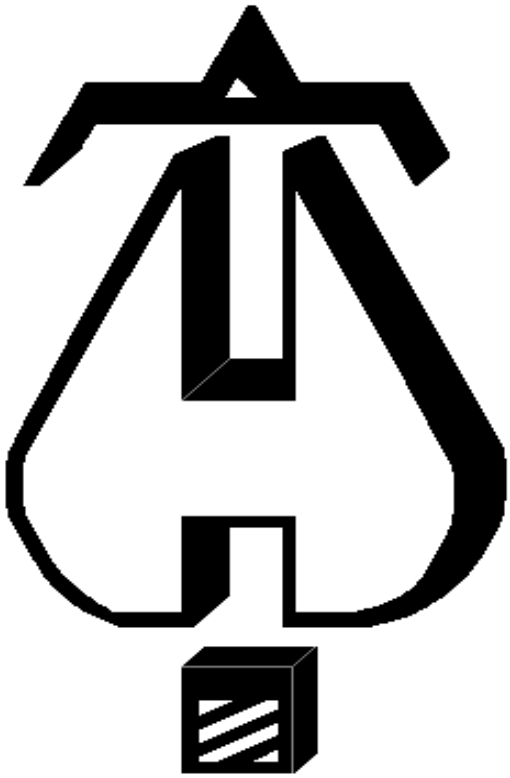


. . . Fire Protection by Computer Design

FREEDOM FIRE PROTECTION
77 BROWN ROAD
POLAND, MAINE 04274
(207) 998-9474

Job Name	:	GRISANTI CONDOMINIUMS HC2
Drawing	:	60 MUNJOY STREET
Location	:	PORTLAND, MAINE 04101
Remote Area	:	#1 AREA #2
Contract	:	
Data File	:	GRISANTI CONDOMINIUMS HC2.WXF

HYDRAULIC DESIGN INFORMATION SHEET

Name - GRISANTI CONDOMINIUMS Date - 10/20/17
Location - PORTLAND, MAINE 04101
Building - 60 MUNJOY 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'-6"
OCCUPANCY - CONDOMINIUMS

SYSTEM DESIGN

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

Listed Flow at Start Point - 16 Gpm System Type
Listed Pres. at Start Point - 13.2 Psi (X) Wet ( ) Dry
MAXIMUM LISTED SPACING 16' x 16' ( ) Deluge ( ) PreAction
Domestic Flow Added - 0 Gpm Sprinkler or Nozzle
Additional Flow Added - 0 Gpm Make TYCO Model LFII
Elevation at Highest Outlet - 24.166Feet Size 1/2" K-Factor 4.4
Note: Temperature Rating 155

Calculation Summary — Gpm Required 66.374 Psi Required 43.171 At Test
C-Factor Used: Overhead 150 Underground 150

