



Hydraulic Calculations by HydraCALC

RANGER FIRE, INC.
1000 S. MAIN ST
SUITE 150
GRAPEVINE, TX 76051
817-410-9070

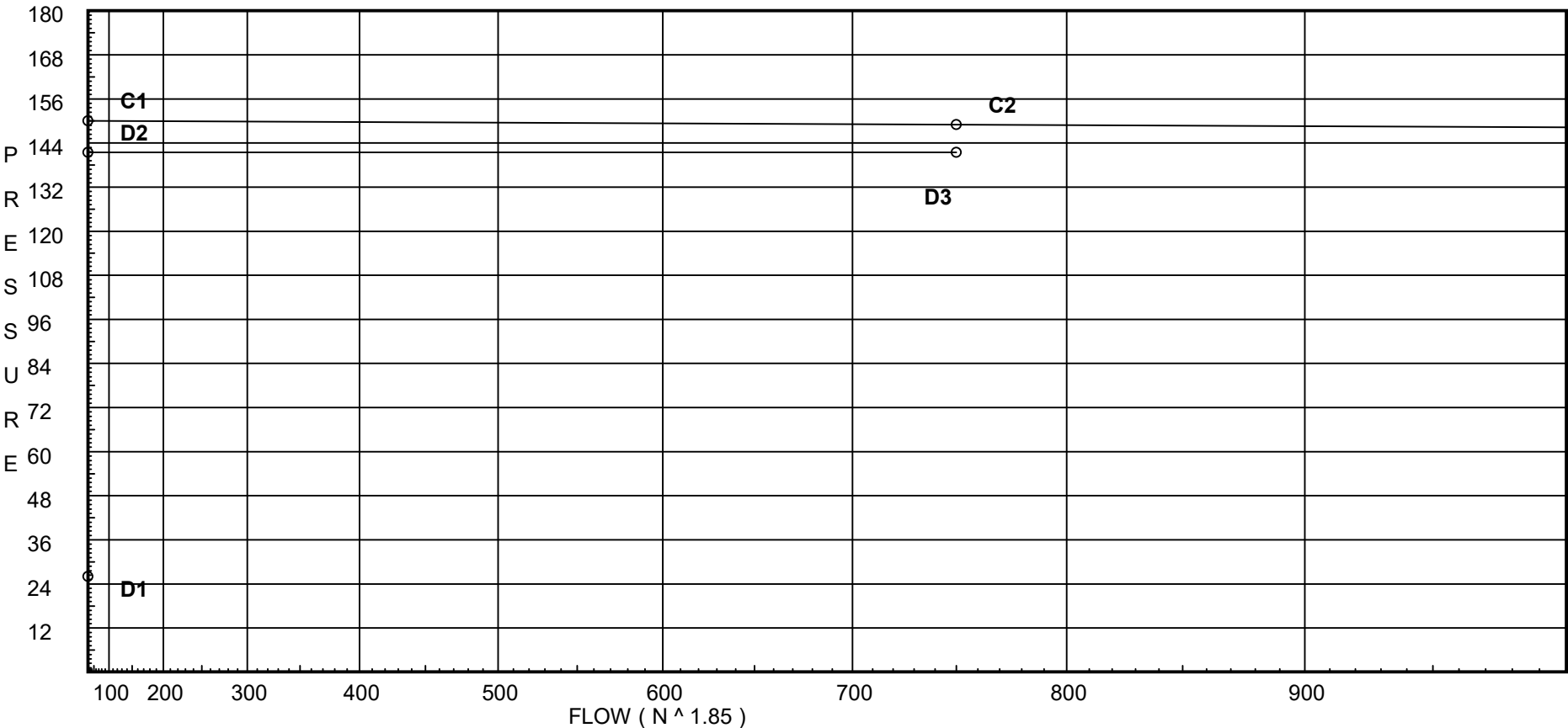
Job Name : HOME 2 SUITES
Drawing :
Location : STAIRWELL 1 & 2
Remote Area :
Contract :
Data File : Wet Standpipe.WXF

Water Supply Curve

RANGER FIRE, INC.
HOME 2 SUITES

City Water Supply:
C1 - Static Pressure : 150
C2 - Residual Pressure: 149
C2 - Residual Flow : 750

Demand:
D1 - Elevation : 26.058
D2 - System Flow :
D2 - System Pressure : 141.473
Hose (Demand) : 750
D3 - System Demand : 750
Safety Margin : 7.527



Fittings Used Summary

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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
B	NFPA 13 Butterfly Valve	0	0	0	0	0	6	7	10	0	12	9	10	12	19	21	0	0	0	0	0
E	NFPA 13 90' Standard Elbow	0	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61
G	NFPA 13 Gate Valve	0	0	0	0	0	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
S	NFPA 13 Swing Check	0	0	5	7	9	11	14	16	19	22	27	32	45	55	65					
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

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.

