

. . . Fire Protection by Computer Design

Eastern Fire Protection
170 Kitty Hawk Ave.
P.O. Box 1390
Auburn, Maine, 04211
207-784-1507

Job Name : BAYSIDE ANCHOR WET MANUAL STANDPIPE
Drawing : NEW WOOD CONSTRUCTION
Location : 81 EAST OXFORD ST., PORTLAND, MAINE
Remote Area : STANDPIPE
Contract : AU-5444-16
Data File : 1-5444STANDPIPE CALCS.WXF

HYDRAULIC DESIGN INFORMATION SHEET

Name - BAYSIDE ANCHOR WET MANUAL STANDPIPE Date - 05/02/16
Location - 81 EAST OXFORD ST., PORTLAND, MAINE
Building - NEW WOOD CONSTRUCTION System No. - STANDPIPE
Contractor - EASTERN FIRE PROTECTION CO. Contract No. - AU-5444-16
Calculated By - JWD Drawing No. - 1&2 OF 2
Occupancy - APARTMENTS (RESIDENTIAL)

S (X)NFPA 14 Number of Standpipes ()1 (X)2 ()3 ()4 ()
Y ()Other
S ()Specific Ruling Made by Date

E Flow at Top Most Outlet - 250 Gpm System Type
M Pres. at Top Most Outlet - 100 Psi (X) Wet () Dry
Flow For Ea. Additional Standpipe - 250 Gpm
D Total Additional Flow - 250 Gpm
E Elevation at Highest Outlet - 59'-1" Feet
S Hose Valve Connection ()1 1/2" (XX)2 1/2"
I Class Service (X)I ()II ()III
G Note:CLASS I WET MANUAL STANDPIPE
N

Calculation Gpm Required 750 Psi Required 149 At FDC
Summary C-Factor Used: Overhead 120 Underground NA

W Water Flow Test: Pump Data: Tank or Reservoir:
A Date of Test - NA Cap.
T Time of Test - NA Rated Cap. Elev.
E Static (Psi) - 150 @ Psi
R Residual (Psi) - 149 Elev. Well
Flow (Gpm) - 1500 Proof Flow Gpm
S Elevation - 26'-9"

U
P Location: PORTLAND FIRE DEPARTMENT PUMPER
P
L Source of Information: PORTLAND FIRE DEPARTMENT
Y

