

... Fire Protection by Computer Design

Master Craft Plumbing
887 Brentwood Dr.
Daytona beach, FL 32117
386-252-7047

Job Name : DME - Residential Corridor Calc #2
Building :
Location :
System :
Contract :
Data File : DME - Calc #2 - 13R Residential Corridor.WXF

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ENGINEER OF RECORD

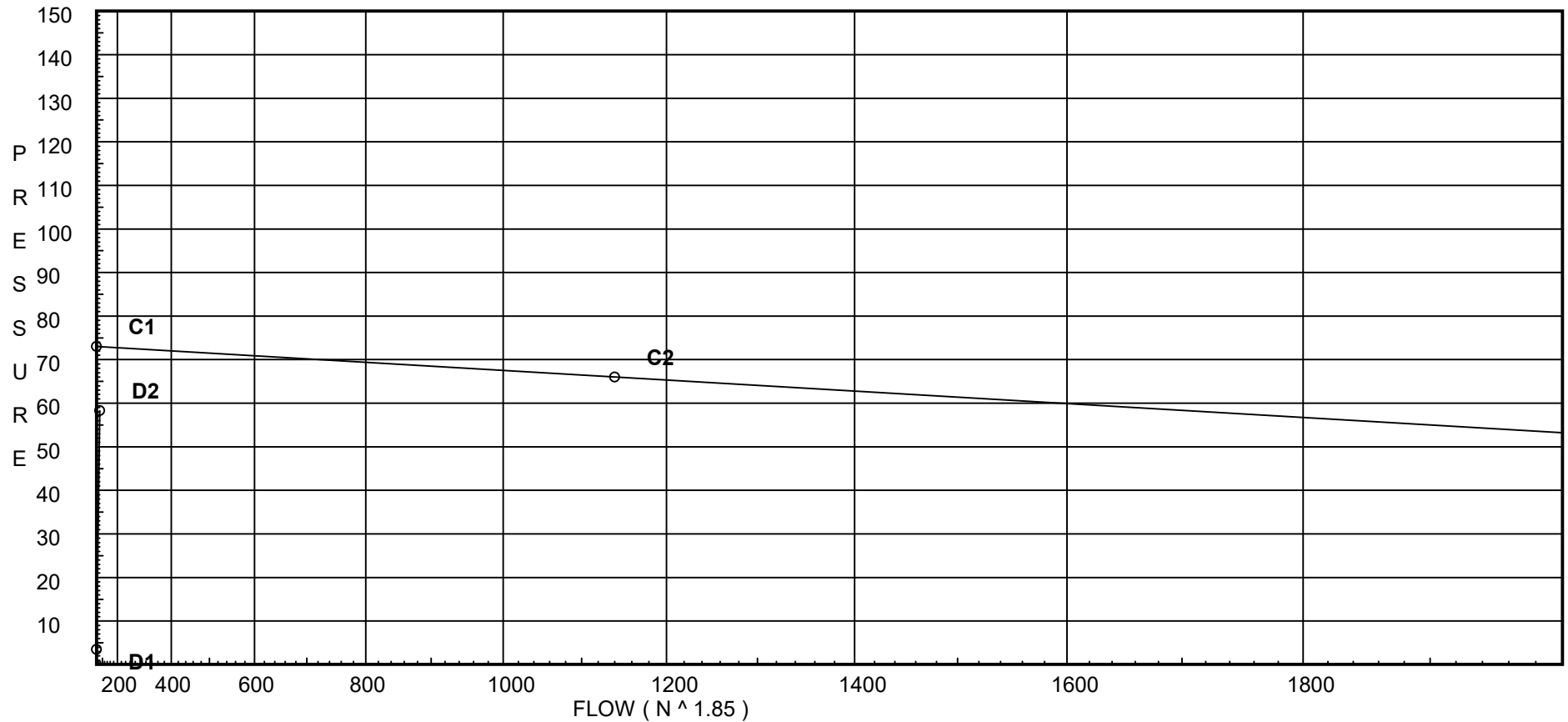
Water Supply Curve C

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City Water Supply:
C1 - Static Pressure : 73
C2 - Residual Pressure: 66
C2 - Residual Flow : 1140

