



Hydraulic Calculations by HydraCALC

SUMMERS FIRE SPRINKLERS, INC
751 PARK OF COMMERCE DR, #100
BOCA RATON, FL 33487
MICHELLE MEISEL, P.E. #45316
561-393-6718

Job Name : Bldg#2 UNIT F Fire Plans-CALAC
Drawing : BLDG #2
Location : 117 SOUTHRIVERSIDE DRIVE, POMPANO BEACH FLORIDA 33062
Remote Area : UNIT F
Contract : BC922
Data File : Bldg#3 UNIT Fire Plans-cALAC Area 6.WXF

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HYDRAULIC DESIGN INFORMATION SHEET

Name - RIVERSIDE TOWNHOUSE Date - 10/23/21
Location - 117 SOUTHRIVERSIDE DRIVE, POMPANO BEACH FLORIDA 33062
Building - BLDG #2 System No. - UNIT F
Contractor - SUMMERS FIRE SPRINKLERS, INC Contract No. - BC922
Calculated By - CD Drawing No. - FP-2
Construction: () Combustible () Non-Combustible Ceiling Height
OCCUPANCY - 13D

S Type of Calculation: (X)NFPA 13 Residential ()NFPA 13R (X)NFPA 13D
Y Number of Sprinklers Flowing: ()1 (X)2 ()4 ()
S ()Other
T ()Specific Ruling Made by Date
E
M Listed Flow at Start Point - Gpm System Type
Listed Pres. at Start Point - Psi (X) Wet () Dry
D MAXIMUM LISTED SPACING 16 x 16 () Deluge () PreAction
E Domestic Flow Added - Gpm Sprinkler or Nozzle
S Additional Flow Added - Gpm Make TYCO Model TY3596
I Elevation at Highest Outlet - Feet Size 1/2" K-Factor 4.9
G Note: Temperature Rating 155
N

Calculation Gpm Required 31.001 Psi Required 52.982 At Test
Summary C-Factor Used: Overhead 150 Underground 140

W Water Flow Test: Pump Data: Tank or Reservoir:
A Date of Test - 10/22/21 Rated Cap. Cap.
T Time of Test - 9:15 AM @ Psi Elev.
E Static (Psi) - 80 Elev.
R Residual (Psi) - 77 Other Well
Flow (Gpm) - 1306 Proof Flow Gpm
S Elevation -
P Location:
P
L Source of Information:
Y

