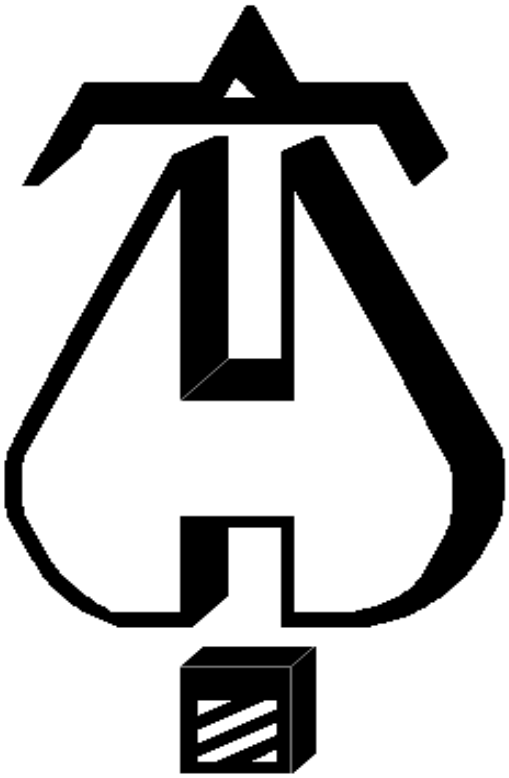


. . . Fire Protection by Computer Design

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

Job Name	:	229 CONGRESS STREET HC2
Building	:	229 CONGRESS STREET
Location	:	PORTLAND, MAINE 04101
System	:	#1 AREA #2
Contract	:	
Data File	:	229 CONGRESS STREET HC2.WXF

HYDRAULIC DESIGN INFORMATION SHEET

Name - 229 CONGRESS STREET Date - 12/27/13
Location - PORTLAND, MAINE 04101
Building - 229 CONGRESS STREET System No. - #1 AREA #2
Contractor - FREEDOM FIRE PROTECTION Contract No. -
Calculated By - MIKE NOBLIT Drawing No. - FP-3
Construction: (X) Combustible ( ) Non-Combustible Ceiling Height 8'-0"
OCCUPANCY - CONDOS

SYSTEM

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

DESIGN

Listed Flow at Start Point - 13 Gpm System Type
Listed Pres. at Start Point - 7 Psi (X) Wet ( ) Dry
MAXIMUM LISTED SPACING 16' x 16' ( ) Deluge ( ) PreAction
Domestic Flow Added - 0 Gpm Sprinkler or Nozzle
Additional Flow Added - Gpm Make TYCO Model LFII
Elevation at Highest Outlet - 44.33Feet Size 1/2" K-Factor 4.9
Note: Temperature Rating 155

Calculation Summary: Gpm Required 53.966 Psi Required 57.726 At Test
C-Factor Used: Overhead 150 Underground 140

WATER SUPPLY

Water Flow Test:		Pump Data:	Tank or Reservoir:
Date of Test	- 9/13/2011	Rated Cap.	Cap.
Time of Test	-	@ Psi	Elev.
Static (Psi)	- 80	Elev.	
Residual (Psi)	- 75	Other	Well
Flow (Gpm)	- 1162		Proof Flow Gpm
Elevation	-		

Location:

Source of Information: PORTLAND WATER DISTRICT

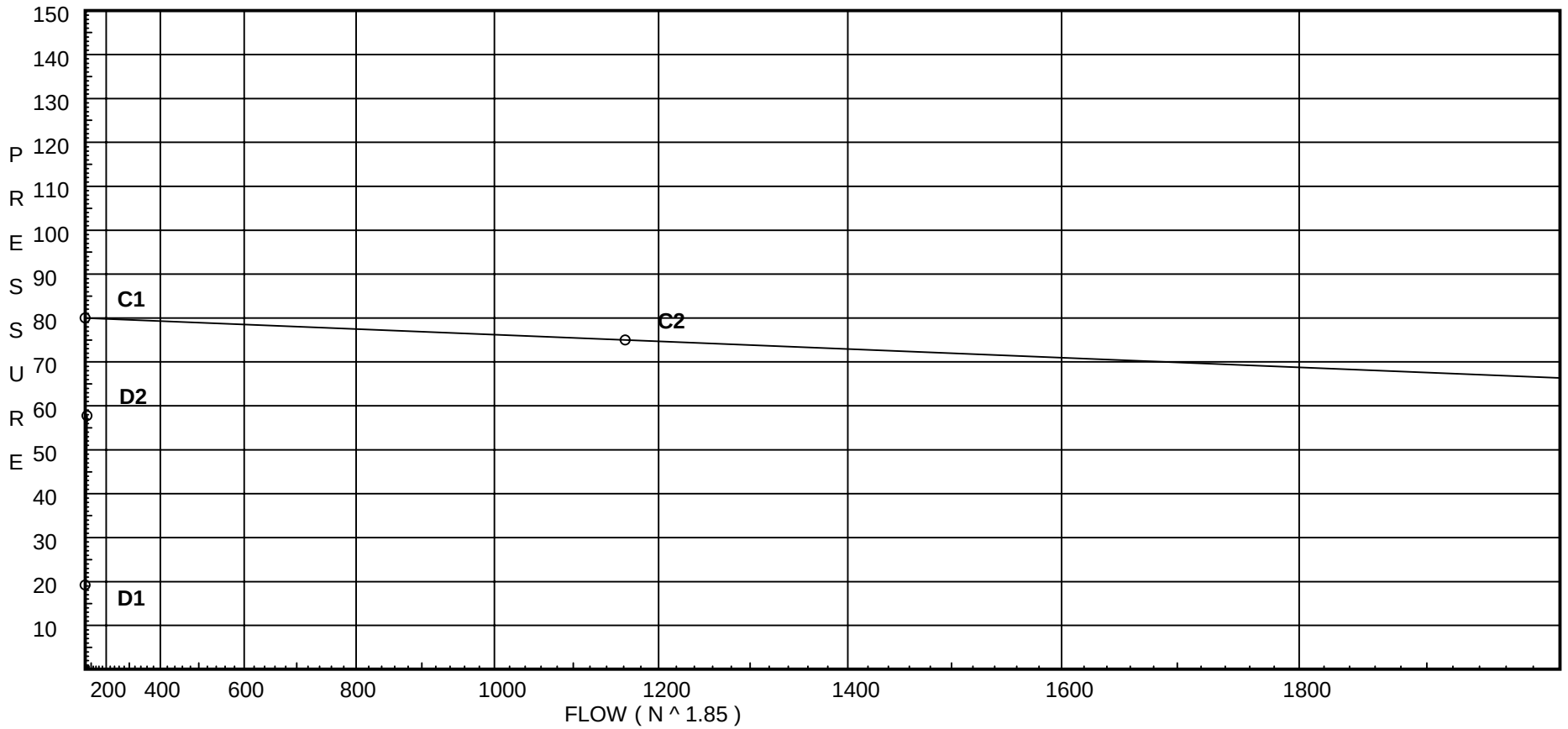
Water Supply Curve (C)

