



... Fire Protection by Computer Design

EASTERN FIRE PROTECTION
170 KITTYHAWK AVE
AUBURN, ME 04210
(207) 784-1507

Job Name : Bunton Residence
Drawing : Wood Frame
Location : Peaks Island, Portland, ME
Remote Area : Wet
Contract : AU-5224-14
Data File : 5224 - Bunton Residence.WXF

HYDRAULIC DESIGN INFORMATION SHEET

Name - Bunton Residence Date - 11/19/14
Location - Peaks Island, Portland, ME
Building - Wood Frame System No. - Wet
Contractor - Eastern Fire Protection Contract No. - AU-5224-14
Calculated By - Derek Cash Drawing No. - 1 OF 1
Construction: (X) Combustible () Non-Combustible Ceiling Height VARIES
OCCUPANCY - Residential

S Type of Calculation: ()NFPA 13 Residential ()NFPA 13R (X)NFPA 13D
Y Number of Sprinklers Flowing: ()1 (X)2 ()4 ()
S ()Other
T (X)Specific Ruling 13D SYSTEM Made by FIRE MARSHAL Date

E
M Listed Flow at Start Point - 16 Gpm System Type
Listed Pres. at Start Point - 14.5 Psi (X) Wet () Dry
D MAXIMUM LISTED SPACING 16 x 16 () Deluge () PreAction
E Domestic Flow Added - Gpm Sprinkler or Nozzle
S Additional Flow Added - Gpm Make Reliable Model RFS42
I Elevation at Highest Outlet - 136 Feet Size K-Factor 4.2
G Note: Temperature Rating 165
N

Calculation Gpm Required 32.23 Psi Required 46.26 At Pump
Summary C-Factor Used: Overhead 120 Underground 120

W Water Flow Test: Pump Data: Tank or Reservoir:
A Date of Test - Rated Cap. 20 Cap. 450
T Time of Test - @ Psi 54.13 Elev. 100'
E Static (Psi) - Elev. 100
R Residual (Psi) - Other Well
S Flow (Gpm) - Proof Flow Gpm
Elevation -

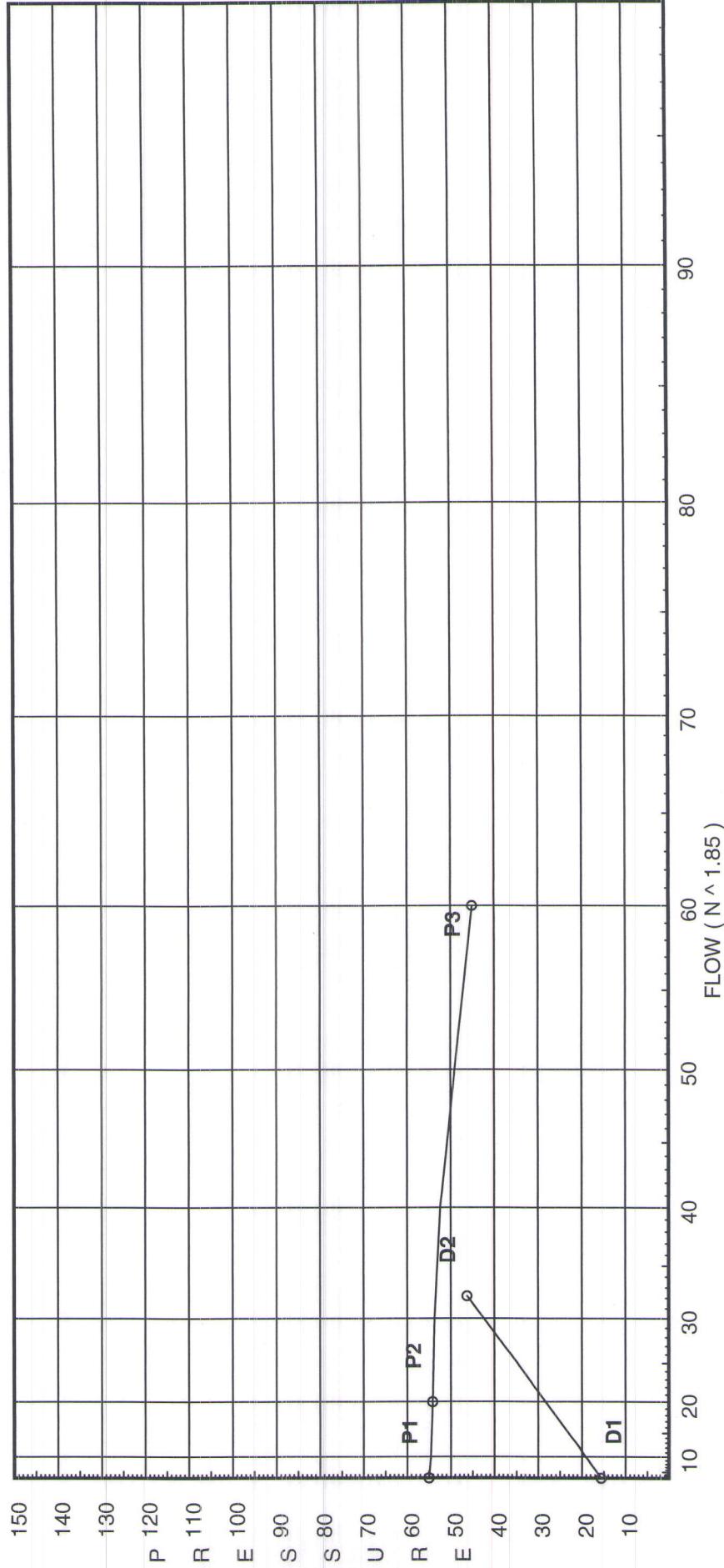
P Location: PUMP LOCATED IN BASEMENT
P
L Source of Information: PUMP MANUFACTURER TECHNICAL DATA
Y