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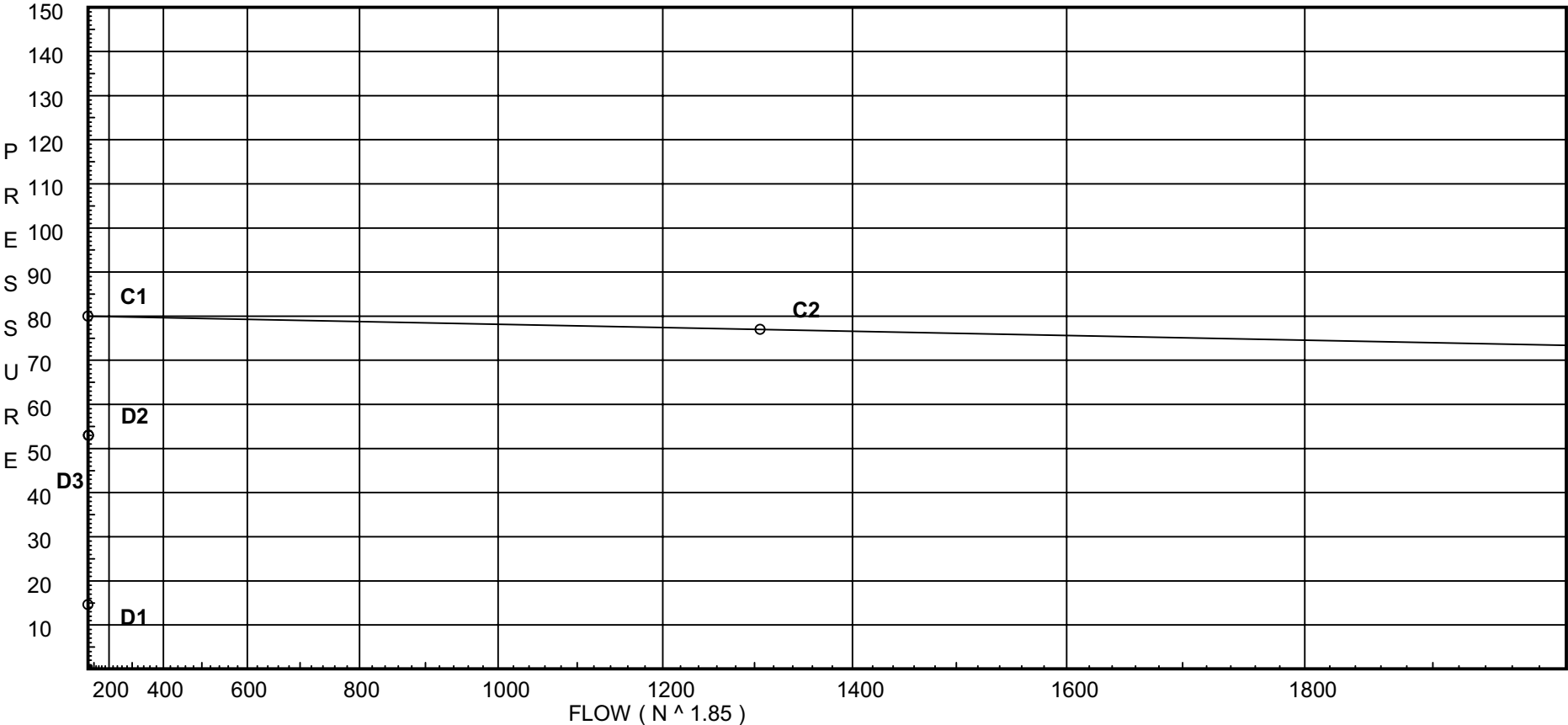
Water Supply Curve

SUMMERS FIRE SPRINKLERS, INC
Bldg#2 UNIT F Fire Plans-CALAC

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City Water Supply:
C1 - Static Pressure : 80
C2 - Residual Pressure: 77
C2 - Residual Flow : 1306

Demand:
D1 - Elevation : 14.617
D2 - System Flow : 26.001
D2 - System Pressure : 52.982
Hose (Demand) : 5
D3 - System Demand : 31.001
Safety Margin : 27.015



Fittings Used Summary

SUMMERS FIRE SPRINKLERS, INC
Bldg#2 UNIT F Fire Plans-CALAC

Fitting Legend																					
Abbrev.	Name	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	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

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Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
DP01	35.25	4.9	7.0	na	12.96	0.05	85	7.0
EQ01	36.25		6.71	na				
DP02	35.25	4.9	7.0	na	12.96	0.05	213	7.0
EQ02	36.25		6.71	na				
S12	36.25	K = K @ EQ01	6.71	na	12.96			
F8	36.25		6.93	na				
F7	36.25		7.16	na				
F6	36.25		7.41	na				
F5	36.25		7.77	na				
F4	36.25		8.99	na				
F3	13.0		21.63	na				
F2	13.0		22.73	na				
F1	13.0		25.33	na				
TOR	13.0		27.51	na				
BOR	-2.0		40.56	na				
U31	-2.0		42.53	na				
U30	-2.0		46.69	na				
U29	-2.0		48.95	na				
U28	-2.0		53.3	na				
U20	-2.0		54.93	na				
TEST	2.5		52.98	na	5.0			
S11	36.25	K = K @ EQ02	6.79	na	13.04			

The maximum velocity is 8.83 and it occurs in the pipe between nodes TOR and BOR

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Final Calculations : Hazen-Williams

