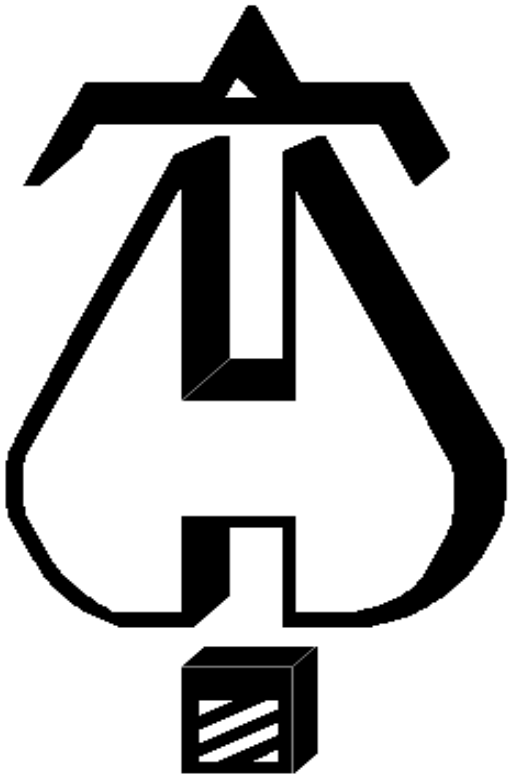

. . . Fire Protection by Computer Design

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

Job Name	:	137 NEWTON STREET
Building	:	
Location	:	137 NEWTON STREET, PORTLAND, MAINE 04102
System	:	1 OF 1
Contract	:	13094
Data File	:	13094137NEWTONSTPTLDA2.WXF

Hydraulic Design Information Sheet

Name - GOODWILL GROUP HOME — Date - 11-15-2013
Location - 137 NEWTON STREET, PORTLAND, MAINE 04102
Building - — System No. - 1 OF 1
Contractor - OWNER — Contract No. - 13094
Calculated By - SCOTT E. GARLAND — Drawing No. - 1 OF 1
Construction: (X) Combustible ( ) Non-Combustible — Ceiling Height - 7-2
Occupancy - BASEMENT - ORDINARY HAZARD GROUP 2

SYSTEM DESIGN

(X) NFPA 13 ( ) Lt. Haz. Ord.Haz.Gp. (X) 1 ( ) 2 ( ) 3 ( ) Ex.Haz.
( ) NFPA 231 ( ) NFPA 231C ( ) Figure Curve
Other
Specific Ruling — Made By — Date

Area of Sprinkler Operation	- 900 SF	System Type	Sprinkler/Nozzle
Density	- .15	(X) Wet	Make RELIABLE
Area Per Sprinkler	- 127.932	( ) Dry	Model F1FR56
Elevation at Highest Outlet	- 74.5	( ) Deluge	Size 1/2 X 1/2
Hose Allowance - Inside	-	( ) Preaction	K-Factor 5.6
Rack Sprinkler Allowance	-	( ) Other	Temp.Rat.155 DEG
Hose Allowance - Outside	- 250		

Note DESIGN AREA #2 - BASEMENT

DESIGN

Calculation Summary — Flow Required - 185.803 Press Required - 42.757 AT BASE OF RISER
C-Factor Used: 120 Overhead 150 Underground

WATER SUPPLY

Water Flow Test:		Pump Data:		Tank or Reservoir:
Date of Test	- 9-8-2011			Cap. -
Time of Test	-	Rated Cap.-		Elev.-
Static Press	- 68	@ Press	-	
Residual Press	- 66	Elev.	-	Well
Flow	- 1087			Proof Flow
Elevation	- 105.0			

Location - ON FOREST AVENUE NEAR FARNHAM STREET, APPROX 2500'AWAY

Source of Information - PORTLAND WATER DISTRICT

COMMODITY STORAGE

Commodity — Class — Location
Storage Ht. — Area — Aisle W.
Storage Method: Solid Piled % Palletized % Rack

( ) Single Row	( ) Conven. Pallet	( ) Auto. Storage	( ) Encap.
( ) Double Row	( ) Slave Pallet	( ) Solid Shelf	( ) Non
( ) Mult. Row		( ) Open Shelf	

RACK STORAGE

Flue Spacing — Clearance:Storage to Ceiling
Longitudinal — Transverse

Horizontal Barriers Provided:

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
11	74.5	5.6	10.92	na	18.51	0.15	116.087	9.669
12	74.5	5.6	12.07	na	19.45	0.15	116.087	9.669
13	74.5	5.6	13.19	na	20.34	0.15	116.087	9.669
14	74.5	5.6	14.41	na	21.26	0.15	98.775	7.0
15	74.5	5.6	14.9	na	21.62	0.15	98.775	7.0
16	74.5	5.6	11.74	na	19.19	0.15	127.932	11.743
M	74.5		12.76	na				
17	74.5	5.6	12.81	na	20.05	0.15	127.932	11.743
F	74.5		13.93	na				
18	74.5	5.6	14.02	na	20.97	0.15	127.932	11.743
19	74.5	5.6	19.02	na	24.42	0.15	127.932	11.743
HH	74.5		15.67	na				
H	74.5		15.89	na				
J	74.5		16.44	na				
G	74.5		16.65	na				
K	74.5		19.52	na				
RT	74.5		22.15	na				
TV	71.042		27.67	na				
RB	69.042		42.76	na				
X1	70.0		65.92	na	250.0			
X2	110.0		52.6	na				
X3	110.0		52.68	na				
X4	105.0		54.87	na				
TEST	105.0		54.94	na				

