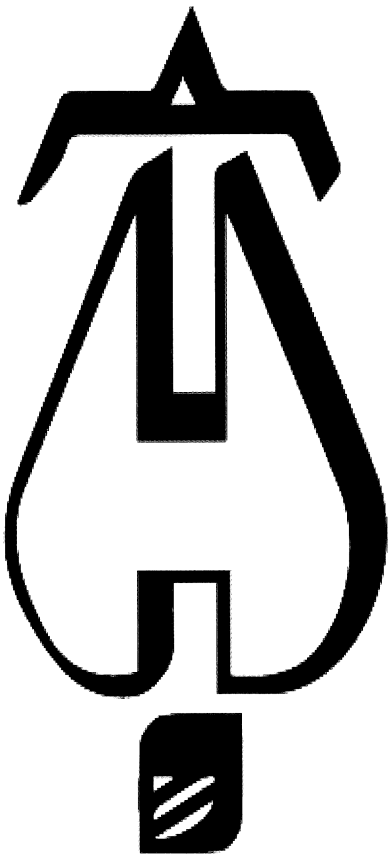


# Hydraulic Calculations by HydraCALC

Carolina Fire Protection
4055 Hodges Chapel Rd.
Dunn, NC 28334
910-892-1700

| | | |
|---|---|---|
| Job Name | : | Lillington FD |
| Drawing | : | OFFICE |
| Location | : | Lillington, NC |
| Remote Area | : | 1 |
| Contract | : | 25C999 |
| Data File | : | Project1 Area OFFICE-Manual.WXF |

## Hydraulic Design Information Sheet

Name - Lillington FD
Location - Lillington, NC
Building - OFFICE
Contractor - Carolina Fire Protection
Calculated By - Austin Lee
Construction: ( ) Combustible (X) Non-Combustible
Occupancy - LIGHT

Date - 04-01-2025
System No. - 1
Contract No. - 25C999
Drawing No. -
Ceiling Height - VARIES

**SYSTEM DESIGN**

(X) NFPA 13 (X) Lt. Haz. Ord.Haz.Gp. ( ) 1 ( ) 2 ( ) 3 ( ) Ex.Haz.
( ) NFPA 231 ( ) NFPA 231C ( ) Figure Curve
Other
Specific Ruling Made By Date

| | | | |
|---|---|---|---|
| Area of Sprinkler Operation - 1152 | System Type | Sprinkler/Nozzle |
| Density - 0.1 | (X) Wet | Make VICTAULIC |
| Area Per Sprinkler - 225 | ( ) Dry | Model V2708 |
| Elevation at Highest Outlet - 10.9 | ( ) Deluge | Size 1/2" |
| Hose Allowance - Inside - | ( ) Preaction | K-Factor 5.6 |
| Rack Sprinkler Allowance - | ( ) Other | Temp.Rat.155 |
| Hose Allowance - Outside - 100 | | |

Note

Calculation Summary: Flow Required - 354.074 Press Required - 54.385 TEST
C-Factor Used: 120 Overhead 150 Underground

**WATER SUPPLY**

| Water Flow Test: | Pump Data: | Tank or Reservoir: |
|---|---|---|
| Date of Test - 02-25-2025 | | Cap. - |
| Time of Test - 11AM | Rated Cap.- | Elev.- |
| Static Press - 103 | @ Press - | |
| Residual Press - 94 | Elev. - | Well |
| Flow - 1694 | | Proof Flow |
| Elevation - 0 | | |

Location - Lillington, NC

Source of Information - Austin Lee & Wayne Dunn

**COMMODITY STORAGE**

Commodity Class Location
Storage Ht. Area Aisle W.
Storage Method: Solid Piled % Palletized % Rack

| | | | | |
|---|---|---|---|---|
| | ( ) Single Row | ( ) Conven. Pallet | ( ) Auto. Storage | ( ) Encap. |
| R | ( ) Double Row | ( ) Slave Pallet | ( ) Solid Shelf | ( ) Non |
| A | ( ) Mult. Row | | ( ) Open Shelf | |
| C | | | | |

Flue Spacing Clearance:Storage to Ceiling
Longitudinal Transverse

Horizontal Barriers Provided:

