



... Fire Protection by Computer Design

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

Job Name : 133 SPRING STREET APARTMENT  
Building : 133 SPRING ST.  
Location : 133 SPRING STREET PORTLAND MAINE  
System : ONE  
Contract : C141186  
Data File : 133SPRINGAPARTMENT.WXF

Hydraulic Design Information Sheet

Name - 133 SPRING STREET Date - 3-3-14  
 Location - 133 SPRING STREET PORTLAND MAINE  
 Building - 133 SPRING ST. System No. - ONE  
 Contractor - DEAN AND ALLYN, INC. Contract No. - C141186  
 Calculated By - H. KING Drawing No. - 1 OF 1  
 Construction: (X) Combustible ( ) Non-Combustible Ceiling Height - VARIES  
 Occupancy - APARTMENT

S (X) NFPA 13 (X) Lt. Haz. Ord.Haz.Gp. ( ) 1 ( ) 2 ( ) 3 ( ) Ex.Haz.  
 Y ( ) NFPA 231 ( ) NFPA 231C ( ) Figure Curve

S Other

T Specific Ruling Made By Date

E

M	Area of Sprinkler Operation - 4 HEADS	System Type	Sprinkler/Nozzle
	Density - .05	(X) Wet	Make RELIABLE
D	Area Per Sprinkler - 256	( ) Dry	Model FIRES44
E	Elevation at Highest Outlet - 30	( ) Deluge	Size 1/2"
S	Hose Allowance - Inside -	( ) Preaction	K-Factor 4.4
I	Rack Sprinkler Allowance -	( ) Other	Temp.Rat.155
G	Hose Allowance - Outside -		

N

Note CUSHION 11.6 PSI

Calculation Flow Required - 49.1 Press Required - 44.4 at  
 Summary C-Factor Used: 120 Overhead 140 Underground

W	Water Flow Test:	Pump Data:	Tank or Reservoir:
A	Date of Test - 6-3-13		Cap. -
T	Time of Test -	Rated Cap.-	Elev.-
E	Static Press - 56	@ Press -	
R	Residual Press - 52	Elev. -	Well
	Flow - 1061		Proof Flow
S	Elevation - 0		

U

P Location - SPRING STREET

P

L Source of Information - PWD

Y

C	Commodity	Class	Location
O	Storage Ht.	Area	Aisle W.
M	Storage Method: Solid Piled	% Palletized	% Rack
M	( ) Single Row	( ) Conven. Pallet	( ) Auto. Storage
S	( ) Double Row	( ) Slave Pallet	( ) Solid Shelf
R	( ) Mult. Row	( ) Open Shelf	( ) Non

O

R K Flue Spacing Clearance:Storage to Ceiling  
 A Longitudinal Transverse

G

E Horizontal Barriers Provided:

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	*****
23 to 75	16.05	1.049 120	4E 1T	6.0 5.0 0.0	30.900 13.000 43.900	13.300 0.0 3.801			K Factor = 4.40	
	0.0 16.05						17.101		K Factor = 3.88	
24 to 80	16.21	1.049 120		0.0 0.0 0.0	8.200 0.0 8.200	13.580 0.0 0.724			K Factor = 4.40	
	0.0 16.21						14.304		K Factor = 4.29	
25 to 75	33.04	1.049 120	1T	5.0 0.0 0.0	2.500 5.000 7.500	14.630 0.0 2.471			K Factor = 4.40	
	0.0 33.04						17.101		K Factor = 7.99	
80 to 25	16.21	1.049 120		0.0 0.0 0.0	3.700 0.0 3.700	14.304 0.0 0.326				Vel = 6.02
	0.0 16.21						14.630		K Factor = 4.24	
75 to 76	49.09	1.049 120	1E	2.0 0.0 0.0	1.100 2.000 3.100	17.101 0.0 2.124				Vel = 18.22
76 to 51	0.0 49.09	1.38 120	1E	3.0 0.0 0.0	10.300 3.000 13.300	19.225 4.331 2.397				Vel = 10.53
51 to 52	0.0 49.09	1.38 120	1T	6.0 0.0 0.0	2.500 6.000 8.500	25.953 0.0 1.532				Vel = 10.53
52 to 8	0.0 49.09	1.38 120		0.0 0.0 0.0	8.000 0.0 8.000	27.485 0.0 1.441				Vel = 10.53
8 to 53	0.0 49.09	1.61 120	1T	8.0 0.0 0.0	6.000 8.000 14.000	28.926 0.0 1.191				Vel = 7.74
53 to 74	0.0 49.09	3.26 120		0.0 0.0 0.0	15.900 0.0 15.900	30.117 5.197 0.044				Vel = 1.89
74 to 57	0.0 49.09	3.26 120		0.0 0.0 0.0	2.300 0.0 2.300	35.358 0.0 0.006				Vel = 1.89