The maximum velocity is 19.78 and it occurs in the pipe between nodes RB and X1

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
11	18.51	1.049		0.0	10.167	10.923		K Factor = 5.60
to		120.0		0.0	0.0	0.0		
12	18.51	0.1127		0.0	10.167	1.146		Vel = 6.87
12	19.45	1.380		0.0	10.000	12.069		K Factor = 5.60
to		120.0		0.0	0.0	0.0		
13	37.96	0.1120		0.0	10.000	1.120		Vel = 8.14
13	20.34	1.380	1T	6.0	4.000	13.189		K Factor = 5.60
to		120.0		0.0	6.000	0.0		
HH	58.3	0.2477		0.0	10.000	2.477		Vel = 12.51
	0.0							
	58.30					15.666		K Factor = 14.73
14	21.26	1.049	1T	5.0	5.209	14.406		K Factor = 5.60
to		120.0		0.0	5.000	0.0		
H	21.26	0.1457		0.0	10.209	1.487		Vel = 7.89
	0.0							
	21.26					15.893		K Factor = 5.33
15	21.62	1.049	1T	5.0	5.209	14.902		K Factor = 5.60
to		120.0		0.0	5.000	0.0		
J	21.62	0.1503		0.0	10.209	1.534		Vel = 8.03
	0.0							
	21.62					16.436		K Factor = 5.33
16	19.19	1.049		0.0	8.417	11.743		K Factor = 5.60
to		120.0		0.0	0.0	0.0		
M	19.19	0.1206		0.0	8.417	1.015		Vel = 7.12
M	0.0	1.380		0.0	1.750	12.758		
to		120.0		0.0	0.0	0.0		
17	19.19	0.0314		0.0	1.750	0.055		Vel = 4.12
17	20.05	1.380		0.0	9.375	12.813		K Factor = 5.60
to		120.0		0.0	0.0	0.0		
F	39.24	0.1190		0.0	9.375	1.116		Vel = 8.42
F	0.0	1.380		0.0	0.792	13.929		
to		120.0		0.0	0.0	0.0		
18	39.24	0.1199		0.0	0.792	0.095		Vel = 8.42
18	20.97	1.380	1T	6.0	4.000	14.024		K Factor = 5.60
to		120.0		0.0	6.000	0.0		
G	60.21	0.2629		0.0	10.000	2.629		Vel = 12.92
	0.0							
	60.21					16.653		K Factor = 14.75
19	24.42	1.380	1T	6.0	4.000	19.023		K Factor = 5.60
to		120.0		0.0	6.000	0.0		
K	24.42	0.0495		0.0	10.000	0.495		Vel = 5.24
	0.0							
	24.42					19.518		K Factor = 5.53
HH	58.30	1.380		0.0	0.917	15.666		
to		120.0		0.0	0.0	0.0		
H	58.3	0.2475		0.0	0.917	0.227		Vel = 12.51
H	21.25	2.067		0.0	8.833	15.893		
to		120.0		0.0	0.0	0.0		
J	79.55	0.0615		0.0	8.833	0.543		Vel = 7.61

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
J	21.62	2.067		0.0	2.250	16.436		
to		120.0		0.0	0.0	0.0		
G	101.17	0.0964		0.0	2.250	0.217		Vel = 9.67
G	60.21	2.067		0.0	12.583	16.653		
to		120.0		0.0	0.0	0.0		
K	161.38	0.2277		0.0	12.583	2.865		Vel = 15.43
K	24.42	2.067	1E	5.0	3.917	19.518		
to		120.0		0.0	5.000	0.0		
RT	185.8	0.2956		0.0	8.917	2.636		Vel = 17.76
RT	0.0	2.067	1Fsp	0.0	3.458	22.154		
to		120.0		0.0	0.0	4.498		* Fixed loss = 3
TV	185.8	0.2955		0.0	3.458	1.022		Vel = 17.76
TV	0.0	2.067	1E	5.0	2.500	27.674		
to		120.0		0.0	5.000	12.866		* Fixed loss = 12
RB	185.8	0.2956		0.0	7.500	2.217		Vel = 17.76
RB	0.0	1.959	1G	1.164	80.000	42.757		
to		150.0	1T	11.635	12.799	-0.415		
X1	185.8	0.2540		0.0	92.799	23.575		Vel = 19.78
X1	250.00	8.39	1G	3.641	1800.000	65.917		Qa = 250
to		100.0	1T	31.863	35.504	-17.324		
X2	435.8	0.0022		0.0	1835.504	4.008		Vel = 2.53
X2	0.0	16.6	1E	46.767	950.000	52.601		
to		100.0	1G	9.353	56.121	0.0		
X3	435.8	0.0001		0.0	1006.121	0.079		Vel = 0.65
X3	0.0	12.46	1T	52.745	25.000	52.680		
to		100.0		0.0	52.745	2.166		
X4	435.8	0.0003		0.0	77.745	0.024		Vel = 1.15
X4	0.0	12.24		0.0	200.000	54.870		
to		100.0		0.0	0.0	0.0		
TEST	435.8	0.0004		0.0	200.000	0.070		Vel = 1.19
	0.0							
	435.80					54.940		K Factor = 58.80

Water Supply Curve (C)

Sprinkler Systems Inc.
137 NEWTON STREET

Date 11-15-2013

City Water Supply:
- C1 - Static Pressure : 68
- C2 - Residual Pressure: 66
- C2 - Residual Flow : 1087

Demand:
- D1 - Elevation : -13.210
- D2 - System Flow : 185.803
- D2 - System Pressure : 54.940
- Hose (Adj City) : _____
- Hose (Demand) : 250
- D3 - System Demand : 435.803
- Safety Margin : 12.692