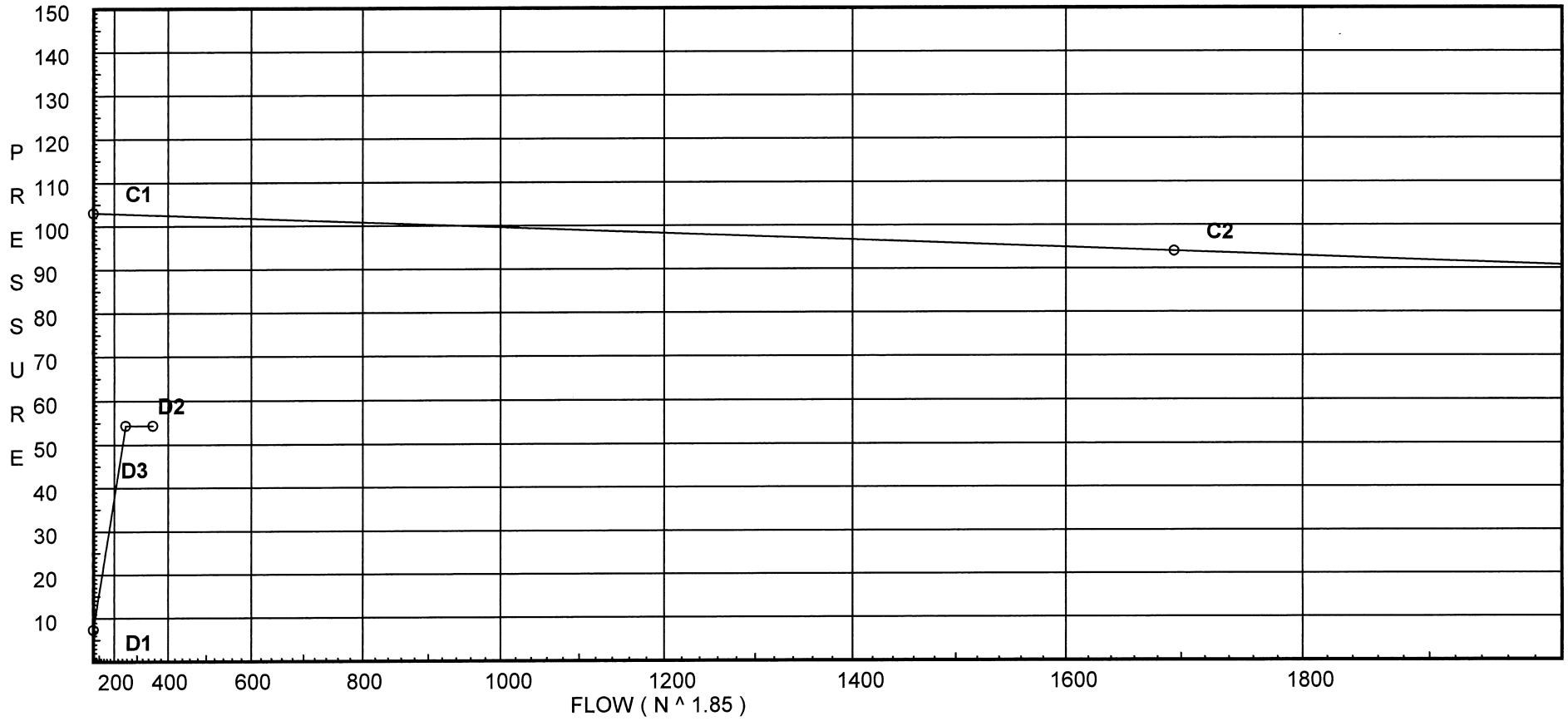
# Water Supply Curve

Carolina Fire Protection
Lillington FD



City Water Supply:
- C1 - Static Pressure : 103
- C2 - Residual Pressure: 94
- C2 - Residual Flow : 1694

Demand:
- D1 - Elevation : 7.363
- D2 - System Flow : 254.074
- D2 - System Pressure : 54.385
- Hose ( Demand ) : 100
- D3 - System Demand : 354.074
- Safety Margin : 48.118



# 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 | 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 |
| 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 |
| Zce | Colt C300 Vert | 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

| Node at Source | Static Pressure | Residual Pressure | Flow | Available Pressure | Total Demand | Required Pressure |
|---|---|---|---|---|---|---|
| TEST | 103.0 | 94 | 1694.0 | 102.503 | 354.07 | 54.385 |

