



## Hydraulic Calculations by HydraCALC

Hydratec Incorporated  
64 Haverhill Road  
Route 111  
Windham, NH 03087  
603-434-0502

Job Name : BOYD FUNERAL HOME  
Drawing : SHEET 1  
Location : 4800 DOWNMAN RD, NEW ORLEANS, LA 70126  
Remote Area : 1  
Contract : 16228  
Data File : Boyd Funeral Home Sprinkler Plans Area 1.WXF

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**HYDRAULIC CALCULATIONS**  
*for*

**JOB NAME** BOYD FUNERAL HOME  
**Location** 4800 DOWNMAN RD, NEW ORLEANS, LA 70126  
**Drawing #** SHEET 1  
**Contract #** 16228  
**Date** 04/22/2021

**DESIGN**

**Remote area #** 1  
**Remote area location** ATTIC  
**Occupancy classification** LIGHT HAZARD  
**Density** 0.10 - Gpm/SqFt  
**Area of application** 2535 (MIN.) - SqFt  
**Coverage/sprinkler** 120 - SqFt  
**Type of sprinkler calculated** VK3001 QR UPRIGHT K5.6 1/2"NPT 200F BRASS  
**# Sprinklers calculated** 24  
**In-rack demand** N/A - GPM  
**Hose streams** 100 - GPM  
**Total water required (including hose streams)** 481 - GPM @ 50 - Psi  
**Type of system** DRY  
**Volume of system (dry or pre-action)** 171 - Gal

**WATER SUPPLY INFORMATION**

**Test date** 01/28/2021  
**Location** DOWNMAN RD @ BABYLON ST  
**Source of info** JSI

**CONTRACTOR INFO** JEFFERSON SPRINKLER

**Address** 1903 HANCOCK ST  
**Phone #** (504) 393-7699  
**Name of designer** BLAKE MICKLER  
**Authority having jurisdiction** LASFM

