

. . . Fire Protection by Computer Design

HAMPSHIRE FIRE PROTECTION
8 N. WENTWORTH AVE.
LONDONDERRY, NH 03053
603-432-8221

Job Name : Courtyard by Marriott Standpipe Calc
Building : 3 of 8
Location : Portland ME
System : Standpipe Calc
Contract : 4396CME
Data File : Standpipe Calc revised.WXF

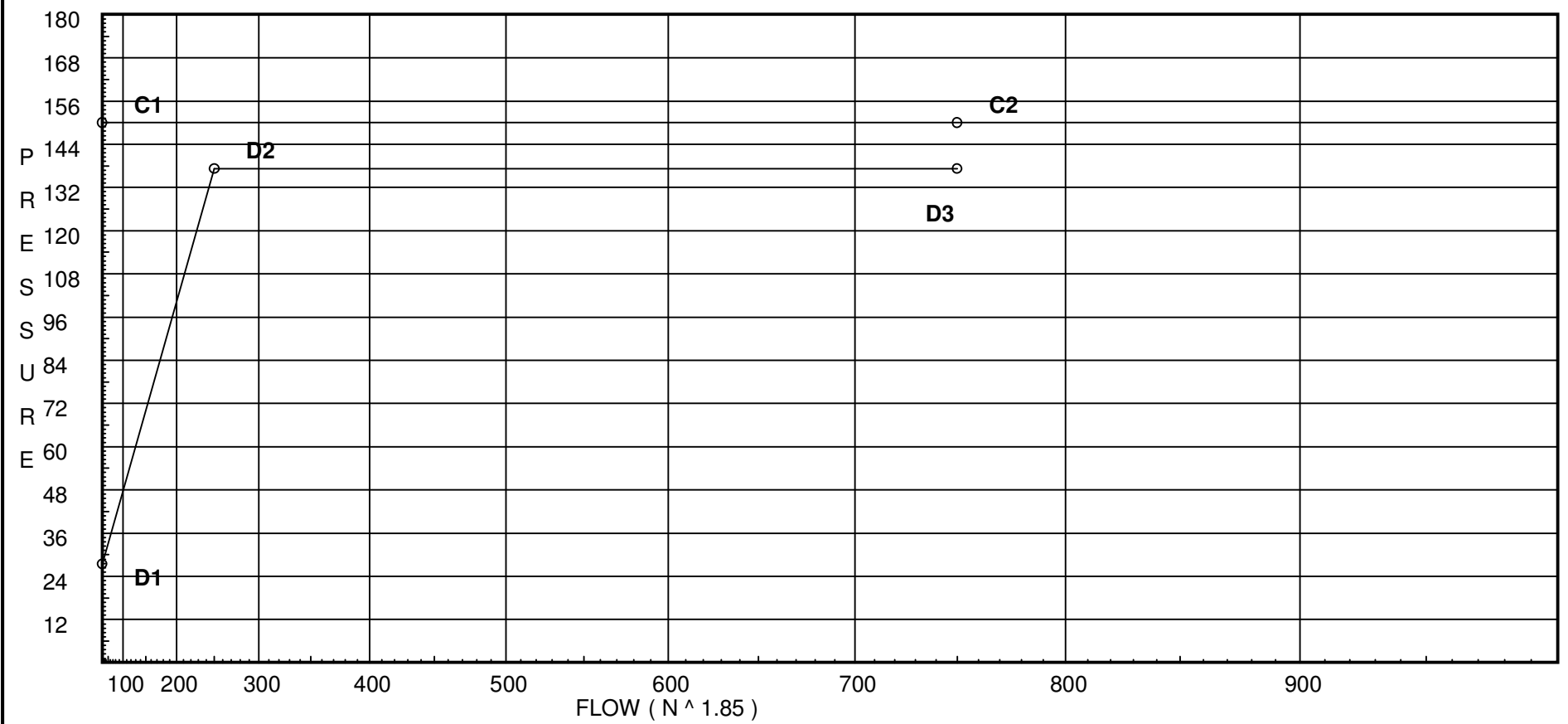
Water Supply Curve C

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City Water Supply:
C1 - Static Pressure : 150
C2 - Residual Pressure: 150
C2 - Residual Flow : 750

Demand:
D1 - Elevation : 27.430
D2 - System Flow : 250
D2 - System Pressure : 137.249
Hose (Demand) : 500
D3 - System Demand : 750
Safety Margin : 12.752



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
Abbrev.	Name																				
B	NFPA 13 Butterfly Valve	0	0	0	6	6	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
S	NFPA 13 Swing Check	0	0	5	7	9	11	14	16	19	22	27	32	45	55	65					
V	90° Ell Firelock #001	0	0	0	0	0	3.5	4.3	5	0	6.8	8.5	10	13	0	0	0	0	0	0	0
X	90° Tee-Branch Firelock 002	0	0	0	0	0	8.5	10.8	13	0	16	21	25	33	0	0	0	0	0	0	0

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.
FV1	68.333	25	100.0	na	250.0	1.0	250	100.0
FV2	58.0		105.22	na	250.0			
ST01	11.67		129.54	na				
ST02	11.67		131.75	na	250.0			
CONN	2.0		135.95	na				
FDC	5.0		137.25	na				

The maximum velocity is 11.25 and it occurs in the pipe between nodes FV2 and ST01

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	*****
FV1	250.00	4.26	2V 17.907	15.630	100.000			K Factor = 25.00	
to		120.0	1B 15.8	33.707	4.475				
FV2	250.0	0.0151	0.0	49.337	0.746			Vel = 5.63	
FV2	250.00	4.26	1V 8.954	48.000	105.221			Qa = 250	
to		120.0	1X 21.067	30.021	20.066				
ST01	500.0	0.0545	0.0	78.021	4.253			Vel = 11.25	
ST01	0.0	6.357	3V 37.72	202.670	129.540				
to		120.0	1X 31.433	81.726	0.0				
ST02	500.0	0.0078	1B 12.573	284.396	2.207			Vel = 5.05	
ST02	250.00	6.357	0.0	1.000	131.747			Qa = 250	
to		120.0	0.0	0.0	4.188				
CONN	750.0	0.0170	0.0	1.000	0.017			Vel = 7.58	
CONN	0.0	6.357	1S 40.235	75.000	135.952				
to		120.0	2V 25.147	82.985	-1.299				
FDC	750.0	0.0164	1E 17.603	157.985	2.596			Vel = 7.58	
	0.0								
	750.00				137.249			K Factor = 64.02	