Height 8'
OCCUPANCY - RESIDENTIAL

SYSTEM DESIGN

Type of Calculation: ( )NFPA 13 Residential ( )NFPA 13R (X)NFPA 13D
Number of Sprinklers Flowing: ( )1 (X)2 ( )4 ( )
( )Other
( )Specific Ruling Made by Date

Listed Flow at Start Point - 14 Gpm System Type
Listed Pres. at Start Point - 10.2 Psi (X) Wet ( ) Dry
MAXIMUM LISTED SPACING 14 x 14 ( ) Deluge ( ) PreAction
Domestic Flow Added - 5 Gpm Sprinkler or Nozzle
Additional Flow Added - 0 Gpm Make RELIABLE Model F1RES44
Elevation at Highest Outlet - 27 Feet Size 1/2" K-Factor 4.4
Note: Temperature Rating 155

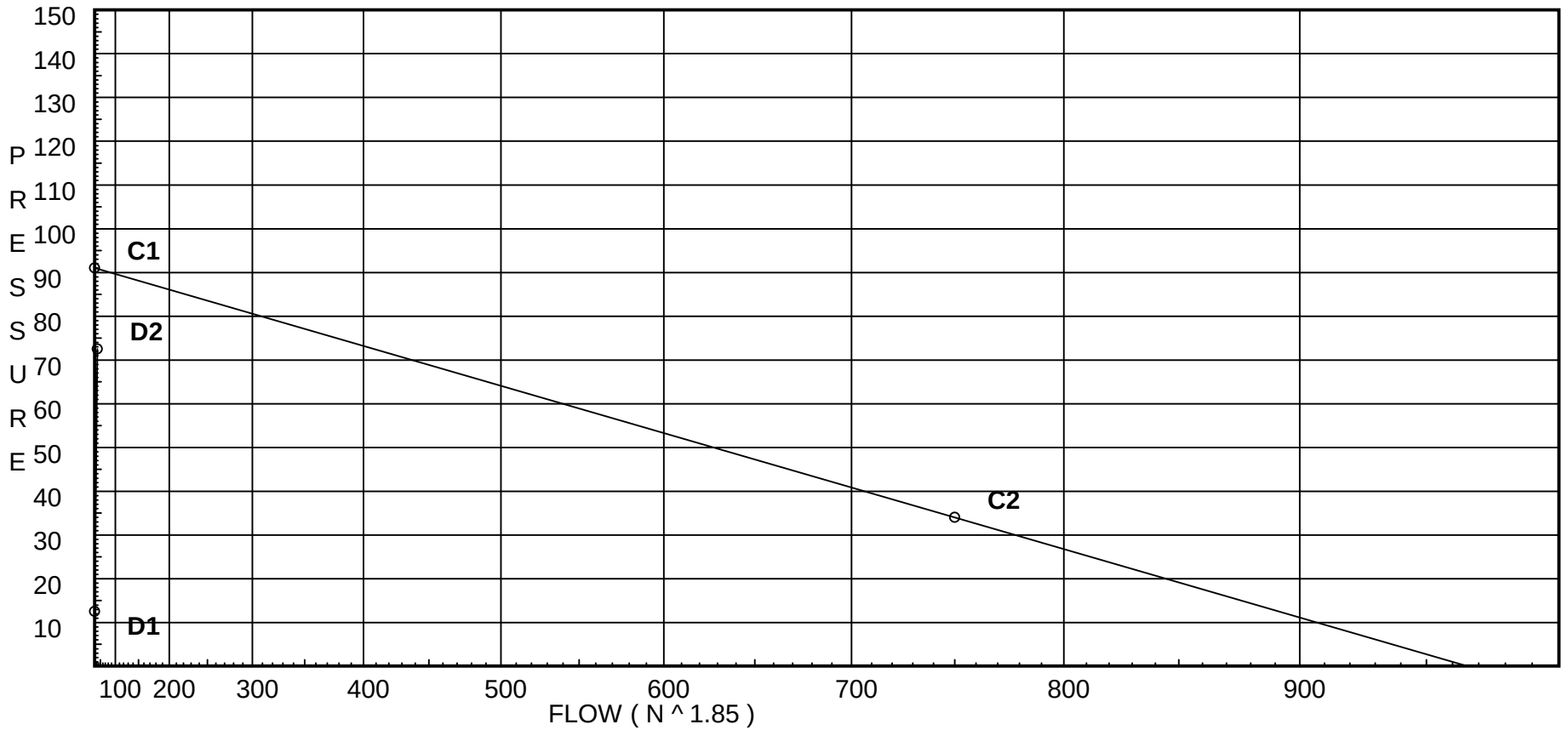
Calculation Summary: Gpm Required 33 Psi Required 73 At Test
C-Factor Used: Overhead 150 Underground 150