## NODE ANALYSIS

| Node Tag | Elevation | Node Type | Pressure at Node | Discharge at Node | Notes | |
|---|---|---|---|---|---|---|
| 10A | 10.0 | 5.6 | 16.31 | 22.61 | 0.1 | 225 |
| 10 | 11.83 | | 24.36 | | | |
| 7 | 11.83 | | 24.71 | | | |
| 8 | 11.83 | | 24.75 | | | |
| 6 | 11.83 | | 26.33 | | | |
| 73 | 11.83 | | 37.05 | | | |
| N1 | 15.56 | | 37.31 | | | |
| 22 | 15.56 | | 38.67 | | | |
| TOR | 5.56 | | 43.23 | | | |
| BOR | 0.42 | | 49.89 | | | |
| UG1 | -7.0 | | 53.16 | | | |
| TEST | -7.0 | | 54.39 | 100.0 | | |
| 9 | 11.83 | | 24.13 | | | |
| 11 | 11.83 | | 24.24 | | | |
| 70 | 11.83 | | 25.03 | | | |
| F1 | 15.56 | | 23.89 | | | |
| 14 | 19.5 | | 23.85 | | | |
| 13 | 19.5 | | 33.93 | | | |
| 9A | 10.0 | 5.6 | 16.14 | 22.5 | 0.1 | 225 |
| 11A | 10.0 | 5.6 | 16.29 | 22.6 | 0.1 | 225 |
| 8A | 10.0 | 5.6 | 16.56 | 22.79 | 0.1 | 225 |
| 7A | 10.0 | 5.6 | 16.97 | 23.07 | 0.1 | 225 |
| 5A | 10.0 | 5.6 | 16.86 | 22.99 | 0.1 | 225 |
| 5 | 11.83 | | 24.81 | | | |
| 71 | 11.83 | | 25.01 | | | |
| 4 | 11.83 | | 24.81 | | | |
| 3 | 11.83 | | 25.0 | | | |
| 2 | 11.83 | | 25.45 | | | |
| 1 | 11.83 | | 27.36 | | | |
| 72 | 11.83 | | 36.94 | | | |
| 4A | 10.0 | 5.6 | 17.02 | 23.11 | 0.1 | 225 |
| 3A | 10.0 | 5.6 | 17.05 | 23.12 | 0.1 | 225 |
| 2A | 10.0 | 5.6 | 17.3 | 23.29 | 0.1 | 225 |
| 6A | 10.0 | 5.6 | 18.07 | 23.81 | 0.1 | 225 |
| 1A | 10.0 | 5.6 | 18.64 | 24.18 | 0.1 | 225 |

| Node1<br>to<br>Node2 | Elev1<br><br>Elev2 | K<br><br>Fact | Qa<br><br>Qt | Nom<br><br>Act | Fitting<br>or<br>Eqiv | Len | Pipe<br>Ftngs<br>Total | CFact<br><br>Pf/Ft | Pt<br>Pe<br>Pf | ******* Notes ****** |
|---|---|---|---|---|---|---|---|---|---|---|
| 10A | 10 | 5.60 | 22.61 | 1 | T | 5.0 | 6.190 | 120 | 16.306 | |
| to | | | | | Eql | 43.0 | 48.000 | | -0.793 | |
| 10 | 11.830 | | 22.61 | 1.049 | | | 54.190 | 0.1633 | 8.851 | Vel = 8.39 |
| 10 | 11.830 | | 0.0 | 1.5 | T | 9.9 | 11.250 | 120 | 24.364 | |
| to | | | | | | | 9.900 | | 0.0 | |
| 7 | 11.830 | | 22.61 | 1.682 | | | 21.150 | 0.0164 | 0.346 | Vel = 3.26 |
| 7 | 11.830 | | 23.07 | 1.5 | | | 0.670 | 120 | 24.710 | |
| to | | | | | | | | | 0.0 | |
| 8 | 11.830 | | 45.68 | 1.682 | | | 0.670 | 0.0612 | 0.041 | Vel = 6.60 |
| 8 | 11.830 | | 22.79 | 1.5 | | | 12.450 | 120 | 24.751 | |
| to | | | | | | | | | 0.0 | |
| 6 | 11.830 | | 68.47 | 1.682 | | | 12.450 | 0.1271 | 1.583 | Vel = 9.89 |
| 6 | 11.830 | | 23.81 | 1.5 | T | 9.9 | 38.610 | 120 | 26.334 | |
| to | | | | | | | 9.900 | | 0.0 | |
| 73 | 11.830 | | 92.28 | 1.682 | | | 48.510 | 0.2210 | 10.719 | Vel = 13.32 |
| 73 | 11.830 | | 95.16 | 3 | 2E | 18.815 | 18.370 | 120 | 37.053 | |
| to | | | | | T | 20.159 | 38.974 | | -1.615 | |
| N1 | 15.560 | | 187.44 | 3.26 | | | 57.344 | 0.0326 | 1.872 | Vel = 7.20 |
| N1 | 15.560 | | 66.63 | 3 | T | 20.159 | 3.580 | 120 | 37.310 | |
| to | | | | | | | 20.159 | | 0.0 | |
| 22 | 15.560 | | 254.07 | 3.26 | | | 23.739 | 0.0574 | 1.362 | Vel = 9.77 |
| 22 | 15.560 | | 0.0 | 4 | E | 13.167 | 1.330 | 120 | 38.672 | |
| to | | | | | | | 13.167 | | 4.331 | |
| TOR | 5.560 | | 254.07 | 4.26 | | | 14.497 | 0.0156 | 0.226 | Vel = 5.72 |
| TOR | 5.560 | | 0.0 | 4 | E | 13.167 | 13.130 | 120 | 43.229 | |
| to | | | | | Zce | 0.0 | 22.516 | | 6.109 | * * Fixed Loss = 3.883 |
| BOR | .420 | | 254.07 | 4.26 | Eql | 0.0 | 35.646 | 0.0156 | 0.555 | Vel = 5.72 |
| BOR | .420 | | 0.0 | 6 | E | 21.583 | 9.750 | 150 | 49.893 | |
| to | | | | | | | 21.583 | | 3.214 | |
| UG1 | -7 | | 254.07 | 6.09 | | | 31.333 | 0.0018 | 0.057 | Vel = 2.80 |
| UG1 | -7 | | 0.0 | 6 | 2E | 43.166 | 479.460 | 150 | 53.164 | |
| to | | | | | 3G | 13.875 | 195.789 | | 0.0 | |
| TEST | -7 | | 254.07 | 6.09 | 3T | 138.748 | 675.249 | 0.0018 | 1.221 | Vel = 2.80 |
| | | | 100.00 | | | | | | | Qa = 100.00 |
| TEST | | | 354.07 | | | | | | 54.385 | K Factor = 48.01 |
| 9 | 11.830 | | 22.50 | 1.5 | | | 6.780 | 120 | 24.126 | |
| to | | | | | | | | | 0.0 | |
| 11 | 11.830 | | 22.5 | 1.682 | | | 6.780 | 0.0162 | 0.110 | Vel = 3.25 |
| 11 | 11.830 | | 22.60 | 1.5 | T | 9.9 | 3.580 | 120 | 24.236 | |
| to | | | | | | | 9.900 | | 0.0 | |
| 70 | 11.830 | | 45.1 | 1.682 | | | 13.480 | 0.0588 | 0.792 | Vel = 6.51 |
| 70 | 11.830 | | 21.53 | 2.5 | 2E | 16.474 | 18.300 | 120 | 25.028 | |
| to | | | | | | | 16.474 | | -1.615 | |
| F1 | 15.560 | | 66.63 | 2.635 | | | 34.774 | 0.0136 | 0.472 | Vel = 3.92 |
| F1 | 15.560 | | 0.0 | 1.5 | T | 9.9 | 3.940 | 120 | 23.885 | |
| to | | | | | | | 9.900 | | -1.706 | |
| 14 | 19.500 | | 66.63 | 1.682 | | | 13.840 | 0.1210 | 1.674 | Vel = 9.62 |
| 14 | 19.500 | | 0.0 | 1.5 | 2E | 9.9 | 73.390 | 120 | 23.853 | |
| to | | | | | | | 9.900 | | 0.0 | |
| 13 | 19.500 | | 66.63 | 1.682 | | | 83.290 | 0.1210 | 10.077 | Vel = 9.62 |