**NOTES:**

text1(35) - invisible

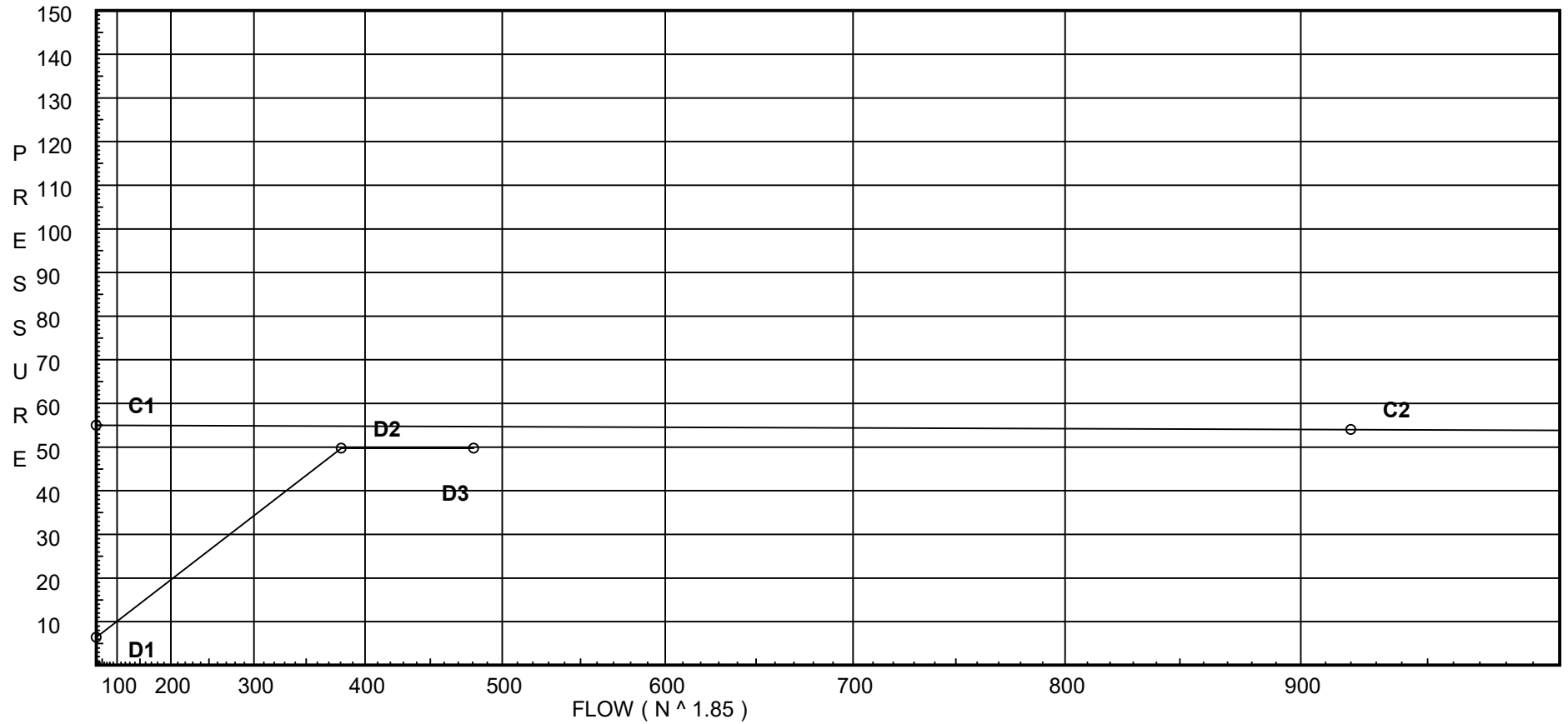
# Water Supply Curve

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City Water Supply:  
C1 - Static Pressure : 55  
C2 - Residual Pressure: 54  
C2 - Residual Flow : 920

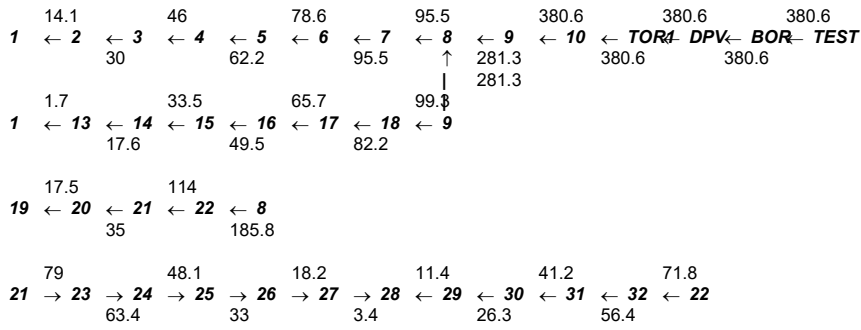
Demand:  
D1 - Elevation : 6.423  
D2 - System Flow : 380.639  
D2 - System Pressure : 49.762  
Hose ( Demand ) : 100  
D3 - System Demand : 480.639  
Safety Margin : 4.937



# Flow Diagram

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# 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
Dvk	Dry Viking F1								3		5		49								
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
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
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
Zcd	Colt C300 Horz Butt	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.

**SUPPLY ANALYSIS**

<b>Node at Source</b>	<b>Static Pressure</b>	<b>Residual Pressure</b>	<b>Flow</b>	<b>Available Pressure</b>	<b>Total Demand</b>	<b>Required Pressure</b>
TEST	55.0	54	920.0	54.699	480.64	49.762

