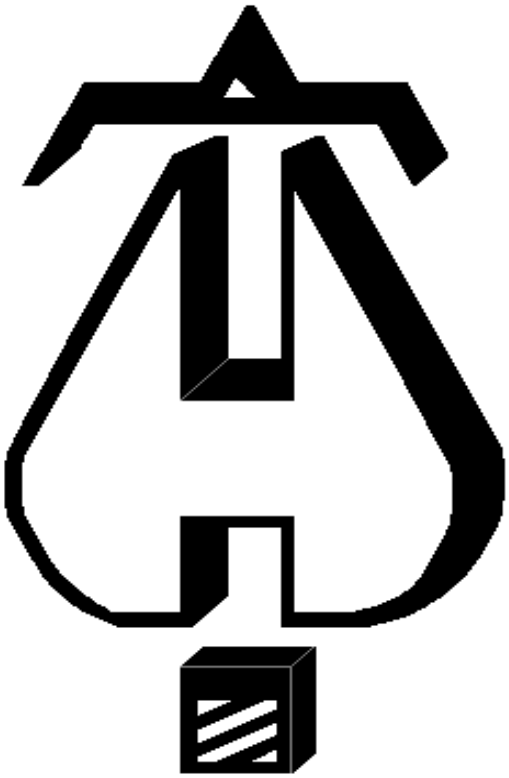


. . . Fire Protection by Computer Design

FREEDOM FIRE PROTECTION INC.
209 QUAKER RIDGE ROAD
CASCO, MAINE 04015
207-627-4109

Job Name : 519 CUMBERLAND AVENUE HC1
Building : 519 CUMBERLAND AVENUE
Location : PORTLAND, MAINE 04103
System : #1 AREA #1
Contract :
Data File : 519 CUMBERLAND AVENUE HC1.WXF

HYDRAULIC DESIGN INFORMATION SHEET

Name - 519 CUMBERLAND Date - 11/6/13
Location - PORTLAND, MAINE 04103
Building - 519 CUMBERLAND AVENUE System No. - #1 AREA #1
Contractor - FREEDOM FIRE PROTECTION Contract No. -
Calculated By - MIKE NOBLIT Drawing No. - FP-3
Construction: (X) Combustible ( ) Non-Combustible Ceiling Height VARIES
OCCUPANCY - CONDOS

SYSTEM DESIGN

Type of Calculation: (X)NFPA 13 Residential (X)NFPA 13R ( )NFPA 13D
Number of Sprinklers Flowing: ( )1 ( )2 ( )4 (X)3
( )Other
( )Specific Ruling Made by Date

Listed Flow at Start Point - 14 Gpm System Type
Listed Pres. at Start Point - 10.1 Psi (X) Wet ( ) Dry
MAXIMUM LISTED SPACING 14' x 14' ( ) Deluge ( ) PreAction
Domestic Flow Added - 0 Gpm Sprinkler or Nozzle
Additional Flow Added - 50 Gpm Make TYCO Model LFII
Elevation at Highest Outlet - 38 Feet Size 1/2" K-Factor 4.4
Note: Temperature Rating 155

Calculation Summary: Gpm Required 92.619 Psi Required 64.889 At Test
C-Factor Used: Overhead 150 Underground 150

Water Flow Test:		Pump Data:	Tank or Reservoir:
Date of Test	- 7/14/1992	Rated Cap.	Cap.
Time of Test	-	@ Psi	Elev.
Static (Psi)	- 71	Elev.	
Residual (Psi)	- 65	Other	Well
Flow (Gpm)	- 871		Proof Flow Gpm
Elevation	-		

Location:

Source of Information: PORTLAND WATER DISTRICT

Water Supply Curve (C)