| Node1<br>to<br>Node2 | Elev1<br><br>Elev2 | K<br><br>Fact | Qa<br><br>Qt | Nom<br><br>Act | Fitting<br>or<br>Eqiv | Len | Pipe<br>Ftngs<br>Total | CFact<br><br>Pf/Ft | Pt<br>Pe<br>Pf | ******* Notes ****** |
|---|---|---|---|---|---|---|---|---|---|---|
| 13 | 19.500 | | 0.0 | 1.5 | T | 9.9 | 3.940 | 120 | 33.930 | |
| to | | | | | | | 9.900 | | 1.706 | |
| N1 | 15.560 | | 66.63 | 1.682 | | | 13.840 | 0.1210 | 1.674 | Vel = 9.62 |
| | | | 0.0 | | | | | | | |
| N1 | | | 66.63 | | | | | | 37.310 | K Factor = 10.91 |
| 9A | 10 | 5.60 | 22.50 | 1 | T | 5.0 | 6.230 | 120 | 16.143 | |
| to | | | | | Eql | 43.0 | 48.000 | | -0.793 | |
| 9 | 11.830 | | 22.5 | 1.049 | | | 54.230 | 0.1618 | 8.776 | Vel = 8.35 |
| | | | 0.0 | | | | | | | |
| 9 | | | 22.50 | | | | | | 24.126 | K Factor = 4.58 |
| 11A | 10 | 5.60 | 22.60 | 1 | T | 5.0 | 5.530 | 120 | 16.292 | |
| to | | | | | Eql | 43.0 | 48.000 | | -0.793 | |
| 11 | 11.830 | | 22.6 | 1.049 | | | 53.530 | 0.1632 | 8.737 | Vel = 8.39 |
| | | | 0.0 | | | | | | | |
| 11 | | | 22.60 | | | | | | 24.236 | K Factor = 4.59 |
| 8A | 10 | 5.60 | 22.79 | 1 | T | 5.0 | 6.220 | 120 | 16.560 | |
| to | | | | | Eql | 43.0 | 48.000 | | -0.793 | |
| 8 | 11.830 | | 22.79 | 1.049 | | | 54.220 | 0.1657 | 8.984 | Vel = 8.46 |
| | | | 0.0 | | | | | | | |
| 8 | | | 22.79 | | | | | | 24.751 | K Factor = 4.58 |
| 7A | 10 | 5.60 | 23.07 | 1 | T | 5.0 | 2.390 | 120 | 16.966 | |
| to | | | | | Eql | 43.0 | 48.000 | | -0.793 | |
| 7 | 11.830 | | 23.07 | 1.049 | | | 50.390 | 0.1694 | 8.537 | Vel = 8.56 |
| | | | 0.0 | | | | | | | |
| 7 | | | 23.07 | | | | | | 24.710 | K Factor = 4.64 |
| 5A | 10 | 5.60 | 22.99 | 1 | T | 5.0 | 3.870 | 120 | 16.861 | |
| to | | | | | Eql | 43.0 | 48.000 | | -0.793 | |
| 5 | 11.830 | | 22.99 | 1.049 | | | 51.870 | 0.1685 | 8.738 | Vel = 8.53 |
| 5 | 11.830 | | -1.46 | 1.5 | T | 9.9 | 3.580 | 120 | 24.806 | |
| to | | | | | | | 9.900 | | 0.0 | |
| 71 | 11.830 | | 21.53 | 1.682 | | | 13.480 | 0.0150 | 0.202 | Vel = 3.11 |
| 71 | 11.830 | | 0.0 | 2.5 | | | 11.950 | 120 | 25.008 | |
| to | | | | | | | | | 0.0 | |
| 70 | 11.830 | | 21.53 | 2.635 | | | 11.950 | 0.0017 | 0.020 | Vel = 1.27 |
| | | | 0.0 | | | | | | | |
| 70 | | | 21.53 | | | | | | 25.028 | K Factor = 4.30 |
| 5 | 11.830 | | 1.46 | 1.5 | | | 7.750 | 120 | 24.806 | |
| to | | | | | | | | | 0.0 | |
| 4 | 11.830 | | 1.46 | 1.682 | | | 7.750 | 0.0001 | 0.001 | Vel = 0.21 |
| 4 | 11.830 | | 23.11 | 1.5 | | | 10.030 | 120 | 24.807 | |
| to | | | | | | | | | 0.0 | |
| 3 | 11.830 | | 24.57 | 1.682 | | | 10.030 | 0.0191 | 0.192 | Vel = 3.55 |
| 3 | 11.830 | | 23.12 | 1.5 | | | 6.990 | 120 | 24.999 | |
| to | | | | | | | | | 0.0 | |
| 2 | 11.830 | | 47.69 | 1.682 | | | 6.990 | 0.0651 | 0.455 | Vel = 6.89 |
| 2 | 11.830 | | 23.29 | 1.5 | | | 14.000 | 120 | 25.454 | |
| to | | | | | | | | | 0.0 | |
| 1 | 11.830 | | 70.98 | 1.682 | | | 14.000 | 0.1360 | 1.904 | Vel = 10.25 |