FREEDOM FIRE PROTECTION INC.
229 CONGRESS STREET HC2

Date 12/27/13

City Water Supply:
- C1 - Static Pressure : 80
- C2 - Residual Pressure: 75
- C2 - Residual Flow : 1162

Demand:
- D1 - Elevation : 19.199
- D2 - System Flow : 53.966
- D2 - System Pressure : 57.776
- Hose (Adj City) : _____
- Hose (Demand) : _____
- D3 - System Demand : 53.966
- Safety Margin : 22.207



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
Zac	Ames 2000SS	Fitting generates a Fixed Loss Based on Flow																			

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
202	44.33	4.9	7.81	na	13.69	0.05	144	7.0
201	44.33	4.9	8.19	na	14.03	0.05	144	7.0
204	44.33	4.9	7.0	na	12.96	0.05	144	7.0
203	44.33	4.9	7.35	na	13.29	0.05	144	7.0
23	44.33		8.95	na				
22	44.33		9.96	na				
21	44.33		17.85	na				
20	44.33		20.2	na				
9	15.83		37.68	na				
8	15.83		39.25	na				
7	15.83		41.71	na				
6	5.83		47.15	na				
5	5.83		48.79	na				
4	5.83		50.64	na				
3	5.83		51.19	na				
2	0.0		57.58	na				
1	0.0		57.62	na				
0	0.0		57.75	na				
TEST	0.0		57.78	na				

The maximum velocity is 18.19 and it occurs in the pipe between nodes 22 and 21

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
202	7.806	4.90	13.69	13.69	4.61	1.101	11.500		0.0	11.500	150	0.0337	0.388	0.0	0.0	8.194	201
201	8.194	4.90	14.03	27.72	9.34	1.101	4.660	1T	9.563	14.223	150	0.1244	1.770	0.0	0.0	9.964	22
22	9.964	8.78	0.0	27.72													
204	7.000	4.90	12.96	12.96	4.37	1.101	11.500		0.0	11.500	150	0.0305	0.351	0.0	0.0	7.351	203
203	7.351	4.90	13.29	26.25	8.85	1.101	4.660	1T	9.563	14.223	150	0.1125	1.600	0.0	0.0	8.951	23
23	8.951		0.0	26.25	8.85	1.101	9.000		0.0	9.000	150	0.1126	1.013	0.0	0.0	9.964	22
22	9.964		27.72	53.97	18.19	1.101	18.483		0.0	18.483	150	0.4269	7.890	0.0	0.0	17.854	21
21	17.854		0.0	53.97	18.19	1.101	1.660	1E	3.825	5.485	150	0.4268	2.341	0.0	0.0	20.195	20
20	20.195		0.0	53.97	11.35	1.394	28.500	1T	9.523	38.023	150	0.1353	5.144	12.343	0.0	37.682	9
9	37.682		0.0	53.97	8.63	1.598	10.830	1T	11.656	22.486	150	0.0696	1.564	0.0	0.0	39.246	8
8	39.246		0.0	53.97	8.63	1.598	23.830	2E	11.656	35.486	150	0.0696	2.469	0.0	0.0	41.715	7
7	41.715		0.0	53.97	8.63	1.598	10.000	1E	5.828	15.828	150	0.0696	1.101	4.331	0.0	47.147	6
6	47.147		0.0	53.97	8.51	1.61	8.250	1T	8.0	16.250	120	0.1014	1.647	0.0	0.0	48.794	5
5	48.794		0.0	53.97	4.74	2.157	63.330	1T	12.307	75.637	120	0.0244	1.845	0.0	0.0	50.639	4
4	50.639		0.0	53.97	4.74	2.157	16.500	1E	6.153	22.653	120	0.0244	0.552	0.0	0.0	51.191	3
3	51.191		0.0	53.97	1.36	4.026	5.830	1E1Zac	10.0	15.830	120	0.0012	0.019	2.525	3.841	57.576	2
2	57.576		0.0	53.97	1.31	4.1	15.000	1T	21.855	36.855	120	0.0011	0.039	0.0	0.0	57.615	1
1	57.615		0.0	53.97	1.31	4.1	140.000	1T	29.067	169.067	140	0.0008	0.136	0.0	0.0	57.751	0
0	57.751		0.0	53.97	0.58	6.16	220.000		0.0	220.000	140	0.0001	0.025	0.0	0.0	57.776	TEST
TEST	57.776	7.10	0.0	53.97													