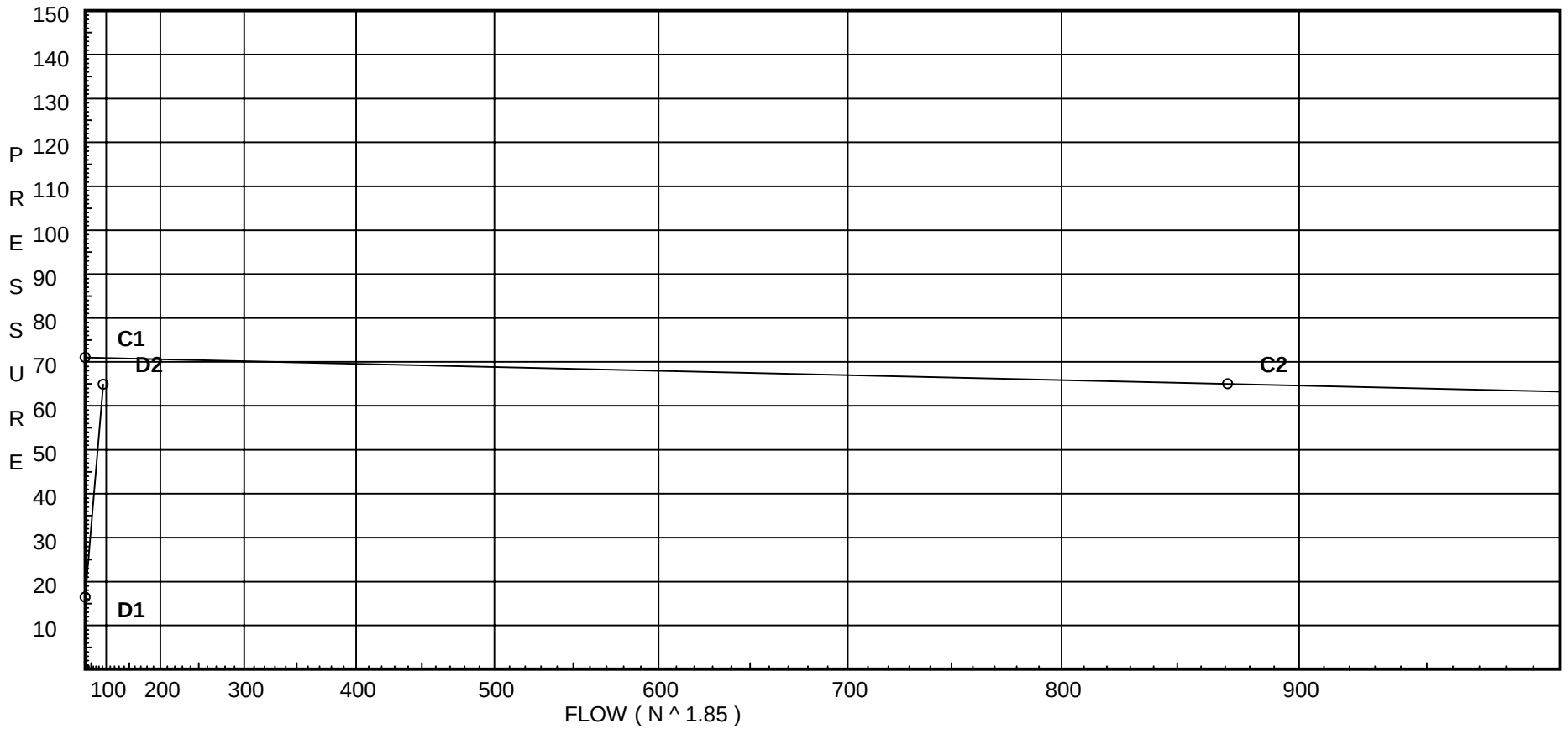
FREEDOM FIRE PROTECTION INC.
519 CUMBERLAND AVENUE HC1

Date 11/6/13

City Water Supply:
- C1 - Static Pressure : 71
- C2 - Residual Pressure: 65
- C2 - Residual Flow : 871

Demand:

D1 - Elevation	:	16.458
D2 - System Flow	:	92.6162
D2 - System Pressure	:	64.889
Hose (Adj City)	:	_____
Hose (Demand)	:	_____
D3 - System Demand	:	92.6162
Safety Margin	:	6.016



Fittings Used Summary

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
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
Zaa	Ames 2000B	Fitting generates a Fixed Loss Based on Flow																			

