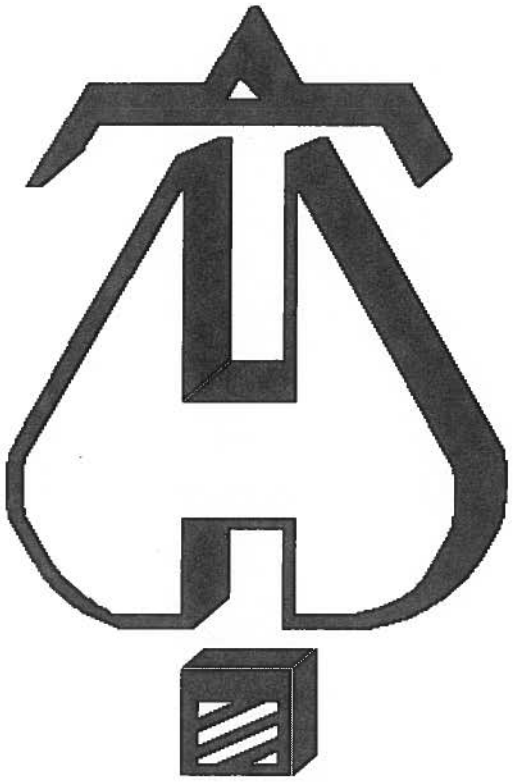


. . . Fire Protection by Computer Design

EASTERN FIRE PROTECTION
170 KITTYHAWK AVE
AUBURN, ME 04210
(207) 784-1507

Job Name	:	56 ALLISON AVE
Drawing	:	Wood Frame
Location	:	Allison Ave
Remote Area	:	Wet
Contract	:	AU-5096
Data File	:	5096 - ALLISON AVE.WXF

HYDRAULIC DESIGN INFORMATION SHEET

Name - 56 ALLISON AVE — Date - 10/31/2013
Location - Allison Ave
Building - Wood Frame — System No. - Wet
Contractor - Eastern Fire Protection — Contract No. - AU-5096
Calculated By - Derek Cash — Drawing No. - 1 of 1
Construction: (X) Combustible ( ) Non-Combustible Ceiling Height 7'-9"
OCCUPANCY - Residential

SYSTEM DESIGN

Type of Calculation: ( )NFPA 13 Residential ( )NFPA 13R (X)NFPA 13D
Number of Sprinklers Flowing: ( )1 (X)2 ( )4 ( )
( )Other
(X)Specific Ruling 13D SYSTEM Made by FIRE MARSHAL 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 - Gpm — Sprinkler or Nozzle
Additional Flow Added - Gpm — Make TYCO Model LF II
Elevation at Highest Outlet - 115'-8Feet — Size 1/2" K-Factor 4.4
Note: — Temperature Rating 155

Calculation Summary — Gpm Required 32.23 — Psi Required 36.6 — At Pump
C-Factor Used: Overhead 120 Underground 120

WATER SUPPLY

Water Flow Test:	Pump Data:	Tank or Reservoir:
Date of Test -	Rated Cap. 20	Cap. 990
Time of Test -	@ Psi 54.13	Elev. 100'
Static (Psi) -	Elev. 100	
Residual (Psi) -	Other	Well
Flow (Gpm) -		Proof Flow Gpm
Elevation -		

