



... Fire Protection by Computer Design

DEAN AND ALLYN, INC.
116 LEWISTON ROAD
GRAY MAINE 04039
207 657 5646

Job Name : GLENWOOD STAFF ROOM
Building : STAFF ROOM
Location : 145 GLENWOOD AVE. PORTLAND, MAINE
System : ONE
Contract : C131155
Data File : GLENWOOD STAFF ROOM.WXF

HYDRAULIC DESIGN INFORMATION SHEET

Name - PLYMOUTH HOUSE Date - 8-15-13
 Location - 145 GLENWOOD AVE. PORTLAND, MAINE
 Building - STAFF ROOM System No. - ONE
 Contractor - DEAN AND ALLYN, INC. Contract No. - C131155
 Calculated By - H. KING Drawing No. - 1 OF 1
 Construction: (X) Combustible () Non-Combustible Ceiling Height 10'
 OCCUPANCY - APARTMENT HOUSE

S Type of Calculation: ()NFPA 13 Residential (X)NFPA 13R ()NFPA 13D
 Y Number of Sprinklers Flowing: ()1 ()2 (X)4 ()
 S ()Other
 T ()Specific Ruling Made by Date
 E
 M Listed Flow at Start Point - 13 Gpm System Type
 Listed Pres. at Start Point - 9.1 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 RFC43
 I Elevation at Highest Outlet - 0' Feet Size 1/2" K-Factor 4.3
 G Note:CUSHION 30.3 PSI Temperature Rating 165
 N

Calculation Gpm Required 53.7 Psi Required 40.7 CITY
 Summary C-Factor Used: Overhead 120 Underground 140

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) - 71 Elev.
 R Residual (Psi) - 64 Other Well
 Flow (Gpm) - 992 Proof Flow Gpm
 S Elevation - 0

P Location: GLENWOOD AVE
 P
 L Source of Information: PORTLAND WATER DIST 2008
 Y

Final Calculations - Standard

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Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/UL	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	***** Notes *****
1A to 1	12.96 12.96	1.049 120 0.0584	1E 2.0 1T 5.0 0.0	1.000 7.000 8.000	7.000 7.363 0.467		K Factor = 4.90 Vel = 4.81
	0.0 12.96					14.830	K Factor = 3.37
12 to 13	12.97 12.97	1.049 120 0.0584	0.0 0.0 0.0	8.000 0.0 8.000	9.100 0.0 0.467		K Factor = 4.30 Vel = 4.81
13 to 66	13.30 26.27	1.049 120 0.2155	2E 4.0 0.0 0.0	10.600 4.000 14.600	9.567 0.0 3.147		K Factor = 4.30 Vel = 9.75
	0.0 26.27					12.714	K Factor = 7.37
14 to 15	13.52 13.52	1.049 120 0.0630	0.0 0.0 0.0	8.000 0.0 8.000	9.884 0.0 0.504		K Factor = 4.30 Vel = 5.02
15 to 66	13.86 27.38	1.049 120 0.2326	1E 2.0 1T 5.0 0.0	3.000 7.000 10.000	10.388 0.0 2.326		K Factor = 4.30 Vel = 10.16
66 to 63	26.27 53.65	1.049 120 0.8076	2E 4.0 1T 5.0 0.0	13.100 9.000 22.100	12.714 0.0 17.847		Vel = 19.92
63 to TR	0.0 53.65	1.61 120 0.1003	1E 4.0 1T 8.0 0.0	54.800 12.000 66.800	30.561 0.0 6.697		Vel = 8.45
TR to FF	0.0 53.65	2.067 120 0.0297	1Z 5.0 0.0 0.0	7.000 5.000 12.000	37.258 3.000 0.356		* Fixed loss = 3.000 Vel = 5.13
FF to CTY	0.0 53.65	4.1 140 0.0008	2E 29.067 1T 29.067 1G 2.907	50.000 61.041 111.041	40.614 0.0 0.089		Vel = 1.30
	0.0 53.65					40.703	K Factor = 8.41

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
E	90' Standard Elbow	2	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61
G	Generic Gate Valve	0	0	1	1	1	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
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
Z	Generic Flow Switch	2	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61

Pressure / Flow Summary - STANDARD

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Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
1A	17.0	4.9	7.0	na	12.96	.05	256	7.0
12	0.0	4.3	9.1	na	12.97	.05	256	9.1
13	0.0	4.3	9.57	na	13.3	.05	256	9.1
14	0.0	4.3	9.88	na	13.52	.05	256	9.1
15	0.0	4.3	10.39	na	13.86	.05	256	9.1
66	0.0		12.71	na				
63	0.0		30.56	na				
TR	0.0		37.26	na				
FF	0.0		40.61	na				
CTY	0.0		40.7	na				

The maximum velocity is 19.92 and it occurs in the pipe between nodes 66 and 63

Water Supply Curve (C)

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City Water Supply:
 C1 - Static Pressure : 71
 C2 - Residual Pressure: 64
 C2 - Residual Flow : 992

