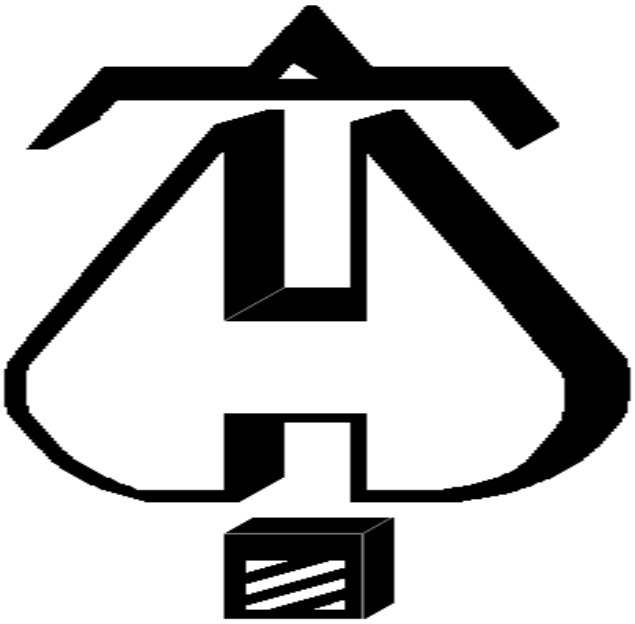


. . . Fire Protection by Computer Design

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.WXF

HYDRAULIC CALCULATIONS
for

Project name: Courtyard by Marriott
Location: Portland ME
Drawing no: 3 of 8
Date: 6-5-13

Design

Remote area number: Standpipe Calc
Remote area location: Stair A
Occupancy classification: Class I Manual Wet Standpipe
Density: - Gpm/SqFt
Area of application: - SqFt
Coverage per sprinkler: - SqFt
Type of sprinklers calculated:
No. of sprinklers calculated:
In-rack demand: - GPM
Hose streams: - GPM
Total water required (including hose streams): 750 - GPM @ 142.05 - Psi
Type of system: Wet Manual Wet Standpipe
Volume of dry or preaction system: N/A - Gal