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Equiv Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
DP01 to EQ01	35.25 36.25	4.90	12.96 12.96	1 1.101	E 3.825	1.000 3.825 4.825	150 0.0305	7.000 -0.433 0.147		Vel = 4.37	
EQ01			0.0 12.96					6.714		K Factor = 5.00	
DP02 to EQ02	35.25 36.25	4.90	12.96 12.96	1 1.101	E 3.825	1.000 3.825 4.825	150 0.0305	7.000 -0.433 0.147		Vel = 4.37	
EQ02			0.0 12.96					6.714		K Factor = 5.00	
S12 to F8	36.25 36.25	5.0	12.96 12.96	1 1.101		6.940 6.940	150 0.0305	6.714 0.0 0.212		K = K @ EQ01 Vel = 4.37	
F8 to F7	36.25 36.25		0.0 12.96	1 1.101	E 3.825	4.010 3.825 7.835	150 0.0305	6.926 0.0 0.239		Vel = 4.37	
F7 to F6	36.25 36.25		13.04 26.0	1 1.101		2.260 2.260	150 0.1106	7.165 0.0 0.250		Vel = 8.76	
F6 to F5	36.25 36.25		0.0 26.0	1 1.101		3.170 3.170	150 0.1104	7.415 0.0 0.350		Vel = 8.76	
F5 to F4	36.25 36.25		0.0 26.0	1 1.101	2E 7.65	3.410 7.650 11.060	150 0.1106	7.765 0.0 1.223		Vel = 8.76	
F4 to F3	36.25 13		0.0 26.0	1 1.101		23.250 23.250	150 0.1105	8.988 10.070 2.570		Vel = 8.76	
F3 to F2	13 13		0.0 26.0	1 1.101	2E 7.65	2.330 7.650 9.980	150 0.1105	21.628 0.0 1.103		Vel = 8.76	
F2 to F1	13 13		0.0 26.0	1 1.101	3E 11.475	11.990 11.475 23.465	150 0.1106	22.731 0.0 2.595		Vel = 8.76	
F1 to TOR	13 13		0.0 26.0	1 1.101	E 3.825	15.950 3.825 19.775	150 0.1105	25.326 0.0 2.186		Vel = 8.76	
TOR to BOR	13 -2		0.0 26.0	1 1.097	Zaa 0.0	15.000 15.000	120 0.1701	27.512 10.496 2.551		** Fixed Loss = 4 Vel = 8.83	
BOR to U31	-2 -2		0.0 26.0	1 1.097	2E 6.615	8.770 6.615 15.385	140 0.1279	40.559 0.0 1.967		Vel = 8.83	
U31 to U30	-2 -2		0.0 26.0	1 1.097		32.580 32.580	140 0.1279	42.526 0.0 4.166		Vel = 8.83	
U30 to U29	-2 -2		0.0 26.0	1 1.097		17.640 17.640	140 0.1278	46.692 0.0 2.255		Vel = 8.83	

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Final Calculations : Hazen-Williams

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Equiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
U29 to U28	-2 -2		0.0 26.0	1 1.097			2.790 2.790	140 0.1280	48.947 4.000 0.357		* * Fixed Loss = 4 Vel = 8.83	
U28 to U20	-2 -2		0.0 26.0	1 1.097	E T	3.308 8.269	1.110 11.577 12.687	140 0.1278	53.304 0.0 1.622		Vel = 8.83	
U20 to TEST	-2 2.500		0.0 26.0	4 4.1			26.490 26.490	140 0.0002	54.926 -1.949 0.005		Vel = 0.63	
TEST			5.00 31.00						52.982		Qa = 5.00 K Factor = 4.26	
S11 to F7	36.25 36.25	5.0	13.04 13.04	1 1.101	T	6.328	1.740 6.328 8.068	120 0.0466	6.789 0.0 0.376		K = K @ EQ02 Vel = 4.39	
F7			0.0 13.04						7.165		K Factor = 4.87	

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