# Final Calculations : Hazen-Williams



| Node1<br>to<br>Node2 | Elev1<br><br>Elev2 | K<br><br>Fact | Qa<br><br>Qt | Nom<br><br>Act | Fitting<br>or<br>Eqiv | Len | Pipe<br>Ftngs<br>Total | CFact<br><br>Pf/Ft | Pt<br>Pe<br>Pf | ******* Notes ****** |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 11.830 | | 24.18 | 1.5 | T | 9.9 | 31.070 | 120 | 27.358 | |
| to | | | | | | | 9.900 | | 0.0 | |
| 72 | 11.830 | | 95.16 | 1.682 | | | 40.970 | 0.2339 | 9.584 | Vel = 13.74 |
| 72 | 11.830 | | 0.0 | 3 | | | 11.950 | 120 | 36.942 | |
| to | | | | | | | | | 0.0 | |
| 73 | 11.830 | | 95.16 | 3.26 | | | 11.950 | 0.0093 | 0.111 | Vel = 3.66 |
| | | | 0.0 | | | | | | | |
| 73 | | | 95.16 | | | | | | 37.053 | K Factor = 15.63 |
| 4A | 10 | 5.60 | 23.11 | 1 | T | 5.0 | 2.450 | 120 | 17.025 | |
| to | | | | | Eql | 43.0 | 48.000 | | -0.793 | |
| 4 | 11.830 | | 23.11 | 1.049 | | | 50.450 | 0.1700 | 8.575 | Vel = 8.58 |
| | | | 0.0 | | | | | | | |
| 4 | | | 23.11 | | | | | | 24.807 | K Factor = 4.64 |
| 3A | 10 | 5.60 | 23.12 | 1 | T | 5.0 | 3.370 | 120 | 17.049 | |
| to | | | | | Eql | 43.0 | 48.000 | | -0.793 | |
| 3 | 11.830 | | 23.12 | 1.049 | | | 51.370 | 0.1702 | 8.743 | Vel = 8.58 |
| | | | 0.0 | | | | | | | |
| 3 | | | 23.12 | | | | | | 24.999 | K Factor = 4.62 |
| 2A | 10 | 5.60 | 23.29 | 1 | T | 5.0 | 3.880 | 120 | 17.298 | |
| to | | | | | Eql | 43.0 | 48.000 | | -0.793 | |
| 2 | 11.830 | | 23.29 | 1.049 | | | 51.880 | 0.1725 | 8.949 | Vel = 8.65 |
| | | | 0.0 | | | | | | | |
| 2 | | | 23.29 | | | | | | 25.454 | K Factor = 4.62 |
| 6A | 10 | 5.60 | 23.81 | 1 | T | 5.0 | 2.390 | 120 | 18.075 | |
| to | | | | | Eql | 43.0 | 48.000 | | -0.793 | |
| 6 | 11.830 | | 23.81 | 1.049 | | | 50.390 | 0.1796 | 9.052 | Vel = 8.84 |
| | | | 0.0 | | | | | | | |
| 6 | | | 23.81 | | | | | | 26.334 | K Factor = 4.64 |
| 1A | 10 | 5.60 | 24.18 | 1 | T | 5.0 | 3.430 | 120 | 18.643 | |
| to | | | | | Eql | 43.0 | 48.000 | | -0.793 | |
| 1 | 11.830 | | 24.18 | 1.049 | | | 51.430 | 0.1849 | 9.508 | Vel = 8.98 |
| | | | 0.0 | | | | | | | |
| 1 | | | 24.18 | | | | | | 27.358 | K Factor = 4.62 |