Water Supply Curve C

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Pump Data:
 P1 - Pump Churn Pressure : 54.99
 P2 - Pump Rated Pressure : 54.13
 P2 - Pump Rated Flow : 20
 P3 - Pump Pressure @ Max Flow : 45.03
 P3 - Pump Max Flow : 60

Demand:
 D1 - Elevation : 15.592
 D2 - System Flow : 32.225
 D2 - System Pressure : 46.255
 Hose (Demand) :
 D3 - System Demand : 32.225
 Safety Margin : 7.173



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
Fsp Flow Switch Potter VSR	Fitting generates a Fixed Loss Based on Flow																			
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

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 NFFPA.

Flow Summary - NFPA 2007

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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>
PUMP	See Information on Pump Curve			53.428	32.23	46.255

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>
LIN1	100.0	4.9	7.0	12.96	
1	136.0	4.2	14.5	15.99	
2	136.0	4.2	14.94	16.23	
2A	136.0		15.38		
3	136.0		17.26		
4	128.666		21.45		
5	118.666		26.3		
6	108.666		35.05		
7	108.666		35.57		
A	108.666		36.74		
B	108.666		38.28		
TOR	108.666		38.59		
PUMP	100.0		46.26		

Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv.	Ln.	Pipe Fng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
LIN1 to DRP1	100 100	4.90	12.96 12.96	1 1.101	T	9.563 0.0 0.0	0.500 9.562 10.062	150 0.0305	7.000 0.0 0.307			Vel = 4.37
DRP1			0.0 12.96						7.307			K Factor = 4.79
1 to 2A	136 136	4.20	15.99 15.99	1 1.101	2E T	7.65 9.563 0.0	2.417 17.212 19.629	150 0.0450	14.500 0.0 0.883			Vel = 5.39
2A			0.0 15.99						15.383			K Factor = 4.08
2 to 2A	136 136	4.20	16.23 16.23	1 1.101	2E	7.65 0.0 0.0	2.000 7.650 9.650	150 0.0462	14.937 0.0 0.446			Vel = 5.47
2A to 3	136 136		16.00 32.23	1 1.101	T	9.563 0.0 0.0	1.833 9.562 11.395	150 0.1645	15.383 0.0 1.874			Vel = 10.86
3 to 4	136 128.666		0.0 32.23	1.25 1.394	T	9.523 0.0 0.0	10.000 9.523 19.523	150 0.0521	17.257 3.176 1.018			Vel = 6.78
4 to 5	128.666 118.666		0.0 32.23	1.25 1.394		0.0 0.0 0.0	10.000 0.0 10.000	150 0.0521	21.451 4.331 0.521			Vel = 6.78
5 to 6	118.666 108.666		0.0 32.23	1.25 1.394	2T 4E	19.046 19.046 0.0	46.667 38.094 84.761	150 0.0521	26.303 4.331 4.418			Vel = 6.78
6 to 7	108.666 108.666		0.0 32.23	1.25 1.394		0.0 0.0 0.0	10.000 0.0 10.000	150 0.0521	35.052 0.0 0.521			Vel = 6.78
7 to A	108.666 108.666		0.0 32.23	1.25 1.38	E T	3.0 6.0 0.0	5.083 9.000 14.083	120 0.0827	35.573 0.0 1.165			Vel = 6.91
A to B	108.666 108.666		0.0 32.23	1.5 1.61	2E T	8.0 8.0 0.0	23.500 16.000 39.500	120 0.0390	36.738 0.0 1.542			Vel = 5.08
B to TOR	108.666 108.666		0.0 32.23	1.5 1.61	E	4.0 0.0 0.0	4.042 4.000 8.042	120 0.0390	38.280 0.0 0.314			Vel = 5.08
TOR to PUMP	108.666 100		0.0 32.23	1.5 1.61	Fsp 2E S	0.0 8.0 9.0	6.250 17.000 23.250	120 0.0391	38.594 6.753 0.908		** Fixed Loss = 3	Vel = 5.08
PUMP			0.0 32.23						46.255			K Factor = 4.74