**NODE ANALYSIS**

<b>Node Tag</b>	<b>Elevation</b>	<b>Node Type</b>	<b>Pressure at Node</b>	<b>Discharge at Node</b>	<b>Notes</b>
1	11.79	5.6	8.02	15.86	0.1 120
2	11.79	5.6	8.06	15.9	0.1 120
3	11.79	5.6	8.14	15.98	0.1 120
4	11.79	5.6	8.31	16.15	0.1 120
5	11.79	5.6	8.62	16.44	0.1 120
6	11.79	5.6	9.09	16.88	0.1 120
7	11.79		23.63		
8	11.79		23.95		
9	11.79		26.18		
10	11.79		29.04		
TOR1	11.79		31.98		
DPV	5.0		36.07		
BOR	1.0		40.28		
TEST	1.0		49.76	100.0	
13	11.79	5.6	8.02	15.86	0.1 120
14	11.79	5.6	8.05	15.89	0.1 120
15	11.79	5.6	8.16	16.0	0.1 120
16	11.79	5.6	8.38	16.21	0.1 120
17	11.79	5.6	8.75	16.56	0.1 120
18	11.79	5.6	9.31	17.08	0.1 120
19	19.92	5.6	9.77	17.51	0.1 120
20	19.92	5.6	9.81	17.54	0.1 120
21	15.83		13.03		
22	15.83		14.38		
23	15.83	5.6	7.76	15.6	0.1 120
24	15.83	5.6	7.43	15.26	0.1 120
25	15.83	5.6	7.23	15.06	0.1 120
26	15.83	5.6	7.03	14.85	0.1 120
27	15.83	5.6	7.0	14.82	0.1 120
28	15.83	5.6	7.0	14.82	0.1 120
29	15.83	5.6	7.01	14.83	0.1 120
30	15.83	5.6	7.07	14.89	0.1 120
31	15.83	5.6	7.37	15.2	0.1 120
32	15.83	5.6	7.64	15.48	0.1 120

# 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	*****
1 to 2	11.79 11.79	5.60	14.15	2	E	4.392	10.000 4.391	100	8.020 0.0			
			14.15	2.157			14.391	0.0028	0.041	Vel =	1.24	
2 to 3	11.79 11.79	5.60	15.90	2			6.820	100	8.061 0.0			
			30.05	2.157			6.820	0.0116	0.079	Vel =	2.64	
3 to 4	11.79 11.79	5.60	15.98	2			6.830	100	8.140 0.0			
			46.03	2.157			6.830	0.0255	0.174	Vel =	4.04	
4 to 5	11.79 11.79	5.60	16.14	2			6.830	100	8.314 0.0			
			62.17	2.157			6.830	0.0444	0.303	Vel =	5.46	
5 to 6	11.79 11.79	5.60	16.44	2			6.830	100	8.617 0.0			
			78.61	2.157			6.830	0.0687	0.469	Vel =	6.90	
6 to 7	11.79 11.79	5.60	16.88	2	4E T	17.567 8.783	121.740 26.350	100	9.086 0.0			
			95.49	2.157			148.090	0.0982	14.546	Vel =	8.38	
7 to 8	11.79 11.79		0.0	3			24.120	100	23.632 0.0			
			95.49	3.26			24.120	0.0131	0.317	Vel =	3.67	
8 to 9	11.79 11.79		185.84	3			22.990	100	23.949 0.0			
			281.33	3.26			22.990	0.0970	2.230	Vel =	10.81	
9 to 10	11.79 11.79		99.31	3	T	14.388	2.480 14.387	100	26.179 0.0			
			380.64	3.26			16.867	0.1697	2.863	Vel =	14.63	
10 to TOR1	11.79 11.79		0.0	3	E	6.714	10.600 6.714	100	29.042 0.0			
			380.64	3.26			17.314	0.1697	2.938	Vel =	14.63	
TOR1 to DPV	11.79 5		0.0	4	E Dvk	9.397 4.699	10.790 14.095	100	31.980 2.941			
			380.64	4.26			24.885	0.0461	1.148	Vel =	8.57	
DPV to BOR	5 1		0.0	4	2T B	52.668 15.8	6.790 68.468	120	36.069 1.732			
			380.64	4.26			75.258	0.0329	2.477	Vel =	8.57	
BOR to TEST	1 1		0.0	4	2E G	31.864 3.186	96.000 35.050	150	40.278 5.919		** Fixed Loss = 5.919	
			380.64	4.07	Zcd	0.0	131.050	0.0272	3.565	Vel =	9.39	
TEST			100.00 480.64						49.762	Qa =	100.00	K Factor = 68.14
1 to 13	11.79 11.79		1.71	2			7.500	100	8.020 0.0			
			1.71	2.157			7.500	0	0.0	Vel =	0.15	
13 to 14	11.79 11.79	5.60	15.86	2			7.510	100	8.020 0.0			
			17.57	2.157			7.510	0.0044	0.033	Vel =	1.54	
14 to 15	11.79 11.79	5.60	15.89	2			7.510	100	8.053 0.0			
			33.46	2.157			7.510	0.0141	0.106	Vel =	2.94	

