



... Fire Protection by Computer Design

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

Job Name : Bunton Residence(proof)
Drawing : Wood Frame
Location : Peaks Island, Portland, ME
Remote Area : Wet
Contract : AU-5224-14
Data File : 5224 - Bunton Residence(proof).WXF

HYDRAULIC DESIGN INFORMATION SHEET

Name - Bunton Residence Date - 11/19/14
 Location - Peaks Island, Portland, ME
 Building - Wood Frame System No. - Wet
 Contractor - Eastern Fire Protection Contract No. - AU-5224-14
 Calculated By - Derek Cash Drawing No. - 1 of 1
 Construction: (X) Combustible () Non-Combustible Ceiling Height 9'-0"
 OCCUPANCY - Residential

S Type of Calculation: ()NFPA 13 Residential ()NFPA 13R (X)NFPA 13D
 Y Number of Sprinklers Flowing: ()1 (X)2 ()4 ()
 S ()Other
 T (X)Specific Ruling 13D SYSTEM Made by FIRE MARSHAL Date
 E
 M Listed Flow at Start Point - 17 Gpm System Type
 Listed Pres. at Start Point - 14.5 Psi (X) Wet () Dry
 D MAXIMUM LISTED SPACING 18 x 18 () Deluge () PreAction
 E Domestic Flow Added - Gpm Sprinkler or Nozzle
 S Additional Flow Added - Gpm Make Tyco Model LF II
 I Elevation at Highest Outlet - 117.37Feet Size K-Factor 4.9
 G Note: Temperature Rating 155
 N

Calculation Summary Gpm Required 34.28 C-Factor Used: Psi Required 30.48 Overhead 120 At Pump Underground 120

W Water Flow Test: Pump Data: Tank or Reservoir:
 A Date of Test - Rated Cap. 20 Cap. 450
 T Time of Test - @ Psi 54.13 Elev. 100'
 E Static (Psi) - Elev. 100
 R Residual (Psi) - Other Well
 Flow (Gpm) - Proof Flow Gpm
 S Elevation -

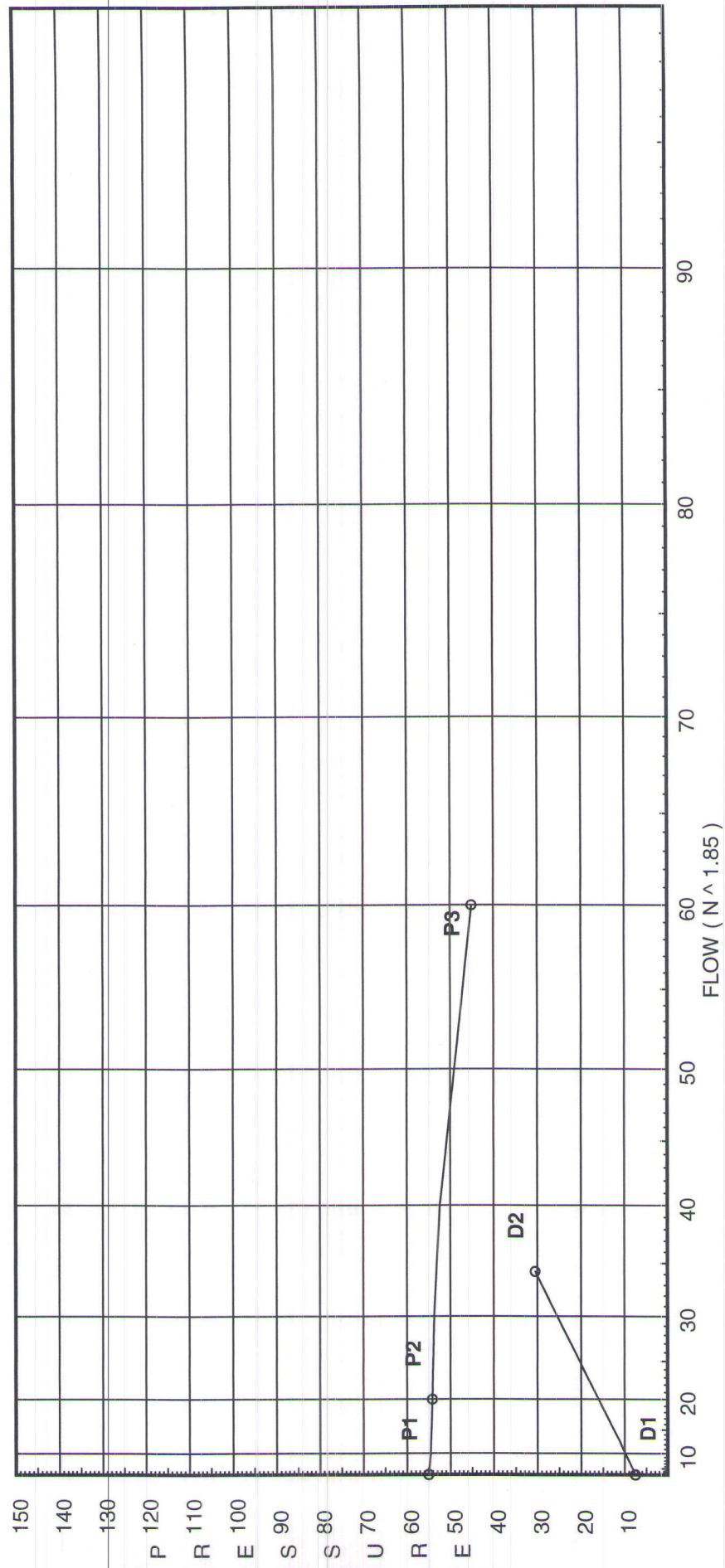
P Location: PUMP LOCATED IN BASEMENT
 P
 L Source of Information: PUMP MANUFACTURER TECHNICAL DATA
 Y