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	*****
57	0.0	3.26		3.800		35.364			
to		120		0.0		0.0			
58	49.09	0.0029		3.800		0.011		Vel = 1.89	
58	0.0	3.26		3.600		35.375			
to		120		0.0		0.0			
59	49.09	0.0028		3.600		0.010		Vel = 1.89	
59	0.0	3.26	1E	9.408	6.200	35.385			
to		120	1T	20.159	29.567	0.0			
60	49.09	0.0027		0.0	35.767	0.098		Vel = 1.89	
60	0.0	3.26	1E	9.408	6.700	35.483			
to		120		0.0	9.408	3.465			
16	49.09	0.0027		0.0	16.108	0.044		Vel = 1.89	
	0.0								
	49.09					38.992		K Factor = 7.86	
61	-49.09	3.26	1E	9.408	6.800	35.571			
to		120		0.0	9.408	3.465			
16	-49.09	-0.0027		0.0	16.208	-0.044		Vel = 1.89	
	0.0								
	-49.09					38.992		K Factor = -7.86	
61	49.09	3.26	1E	9.408	7.300	35.571			
to		120		0.0	9.408	0.0			
18	49.09	0.0028		0.0	16.708	0.046		Vel = 1.89	
18	0.0	3.26	2E	11.408	10.000	35.617			
to		120		0.0	18.815	0.0			
TR	49.09	0.0027		0.0	28.815	0.079		Vel = 1.89	
TR	0.0	3.26	1E	9.408	6.000	35.696			
to		120	1Z	9.408	18.815	8.465		* Fixed loss = 5.000	
FF	49.09	0.0027		0.0	24.815	0.068		Vel = 1.89	
FF	0.0	4.1	1G	2.186	100.000	44.229			
to		120	1T	21.855	34.968	0.0			
CTY	49.09	0.0009	1E	10.928	134.968	0.121		Vel = 1.19	
	0.0								
	49.09					44.350		K Factor = 7.37	

# 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.
23	30.0	4.4	13.3	na	16.05	.05	256	13.3
24	30.0	4.4	13.58	na	16.21	.05	256	13.3
25	30.0	4.4	14.63	na	16.83	.05	256	13.3
80	30.0		14.3	na				
75	30.0		17.1	na				
76	30.0		19.23	na				
51	20.0		25.95	na				
52	20.0		27.48	na				
8	20.0		28.93	na				
53	20.0		30.12	na				
74	8.0		35.36	na				
57	8.0		35.36	na				
58	8.0		35.37	na				
59	8.0		35.38	na				
60	8.0		35.48	na				
61	8.0		35.57	na				
18	8.0		35.62	na				
TR	8.0		35.7	na				
FF	0.0		44.23	na				
CTY	0.0		44.35	na				

The maximum velocity is 18.22 and it occurs in the pipe between nodes 75 and 76

# Water Supply Curve (C)

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City Water Supply:  
 C1 - Static Pressure : 56  
 C2 - Residual Pressure: 52  
 C2 - Residual Flow : 1061

