HYDRAULIC DESIGN INFORMATION SHEET

Name - Inn at Diamond Cove — Date - 7-16-13
Location - 3rd floor dwelling unit
Building - — System No. - 1 of 1
Contractor - Residential Fire Protection — Contract No. - C13015
Calculated By - JAL — Drawing No. - 4 of 4
Construction: (X) Combustible ( ) Non-Combustible Ceiling Height 6'-7"
OCCUPANCY - Residential

SYSTEM

Type of Calculation: ( )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 - Gpm — Sprinkler or Nozzle
Additional Flow Added - 100 Gpm — Make Viking Model VK468
Elevation at Highest Outlet - 41.250Feet — Size 1/2" K-Factor 4.9
Note:Safety Margin: 33.595 — Temperature Rating 155

Calculation Summary — Gpm Required 155.570 — Psi Required 43.055 — At Test
C-Factor Used: — Overhead 150 — Underground 150

WATER SUPPLY

Water Flow Test:
Date of Test - 6-24-13
Time of Test -
Static (Psi) - 81
Residual (Psi) - 27.5
Flow (Gpm) - 604
Elevation - 0

Pump Data:
Rated Cap.
@ Psi
Elev.
Other

Tank or Reservoir:
Cap.
Elev.

Well
Proof Flow Gpm

PLY

Location:

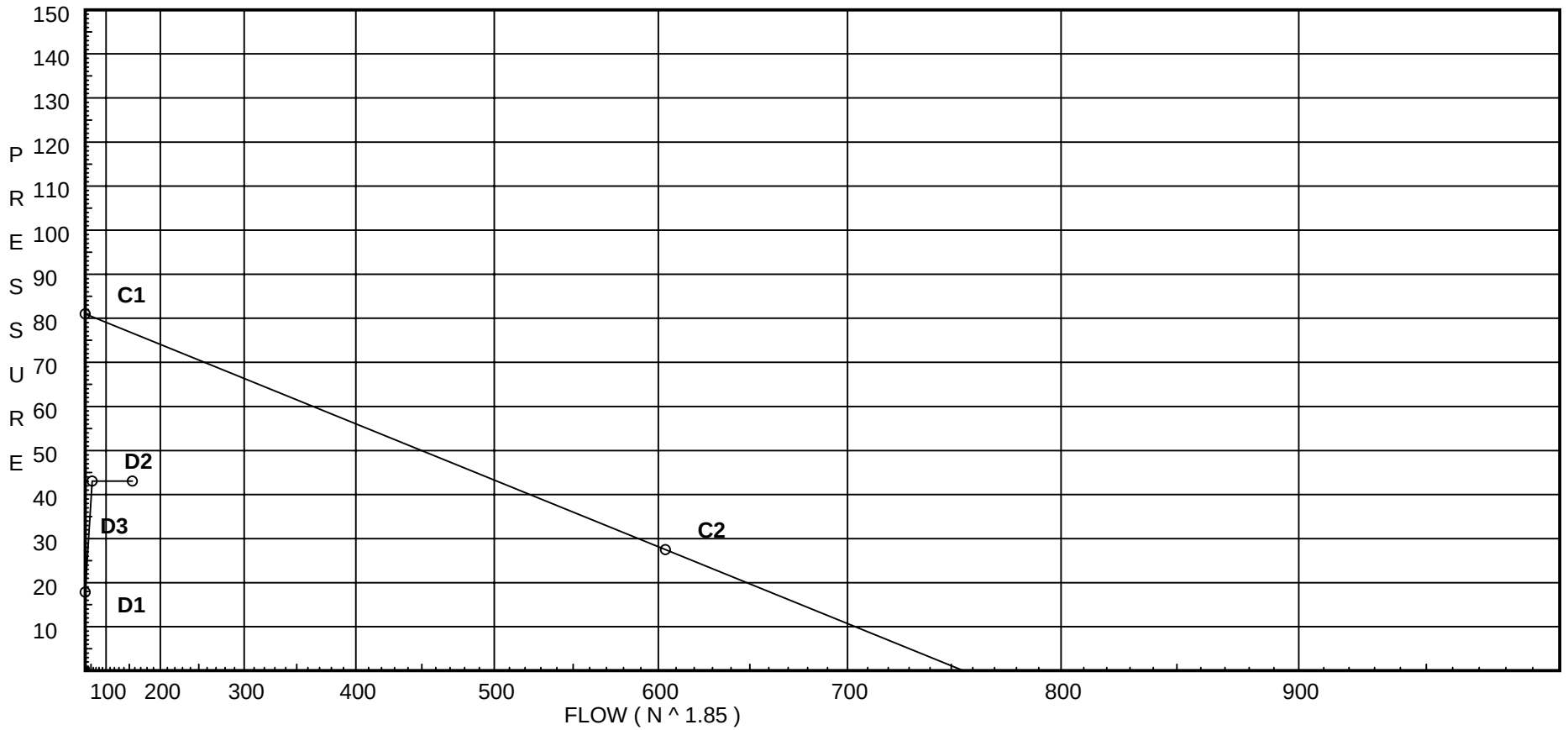
Source of Information:

Water Supply Curve (C)

RESIDENTIAL FIRE PROTECTION
Inn At Diamond Island

City Water Supply:
- C1 - Static Pressure : 81
- C2 - Residual Pressure: 27.5
- C2 - Residual Flow : 604

Demand:
- D1 - Elevation : 17.865
- D2 - System Flow : 55.57
- D2 - System Pressure : 43.055
- Hose (Adj City) : _____
- Hose (Demand) : 100
- D3 - System Demand : 155.57
- Safety Margin : 33.595



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
G	Generic Gate Valve	0	0	1	1	1	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
N	CPVC 90'Ell Harvel-Spears	7	7	7	8	9	11	12	13	0	0	0	0	0	0	0	0	0	0	0	0
O	CPVC Tee - Branch	3	3	5	6	8	10	12	15	0	0	0	0	0	0	0	0	0	0	0	0
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
Z	Generic Flow Switch	2	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61
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.
1	41.25	4.9	7.06	na	13.02	0.1	130	7.0
2	41.25	4.9	7.04	na	13.0	0.1	130	7.0
3	41.25	4.9	9.05	na	14.74	0.1	130	7.0
4	40.75	4	13.71	na	14.81	0.1	130	10.6
5	0.0		25.87	na				
6	0.0		29.42	na				
10	0.0		32.07	na				
11	0.0		32.22	na				
12	0.0		32.1	na				
21	0.0		36.11	na				
20	0.0		36.26	na				
30	0.0		37.16	na				
31	0.0		37.28	na				
41	0.0		37.66	na				
40	0.0		37.27	na				
42	8.75		34.18	na				
TR	1.0		37.86	na				
BR	-4.0		44.72	na				
UG1	0.0		43.04	na	100.0			
TEST	0.0		43.05	na				

