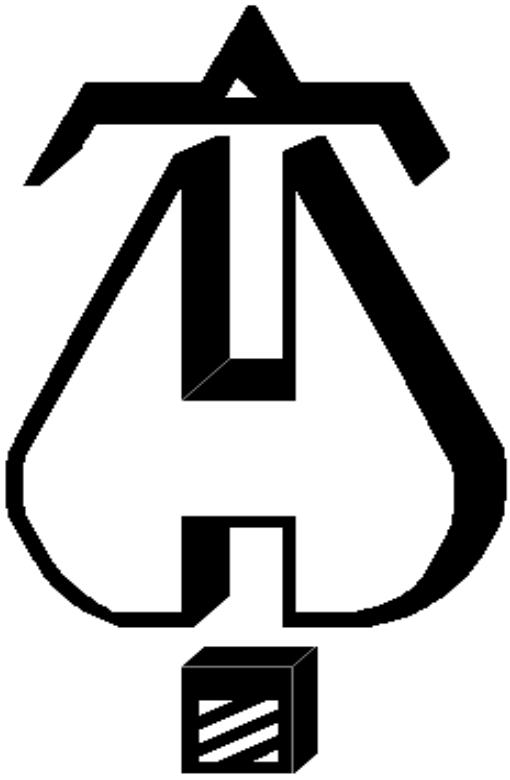

. . . Fire Protection by Computer Design

Sprinkler Systems, Inc.
2-4 Avon Street
P.O. Box 1285
Lewiston, Maine 04240
207-782-0104

Job Name	:	KING RESIDENCE
Building	:	
Location	:	23 BAY STREET, PORTLAND, MAINE 04103
System	:	1 OF 1
Contract	:	11083
Data File	:	KINGRES211083.wxf

HYDRAULIC DESIGN INFORMATION SHEET

Name - KING RESIDENCE Date - 12-9-2011
Location - 23 BAY STREET, PORTLAND, MAINE 04103
Building - System No. - 1 OF 1
Contractor - REDFERN PROPERTIES Contract No. - 11083
Calculated By - SCOTT E. GARLAND Drawing No. - 1 OF 1
Construction: (X) Combustible ( ) Non-Combustible Ceiling Height 7-6
OCCUPANCY - RESIDENTIAL - SINGLE FAMILY DWELLING

SYSTEM DESIGN

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

Listed Flow at Start Point - 20.0 Gpm System Type
Listed Pres. at Start Point - 16.7 Psi (X) Wet ( ) Dry
MAXIMUM LISTED SPACING 20 x 20 ( ) Deluge ( ) PreAction
Domestic Flow Added - Gpm Sprinkler or Nozzle
Additional Flow Added - Gpm Make RELIABLE Model RFC49
Elevation at Highest Outlet - 68.167Feet Size 1/2 X 1/2 K-Factor 4.9
Note: Temperature Rating 165 DEG
DESIGN AREA #2 - 2ND FLOOR STORAGE AREA

Calculation Summary: Gpm Required 40.514 Psi Required 47.230 AT BASE OF RISER
C-Factor Used: Overhead 150 Underground 140

WATER SUPPLY

Water Flow Test:		Pump Data:	Tank or Reservoir:
Date of Test	- 7-28-2004	Rated Cap.	Cap.
Time of Test	-	@ Psi	Elev.
Static (Psi)	- 92	Elev.	
Residual (Psi)	- 89	Other	Well
Flow (Gpm)	- 1433		Proof Flow Gpm
Elevation	- 50.0		

Location: ON OCEAN AVENUE AT READ STREET, 390-0 FROM BAY STREET

Source of Information: PORTLAND WATER DISTRICT

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
TYP	0.0	4.9	16.7	na	20.02	0.05	400	16.7
3	68.167	K = K @ DROP	17.39	na	20.02			
4	68.167	K = K @ DROP	18.2	na	20.49			
F	68.167		19.71	na				
E	59.5		35.78	na				
RT	59.5		37.1	na				
RB	51.0		47.23	na				
X	51.0		56.44	na				
X1	51.0		56.46	na				
X2	51.0		56.46	na				
TEST	50.0		56.9	na				

The maximum velocity is 13.65 and it occurs in the pipe between nodes 4 and F

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
TYP	20.02	1.101	1T	9.563	0.500	16.700		K Factor = 4.90
to		150		0.0	9.562	0.0		
DROP	20.02	0.0682		0.0	10.062	0.686		Vel = 6.75
	0.0							
	20.02					17.386		K Factor = 4.80
3	20.02	1.101		0.0	12.000	17.386		K Factor @ node DROP
to		150		0.0	0.0	0.0		
4	20.02	0.0682		0.0	12.000	0.818		Vel = 6.75
4	20.49	1.101		0.0	6.000	18.204		K Factor @ node DROP
to		150		0.0	0.0	0.0		
F	40.51	0.2512		0.0	6.000	1.507		Vel = 13.65
F	0.0	1.101	4E	15.3	24.167	19.711		
to		150	1T	9.563	24.863	3.754		
E	40.51	0.2512		0.0	49.030	12.314		Vel = 13.65
E	0.0	1.101	1E	3.825	1.417	35.779		
to		150		0.0	3.825	0.0		
RT	40.51	0.2512		0.0	5.242	1.317		Vel = 13.65
RT	0.0	1.38	1Z	3.0	8.500	37.096		
to		120		0.0	3.000	8.681		* Fixed loss = 5
RB	40.51	0.1263		0.0	11.500	1.453		Vel = 8.69
RB	0.0	1.314	1E	2.247	80.000	47.230		
to		150	1T	4.495	6.742	0.0		
X	40.51	0.1061		0.0	86.742	9.207		Vel = 9.58
X	0.0	6.16	1T	43.037	360.000	56.437		
to		140		0.0	43.037	0.0		
X1	40.51	0.0001		0.0	403.037	0.026		Vel = 0.44
X1	0.0	12.34	1T	93.767	390.000	56.463		
to		140		0.0	93.767	0.0		
X2	40.51	0.0		0.0	483.767	0.001		Vel = 0.11
X2	0.0	6.16		0.0	30.000	56.464		
to		140		0.0	0.0	0.433		
TEST	40.51	0.0001		0.0	30.000	0.002		Vel = 0.44
	0.0							
	40.51					56.899		K Factor = 5.37

City Water Supply:
- C1 - Static Pressure : 92
- C2 - Residual Pressure: 89
- C2 - Residual Flow : 1433

Demand:

D1 - Elevation	:	7.868
D2 - System Flow	:	40.5141
D2 - System Pressure	:	56.899
Hose (Adj City)	:	
Hose (Demand)	:	
D3 - System Demand	:	40.5141
Safety Margin	:	35.097