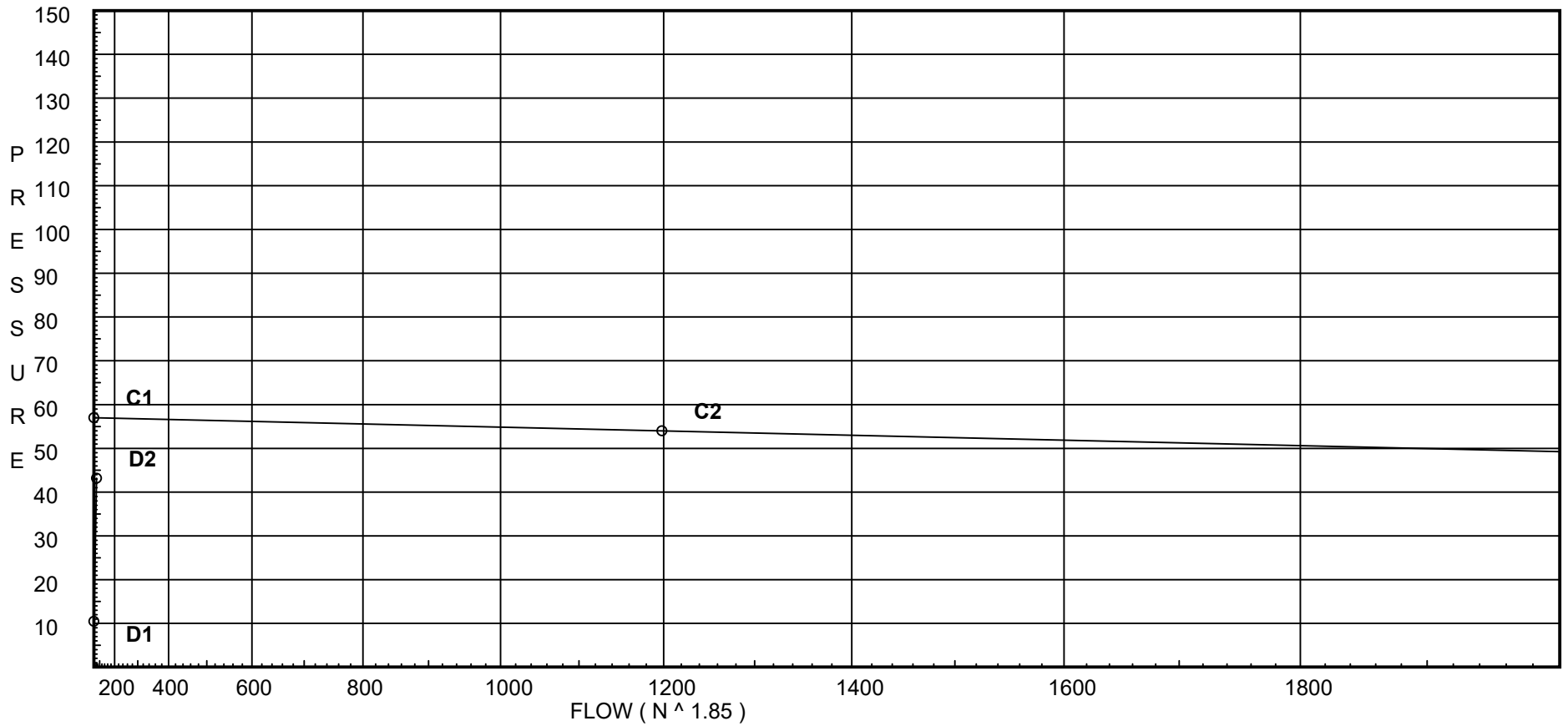
Water Flow Test:		Pump Data:	Tank or Reservoir:
Date of Test	- 5/25/2017	Rated Cap.	Cap.
Time of Test	-	@ Psi	Elev.
Static (Psi)	- 57	Elev.	
Residual (Psi)	- 54	Other	Well
Flow (Gpm)	- 1198		Proof Flow Gpm
Elevation	-		

Location:

Source of Information: PORTLAND WATER DISTRICT

City Water Supply:
- C1 - Static Pressure : 57
- C2 - Residual Pressure: 54
- C2 - Residual Flow : 1198

Demand:
- D1 - Elevation : 10.466
- D2 - System Flow : 66.374
- D2 - System Pressure : 43.171
- Hose (Demand) : _____
- D3 - System Demand : 66.374
- Safety Margin : 13.815



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	NFPA 13 90' Standard Elbow	1	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61
T	NFPA 13 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																			

Units Summary

Diameter Units	Inches
Length Units	Feet
Flow Units	US Gallons per Minute
Pressure Units	Pounds per Square Inch

Note: Fitting Legend provides equivalent pipe lengths for fittings types of various diameters. Equivalent lengths shown are standard for actual diameters of Sched 40 pipe and CFactors of 120 except as noted with *. The fittings marked with a * show equivalent lengths values supplied by manufacturers based on specific pipe diameters and CFactors and they require no adjustment. All values for fittings not marked with a * will be adjusted in the calculation for CFactors of other than 120 and diameters other than Sched 40 per NFPA.

Pressure / Flow Summary - STANDARD

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
201	24.166	4.4	16.22	na	17.72	0.05	0.001	13.2
26	24.166		16.46	na				
10	5.166		26.24	na				
202	24.166	4.4	14.0	na	16.46	0.05	0.001	13.2
7	24.166		14.47	na				
6	5.166		23.79	na				
203	24.166	4.4	13.57	na	16.21	0.05	0.001	13.2
25	24.166		13.76	na				
24	5.166		23.05	na				
204	24.166	4.4	13.2	na	15.99	0.05	0.001	13.2
23	24.166		13.65	na				
22	5.166		22.91	na				
21	5.166		23.08	na				
20	5.166		23.22	na				
5	5.166		23.97	na				
4	5.166		26.45	na				
3	5.166		29.34	na				
2	5.166		32.09	na				
1	0.0		41.29	na				
0	0.0		42.1	na				
TEST	0.0		43.17	na				