Flow Summary - NFPA

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SUPPLY ANALYSIS

<i>Node at Source</i>	<i>Static Pressure</i>	<i>Residual Pressure</i>	<i>Flow</i>	<i>Available Pressure</i>	<i>Total Demand</i>	<i>Required Pressure</i>
FDC	150.0	149	750.0	149.0	750.0	141.473

NODE ANALYSIS

<i>Node Tag</i>	<i>Elevation</i>	<i>Node Type</i>	<i>Pressure at Node</i>	<i>Discharge at Node</i>	<i>Notes</i>
HV1	60.167		100.0	250.0	
HV2	59.167		100.45	250.0	
H1	60.167		102.74		
H2	59.167		103.19		
D2	51.333		108.16		
HV3	45.5		111.76	250.0	
H3	45.5		114.45		
SP1	9.5		131.84		
SP2	9.5		133.85		
TOS	9.5		134.38		
BOS	4.0		137.76		
BW1	4.0		138.4		
BW2	4.0		139.04		
FDC	0.0		141.47		

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	*****
HV1 to H1	60.167 60.167	H250	250.00 250.0	2.5 2.469	T	8.564	0.500 8.564 9.064	100 0.3019	100.000 0.0 2.736			
			0.0 250.00								Vel = 16.75	
H1									102.736		K Factor = 24.66	
HV2 to H2	59.167 59.167	H250	250.00 250.0	2.5 2.469	T	8.564	0.500 8.564 9.064	100 0.3019	100.454 0.0 2.736			
			0.0 250.00								Vel = 16.75	
H2									103.190		K Factor = 24.61	
H1 to H2	60.167 59.167		250.00 250.0	4 4.26			1.000 1.000	100 0.0210	102.736 0.433 0.021			Vel = 5.63
H2 to D2	59.167 51.333		250.00 500.0	4 4.26	E G	9.397 1.879	9.417 11.276 20.693	100 0.0764	103.190 3.393 1.581			Vel = 11.25
D2 to SP3	51.333 0		0.0 500.0	4 4.26	2E B T	26.334 15.8 26.334	52.917 68.468 121.385	120 0.0545	108.164 22.232 6.617			Vel = 11.25
SP3			0.0 500.00						137.013		K Factor = 42.72	
HV3 to H3	45.500 45.500	H250	250.00 250.0	2.5 2.469	T	12.0	0.500 12.000 12.500	120 0.2154	111.760 0.0 2.692			Vel = 16.75
H3 to SP1	45.500 9.500		0.0 250.0	4 4.26	2E B T	26.334 15.8 26.334	50.417 68.468 118.885	120 0.0151	114.452 15.592 1.798			Vel = 5.63
SP1			0.0 250.00						131.842		K Factor = 21.77	
SP1 to SP2	9.500 9.500		250.00 250.0	4 4.26	T	26.334	106.583 26.334 132.917	120 0.0151	131.842 0.0 2.010			Vel = 5.63
SP2 to SP3	9.500 0		-750.00 -500.0	6 6.357	E	17.603	105.167 17.603 122.770	120 -0.0078	133.852 4.114 -0.953			Vel = 5.05
SP3			0.0 -500.00						137.013		K Factor = -42.72	
SP2 to TOS	9.500 9.500		750.00 750.0	6 6.357			32.083 32.083	120 0.0164	133.852 0.0 0.527			Vel = 7.58
TOS to BOS	9.500 4		0.0 750.0	6 6.357	E T	17.603 37.72	5.500 55.323 60.823	120 0.0164	134.379 2.382 0.999			Vel = 7.58
BOS to BW1	4 4		0.0 750.0	6 6.357	T	37.72	1.333 37.720 39.053	120 0.0164	137.760 0.0 0.642			Vel = 7.58
BW1 to BW2	4 4		0.0 750.0	6 6.357	T	37.72	1.333 37.720 39.053	120 0.0164	138.402 0.0 0.642			Vel = 7.58

Final Calculations : Hazen-Williams

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqiv Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
BW2 to FDC	4 0		0.0 750.0	6 6.357	S	40.235 40.235 42.402	120 0.0164	139.044 1.732 0.697		Vel = 7.58	
FDC			0.0 750.00					141.473		K Factor = 63.06	