# Lillington Fire Department

## Flow Test for Hydrant 4311 444

**Start Time: 2024-08-16 11:02:19**
**End Time: 2024-08-16 11:03:05**
**Tested By: Roberts III, James L**

**Test Hydrant**

| | |
|---|---|
| **Static Pressure:** | **70.0** |
| **Residual Pressure:** | **69.0** |
| **Desired Pressure:** | **20.0** |
| **Volume at Desired Pressure:** | **11096.0** |

**Flow Hydrants**

| Downstream Hydrant ID | Port Diameter | Friction Coefficient | Pitot Pressure | Flow (Calculated) |
|---|---|---|---|---|
| | 2.5 | 0.90000000000000002 | 64.0 | 1342.0 |


4313C006
Flow Hydrant
4313C005
Hydrant is missing
Lillington, B19
nerville Bunnlevel, C1
4311397
Test Hydrant
4313C004
CAMERON BROWN RD
4311399
GREGORY VILLAGE DR
NC 210 N

# Victaulic® FireLock™ Series FL-QR
# Standard Coverage, Quick Response
# Upright, Pendent and Recessed Pendent Sprinklers
# K2.8 (4.0), K4.2 (6.1), K5.6 (8.1), K8.0 (11.5)

41.01




## 1.0 PRODUCT DESCRIPTION

| QUICK RESPONSE UPRIGHT SPRINKLERS | | | | |
|---|---|---|---|---|
| **SIN** | **V2815** | **V4215** | **V2704** | **V3402** |
| **ORIENTATION** | UPRIGHT | UPRIGHT | UPRIGHT | UPRIGHT |
| **K-FACTOR**[1] | 2.8 Imp./4.0 S.I. | 4.2 Imp./6.1 S.I. | 5.6 Imp./8.1 S.I. | 8.0 Imp./11.5 S.I. |
| **CONNECTION** | ½" NPT/15mm BSPT | ½" NPT/15mm BSPT | ½" NPT/15mm BSPT/IGS | ¾" NPT/20mm BSPT/IGS |
| **MAX. WORKING PRESSURE** | 175 psi/1200 kPa | 175 psi/1200 kPa | 175 psi/1200 kPa<br>cULus 250 psi /1725 kPa | 175 psi/1200 kPa |
| **GLOBE RE-DESIGNATION** | GL2815 | GL4215 | – | – |
| **GLOBE EQUIVALENT** | – | – | GL5615 | GL8118 |

| QUICK RESPONSE PENDENT SPRINKLERS | | | | |
|---|---|---|---|---|
| **SIN** | **V2801** | **V4201** | **V2708** | **V3406** |
| **ORIENTATION** | PENDENT | PENDENT | PENDENT | PENDENT |
| **K-FACTOR**[1] | 2.8 Imp./4.0 S.I. | 4.2 Imp./6.1 S.I. | 5.6 Imp./8.1 S.I. | 8.0 Imp./11.5 S.I. |
| **CONNECTION** | ½" NPT/15mm BSPT | ½" NPT/15mm BSPT | ½" NPT/15mm BSPT/IGS | ¾" NPT/20mm BSPT/IGS |
| **MAX. WORKING PRESSURE** | 175 psi /1200 kPa | 175 psi /1200 kPa | 175 psi /1200 kPa<br>cULus 250 psi/1725 kPa | 175 psi/1200 kPa |
| **GLOBE RE-DESIGNATION** | GL2801 | GL4201 | – | – |
| **GLOBE EQUIVALENT** | – | – | GL5601 | GL8101 |

