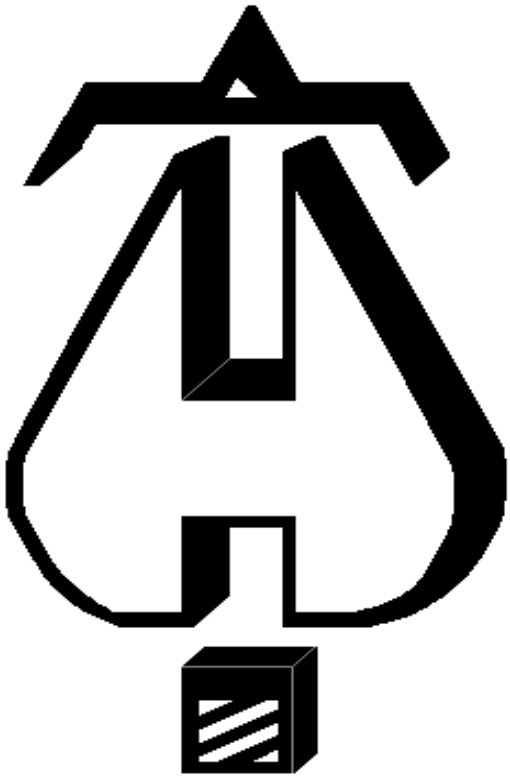


. . . Fire Protection by Computer Design

Residential Fire Protection
64 Daggett Hill Rd.
Greene, ME 04236
946-3473

Job Name : LUEDKE RESIDENCE
Building : WOOD STRUCTURE
Location : 2ND FLR HOUSE
System : 1
Contract : 17010
Data File : LUEDKE RESIDENCE-2ND FLR HOUSE.WXF

HYDRAULIC DESIGN INFORMATION SHEET

Name - LUEDKE RESIDENCE — Date - 4/11/2017
Location - 2ND FLR HOUSE
Building - WOOD STRUCTURE — System No. - 1
Contractor - RESIDENTIAL FIRE PROTECTION — Contract No. - 17010
Calculated By - T. PRAY — Drawing No. - 1 OF 1
Construction: (X) Combustible ( ) Non-Combustible Ceiling Height 8'-0"
OCCUPANCY - RESIDENTIAL

SYSTEM DESIGN

Type of Calculation: ( )NFPA 13 Residential ( )NFPA 13R (X)NFPA 13D
Number of Sprinklers Flowing: ( )1 (X)2 ( )4 ( )
( )Other
( )Specific Ruling Made by Date

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 - Gpm — Make VIKING Model VK486
Elevation at Highest Outlet - 119.34Feet — Size 7/16" K-Factor 4.0
Note: — Temperature Rating

Calculation Summary — Gpm Required 26.05 Psi Required 75.27 At Test
C-Factor Used: Overhead 150 Underground 150

WATER SUPPLY

Water Flow Test:		Pump Data:		Tank or Reservoir:	
Date of Test	- 4/15/2015	Rated Cap.		Cap.	
Time of Test	- N/A	@ Psi		Elev.	
Static (Psi)	- 105	Elev.			
Residual (Psi)	- 20	Other			Well
Flow (Gpm)	- 1200			Proof Flow Gpm	
Elevation	- 100.0'				

Location: HYDRATS ARE LOCATED ON CRESCENT AVE., SEE PLOT PLAN

Source of Information: PORTLAND WATER DISTRICT

Water Supply Curve (C)