Pressure / Flow Summary - STANDARD

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
101	38.0	4.4	10.93	na	14.55	0.05	0.001	10.1
14	38.0		11.1	na				
13	30.0		15.01	na				
102	38.0	4.4	10.25	na	14.08	0.05	0.001	10.1
17	38.0		10.4	na				
16	30.0		14.29	na				
15	30.0		14.66	na				
103	38.0	4.4	10.1	na	13.98	0.05	0.001	10.1
12	38.0		10.25	na				
11	30.0		14.33	na				
10	30.0		14.78	na				
9	30.0		15.09	na				
8	30.0		15.45	na				
7	30.0		22.41	na				
6	20.0		28.03	na				
5	20.0		29.23	na				
4	9.0		35.37	na				
3	9.0		35.59	na				
2	9.0		36.06	na				
1	0.0		45.72	na				
TEST	0.0		64.89	na	50.0			

The maximum velocity is 14.36 and it occurs in the pipe between nodes 8 and 7

Final Calculations - One-Line

FREEDOM FIRE PROTECTION INC.
519 CUMBERLAND AVENUE HC1

Ref Pt.	Press Total	K Fact.	Flow Added	Flow Total	Vel	Pipe Diam.	Pipe Length	Fit Sum.	Fit Length	Tot Len	C Fac	Pf perUL	Tot Pf	Elev Press	Fixed Loss	Next Press	Next Ref
101	10.933	4.40	14.55	14.55	4.90	1.101	0.500	1E	3.825	4.325	150	0.0377	0.163	0.0	0.0	11.096	14
14	11.096		0.0	14.55	4.90	1.101	8.000	1E	3.825	11.825	150	0.0378	0.447	3.465	0.0	15.008	13
13	15.008		0.0	14.55	4.90	1.101	2.166	1T	9.563	11.729	150	0.0377	0.442	0.0	0.0	15.450	8
8	15.450	3.70	0.0	14.55													
102	10.246	4.40	14.08	14.08	4.74	1.101	0.500	1E	3.825	4.325	150	0.0356	0.154	0.0	0.0	10.400	17
17	10.400		0.0	14.08	4.74	1.101	8.000	1E	3.825	11.825	150	0.0355	0.420	3.465	0.0	14.285	16
16	14.285		0.0	14.08	4.74	1.101	1.000	1T	9.563	10.563	150	0.0356	0.376	0.0	0.0	14.661	15
15	14.661		0.0	14.08	4.74	1.101	2.500	1T	9.563	12.063	150	0.0356	0.429	0.0	0.0	15.090	9
9	15.090	3.62	0.0	14.08													
103	10.100	4.40	13.98	13.98	4.71	1.101	0.500	1E	3.825	4.325	150	0.0351	0.152	0.0	0.0	10.252	12
12	10.252		0.0	13.98	4.71	1.101	8.000	1T	9.563	17.563	150	0.0351	0.616	3.465	0.0	14.333	11
11	14.333		0.0	13.98	4.71	1.101	8.916	1E	3.825	12.741	150	0.0351	0.447	0.0	0.0	14.780	10
10	14.780		0.0	13.98	4.71	1.101	8.830		0.0	8.830	150	0.0351	0.310	0.0	0.0	15.090	9
9	15.090		14.09	28.07	9.46	1.101	2.830		0.0	2.830	150	0.1272	0.360	0.0	0.0	15.450	8
8	15.450		14.55	42.62	14.36	1.101	11.830	1E1T	13.388	25.218	150	0.2758	6.955	0.0	0.0	22.405	7
7	22.405		0.0	42.62	8.96	1.394	10.000	1E	4.762	14.762	150	0.0874	1.290	4.331	0.0	28.026	6
6	28.026		0.0	42.62	8.96	1.394	4.250	1T	9.523	13.773	150	0.0874	1.204	0.0	0.0	29.230	5
5	29.230		0.0	42.62	8.96	1.394	11.000	1E	4.762	15.762	150	0.0874	1.378	4.764	0.0	35.372	4
4	35.372		0.0	42.62	3.74	2.157	1.500	1T	12.307	13.807	120	0.0158	0.218	0.0	0.0	35.590	3
3	35.590		0.0	42.62	3.74	2.157	23.750	1E	6.153	29.903	120	0.0158	0.471	0.0	0.0	36.061	2
2	36.061		0.0	42.62	4.07	2.067	9.000	1E1Zaa	5.0	14.000	120	0.0194	0.271	3.898	5.493	45.723	1
1	45.723		0.0	42.62	6.37	1.653	50.000	17#	0.0	50.000	140	0.0433	2.166	0.0	17.000	64.889	TEST
TEST	64.889	13.38	50.00	92.62													