

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

ALTERNATIVE SPRINKLER
39 JACKSON RD.
POLAND SPRING, ME
04274
207-838-8930

Job Name : 15 WALTON ST 3RD FL CALC
Building : FP-01
Location : 15 WALTON ST
System : #1
Contract :
Data File : WALTON ST CALC.WXF

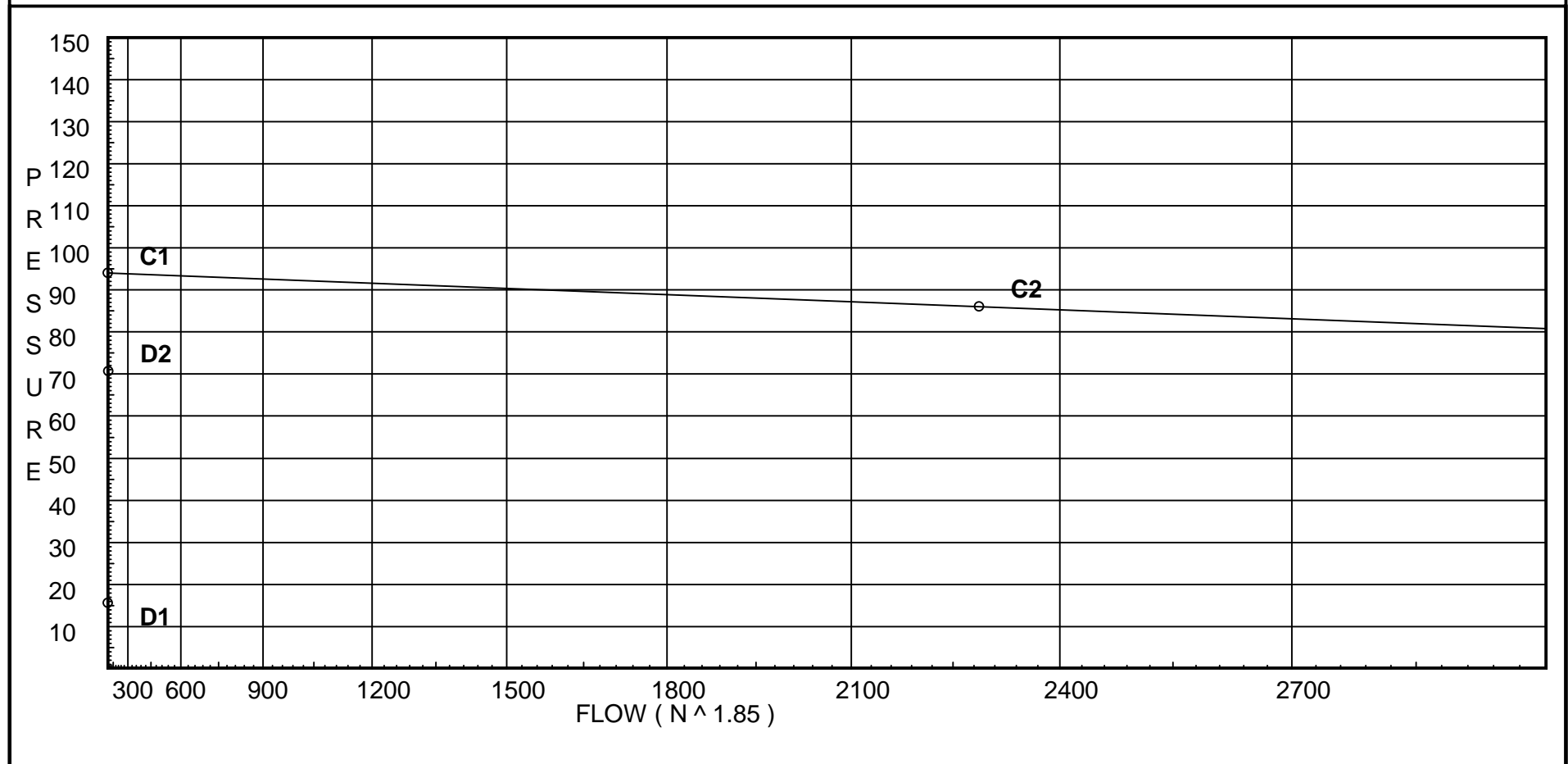
Water Supply Curve (C)

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City Water Supply:
 C1 - Static Pressure : 94
 C2 - Residual Pressure: 86
 C2 - Residual Flow : 2288

Demand:
 D1 - Elevation : 15.592
 D2 - System Flow : 56.3524
 D2 - System Pressure : 70.722
 Hose (Adj City) : _____
 Hose (Demand) : _____
 D3 - System Demand : 56.3524
 Safety Margin : 23.269



Fittings Used Summary

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Fitting Legend		½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8	10	12	14	16	18	20	24	
Abbrev.	Name																					
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	1	1	1	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	
R *	CPVC Coupling Tee-Run	1	1	1	1	1	2	2	0	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	
Z	Generic Flow Switch	2	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61	
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.