| QUICK RESPONSE RECESSED PENDENT SPRINKLERS | | | | |
|---|---|---|---|---|
| **SIN** | **V2801** | **V4201** | **V2708** | **V3406** |
| **ORIENTATION** | PENDENT | PENDENT | PENDENT | PENDENT |
| **K-FACTOR**[1] | 2.8 Imp./4.0 S.I. | 4.2 Imp./6.1 S.I. | 5.6 Imp./8.1 S.I. | 8.0 Imp./11.5 S.I. |
| **CONNECTION** | ½" NPT/15mm BSPT | ½" NPT/15mm BSPT | ½" NPT/15mm BSPT/IGS | ¾" NPT/20mm BSPT/IGS |
| **MAX. WORKING PRESSURE** | 175 psi/1200 kPa | 175 psi/1200 kPa | 175 psi/1200 kPa<br>cULus 250 psi/1725 kPa | 175 psi/1200 kPa |
| **ESCUTCHEON** | Recessed | Recessed | Recessed | Recessed |
| **GLOBE RE-DESIGNATION** | GL2801 | GL4201 | – | – |
| **GLOBE EQUIVALENT** | – | – | GL5601 | GL8101 |

| AVAILABLE GUARDS/SHIELDS | | | | |
|---|---|---|---|---|
| **SPRINKLER** | **V28** | **V42** | **V27** | **V34** |
| **Upright** | | | ■ | ■ |
| **Pendent** | | | ■ | ■ |

| AVAILABLE WRENCHES | | | | | | | |
|---|---|---|---|---|---|---|---|
| **SPRINKLER** | **V56-2 Recessed** | **V56 Open End** | **V27-2 Recessed** | **V27 Open End** | **V34-2 Recessed** | **V34 Open End** | **3/16 Hex-Bit** |
| **V2815 and V4215** | | ■ | | | | | |
| **V2707 and V2704** | | | | ■ | | | ■ |
| **V3402** | | | | | | ■ | ■ |
| **V2801, and V4201** | ■ | ■ | | | | | |
| **V2706 and V2708** | | | ■ | ■ | | | ■ |
| **V3406** | | | | | ■ | ■ | ■ |

[1] For K-Factor when pressure is measured in Bar, multiply S.I. units by 10.0.

**Factory Hydrostatic Test:** 100% @ 500 psi/3447 kPa/34 Bar
**Min. Operating Pressure:** UL/FM: 7 psi/48 kPa/.5 Bar
VdS: 5 psi/35 kPa/.35 Bar (Upright only)
**Temperature Rating:** See tables in section 2.0

**ALWAYS REFER TO ANY NOTIFICATIONS AT THE END OF THIS DOCUMENT REGARDING PRODUCT INSTALLATION, MAINTENANCE OR SUPPORT.**

## 2.0 CERTIFICATIONS/LISTINGS

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| UPRIGHT APPROVALS/LISTINGS | | | | |
|---|---|---|---|---|
| **SIN** | **V2815** | **V4215** | **V2704** | **V3402** |
| Nominal K Factor Imperial | 2.8 | 4.2 | 5.6 | 8.0 |
| Nominal K Factor S.I.[2] | 4.0 | 6.1 | 8.1 | 11.5 |
| Orientation | UPRIGHT | UPRIGHT | UPRIGHT | UPRIGHT |
| | **Approved Temperature Ratings F°/C°** | | | |
| cULus | 135°F/57°C<br>155°F/68°C<br>175°F/79°C<br>200°F/93°C<br>286°F/141°C | 135°F/57°C<br>155°F/68°C<br>175°F/79°C<br>200°F/93°C<br>286°F/141°C | 135°F/57°C<br>155°F/68°C<br>175°F/79°C<br>200°F/93°C<br>286°F/141°C | 135°F/57°C<br>155°F/68°C<br>175°F/79°C<br>200°F/93°C<br>286°F/141°C |
| FM | – | – | 135°F/57°C<br>155°F/68°C<br>175°F/79°C<br>200°F/93°C<br>286°F/141°C | 135°F/57°C<br>155°F/68°C<br>175°F/79°C<br>200°F/93°C<br>286°F/141°C |
| LPCB/UKCA | – | – | 135°F/57°C<br>155°F/68°C<br>175°F/79°C<br>200°F/93°C<br>286°F/141°C | 135°F/57°C<br>155°F/68°C<br>175°F/79°C<br>200°F/93°C<br>286°F/141°C |
| VdS/CE | – | – | 135°F/57°C<br>155°F/68°C<br>175°F/79°C<br>200°F/93°C<br>286°F/141°C | 135°F/57°C<br>155°F/68°C<br>175°F/79°C<br>200°F/93°C<br>286°F/141°C |
| CCC<br>K-ZSTZ | – | – | 155°F/68°C<br>175°F/79°C<br>286°F/141°C | 155°F/68°C<br>286°F/141°C |