Demand:
D1 - Elevation : 3.465
D2 - System Flow : 71.568
D2 - System Pressure : 58.314
Hose (Demand) : _____
D3 - System Demand : 71.568
Safety Margin : 14.644



Fittings Used Summary

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Fitting Legend		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
B	NFPA 13 Butterfly Valve	0	0	0	0	0	6	7	10	0	12	9	10	12	19	21	0	0	0	0	0
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
Fhc *	1/2 in FlexHead - 4 Ft Long	0	0	24					0	0	0	0	0	0	0	0	0	0	0	0	0
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
S	NFPA 13 Swing Check	0	0	5	7	9	11	14	16	19	22	27	32	45	55	65					
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
Zac	Ames 2000SS	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.
S21	10.0	4.9	12.0	na	16.97	0.05	324	12.0
S22	10.0	4.9	12.3	na	17.19	0.05	324	12.0
S23	10.0	4.9	13.4	na	17.93	0.05	324	12.0
S24	10.0	4.9	15.8	na	19.47	0.05	324	12.0
21	10.75		14.56	na				
22	10.75		14.92	na				
23	10.75		16.26	na				
24	10.75		19.19	na				
202	10.75		27.79	na				
203	10.75		31.44	na				
204	14.75		30.94	na				
403	14.75		35.44	na				
404	14.75		38.17	na				
405	10.75		40.46	na				
406	10.75		42.75	na				
TOR	10.75		44.05	na				
BOR	2.0		52.06	na				
U1	-4.0		54.66	na				
U2	-4.0		54.68	na				
U3	-4.0		54.7	na				
U4	-4.0		54.73	na				
BF1	2.0		52.14	na				
BF2	2.0		56.29	na				
U5	-4.0		58.89	na				
U6	-4.0		58.9	na				
M1	-4.0		58.91	na				
M2	-4.0		60.91	na				
S	2.0		58.31	na				

The maximum velocity is 14.06 and it occurs in the pipe between nodes 24 and 202

Final Calculations - Hazen-Williams - 2007

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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	*****
*SPRINKLER DROP PENDENTS									
S21	16.97	1.049	Fhc 24.0	1.000	12.000			K Factor = 4.90	
to		120.0	T 5.0	29.000	-0.325				
21	16.97	0.0961	0.0	30.000	2.882			Vel = 6.30	
	0.0								
	16.97					14.557		K Factor = 4.45	
S22	17.19	1.049	Fhc 24.0	1.000	12.300			K Factor = 4.90	
to		120.0	T 5.0	29.000	-0.325				
22	17.19	0.0983	0.0	30.000	2.949			Vel = 6.38	
	0.0								
	17.19					14.924		K Factor = 4.45	
S23	17.93	1.049	Fhc 24.0	1.000	13.397			K Factor = 4.90	
to		120.0	T 5.0	29.000	-0.325				
23	17.93	0.1064	0.0	30.000	3.191			Vel = 6.66	
	0.0								
	17.93					16.263		K Factor = 4.45	
S24	19.47	1.049	Fhc 24.0	1.000	15.795			K Factor = 4.90	
to		120.0	T 5.0	29.000	-0.325				
24	19.47	0.1239	0.0	30.000	3.716			Vel = 7.23	
	0.0								
	19.47					19.186		K Factor = 4.45	
*									
*CROSSMAIN									
21	16.97	1.442		0.0	18.000	14.557			
to		120.0		0.0	0.0	0.0			
22	16.97	0.0204		0.0	18.000	0.367		Vel = 3.33	
22	17.19	1.442		0.0	18.000	14.924			
to		120.0		0.0	0.0	0.0			
23	34.16	0.0744		0.0	18.000	1.339		Vel = 6.71	
23	17.93	1.442		0.0	18.000	16.263			
to		120.0		0.0	0.0	0.0			
24	52.09	0.1624		0.0	18.000	2.923		Vel = 10.23	
24	19.48	1.442	T 7.432	22.000	19.186				
to		120.0		0.0	7.432	0.0			
202	71.57	0.2922		0.0	29.432	8.601		Vel = 14.06	
	0.0								
	71.57					27.787		K Factor = 13.58	
*									
*FEED MAIN									
202	71.57	1.682	E 4.95	21.500	27.787				
to		120.0		0.0	4.950	0.0			
203	71.57	0.1381		0.0	26.450	3.652		Vel = 10.33	
203	0.0	1.682	E 4.95	4.000	31.439				
to		120.0		0.0	4.950	-1.732			
204	71.57	0.1381		0.0	8.950	1.236		Vel = 10.33	
204	0.0	1.682		0.0	32.583	30.943			
to		120.0		0.0	0.0	0.0			
403	71.57	0.1381		0.0	32.583	4.499		Vel = 10.33	