Pressure / Flow Summary - STANDARD

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Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
1	36.0	4.9	7.0	na	12.96	0.05	256	7.0
2	36.0	4.9	7.77	na	13.66	0.05	256	7.0
3	36.0		8.74	na				
4	36.0	4.9	8.65	na	14.41	0.05	256	7.0
5	36.0	4.9	9.77	na	15.32	0.05	256	7.0
6	36.0		10.68	na				
7	36.0		14.8	na				
8	27.0		23.32	na				
9	18.0		31.84	na				
10	9.0		40.36	na				
11	9.0		42.31	na				
12	9.0		46.12	na				
13	9.0		47.37	na				
14	0.0		56.03	na				
TOR	9.0		53.6	na				
BOR	1.0		68.98	na				
UG1	-3.0		71.99	na				
UG2	-3.0		72.02	na				
TEST	0.0		70.72	na				

The maximum velocity is 18.99 and it occurs in the pipe between nodes 6 and 7

Final Calculations - Hazen-Williams

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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	12.96	1.101	1N	7.0	13.200	7.000			K Factor = 4.90	
to		150.0	1O	5.0	12.000	0.0				
2	12.96	0.0305		0.0	25.200	0.769			Vel = 4.37	
2	13.66	1.101	1N	7.0	1.400	7.769			K Factor = 4.90	
to		150.0		0.0	7.000	0.0				
3	26.62	0.1155		0.0	8.400	0.970			Vel = 8.97	
3	0.0	1.101	1O	5.0	11.800	8.739				
to		150.0		0.0	5.000	0.0				
6	26.62	0.1155		0.0	16.800	1.940			Vel = 8.97	
	0.0									
	26.62					10.679			K Factor = 8.15	
4	14.41	1.101	2N	14.0	11.200	8.652			K Factor = 4.90	
to		150.0	1O	5.0	19.000	0.0				
5	14.41	0.0371		0.0	30.200	1.121			Vel = 4.86	
5	15.32	1.101	1O	5.0	1.400	9.773			K Factor = 4.90	
to		150.0		0.0	5.000	0.0				
6	29.73	0.1416		0.0	6.400	0.906			Vel = 10.02	
6	26.62	1.101	1O	5.0	3.900	10.679				
to		150.0		0.0	5.000	0.0				
7	56.35	0.4625		0.0	8.900	4.116			Vel = 18.99	
7	0.0	1.101	1R	1.0	9.000	14.795				
to		150.0		0.0	1.000	3.898				
8	56.35	0.4624		0.0	10.000	4.624			Vel = 18.99	
8	0.0	1.101	1R	1.0	9.000	23.317				
to		150.0		0.0	1.000	3.898				
9	56.35	0.4625		0.0	10.000	4.625			Vel = 18.99	
9	0.0	1.101	1R	1.0	9.000	31.840				
to		150.0		0.0	1.000	3.898				
10	56.35	0.4624		0.0	10.000	4.624			Vel = 18.99	
10	0.0	1.394	1N	8.0	5.300	40.362				
to		150.0		0.0	8.000	0.0				
11	56.35	0.1465		0.0	13.300	1.949			Vel = 11.85	
11	0.0	1.394	1N	8.0	18.000	42.311				
to		150.0		0.0	8.000	0.0				
12	56.35	0.1465		0.0	26.000	3.810			Vel = 11.85	
12	0.0	1.394	1N	8.0	0.500	46.121				
to		150.0		0.0	8.000	0.0				
13	56.35	0.1466		0.0	8.500	1.246			Vel = 11.85	
13	0.0	1.394	1N	8.0	24.500	47.367				
to		150.0		0.0	8.000	3.898				
14	56.35	0.1466		0.0	32.500	4.763			Vel = 11.85	

Final Calculations - Hazen-Williams

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Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
14 to TOR	0.0 56.35	1.394 150.0 0.1466	1N 8.0 0.0 0.0	2.000 8.000 10.000	56.028 -3.898 1.466		Vel = 11.85		
TOR to BOR	0.0 56.35	1.38 120.0 0.2326	1Z 3.0 1Zik 0.0 1T 6.0	8.000 9.000 17.000	53.596 11.433 3.954		* Fixed loss = 7.969 Vel = 12.09		
BOR to UG1	0.0 56.35	1.917 150.0 0.0311	1G 1.047 0.0 0.0	40.000 1.047 41.047	68.983 1.732 1.276		Vel = 6.26		
UG1 to UG2	0.0 56.35	6.16 140.0 0.0001	1E 20.084 1T 43.037 0.0	175.000 63.121 238.121	71.991 0.0 0.028		Vel = 0.61		
UG2 to TEST	0.0 56.35	12.34 140.0 0.0	1E 42.195 1T 93.767 0.0	450.000 135.962 585.962	72.019 -1.299 0.002		Vel = 0.15		
	0.0 56.35				70.722		K Factor = 6.70		