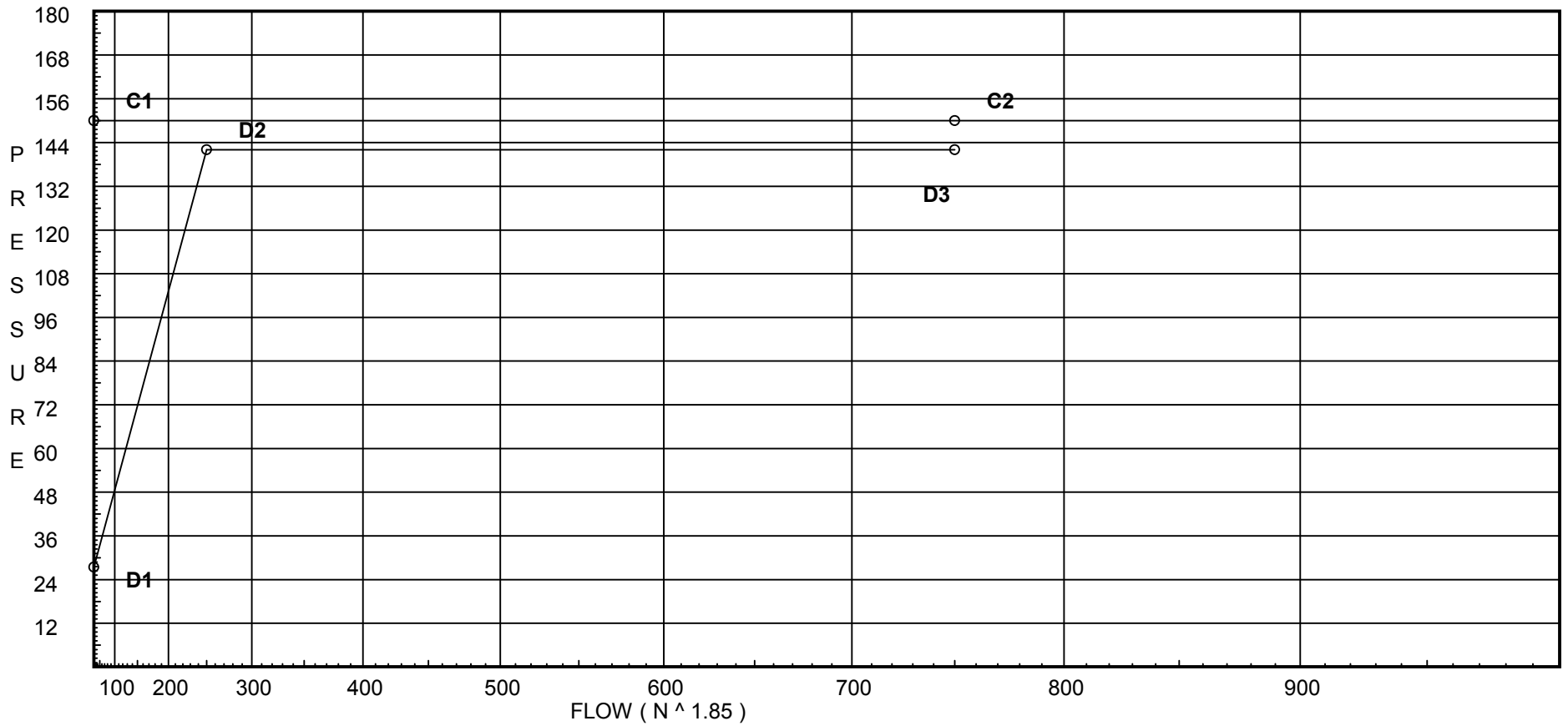
Water supply information

Date: N/A
Location: FDC
Source: NFPA

Name of contractor: Hampshire Fire
Address: N Wentworth Ave Londonderry NH 03053
Phone number: 603-432-8221
Name of designer: E Vance Wooten
Authority having jurisdiction: Portland
Notes: (Include peaking information or gridded systems here.) Calculation provides 250 GPM @ 100 PSI at the top FD Valve at the Remote Statndpipe and 250 GPM at the next FD Valve down the remote standpipe and then 250 GPM is added at the connection to the next standpipe and run to the FDC where the Fire Department Pumper Truck will provide 750 GPM @ 150 PSI

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 : 142.054
- Hose (Demand) : 500
- D3 - System Demand : 750
- Safety Margin : 7.946



Fittings Used Summary

Fitting Legend

Abbrev.	Name	½	¾	1	1¼	1½	2	2½	3	3½	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
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-BranchFirelock002	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

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			
1FL	11.67		132.16	na				
TOR	11.67		132.39	na				
BOR	2.0		137.25	na				
FDC	5.0		142.05	na				

The maximum velocity is 16.88 and it occurs in the pipe between nodes BOR and FDC

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	24.790	131.747		Qa = 250
to		120.0		0.0	0.0	0.0		
1FL	750.0	0.0165		0.0	24.790	0.408		Vel = 7.58
1FL	0.0	6.357	1V	12.573	1.540	132.155		
to		120.0		0.0	12.573	0.0		
TOR	750.0	0.0164		0.0	14.113	0.232		Vel = 7.58
TOR	0.0	6.357	1X	31.433	9.670	132.387		
to		120.0		0.0	31.433	4.188		
BOR	750.0	0.0164		0.0	41.103	0.675		Vel = 7.58
BOR	0.0	4.26	1S	28.968	6.000	137.250		
to		120.0	2V	17.907	46.875	-1.299		
FDC	750.0	0.1154		0.0	52.875	6.103		Vel = 16.88
	0.0							
	750.00					142.054		K Factor = 62.93