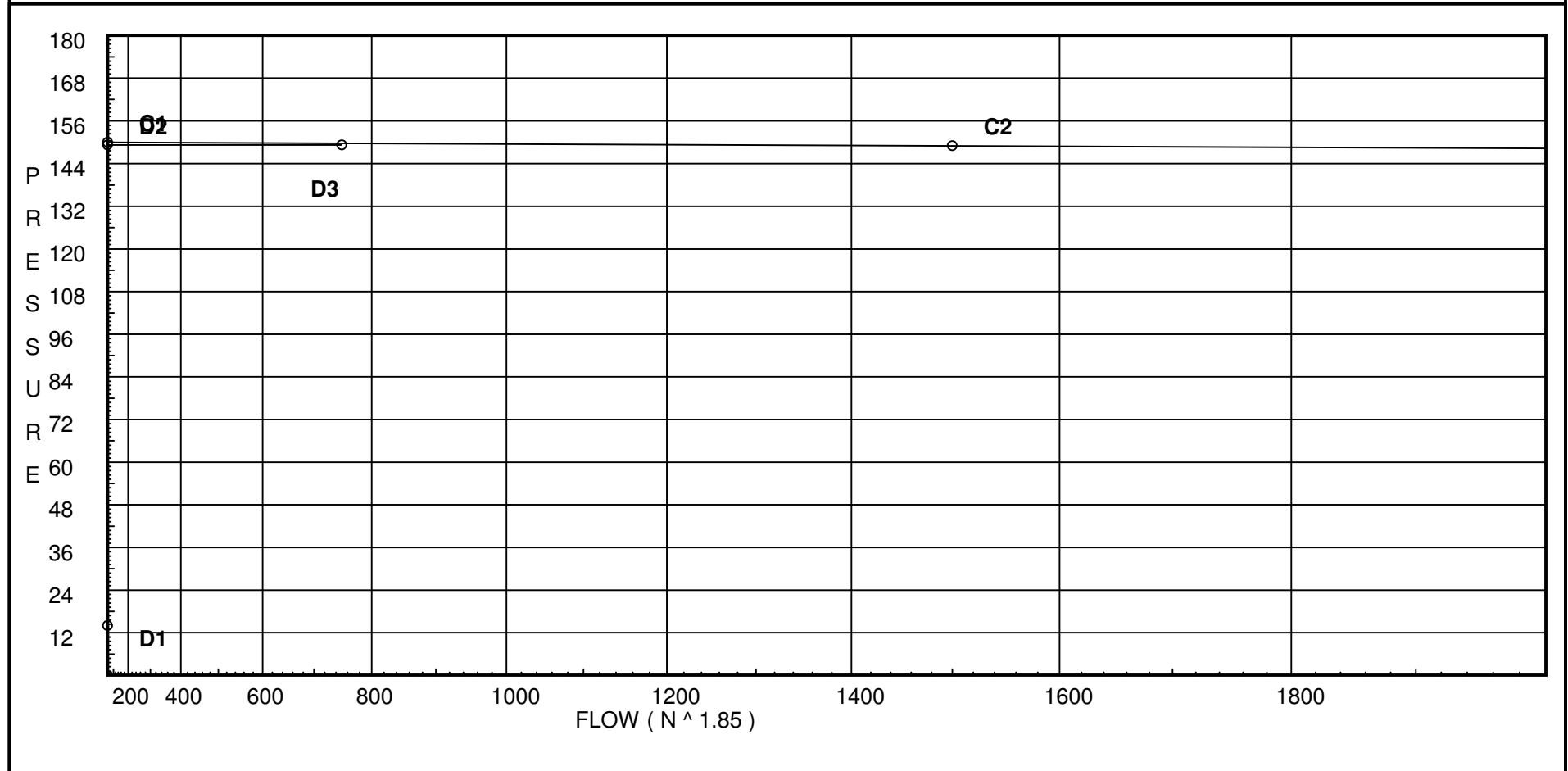
Water Supply Curve C

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City Water Supply:
C1 - Static Pressure : 150
C2 - Residual Pressure: 149
C2 - Residual Flow : 1500

Demand:
D1 - Elevation : 14.002
D2 - System Flow :
D2 - System Pressure : 149.264
Hose (Demand) : 750
D3 - System Demand : 750
Safety Margin : 0.458



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	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					
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
U	45' Ell Firelock #003	0	0	0	0	0	1.8	2.2	2.6	0	3.4	4.2	5	5	0	0	0	0	0	0	0
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.

SUPPLY ANALYSIS

<i>Node at Source</i>	<i>Static Pressure</i>	<i>Residual Pressure</i>	<i>Flow</i>	<i>Available Pressure</i>	<i>Total Demand</i>	<i>Required Pressure</i>
FDC	150.0	149	1500.0	149.723	750.0	149.264

NODE ANALYSIS

<i>Node Tag</i>	<i>Elevation</i>	<i>Node Type</i>	<i>Pressure at Node</i>	<i>Discharge at Node</i>	<i>Notes</i>
1	59.08		100.0	250.0	
H1	59.08		109.26		
2	49.08		104.48	250.0	
H2	49.08		113.75		
H3	31.08		131.26	250.0	
FDC	26.75		149.26		

Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv.	Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
1 to H1	59.080 59.080	H250	250.00 250.0	2.5 2.469	T	12.0 0.0	31.000 12.000	120 0.2154	100.000 0.0 9.263			Vel = 16.75
H1 to H2	59.080 49.080		0.0 250.0	4 4.26		0.0 0.0	10.080 10.080	120 0.0151	109.263 4.331 0.152			Vel = 5.63
H2			0.0 250.00						113.746			K Factor = 23.44
2 to H2	49.080 49.080	H250	250.00 250.0	2.5 2.469	T	12.0 0.0	31.000 12.000	120 0.2154	104.483 0.0 9.263			Vel = 16.75
H2 to H3	49.080 31.080		250.00 500.0	4 4.26	4V U 2X B	35.814 4.477 42.135 15.8	80.000 98.226 178.226	120 0.0545	113.746 7.796 9.716			Vel = 11.25
H3 to FDC	31.080 26.750	H250	250.00 750.0	4 4.26	6V X S	53.722 21.067 28.968	36.000 103.757 139.757	120 0.1154	131.258 1.875 16.131			Vel = 16.88
FDC			0.0 750.00						149.264			K Factor = 61.39