



**... Fire Protection by Computer Design**

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

Job Name : 279 BRACKETT STREET THIRD FLOOR  
Building :  
Location : PORTLAND MAINE  
System : ONE  
Contract : 161323  
Data File : 279 BRACKETT STREET THIRD FLOOR.WXF

Hydraulic Design Information Sheet

Name - 279 BRACKETT STREET THIRD FLOOR Date - 2-20-16  
 Location - PORTLAND MAINE  
 Building - System No. - ONE  
 Contractor - DEAN AND ALLYN, INC. Contract No. - 161323  
 Calculated By - H. KING Drawing No. - 1 OF 1  
 Construction: (X) Combustible ( ) Non-Combustible Ceiling Height - 9'  
 Occupancy - APARTMENT BUILDING

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

S Other NFPA #13R

T Specific Ruling Made By Date

M	Area of Sprinkler Operation	- 2 HEADS	System Type	Sprinkler/Nozzle
	Density	- .05	(X) Wet	Make RELIABLE
D	Area Per Sprinkler	- 256	( ) Dry	Model F1RES44
E	Elevation at Highest Outlet	- 30	( ) Deluge	Size 7/16"
S	Hose Allowance - Inside	-	( ) Preaction	K-Factor 5.6
I	Rack Sprinkler Allowance	-	( ) Other	Temp.Rat.155
G	Hose Allowance - Outside	-		

N Note CUSHION 5.2 PSI

Calculation Flow Required - 32.6 Press Required - 46.8  
 Summary C-Factor Used: 120 Overhead 140 Underground

W	Water Flow Test:	Pump Data:	Tank or Reservoir:
A	Date of Test - 1-12-16		Cap. -
T	Time of Test -	Rated Cap.-	Elev.-
E	Static Press - 52	@ Press -	
R	Residual Press - 49	Elev. -	Well
	Flow - 949		Proof Flow
S	Elevation - 0		

P Location - BRACKETT STREET

L Source of Information - PORTLAND WATER DIST.

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

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

G Horizontal Barriers Provided:

# Final Calculations - Hazen-Williams

DEAN AND ALLYN, INC.  
279 BRACKETT STREET THIRD FLOOR

Page 2  
Date 2-20-16

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
1 to 10	16.58 16.58	1.049 120.0 0.0918		0.0 0.0 0.0	4.900 0.0 4.900	14.192 0.0 0.450			K Factor = 4.40 Vel = 6.15	
	0.0 16.58						14.642		K Factor = 4.33	
2 to 10	16.05 16.05	1.049 120.0 0.0866	T	5.0 0.0 0.0	10.500 5.000 15.500	13.300 0.0 1.342			K Factor = 4.40 Vel = 5.96	
10 to 11	16.57 32.62	1.049 120.0 0.3217	T	5.0 0.0 0.0	1.500 5.000 6.500	14.642 0.0 2.091			Vel = 12.11	
11 to 12	0.0 32.62	1.38 120.0 0.0846	E	3.0 0.0 0.0	9.200 3.000 12.200	16.733 4.331 1.032			Vel = 7.00	
12 to 13	0.0 32.62	1.38 120.0 0.0846	3E	9.0 0.0 0.0	20.800 9.000 29.800	22.096 0.0 2.522			Vel = 7.00	
13 to 14	0.0 32.62	1.38 120.0 0.0846	T	6.0 0.0 0.0	12.800 6.000 18.800	24.618 0.0 1.591			Vel = 7.00	
14 to 15	0.0 32.62	1.38 120.0 0.0846	4E	12.0 0.0 0.0	23.200 12.000 35.200	26.209 0.0 2.978			Vel = 7.00	
15 to 16	0.0 32.62	1.61 120.0 0.0399	T	8.0 0.0 0.0	9.500 8.000 17.500	29.187 4.331 0.699			Vel = 5.14	
16 to 17	0.0 32.62	1.61 120.0 0.0399	3E	12.0 0.0 0.0	31.700 12.000 43.700	34.217 0.0 1.745			Vel = 5.14	
17 to 18	0.0 32.62	1.61 120.0 0.0399	E	4.0 0.0 0.0	11.300 4.000 15.300	35.962 4.331 0.611			Vel = 5.14	
18 to 74	0.0 32.62	1.61 120.0 0.0400	T	8.0 0.0 0.0	1.300 8.000 9.300	40.904 0.0 0.372			Vel = 5.14	
74 to TR	0.0 32.62	2.067 120.0 0.0118	E	5.0 0.0 0.0	17.500 5.000 22.500	41.276 0.0 0.266			Vel = 3.12	
TR to FF	0.0 32.62	2.067 120.0 0.0118	S	11.0 0.0 0.0	8.000 11.000 19.000	41.542 5.000 0.225			** Fixed Loss = 5 Vel = 3.12	
FF to CTY	0.0 32.62	4.1 120.0 0.0004	T G	21.855 2.186 0.0	30.000 24.041 54.041	46.767 0.0 0.022			Vel = 0.79	
	0.0 32.62						46.789		K Factor = 4.77	

# Pressure / Flow Summary - STANDARD

DEAN AND ALLYN, INC.  
279 BRACKETT STREET THIRD FLOOR

Page 3  
Date 2-20-16

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
1	30.0	4.4	14.19	na	16.58	0.05	256	13.3
2	30.0	4.4	13.3	na	16.05	0.05	256	13.3
10	30.0		14.64	na				
11	30.0		16.73	na				
12	20.0		22.1	na				
13	20.0		24.62	na				
14	20.0		26.21	na				
15	20.0		29.19	na				
16	10.0		34.22	na				
17	10.0		35.96	na				
18	0.0		40.9	na				
74	0.0		41.28	na				
TR	0.0		41.54	na				
FF	0.0		46.77	na				
CTY	0.0		46.79	na				

The maximum velocity is 12.11 and it occurs in the pipe between nodes 10 and 11

# Water Supply Curve C

DEAN AND ALLYN, INC.  
279 BRACKETT STREET THIRD FLOOR

Page 4  
Date 2-20-16

City Water Supply:  
C1 - Static Pressure : 52  
C2 - Residual Pressure: 49  
C2 - Residual Flow : 949

Demand:  
D1 - Elevation : 12.993  
D2 - System Flow : 32.622  
D2 - System Pressure : 46.789  
Hose ( Demand ) : \_\_\_\_\_  
D3 - System Demand : 32.622  
Safety Margin : 5.205

