



... Fire Protection by Computer Design

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

Job Name : 264 STATE STREET SECOND FLOOR
Building : 264 STATE ST
Location : 264 STATE ST
System : ONE
Contract : 1119
Data File : 264STATE SECOND FLOOR.WXF

HYDRAULIC DESIGN INFORMATION SHEET

Name - 264 STATE STREET SECOND FLOOR Date - 12-8-12
 Location - 264 STATE ST
 Building - 264 STATE ST System No. - ONE
 Contractor - DEAN AND ALLYN, INC. Contract No. - 1119
 Calculated By - H. KING Drawing No. - 1 OF 1
 Construction: (X) Combustible () Non-Combustible Ceiling Height 10'
 OCCUPANCY - APARTMENT BUILDING

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 - 11 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 VIKING Model FREEDOM
 I Elevation at Highest Outlet - 20' Feet Size 1/2" K-Factor 4.0
 G Note:CUSHION 20.6 PSI Temperature Rating 155
 N

Calculation Gpm Required 62.5 Psi Required 67.4 At Test
 Summary C-Factor Used: Overhead Underground

W Water Flow Test: Pump Data: Tank or Reservoir:
 A Date of Test - 6-7-06 Rated Cap. Cap.
 T Time of Test - @ Psi Elev.
 E Static (Psi) - 88 Elev.
 R Residual (Psi) - 82 Other Well
 Flow (Gpm) - 1277 Proof Flow Gpm
 S Elevation - 0

P Location: SHERMAN STREET
 P
 L Source of Information: PWD
 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	*****
01	13.27	1.049		9.300	11.000			K Factor = 4.00	
to		120		0.0	0.0				
02	13.27	0.0609		9.300	0.566			Vel = 4.93	
02	13.60	1.049	2E 4.0	10.000	11.566			K Factor = 4.00	
to		120	0.0	4.000	0.0				
03	26.87	0.2247		14.000	3.146			Vel = 9.97	
03	15.34	1.049	1E 2.0	17.200	14.712			K Factor = 4.00	
to		120	2F 3.0	4.000	0.0				
04	42.21	0.5183		21.200	10.988			Vel = 15.67	
04	20.28	1.049	3E 5.0	5.000	25.700			K Factor = 4.00	
to		120	0.0	6.000	0.0				
12	62.49	1.0708		11.000	11.779			Vel = 23.20	
12	0.0	1.38	1E 3.0	20.000	37.479				
to		120	0.0	3.000	8.662				
13	62.49	0.2817		23.000	6.478			Vel = 13.40	
13	0.0	1.38	2T 8.0	10.000	52.619				
to		120	0.0	12.000	0.0				
63	62.49	0.2816		22.000	6.196			Vel = 13.40	
63	0.0	1.61		16.000	58.815				
to		120	0.0	0.0	0.0				
65	62.49	0.1329		16.000	2.127			Vel = 9.85	
65	0.0	2.067	1E 5.0	10.000	60.942				
to		120	0.0	5.000	0.0				
TR	62.49	0.0394		15.000	0.591			Vel = 5.97	
TR	0.0	2.067	1G 1.0	8.000	61.533				
to		120	1S 11.0	12.000	5.000			* Fixed loss = 5.000	
FF	62.49	0.0394		20.000	0.787			Vel = 5.97	
FF	0.0	4.1	1T 29.067	50.000	67.320				
to		140	1G 2.907	31.974	0.0				
CTY	62.49	0.0010		81.974	0.086			Vel = 1.52	
	0.0								
	62.49				67.406			K Factor = 7.61	

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
F	45' Elbow	1	1	1	1	2	2	3	3	3	4	5	7	9	11	13	17	19	21	24	28
G	Generic Gate Valve	0	0	1	1	1	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
S	Generic Swing Check Vlv	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

Pressure / Flow Summary - STANDARD

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Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
01	20.0	4	11.0	na	13.27	.05	256	11.0
02	20.0	4	11.57	na	13.6	.05	256	11.0
03	20.0	4	14.71	na	15.34	.05	256	11.0
04	20.0	4	25.7	na	20.28	.05	256	11.0
12	20.0		37.48	na				
13	0.0		52.62	na				
63	0.0		58.82	na				
65	0.0		60.94	na				
TR	0.0		61.53	na				
FF	0.0		67.32	na				
CTY	0.0		67.41	na				

The maximum velocity is 23.2 and it occurs in the pipe between nodes 04 and 12

Water Supply Curve (C)

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City Water Supply:
 C1 - Static Pressure : 88
 C2 - Residual Pressure: 82
 C2 - Residual Flow : 1277

