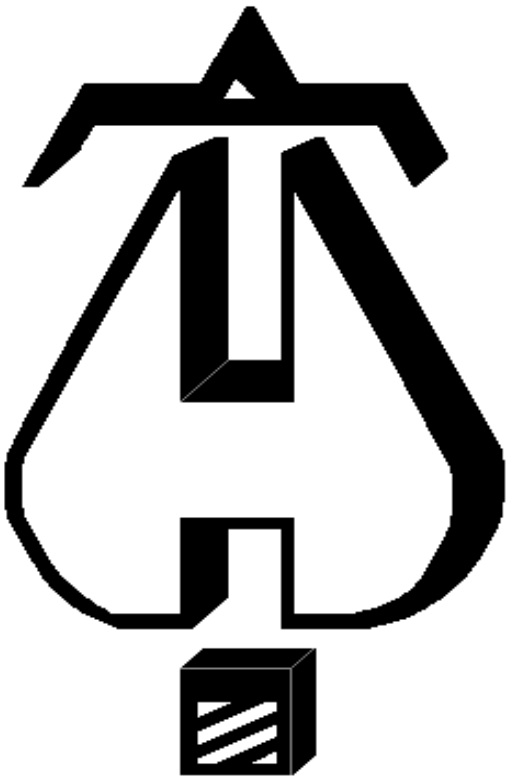

. . . Fire Protection by Computer Design

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

Job Name	:	BRIAN BORU SECOND FLOOR
Building	:	
Location	:	57 CENTER STREET PORTLAND MAINE
System	:	ONE
Contract	:	C171475
Data File	:	BRIAN BORU SECOND FLOOR.WXF

HYDRAULIC DESIGN INFORMATION SHEET

Name - BRIAN BORU SECOND FLOOR Date - 11-5-17
Location - 57 CENTER STREET PORTLAND MAINE
Building - System No. - ONE
Contractor - DEAN AND ALLYN, INC. Contract No. - C171475
Calculated By - H. KING Drawing No. - 1 OF 1
Construction: (X) Combustible ( ) Non-Combustible Ceiling Height 8'
OCCUPANCY - PUB AND LOUNGE

SYSTEM DESIGN

Type of Calculation: ( )NFPA 13 Residential ( )NFPA 13R ( )NFPA 13D
Number of Sprinklers Flowing: ( )1 ( )2 ( )4 ( )
( )OtherLIGHT HAZARD
( )Specific Ruling Made by Date

Listed Flow at Start Point - 14.8 Gpm
Listed Pres. at Start Point - 7 Psi
MAXIMUM LISTED SPACING 10 x 12
Domestic Flow Added - Gpm
Additional Flow Added - Gpm
Elevation at Highest Outlet - 25' Feet
Note:CUSHION 17.6 PSI

System Type
(X) Wet ( ) Dry
( ) Deluge ( ) PreAction
Sprinkler or Nozzle
Make RELIABLE Model F1FR56
Size 1/2" K-Factor 5.6
Temperature Rating 155

Calculation Summary: Gpm Required 266.1 Psi Required 64.3 AT CITY
C-Factor Used: Overhead 120 Underground 120

WATER SUPPLY

Water Flow Test:	Pump Data:	Tank or Reservoir:
Date of Test - 6-22-17	Rated Cap.	Cap.
Time of Test -	@ Psi	Elev.
Static (Psi) - 82	Elev.	
Residual (Psi) - 80	Other	Well
Flow (Gpm) - 1209		Proof Flow Gpm
Elevation - 0		

Location: IN FRONT OF BUILDING ON 10" CITY MAIN

Source of Information: PORTLAND WATER DEPT.