Location: PUMP LOCATED IN BASEMENT

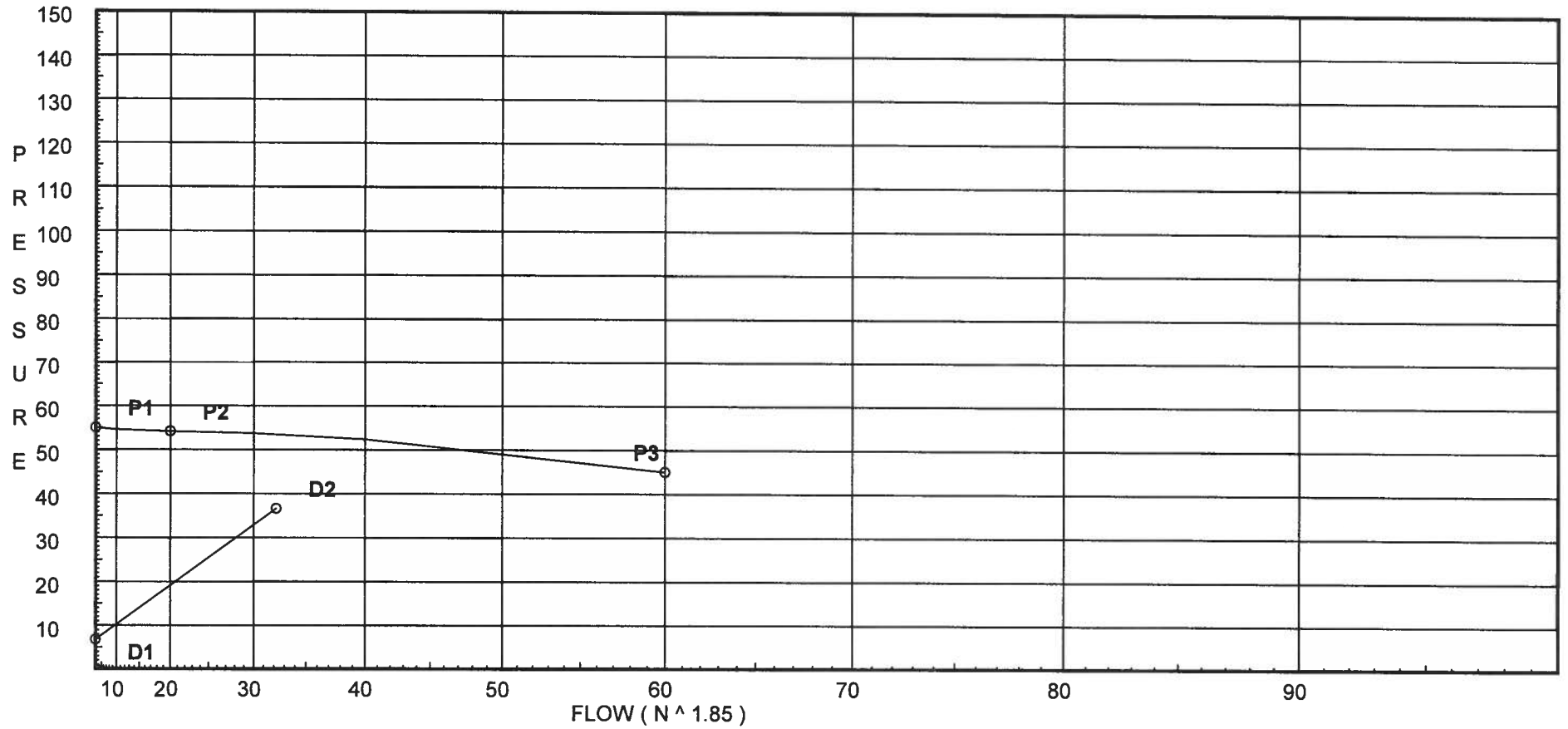
Source of Information: PUMP MANUFACTURER TECHNICAL DATA

Pump Data:

P1 - Pump Churn Pressure	: 54.99
P2 - Pump Rated Pressure	: 54.13
P2 - Pump Rated Flow	: 20
P3 - Pump Pressure @ Max Flow	: 45.03
P3 - Pump Max Flow	: 60

Demand:

D1 - Elevation	: 6.785
D2 - System Flow	: 32.234
D2 - System Pressure	: 36.600
Hose (Demand)	:
D3 - System Demand	: 32.234
Safety Margin	: 16.828



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
Fsp	Flow Switch Potter VSR	Fitting generates a Fixed Loss Based on Flow																			
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.

SUPPLY ANALYSIS

Node at Source	Static Pressure	Residual Pressure	Flow	Available Pressure	Total Demand	Required Pressure
PUMP	See Information on Pump Curve			53.428	32.23	36.6

NODE ANALYSIS

Node Tag	Elevation	Node Type	Pressure at Node	Discharge at Node	Notes
1	115.667	4.4	13.64	16.25	
2	115.667	4.4	13.2	15.99	
3	115.667		13.66		
4	107.25		19.07		
5	108.167		20.7		
TOR	108.167		28.39		
PUMP	100.0		36.6		

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 ******
1	115.667	4.40	16.25	1		0.0	0.583	150	13.637	
to						0.0	0.0		0.0	
3	115.667		16.25	1.101		0.0	0.583	0.0463	0.027	Vel = 5.48
			0.0							
3			16.25						13.664	K Factor = 4.40
2	115.667	4.40	15.99	1	T	9.563	0.750	150	13.200	
to						0.0	9.562		0.0	
3	115.667		15.99	1.101		0.0	10.312	0.0450	0.464	Vel = 5.39
3	115.667		16.24	1	T	9.563	1.167	150	13.664	
to						0.0	9.562		3.645	
4	107.250		32.23	1.101		0.0	10.729	0.1645	1.765	Vel = 10.86
4	107.250		0.0	1	E	3.825	8.500	150	19.074	
to						0.0	3.825		-0.397	
5	108.167		32.23	1.101		0.0	12.325	0.1645	2.028	Vel = 10.86
5	108.167		0.0	1.25	E	4.533	99.458	150	20.705	
to					4T	36.266	40.799		0.0	
TOR	108.167		32.23	1.38		0.0	140.257	0.0548	7.682	Vel = 6.91
TOR	108.167		0.0	1.25	Fsp	0.0	6.250	120	28.387	
to					2S	14.0	14.000		6.537	* * Fixed Loss = 3
PUMP	100		32.23	1.38		0.0	20.250	0.0828	1.676	Vel = 6.91
			0.0							
PUMP			32.23						36.600	K Factor = 5.33