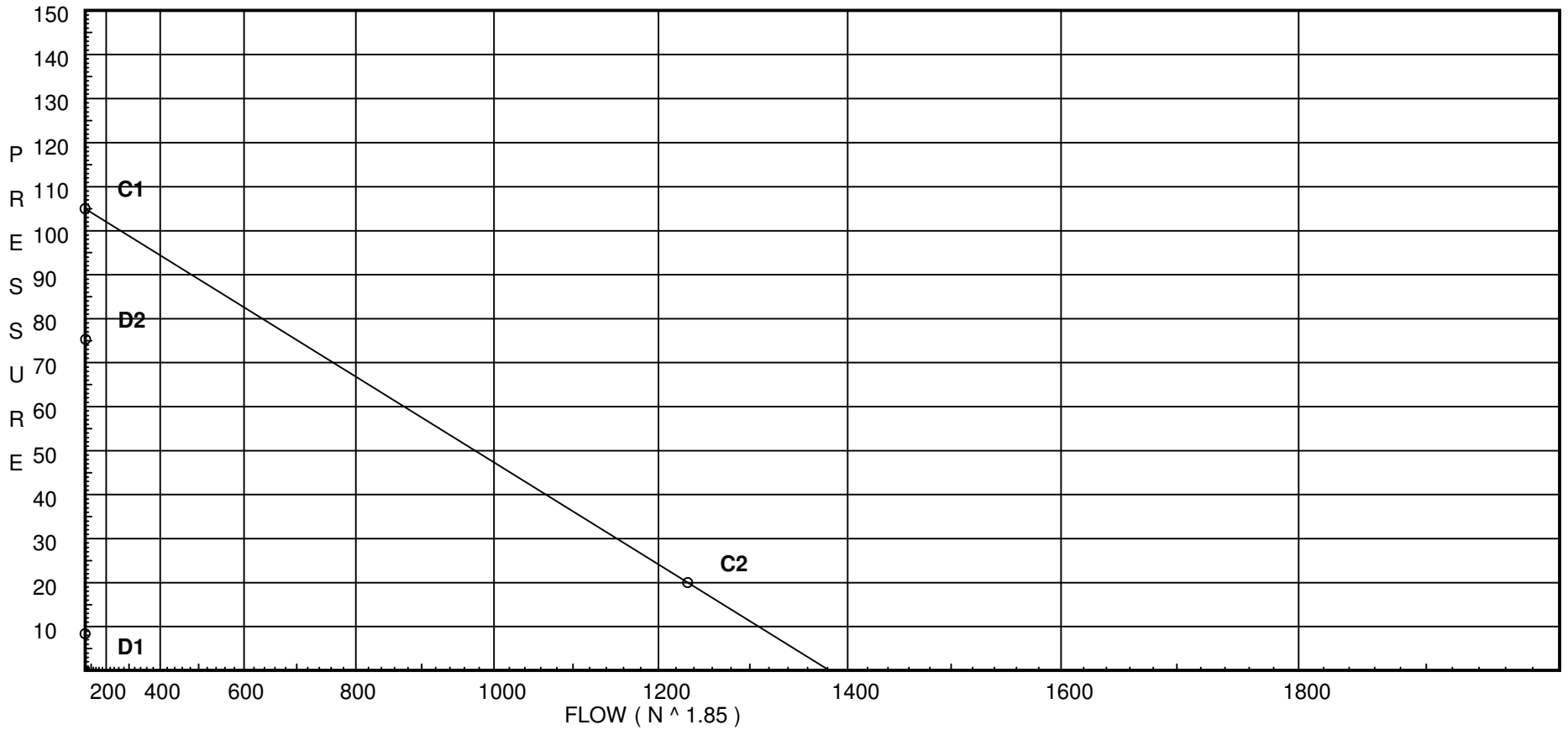
Residential Fire Protection
LUEDKE RESIDENCE

Date 4/11/2017

City Water Supply:
- C1 - Static Pressure : 105
- C2 - Residual Pressure: 20
- C2 - Residual Flow : 1233

Demand:

D1 - Elevation	:	8.376
D2 - System Flow	:	26.0461
D2 - System Pressure	:	75.273
Hose (Adj City)	:	_____
Hose (Demand)	:	_____
D3 - System Demand	:	26.0461
Safety Margin	:	29.660



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
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

Pressure / Flow Summary - STANDARD

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
3	119.34	4	10.6	na	13.02	0.0508	256	10.6
4	119.34	4	10.6	na	13.02	0.0508	256	10.6
53	118.92		11.57	na				
54	110.58		42.77	na				
55	99.54		51.54	na				
TOR	99.54		56.22	na				
BOR	92.375		69.93	na				
TEST	100.0		75.27	na				

The maximum velocity is 13.93 and it occurs in the pipe between nodes 53 and 54

Final Calculations - Hazen-Williams

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
3	13.02	0.874	1T	8.053	0.250	10.600		K Factor = 4.00
to		150		0.0	8.052	0.182		
53	13.02	0.0947		0.0	8.302	0.786		Vel = 6.96
	0.0							
	13.02					11.568		K Factor = 3.83
4	13.02	0.874	1T	8.053	0.250	10.600		K Factor = 4.00
to		150		0.0	8.052	0.182		
53	13.02	0.0947		0.0	8.302	0.786		Vel = 6.96
53	13.03	0.874	3N	21.0	56.800	11.568		
to		150	1O	3.0	24.000	3.612		
54	26.05	0.3415		0.0	80.800	27.590		Vel = 13.93
54	0.0	1.101	1N	7.0	19.010	42.770		
to		150	2O	10.0	17.000	4.781		
55	26.05	0.1109		0.0	36.010	3.994		Vel = 8.78
55	0.0	1.101	2O	10.0	17.880	51.545		
to		120		0.0	10.000	0.0		
TOR	26.05	0.1676		0.0	27.880	4.673		Vel = 8.78
TOR	0.0	1.049	2E	6.044	9.500	56.218		
to		150	1Z	3.022	9.066	11.103		* Fixed loss = 8
BOR	26.05	0.1404		0.0	18.566	2.606		Vel = 9.67
BOR	0.0	1.314	1T	4.495	180.000	69.927		
to		150		0.0	4.495	-3.302		
TEST	26.05	0.0469		0.0	184.495	8.648		Vel = 6.16
	0.0							
	26.05					75.273		K Factor = 3.00