

**... Fire Protection by Computer Design**

EASTERN FIRE PROTECTION  
170 KITTYHAWK AVE  
P.O. BOX 1390  
AUBURN MAINE, 04210  
207-784-1507

Job Name : 5750 55 SALEM STREET  
Building : 55 SALEM STREET  
Location : FIRST FLOOR  
System : WET  
Contract : 1-05750-18  
Data File : 5750 55 SALEM ST 1ST FLOOR CALC.WXF

HYDRAULIC DESIGN INFORMATION SHEET

Name - 5750 55 SALEM STREET Date - 01/22/2018  
Location - FIRST FLOOR  
Building - 55 SALEM STREET System No. - WET  
Contractor - EASTERN FIRE Contract No. - 1-05750-18  
Calculated By - JML Drawing No. - 1 OF 1  
Construction: (X) Combustible ( ) Non-Combustible Ceiling Height 9'-0"  
OCCUPANCY -

S Type of Calculation: ( )NFPA 13 Residential (X)NFPA 13R ( )NFPA 13D  
Y Number of Sprinklers Flowing: ( )1 (X)2 ( )4 ( )  
S ( )Other  
T ( )Specific Ruling Made by Date  
E  
M Listed Flow at Start Point - 16 Gpm System Type  
Listed Pres. at Start Point - 13.3 Psi (X) Wet ( ) Dry  
D MAXIMUM LISTED SPACING 16 x 16 ( ) Deluge ( ) PreAction  
E Domestic Flow Added - Gpm Sprinkler or Nozzle  
S Additional Flow Added - Gpm Make RELIABLE Model F1RES44  
I Elevation at Highest Outlet - 119.17Feet Size 1/2 K-Factor 4.4  
G Note: Temperature Rating 175  
N

Calculation Gpm Required 31.981 Psi Required 43.488 At Test  
Summary C-Factor Used: Overhead 120 Underground 150

W Water Flow Test: Pump Data: Tank or Reservoir:  
A Date of Test - 07/07/2015 Rated Cap. Cap.  
T Time of Test - @ Psi Elev.  
E Static (Psi) - 67 Elev.  
R Residual (Psi) - 35 Other Well  
Flow (Gpm) - 887 Proof Flow Gpm  
S Elevation - 100

P Location: SALEM STREET

L Source of Information: PORTLAND WATER DISTRICT  
Y

# Water Supply Curve C

EASTERN FIRE PROTECTION  
5750 55 SALEM STREET

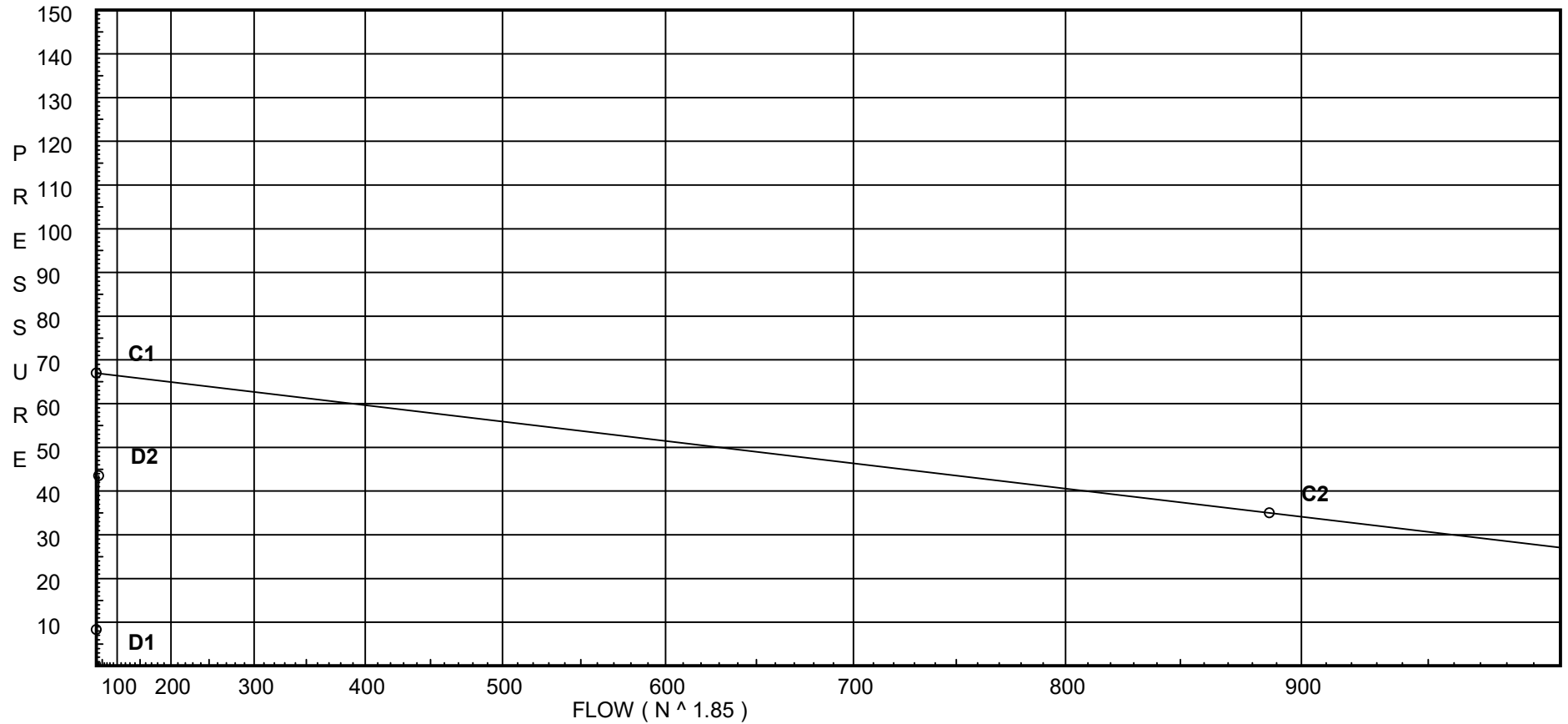
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### City Water Supply:

C1 - Static Pressure : 67  
C2 - Residual Pressure: 35  
C2 - Residual Flow : 887

### Demand:

D1 - Elevation : 8.303  
D2 - System Flow : 31.981  
D2 - System Pressure : 43.488  
Hose ( Demand ) : \_\_\_\_\_  
D3 - System Demand : 31.981  
Safety Margin : 23.444



# Fittings Used Summary

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## Fitting Legend

Abbrev.	Name	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	8	10	12	14	16	18	20	24
E	NFPA 13 90' Standard Elbow	1	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61
Fsp	Flow Switch Potter VSR	Fitting generates a Fixed Loss Based on Flow																			
G	NFPA 13 Gate Valve	0	0	0	0	0	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
T	NFPA 13 90' Flow thru Tee	3	4	5	6	8	10	12	15	17	20	25	30	35	50	60	71	81	91	101	121
Zaa	Ames 2000B	Fitting generates a Fixed Loss Based on Flow																			

## Unit 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.

# Pressure / Flow Summary - STANDARD

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Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
8	119.17	4.4	13.3	na	16.05	0.001	0.001	13.3
10	119.17	4.4	13.12	na	15.93	0.001	0.001	7.5
9	119.17		14.18	na				
4	119.17		16.08	na				
5	108.92		24.34	na				
6	108.92		27.86	na				
7	108.92		30.2	na				
TOR	108.92		30.47	na				
BFP	104.92		35.53	na				
BASE	102.5		41.35	na				
T1	100.0		43.48	na				
TEST	100.0		43.49	na				

The maximum velocity is 11.87 and it occurs in the pipe between nodes 9 and 4

Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv. Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
8 to 9	119.170 119.170	4.40	16.05 16.05	1 1.049	T 0.0	5.0 0.0	5.170 5.000	120	13.300 0.0		
			0.0							Vel = 5.96	
9			16.05						14.180	K Factor = 4.26	
10 to 9	119.170 119.170	4.40	15.93 15.93	1 1.049	E 0.0	2.0 0.0	10.460 2.000	120	13.116 0.0		
										Vel = 5.91	
9 to 4	119.170 119.170		16.05 31.98	1 1.049	T 0.0	5.0 0.0	1.125 5.000	120	14.180 0.0		
										Vel = 11.87	
4 to 5	119.170 108.920		0.0 31.98	1 1.049	E 0.0	2.0 0.0	10.330 2.000	120	16.080 4.439		
										Vel = 11.87	
5 to 6	108.920 108.920		0.0 31.98	1 1.049	T 0.0	5.0 0.0	6.330 5.000	120	24.343 0.0		
										Vel = 11.87	
6 to 7	108.920 108.920		0.0 31.98	1.25 1.38	T 0.0	6.0 0.0	22.750 6.000	120	27.857 0.0		
										Vel = 6.86	
7 to TOR	108.920 108.920		0.0 31.98	1.25 1.38	E 0.0	3.0 0.0	0.330 3.000	120	30.202 0.0		
										Vel = 6.86	
TOR to BFP	108.920 104.920		0.0 31.98	1.25 1.38	Fsp 0.0	0.0 0.0	4.000 0.0	120	30.473 4.732	* Fixed Loss = 3	
										Vel = 6.86	
BFP to BASE	104.920 102.500		0.0 31.98	1.25 1.38	Zaa 0.0	0.0 0.0	2.420 0.0	120	35.532 5.623	* Fixed Loss = 4.575	
										Vel = 6.86	
BASE to T1	102.500 100		0.0 31.98	2 1.72	G T	0.617 6.174	50.000 6.792	150	41.352 1.083		
										Vel = 4.42	
T1 to TEST	100 100		0.0 31.98	6 6.16	T 0.0	43.037 0.0	50.000 43.037	140	43.484 0.0		
										Vel = 0.34	
TEST			0.0 31.98						43.488	K Factor = 4.85	