Water Flow Test:		Pump Data:		Tank or Reservoir:	
Date of Test	- 7-18-90/	Rated Cap.		Cap.	
Time of Test	- 2-21-12	@ Psi		Elev.	
Static (Psi)	- 68	Elev.			
Residual (Psi)	- 34	Other			Well
Flow (Gpm)	- 750			Proof Flow Gpm	
Elevation	- -2				

Location: TEST HYDRANT IS 550' WEST OF SITE ON HUNTINGTON AVE.
THE HYDRANT WAS TESTED IN 1990 AND AGAIN IN 2012 WITH A GREATER STATIC PRESS
Source of Information: PORTLAND WATER DISTRICT
WE ARE USING THE NEW STATIC PRESSURE WITH THE OLD RESIDUAL AND FLOW.

City Water Supply:
C1 - Static Pressure : 91
C2 - Residual Pressure: 34
C2 - Residual Flow : 750

Demand:
D1 - Elevation : 12.560
D2 - System Flow : 33.1049
D2 - System Pressure : 72.557
Hose (Adj City) : _____
Hose (Demand) : _____
D3 - System Demand : 33.1049
Safety Margin : 18.265



Fitting Legend

Abbrev.	Name	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8	10	12	14	16	18	20	24
Bt	Ball Vic 728 Thrd	0	0	0.5	1	1.7	0.5	0	0	0	0	0	0	0	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
G	Generic Gate Valve	0	0	0	0	0	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
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
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
Y	Mechanical Tee	2	4	5	6	8	10.5	12.5	15.5	0	22	0	0	0	0	0	0	0	0	0	0
Zik	Wilkins 950XL	Fitting generates a Fixed Loss Based on Flow																			

Units Summary

Diameter Units	Inches
Length Units	Feet
Flow Units	US Gallons per Minute
Pressure Units	Pounds per Square Inch

Note: Fitting Legend provides equivalent pipe lengths for fittings types of various diameters. Equivalent lengths shown are standard for actual diameters of Sched 40 pipe and CFactors of 120 except as noted with *. The fittings marked with a * show equivalent lengths values supplied by manufacturers based on specific pipe diameters and CFactors and they require no adjustment. All values for fittings not marked with a * will be adjusted in the calculation for CFactors of other than 120 and diameters other than Sched 40 per NFPA.

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
1	27.0	4.4	10.2	na	14.05	0.05	196	10.2
2	27.0	4.4	10.2	na	14.05	0.05	196	10.2
3	27.0		10.39	na				
4	18.0		16.33	na				
5	18.0		19.9	na				
6	9.0		25.84	na				
TOR	9.0		33.5	na				
BOR	2.0		43.26	na	5.0			
H1	0.0		71.68	na				
TEST	-2.0		72.56	na				

The maximum velocity is 16.29 and it occurs in the pipe between nodes BOR and H1

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	14.05	1.101	1O	5.0	0.250	10.200		K Factor = 4.40
to		150.0		0.0	5.000	0.0		
3	14.05	0.0354		0.0	5.250	0.186		Vel = 4.73
	0.0							
	14.05					10.386		K Factor = 4.36
2	14.05	1.101	1O	5.0	0.250	10.200		K Factor = 4.40
to		150.0		0.0	5.000	0.0		
3	14.05	0.0354		0.0	5.250	0.186		Vel = 4.73
3	14.05	1.101	1N	7.0	9.000	10.386		
to		150.0		0.0	7.000	3.898		
4	28.1	0.1277		0.0	16.000	2.043		Vel = 9.47
4	0.0	1.101	2O	10.0	18.000	16.327		
to		150.0		0.0	10.000	0.0		
5	28.1	0.1277		0.0	28.000	3.575		Vel = 9.47
5	0.0	1.101	1N	7.0	9.000	19.902		
to		150.0		0.0	7.000	3.898		
6	28.1	0.1276		0.0	16.000	2.042		Vel = 9.47
6	0.0	1.101	2N	14.0	41.000	25.842		
to		150.0	1O	5.0	19.000	0.0		
TOR	28.1	0.1277		0.0	60.000	7.661		Vel = 9.47
TOR	0.0	1.101	1Zik	0.0	5.000	33.503		
to		150.0		0.0	0.0	9.117		* Fixed loss = 6.086
BOR	28.1	0.1278		0.0	5.000	0.639		Vel = 9.47
BOR	5.00	0.911	1Y	3.801	50.000	43.259		Qa = 5.00
to		150.0	1Bt	0.38	4.181	4.866		* Fixed loss = 4
H1	33.1	0.4348		0.0	54.181	23.559		Vel = 16.29
H1	0.0	8.27	1G	6.326	550.000	71.684		
to		140.0	1T	55.354	90.148	0.866		
TEST	33.1	0.0	1E	28.468	640.148	0.007		Vel = 0.20
	0.0							
	33.10					72.557		K Factor = 3.89