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Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftnng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
403 to 404	0.0 71.57	1.682 120.0 0.1380	E 0.0 0.0	4.95 0.0 19.783	14.833 4.950 2.731	35.442 0.0		Vel = 10.33	
404 to 405	0.0 71.57	1.682 120.0 0.1383	0.0 0.0 0.0	4.000 0.0 4.000	38.173 0.0 0.553	1.732		Vel = 10.33	
405 to 406	0.0 71.57	2.157 120.0 0.0411	2E T 0.0	12.307 12.307 0.0	31.083 24.614 55.697	40.458 0.0 2.290		Vel = 6.28	
406 to TOR	0.0 71.57	2.157 120.0 0.0411	E T 0.0	6.153 12.307 0.0	13.167 18.460 31.627	42.748 0.0 1.300		Vel = 6.28	
	0.0 71.57					44.048		K Factor = 10.78	
* *RISER									
TOR to BOR	71.57	2.157 120.0 0.0411	Fsp B S	0.0 7.384 13.537	8.750 20.921 29.671	44.048 6.790 1.220		* Fixed Loss = 3 Vel = 6.28	
BOR to U1	0.0 71.57	6.16 140.0 0.0002	E 0.0 0.0	20.084 0.0 36.084	16.000 20.084 36.084	52.058 2.599 0.007		Vel = 0.77	
U1 to U2	0.0 71.57	5.86 150.0 0.0002	E 0.0 0.0	17.893 0.0 65.143	47.250 17.893 65.143	54.664 0.0 0.013		Vel = 0.85	
U2 to U3	0.0 71.57	5.86 150.0 0.0002	T 0.0 0.0	38.342 0.0 95.842	57.500 38.342 95.842	54.677 0.0 0.020		Vel = 0.85	
U3 to U4	0.0 71.57	5.86 150.0 0.0002	2E 0.0 0.0	35.786 0.0 173.453	137.667 35.786 173.453	54.697 0.0 0.037		Vel = 0.85	
U4 to BF1	0.0 71.57	6.16 140.0 0.0002	E 0.0 0.0	20.084 0.0 26.084	6.000 20.084 26.084	54.734 -2.599 0.005		Vel = 0.77	
BF1 to BF2	0.0 71.57	6.16 140.0 0.0002	E Zac 0.0	20.084 0.0 25.084	5.000 20.084 25.084	52.140 4.144 0.004		* Fixed Loss = 4.144 Vel = 0.77	
BF2 to U5	0.0 71.57	6.16 140.0 0.0002	E 0.0 0.0	20.084 0.0 26.084	6.000 20.084 26.084	56.288 2.599 0.005		Vel = 0.77	
U5 to U6	0.0 71.57	5.86 150.0 0.0002	E T 0.0	17.893 38.342 0.0	3.500 56.235 59.735	58.892 0.0 0.012		Vel = 0.85	
U6 to M1	0.0 71.57	5.86 150.0 0.0003	0.0 0.0 0.0	7.000 0.0 7.000	7.000 0.0 7.000	58.904 0.0 0.002		Vel = 0.85	
M1 to M2	0.0 71.57	5.86 150.0 0.0002	2G 0.0 0.0	7.668 0.0 10.668	3.000 7.668 10.668	58.906 2.000 0.002		* Fixed Loss = 2 Vel = 0.85	

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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	*****
M2	0.0	7.68	E	22.555	17.500	60.908			
to		150.0	G	5.012	71.424	-2.599			
S	71.57	0.0001	T	43.857	88.924	0.005	Vel =	0.50	
	0.0								
	71.57					58.314	K Factor =	9.37	