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
01	-15.65	1.38	2E	6.0	10.000	7.349		K Factor = 5.60
to		120.0		0.0	6.000	0.0		
02	-15.65	-0.0217		0.0	16.000	-0.348		Vel = 3.36
02	14.82	1.38		0.0	8.800	7.001		K Factor = 5.60
to		120.0		0.0	0.0	0.0		
03	-0.83	-0.0001		0.0	8.800	-0.001		Vel = 0.18
03	14.82	1.38		0.0	8.800	7.000		K Factor = 5.60
to		120.0		0.0	0.0	0.0		
05	13.99	0.0176		0.0	8.800	0.155		Vel = 3.00
05	14.98	1.38		0.0	8.800	7.155		K Factor = 5.60
to		120.0		0.0	0.0	0.0		
07	28.97	0.0680		0.0	8.800	0.598		Vel = 6.21
07	15.59	1.38		0.0	9.000	7.753		K Factor = 5.60
to		120.0		0.0	0.0	0.0		
09	44.56	0.1507		0.0	9.000	1.356		Vel = 9.56
09	16.90	1.38	2E	6.0	10.000	9.109		K Factor = 5.60
to		120.0		0.0	6.000	0.0		
10	61.46	0.2731		0.0	16.000	4.369		Vel = 13.18
	0.0							
	61.46					13.478		K Factor = 16.74
04	46.76	1.38		0.0	9.800	8.095		K Factor = 5.60
to		120.0		0.0	0.0	0.0		
06	46.76	0.1648		0.0	9.800	1.615		Vel = 10.03
06	17.45	1.38		0.0	9.800	9.710		K Factor = 5.60
to		120.0		0.0	0.0	0.0		
08	64.21	0.2961		0.0	9.800	2.902		Vel = 13.77
08	19.89	1.38	T	6.0	3.700	12.612		K Factor = 5.60
to		120.0		0.0	6.000	0.0		
20	84.1	0.4878		0.0	9.700	4.732		Vel = 18.04
	0.0							
	84.10					17.344		K Factor = 20.19
10	82.02	1.38	T	6.0	2.300	13.478		K Factor = 5.60
to		120.0		0.0	6.000	0.0		
20	82.02	0.4658		0.0	8.300	3.866		Vel = 17.59
	0.0							
	82.02					17.344		K Factor = 19.69
01	30.83	1.38		0.0	9.800	7.349		
to		120.0		0.0	0.0	0.0		
04	30.83	0.0761		0.0	9.800	0.746		Vel = 6.61
	0.0							
	30.83					8.095		K Factor = 10.84
20	166.12	2.067	2E	10.0	1.800	17.344		
to		120.0		0.0	10.000	0.0		
21	166.12	0.2403		0.0	11.800	2.836		Vel = 15.88
21	0.0	2.067	E	5.0	15.700	20.180		
to		120.0		0.0	5.000	6.930		
22	166.12	0.2402		0.0	20.700	4.973		Vel = 15.88
22	0.0	2.067	T	10.0	1.700	32.083		
to		120.0		0.0	10.000	0.0		
23	166.12	0.2403		0.0	11.700	2.811		Vel = 15.88

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
23	0.0	2.067	T	10.0	2.300	34.894		
to		120.0		0.0	10.000	0.0		
24	166.12	0.2403		0.0	12.300	2.956		Vel = 15.88
24	0.0	2.067	E	5.0	1.800	37.850		
to		120.0		0.0	5.000	0.0		
25	166.12	0.2403		0.0	6.800	1.634		Vel = 15.88
25	0.0	2.067	E	5.0	10.000	39.484		
to		120.0		0.0	5.000	3.898		
26	166.12	0.2403		0.0	15.000	3.604		Vel = 15.88
26	0.0	2.067	2E	10.0	11.000	46.986		
to		120.0	T	10.0	20.000	0.0		
TR	166.12	0.2403		0.0	31.000	7.448		Vel = 15.88
TR	0.0	2.067	S	11.0	7.000	54.434		
to		120.0		0.0	11.000	5.000		* * Fixed Loss = 5
FF	166.12	0.2403		0.0	18.000	4.325		Vel = 15.88
FF	0.0	4.1	T	21.855	40.000	63.759		
to		120.0		0.0	21.855	0.0		
CTY	166.12	0.0086		0.0	61.855	0.529		Vel = 4.04
	100.00							Qa = 100.00
	266.12					64.288		K Factor = 33.19

Pressure / Flow Summary - STANDARD

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
01	25.0	5.6	7.35	na	15.18	0.1	148	7.0
02	25.0	5.6	7.0	na	14.82	0.1	148	7.0
03	25.0	5.6	7.0	na	14.82	0.1	148	7.0
05	25.0	5.6	7.16	na	14.98	0.1	148	7.0
07	25.0	5.6	7.75	na	15.59	0.1	148	7.0
09	25.0	5.6	9.11	na	16.9	0.1	148	7.0
04	25.0	5.6	8.1	na	15.93	0.1	148	7.0
06	25.0	5.6	9.71	na	17.45	0.1	148	7.0
08	25.0	5.6	12.61	na	19.89	0.1	148	7.0
10	25.0	5.6	13.48	na	20.56	0.1	148	7.0
20	25.0		17.34	na				
21	25.0		20.18	na				
22	9.0		32.08	na				
23	9.0		34.89	na				
24	9.0		37.85	na				
25	9.0		39.48	na				
26	0.0		46.99	na				
TR	0.0		54.43	na				
FF	0.0		63.76	na				
CTY	0.0		64.29	na	100.0			

The maximum velocity is 18.04 and it occurs in the pipe between nodes 08 and 20

Water Supply Curve C

DEAN AND ALLYN, INC.
BRIAN BORU SECOND FLOOR

Date 11-5-17

City Water Supply:
- C1 - Static Pressure : 82
- C2 - Residual Pressure: 80
- C2 - Residual Flow : 1209

Demand:
- D1 - Elevation : 10.827
- D2 - System Flow : 166.118
- D2 - System Pressure : 64.288
- Hose (Demand) : 100
- D3 - System Demand : 266.118
- Safety Margin : 17.590