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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	*****
15 to 16	11.79 11.79	5.60	16.00 49.46	2 2.157			7.510 7.510	100 0.0290	8.159 0.0 0.218			Vel = 4.34
16 to 17	11.79 11.79	5.60	16.20 65.66	2 2.157			7.510 7.510	100 0.0491	8.377 0.0 0.369			Vel = 5.76
17 to 18	11.79 11.79	5.60	16.56 82.22	2 2.157			7.510 7.510	100 0.0744	8.746 0.0 0.559			Vel = 7.22
18 to 9	11.79 11.79	5.60	17.09 99.31	2 2.157	3E T	13.175 8.783	137.820 21.957 159.777	100 0.1056	9.305 0.0 16.874			Vel = 8.72
9			0.0 99.31						26.179			K Factor = 19.41
19 to 20	19.920 19.920	5.60	17.51 17.51	2 2.157			7.950 7.950	100 0.0043	9.773 0.0 0.034			Vel = 1.54
20 to 21	19.920 15.83	5.60	17.53 35.04	2 2.157	3E T	13.175 8.783	72.540 21.957 94.497	100 0.0154	9.807 1.771 1.453			Vel = 3.08
21 to 22	15.83 15.83		78.96 114.0	2 2.157	T	8.783	1.120 8.783 9.903	100 0.1363	13.031 0.0 1.350			Vel = 10.01
22 to 8	15.83 11.79		71.84 185.84	2 2.157	T	8.783	14.440 8.783 23.223	100 0.3366	14.381 1.750 7.818			Vel = 16.32
8			0.0 185.84						23.949			K Factor = 37.97
21 to 23	15.83 15.83		-78.96 -78.96	2 2.157	E	4.392	71.900 4.391 76.291	100 -0.0691	13.031 0.0 -5.272			Vel = 6.93
23 to 24	15.83 15.83	5.60	15.60 -63.36	2 2.157			7.220 7.220	100 -0.0460	7.759 0.0 -0.332			Vel = 5.56
24 to 25	15.83 15.83	5.60	15.26 -48.1	2 2.157			7.200 7.200	100 -0.0276	7.427 0.0 -0.199			Vel = 4.22
25 to 26	15.83 15.83	5.60	15.05 -33.05	2 2.157	E	4.392	10.000 4.391 14.391	100 -0.0138	7.228 0.0 -0.198			Vel = 2.90
26 to 27	15.83 15.83	5.60	14.85 -18.2	2 2.157			6.200 6.200	100 -0.0047	7.030 0.0 -0.029			Vel = 1.60
27 to 28	15.83 15.83	5.60	14.82 -3.38	2 2.157			6.200 6.200	100 -0.0002	7.001 0.0 -0.001			Vel = 0.30
28 to 29	15.83 15.83	5.60	14.82 11.44	2 2.157			6.200 6.200	100 0.0019	7.000 0.0 0.012			Vel = 1.00

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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	*****
29 to 30	15.83 15.83	5.60	14.82 26.26	2 2.157			6.240 6.240	100 0.0090	7.012 0.0 0.056		Vel = 2.31	
30 to 31	15.83 15.83	5.60	14.89 41.15	2 2.157	E	4.392	10.210 4.391 14.601	100 0.0207	7.068 0.0 0.302		Vel = 3.61	
31 to 32	15.83 15.83	5.60	15.21 56.36	2 2.157			7.260 7.260	100 0.0371	7.370 0.0 0.269		Vel = 4.95	
32 to 22	15.83 15.83	5.60	15.47 71.83	2 2.157	3E T	13.175 8.783	94.260 21.957 116.217	100 0.0580	7.639 0.0 6.742		Vel = 6.31	
22			0.0 71.83						14.381		K Factor = 18.94	