The maximum velocity is 14.24 and it occurs in the pipe between nodes 4 and 3

Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv.	Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	******* Notes ******
201	24.166	4.40	17.72	1	E	3.825	0.500	150	16.222	
to						0.0	3.825		0.0	
26	24.166		17.72	1.101		0.0	4.325	0.0543	0.235	Vel = 5.97
26	24.166		0.0	1	T	9.563	19.000	150	16.457	
to						0.0	9.562		8.229	
10	5.166		17.72	1.101		0.0	28.562	0.0544	1.554	Vel = 5.97
10	5.166		0.0	1.25	T	9.066	2.500	150	26.240	
to						0.0	9.066		0.0	
4	5.166		17.72	1.38		0.0	11.566	0.0182	0.210	Vel = 3.80
			0.0							
4			17.72						26.450	K Factor = 3.45
202	24.166	4.40	16.46	1	T	9.563	0.500	150	13.996	
to						0.0	9.562		0.0	
7	24.166		16.46	1.101		0.0	10.062	0.0474	0.477	Vel = 5.55
7	24.166		0.0	1	E	3.825	19.000	150	14.473	
to						0.0	3.825		8.229	
6	5.166		16.46	1.101		0.0	22.825	0.0474	1.083	Vel = 5.55
6	5.166		0.0	1.25	T	6.0	1.660	120	23.785	
to						0.0	6.000		0.0	
5	5.166		16.46	1.38		0.0	7.660	0.0239	0.183	Vel = 3.53
			0.0							
5			16.46						23.968	K Factor = 3.36
203	24.166	4.40	16.21	1	E	3.825	0.500	150	13.565	
to						0.0	3.825		0.0	
25	24.166		16.21	1.101		0.0	4.325	0.0462	0.200	Vel = 5.46
25	24.166		0.0	1	E	3.825	19.000	150	13.765	
to						0.0	3.825		8.229	
24	5.166		16.21	1.101		0.0	22.825	0.0461	1.052	Vel = 5.46
24	5.166		0.0	1.25	T	6.0	1.660	120	23.046	
to						0.0	6.000		0.0	
20	5.166		16.21	1.38		0.0	7.660	0.0232	0.178	Vel = 3.48
			0.0							
20			16.21						23.224	K Factor = 3.36
204	24.166	4.40	15.99	1	T	9.563	0.500	150	13.200	
to						0.0	9.562		0.0	
23	24.166		15.99	1.101		0.0	10.062	0.0449	0.452	Vel = 5.39
23	24.166		0.0	1	E	3.825	19.000	150	13.652	
to						0.0	3.825		8.229	
22	5.166		15.99	1.101		0.0	22.825	0.0450	1.026	Vel = 5.39
22	5.166		0.0	1.25	T	6.0	1.660	120	22.907	
to						0.0	6.000		0.0	
21	5.166		15.99	1.38		0.0	7.660	0.0227	0.174	Vel = 3.43
21	5.166		0.0	1.25		0.0	6.330	120	23.081	
to						0.0	0.0		0.0	
20	5.166		15.99	1.38		0.0	6.330	0.0226	0.143	Vel = 3.43
20	5.166		16.20	1.25		0.0	9.016	120	23.224	
to						0.0	0.0		0.0	
5	5.166		32.19	1.38		0.0	9.016	0.0825	0.744	Vel = 6.90

Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv.	Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	******* Notes ******
5	5.166		16.46	1.25		0.0	14.000	120	23.968	
to						0.0	0.0		0.0	
4	5.166		48.65	1.38		0.0	14.000	0.1773	2.482	Vel = 10.44
4	5.166		17.72	1.25	T	6.0	3.166	120	26.450	
to						0.0	6.000		0.0	
3	5.166		66.37	1.38		0.0	9.166	0.3149	2.886	Vel = 14.24
3	5.166		0.0	1.5	E	4.0	14.500	120	29.336	
to						0.0	4.000		0.0	
2	5.166		66.37	1.61		0.0	18.500	0.1486	2.749	Vel = 10.46
2	5.166		0.0	1.5	Zaa	0.0	5.166	120	32.085	
to					E	4.0	4.000		7.837	* * Fixed Loss = 5.6
1	0		66.37	1.61		0.0	9.166	0.1487	1.363	Vel = 10.46
1	0		0.0	2		0.0	12.000	150	41.285	
to						0.0	0.0		0.0	
0	0		66.37	1.739		0.0	12.000	0.0676	0.811	Vel = 8.97
0	0		0.0	2		0.0	25.000	140	42.096	
to						0.0	0.0		0.0	
TEST	0		66.37	1.959		0.0	25.000	0.0430	1.075	Vel = 7.06
			0.0							
TEST			66.37						43.171	K Factor = 10.10