



... Fire Protection by Computer Design

HIGH TECH FIRE PROTECTION
PO. BOX 156
MINOT, ME 04258-0258
207-998-2551

Job Name : 2ND FLOOR MASTER BEDROOM
Building : HOUSE
Location : 107 HERSEY ST PORTLAND
System : WET
Contract : 102412-1
Data File : Haskell Residence.WX1

HYDRAULIC DESIGN INFORMATION SHEET

Name - HASKELL RESIDENCE Date - 11-12-12
 Location - 107 HERSEY ST PORTLAND
 Building - HOUSE System No. - WET
 Contractor - SLOCUM BUILDERS Contract No. - 102412-1
 Calculated By - HIGH TECH FIRE PROTECTION Drawing No. -
 Construction: (X) Combustible () Non-Combustible Ceiling Height 8-0
 OCCUPANCY - RESIDENTIAL LIVING SPACE

S Type of Calculation: ()NFPA 13 Residential ()NFPA 13R (X)NFPA 13D
 Y Number of Sprinklers Flowing: ()1 (X)2 ()4 ()
 S ()Other
 T ()Specific Ruling Made by Date
 E
 M Listed Flow at Start Point - 29 Gpm System Type
 Listed Pres. at Start Point - 52 Psi (X) Wet () Dry
 D MAXIMUM LISTED SPACING 16 x 16 () Deluge () PreAction
 E Domestic Flow Added - 0 Gpm Sprinkler or Nozzle
 S Additional Flow Added - 0 Gpm Make RELIABLE Model RFC -49
 I Elevation at Highest Outlet - 26 Feet Size 1/2" K-Factor 4.9
 G Note: Temperature Rating
 N

Calculation	Gpm Required 29	Psi Required 52	At Test
Summary	C-Factor Used:	Overhead 150	Underground 150

W	Water Flow Test:	Pump Data:	Tank or Reservoir:
A	Date of Test -	Rated Cap.	Cap.
T	Time of Test -	@ Psi	Elev.
E	Static (Psi) - 54	Elev.	
R	Residual (Psi) - 53	Other	Well
	Flow (Gpm) - 45		Proof Flow Gpm
S	Elevation - 0		
P	Location:		
P			
L	Source of Information:		
Y			

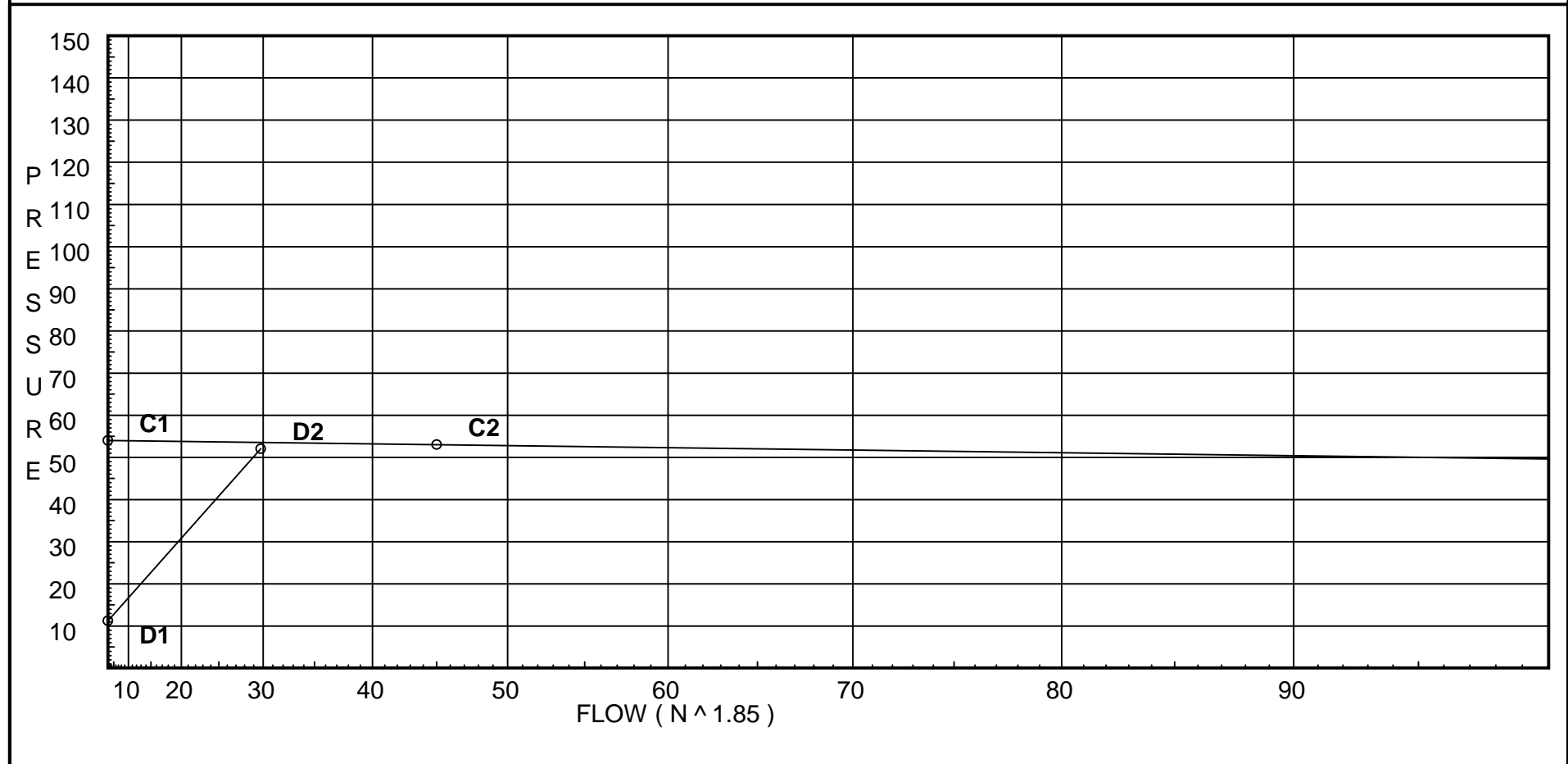
Water Supply Curve (C)