The maximum velocity is 8.77 and it occurs in the pipe between nodes 5 and 10

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
1	13.02	0.874	1N	7.0	3.000	7.060		K Factor = 4.90
to		150		0.0	7.000	17.865		
5	13.02	0.0947		0.0	10.000	0.947		Vel = 6.96
	0.0							
	13.02					25.872		K Factor = 2.56
2	13.00	0.874	1N	7.0	3.250	7.039		K Factor = 4.90
to		150		0.0	7.000	17.865		
5	13.0	0.0944		0.0	10.250	0.968		Vel = 6.95
	0.0							
	13.00					25.872		K Factor = 2.56
3	14.74	0.874	1N	7.0	11.000	9.052		K Factor = 4.90
to		150	1O	3.0	10.000	17.865		
6	14.74	0.1191		0.0	21.000	2.502		Vel = 7.88
	0.0							
	14.74					29.419		K Factor = 2.72
4	14.81	1.101	1N	7.0	7.000	13.706		K Factor = 4.00
to		150	1O	5.0	12.000	17.649		
12	14.81	0.0390		0.0	19.000	0.741		Vel = 4.99
	0.0							
	14.81					32.096		K Factor = 2.61
5	26.02	1.101	5N	35.0	11.000	25.872		
to		150	2O	10.0	45.000	0.0		
10	26.02	0.1107		0.0	56.000	6.199		Vel = 8.77
	0.0							
	26.02					32.071		K Factor = 4.59
6	14.74	1.101	8N	56.0	11.500	29.419		
to		150	1O	5.0	61.000	0.0		
11	14.74	0.0387		0.0	72.500	2.806		Vel = 4.97
	0.0							
	14.74					32.225		K Factor = 2.60
10	15.01	1.394		0.0	12.100	32.071		
to		150		0.0	0.0	0.0		
11	15.01	0.0127		0.0	12.100	0.154		Vel = 3.16
	0.0							
	15.01					32.225		K Factor = 2.64
10	11.01	1.394		0.0	3.500	32.071		
to		150		0.0	0.0	0.0		
12	11.01	0.0071		0.0	3.500	0.025		Vel = 2.31
	0.0							
	11.01					32.096		K Factor = 1.94
11	29.75	1.394	2N	16.0	58.500	32.225		
to		150	2O	12.0	28.000	0.0		
21	29.75	0.0449		0.0	86.500	3.888		Vel = 6.25
	0.0							
	29.75					36.113		K Factor = 4.95
12	25.82	1.394	2N	16.0	92.500	32.096		
to		150	2O	12.0	28.000	0.0		
20	25.82	0.0346		0.0	120.500	4.168		Vel = 5.43

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
	0.0							
	25.82					36.264		K Factor = 4.29
21	29.75	1.394	2O	12.0	14.000	36.113		
to		150		0.0	12.000	0.0		
31	29.75	0.0450		0.0	26.000	1.169		Vel = 6.25
	0.0							
	29.75					37.282		K Factor = 4.87
20	25.82	1.394	2O	12.0	14.000	36.264		
to		150		0.0	12.000	0.0		
30	25.82	0.0346		0.0	26.000	0.899		Vel = 5.43
30	-18.59	2.003	4N	44.0	168.250	37.163		
to		150		0.0	44.000	0.0		
31	7.23	0.0006		0.0	212.250	0.119		Vel = 0.74
	0.0							
	7.23					37.282		K Factor = 1.18
30	18.59	2.003	2O	20.0	13.000	37.163		
to		150		0.0	20.000	0.0		
40	18.59	0.0032		0.0	33.000	0.106		Vel = 1.89
	0.0							
	18.59					37.269		K Factor = 3.05
31	36.98	2.003	2O	20.0	13.000	37.282		
to		150		0.0	20.000	0.0		
41	36.98	0.0115		0.0	33.000	0.380		Vel = 3.77
41	0.0	2.003	1E	4.29	5.000	37.662		
to		120	1T	8.58	12.870	-3.790		
42	36.98	0.0174		0.0	17.870	0.311		Vel = 3.77
	0.0							
	36.98					34.183		K Factor = 6.33
40	18.59	2.157	5E	30.767	164.000	37.269		
to		120	1T	12.307	43.074	-3.790		
42	18.59	0.0034		0.0	207.074	0.704		Vel = 1.63
42	36.98	3.26	2E	18.815	52.750	34.183		
to		120	1T	20.159	38.974	3.357		
TR	55.57	0.0034		0.0	91.724	0.316		Vel = 2.14
TR	0.0	3.26	1Zac	0.0	7.500	37.856		
to		120	1Z	9.408	9.408	6.806		* Fixed loss = 4.64
BR	55.57	0.0034		0.0	16.908	0.057		Vel = 2.14
BR	0.0	4.1	1G	2.907	25.000	44.719		
to		140	1T	29.067	31.974	-1.732		
UG1	55.57	0.0008		0.0	56.974	0.048		Vel = 1.35
UG1	100.00	6.16		0.0	25.000	43.035		Qa = 100
to		140		0.0	0.0	0.0		
TEST	155.57	0.0008		0.0	25.000	0.020		Vel = 1.67
	0.0							
	155.57					43.055		K Factor = 23.71