Water Supply Curve C

EASTERN FIRE PROTECTION
Bunton Residence(proof)

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 : 7.507
 D2 - System Flow : 34.282
 D2 - System Pressure : 30.475
 Hose (Demand) :
 D3 - System Demand : 34.282
 Safety Margin : 22.697



Fittings Used Summary

EASTERN FIRE PROTECTION
 Bunton Residence(proof)

| 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 |
| 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

| <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> |
|-----------------------|-------------------------------|--------------------------|-------------|---------------------------|---------------------|--------------------------|
| PUMP | See Information on Pump Curve | | | 53.172 | 34.28 | 30.475 |

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> |
|-----------------|------------------|------------------|-------------------------|--------------------------|--------------|
| LIN1 | 100.0 | 4.9 | 7.0 | 12.96 | |
| 10 | 117.333 | 4.9 | 12.0 | 16.97 | |
| 10A | 117.333 | 4.9 | 12.48 | 17.31 | |
| 6 | 108.666 | | 18.73 | | |
| 7 | 108.666 | | 19.32 | | |
| A | 108.666 | | 20.62 | | |
| B | 108.666 | | 22.35 | | |
| TOR | 108.666 | | 22.7 | | |
| PUMP | 100.0 | | 30.48 | | |

| 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 | ***** |
|----------------------|--------------------|-----------|----------------|---------------|-----------------------|------------------------|----------------------------|----------------|--------------------------|-------|---------------------------------|-------|
| LIN1 to DRP1 | 100 100 | 4.90 | 12.96 12.96 | 1 1.101 | T | 9.563 0.0 0.0 | 0.500 9.562 10.062 | 150 0.0305 | 7.000 0.0 0.307 | | Vel = 4.37 | |
| DRP1 | | | 0.0 12.96 | | | | | | 7.307 | | K Factor = 4.79 | |
| 10 to 10A | 117.333 117.333 | 4.90 | 16.97 16.97 | 1.25 1.394 | 3E | 14.285 0.0 0.0 | 15.667 14.285 29.952 | 150 0.0159 | 12.000 0.0 0.477 | | Vel = 3.57 | |
| 10A to 6 | 117.333 108.666 | 4.90 | 17.31 34.28 | 1.25 1.394 | E 2T | 4.762 19.046 0.0 | 19.000 23.808 42.808 | 150 0.0584 | 12.477 3.754 2.501 | | Vel = 7.21 | |
| 6 to 7 | 108.666 108.666 | | 0.0 34.28 | 1.25 1.394 | | 0.0 0.0 0.0 | 10.000 0.0 10.000 | 150 0.0584 | 18.732 0.0 0.584 | | Vel = 7.21 | |
| 7 to A | 108.666 108.666 | | 0.0 34.28 | 1.25 1.38 | E T | 3.0 6.0 0.0 | 5.083 9.000 14.083 | 120 0.0928 | 19.316 0.0 1.307 | | Vel = 7.35 | |
| A to B | 108.666 108.666 | | 0.0 34.28 | 1.5 1.61 | 2E T | 8.0 8.0 0.0 | 23.500 16.000 39.500 | 120 0.0438 | 20.623 0.0 1.729 | | Vel = 5.40 | |
| B to TOR | 108.666 108.666 | | 0.0 34.28 | 1.5 1.61 | E | 4.0 0.0 0.0 | 4.042 4.000 8.042 | 120 0.0438 | 22.352 0.0 0.352 | | Vel = 5.40 | |
| TOR to PUMP | 108.666 100 | | 0.0 34.28 | 1.5 1.61 | Fsp S 2E | 0.0 9.0 8.0 | 6.250 17.000 23.250 | 120 0.0438 | 22.704 6.753 1.018 | | ** Fixed Loss = 3 Vel = 5.40 | |
| PUMP | | | 0.0 34.28 | | | | | | 30.475 | | K Factor = 6.21 | |