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City Water Supply:
 C1 - Static Pressure : 54
 C2 - Residual Pressure: 53
 C2 - Residual Flow : 45

Demand:
 D1 - Elevation : 11.261
 D2 - System Flow : 29.7303
 D2 - System Pressure : 52.028
 Hose (Adj City) : _____
 Hose (Demand) : _____
 D3 - System Demand : 29.7303
 Safety Margin : 1.507



Fittings Used Summary

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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	Generic Butterfly Valve	0	0	0	5	6	7.5	7	10	0	12	9	10	12	19	21	0	0	0	0	0
E	90' Standard Elbow	2	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61
O *	CPVC Tee - Branch	3	3	5	6	8	10	12	15	0	0	0	0	0	0	0	0	0	0	0	0
S	Generic Swing Check Valve	4	5	5	7	9	11	14	16	19	22	27	32	45	55	65	76	87	98	109	130
T	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 NFPA.

Pressure / Flow Summary - STANDARD

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Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
DP1	25.0	4.9	9.1	na	14.78	0.05	256	9.1
100	26.0	K = K @ EQ01	20.49	na	14.78			
101	26.0	K = K @ EQ01	20.95	na	14.95			
102	26.0		21.7	na				
103	26.0		23.33	na				
104	26.0		25.96	na				
105	26.0		28.49	na				
106	17.0		34.21	na				
107	17.0		36.07	na				
108	8.0		41.09	na				
109	8.0		43.63	na				
TOR	8.0		44.44	na				
BOR	0.0		52.01	na				
PMP	0.0		52.03	na				

The maximum velocity is 10.02 and it occurs in the pipe between nodes 101 and 102

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
DP1	14.78	1.109	1E	3.962	1.000	9.100			K Factor = 4.90	
to		150.0	1T	9.906	13.867	10.828				
EQ01	14.78	0.0375		0.0	14.867	0.558			Vel = 4.91	
	0.0									
	14.78						20.486		K Factor = 3.27	
100	14.78	1.101		0.0	12.000	20.486			K Factor @ node EQ01	
to		150.0		0.0	0.0	0.0				
101	14.78	0.0388		0.0	12.000	0.466			Vel = 4.98	
101	14.95	1.101		0.0	5.300	20.952			K Factor @ node EQ01	
to		150.0		0.0	0.0	0.0				
102	29.73	0.1417		0.0	5.300	0.751			Vel = 10.02	
102	0.0	1.101	1T	9.563	1.900	21.703				
to		150.0		0.0	9.562	0.0				
103	29.73	0.1417		0.0	11.462	1.624			Vel = 10.02	
103	0.0	1.101	1T	9.563	9.000	23.327				
to		150.0		0.0	9.562	0.0				
104	29.73	0.1417		0.0	18.562	2.630			Vel = 10.02	
104	0.0	1.101	1E	3.825	4.500	25.957				
to		150.0	1T	9.563	13.387	0.0				
105	29.73	0.1417		0.0	17.887	2.534			Vel = 10.02	
105	0.0	1.101	1E	3.825	9.000	28.491				
to		150.0		0.0	3.825	3.898				
106	29.73	0.1417		0.0	12.825	1.817			Vel = 10.02	
106	0.0	1.101	1T	9.563	3.600	34.206				
to		150.0		0.0	9.562	0.0				
107	29.73	0.1416		0.0	13.162	1.864			Vel = 10.02	
107	0.0	1.394	1T	9.523	15.500	36.070				
to		150.0		0.0	9.523	3.898				
108	29.73	0.0449		0.0	25.023	1.124			Vel = 6.25	
108	0.0	1.394	1E	3.151	34.300	41.092				
to		120.0		0.0	3.151	0.0				
109	29.73	0.0678		0.0	37.451	2.541			Vel = 6.25	
109	0.0	1.394	1E	3.151	8.700	43.633				
to		120.0		0.0	3.151	0.0				
TOR	29.73	0.0678		0.0	11.851	0.804			Vel = 6.25	
TOR	0.0	1.61	1B	6.0	6.000	44.437				
to		120.0	1E	4.0	27.000	6.465			* Fixed loss = 3	
BOR	29.73	0.0336	1O	8.0	33.000	1.110			Vel = 4.69	
			1S	9.0						
BOR	0.0	1.61		0.0	0.500	52.012				
to		120.0		0.0	0.0	0.0				
PMP	29.73	0.0320		0.0	0.500	0.016			Vel = 4.69	

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
	0.0 29.73								
					52.028				K Factor = 4.12