



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

Dean and Allyn Inc  
116 Lewiston Road  
Your Street Address 2  
Gray ME, 04039  
(207)657-5646

Job Name : 116 Walton Carriage House  
Building : Submittal  
Location : 116 Walton Street  
System : 1  
Contract : C141199  
Data File : 116 Walton B.WXF

# 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
G	NFPA 13 Gate Valve	0	0	1	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
Zwb	Watts 009	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.
100	28.416	4.4	15.0	na	17.04	0.05	256	15.0
101	28.416	4.4	15.46	na	17.3	0.05	256	15.0
90	28.416		17.84	na				
91	-1.166		33.53	na				
200	24.25		26.57	na				
201	24.25		26.57	na				
202	24.25		26.57	na				
203	-0.5		37.29	na				
204	-1.166		37.58	na				
TR	-5.666		39.53	na				
BR	-6.0		54.42	na				
STA	-6.0		60.19	na				
ST	-9.0		73.85	na				
TEST	-3.0		71.26	na				

The maximum velocity is 16.9 and it occurs in the pipe between nodes STA and ST

# 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	*****
100 to 101	17.04	1.38 120.0	T	6.0 0.0	12.000 6.000	15.000 0.0			K Factor = 4.40	
101 to 90	17.04	0.0254		0.0	18.000	0.458			Vel = 3.66	
101 to 90	17.30	1.38 120.0	3E T	9.0 6.0	10.583 15.000	15.458 0.0			K Factor = 4.40	
90 to 91	34.34	0.0930		0.0	25.583	2.380			Vel = 7.37	
90 to 91	0.0	1.38 120.0	E	3.0 0.0	28.000 3.000	17.838 12.812				
91 to TR	34.34	0.0931		0.0	31.000	2.885			Vel = 7.37	
91 to TR	0.0	1.61 120.0	4E 3T	16.0 24.0	52.125 40.000	33.535 1.949				
TR	34.34	0.0439		0.0	92.125	4.046			Vel = 5.41	
	0.0 34.34					39.530			K Factor = 5.46	
200 to 201	0.0	1.38 120.0	T	6.0 0.0	14.000 6.000	26.573 0.0				
201 to 202	0.0	0.0		0.0	20.000	0.0			Vel = 0	
201 to 202	0.0	1.38 120.0	E	3.0 0.0	6.708 3.000	26.573 0.0				
202 to 203	0.0	0.0		0.0	9.708	0.0			Vel = 0	
202 to 203	0.0	1.38 120.0	E	3.0 0.0	32.250 3.000	26.573 10.719				
203 to 204	0.0	0.0		0.0	35.250	0.0			Vel = 0	
203 to 204	0.0	1.61 120.0	E T	4.0 8.0	12.458 12.000	37.292 0.288				
204 to TR	0.0	0.0		0.0	24.458	0.001			Vel = 0	
204 to TR	0.0	1.61 120.0	7E 2T	28.0 16.0	73.666 44.000	37.581 1.949				
TR	0.0	0.0		0.0	117.666	0.0			Vel = 0	
TR to BR	34.34	1.61 120.0	Zwb	0.0 0.0	4.500 0.0	39.530 14.695			* * Fixed Loss = 14.55	
BR to STA	34.34	0.0438		0.0	4.500	0.197			Vel = 5.41	
BR to STA	0.0	1.025 150.0		0.0 0.0	22.000 0.0	54.422 0.0				
STA to ST	34.34	0.2620		0.0	22.000	5.765			Vel = 13.35	
STA to ST	0.0	0.911 150.0	G T	0.76 3.801	22.000 4.561	60.187 1.299				
ST to TEST	34.34	0.4653		0.0	26.561	12.360			Vel = 16.90	
ST to TEST	0.0	6.16 140.0	T	43.037 0.0	200.000 43.037	73.846 -2.599				
TEST	34.34	0.0		0.0	243.037	0.012			Vel = 0.37	
	0.0 34.34					71.259			K Factor = 4.07	

# Water Supply Curve C

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City Water Supply:  
C1 - Static Pressure : 82  
C2 - Residual Pressure: 75  
C2 - Residual Flow : 992

Demand:  
D1 - Elevation : 13.606  
D2 - System Flow : 34.34  
D2 - System Pressure : 71.259  
Hose ( Demand ) : \_\_\_\_\_  
D3 - System Demand : 34.34  
Safety Margin : 10.727