[2] For K-Factor when pressure is measured in Bar, multiply S.I. units by 10.

| PENDENT APPROVALS/LISTINGS | | | | |
|---|---|---|---|---|
| **SIN** | **V2801** | **V4201** | **V2708** | **V3406** |
| Nominal K Factor Imperial | 2.8 | 4.2 | 5.6 | 8.0 |
| Nominal K Factor S.I.[2] | 4.0 | 6.1 | 8.1 | 11.5 |
| Orientation | PENDENT | PENDENT | PENDENT | PENDENT |
| Escutcheon | Flush/Extended | Flush/Extended | Flush/Extended | Flush/Extended |
| | **Approved Temperature Ratings F°/C°** | | | |
| cULus | 135°F/57°C<br>155°F/68°C<br>175°F/79°C<br>200°F/93°C<br>286°F/141°C | 135°F/57°C<br>155°F/68°C<br>175°F/79°C<br>200°F/93°C<br>286°F/141°C | 135°F/57°C<br>155°F/68°C<br>175°F/79°C<br>200°F/93°C<br>286°F/141°C | 135°F/57°C<br>155°F/68°C<br>175°F/79°C<br>200°F/93°C<br>286°F/141°C |
| FM | – | – | 135°F/57°C<br>155°F/68°C<br>175°F/79°C<br>200°F/93°C<br>286°F/141°C | 135°F/57°C<br>155°F/68°C<br>175°F/79°C<br>200°F/93°C<br>286°F/141°C |
| CCC<br>K-ZSTX | – | – | 155°F/68°C<br>200°F/93°C<br>286°F/141°C | 155°F/68°C<br>286°F/141°C |

[2] For K-Factor when pressure is measured in Bar, multiply S.I. units by 10.

**NOTES**

- Reference the specific agency website listings for the most up-to-date certification information.
- Where cULus Listed, Polyester and VC-250 Coatings Listed as Corrosion Resistant (V3402 with VC-250 Only)
- Where FM Approved, VC-250 Coating Approved as Corrosion Resistant
- New York City Acceptance - All UL Listed and/or FM Approved sprinklers acceptable to NYC per section 28-113 of the Administrative Code and the OTCR Rule.

## 2.0 CERTIFICATIONS/LISTINGS (CONTINUED)

| RECESSED PENDENT APPROVALS/LISTINGS | | | | |
|---|---|---|---|---|
| **SIN** | **V2801** | **V4201** | **V2708** | **V3406** |
| Nominal K Factor Imperial | 2.8 | 4.2 | 5.6 | 8.0 |
| Nominal K Factor S.I.[2] | 4.0 | 6.1 | 8.1 | 11.5 |
| Orientation | PENDENT | PENDENT | PENDENT | PENDENT |
| Escutcheon | Recessed | Recessed | Recessed | Recessed |
| **Approved Temperature Ratings F°/C°** | | | | |
| cULus | 135°F/57°C<br>155°F/68°C<br>175°F/79°C<br>200°F/93°C<br>286°F/141°C | 135°F/57°C<br>155°F/68°C<br>175°F/79°C<br>200°F/93°C<br>286°F/141°C | 135°F/57°C<br>155°F/68°C<br>175°F/79°C<br>200°F/93°C | 135°F/57°C<br>155°F/68°C<br>175°F/79°C<br>200°F/93°C<br>286°F/141°C |
| FM<br>WITH ½" ADJUSTMENT<br>ESCUTCHEON ONLY | – | – | 135°F/57°C<br>155°F/68°C<br>175°F/79°C<br>200°F/93°C | 135°F/57°C<br>155°F/68°C<br>175°F/79°C<br>200°F/93°C |
| CCC<br>K-ZSTX | – | – | 155°F/68°C<br>200°F/93°C<br>286°F/141°C | 155°F/68°C<br>286°F/141°C |

[2] For K-Factor when pressure is measured in Bar, multiply S.I. units by 10.

**NOTES**

- Reference the specific agency website listings for the most up-to-date certification information.
- Where cULus Listed, Polyester and VC-250 Coatings Listed as Corrosion Resistant (V3402 with VC-250 Only)
- Where FM Approved, VC-250 Coating Approved as Corrosion Resistant
- New York City Acceptance - All UL Listed and/or FM Approved sprinklers acceptable to NYC per section 28-113 of the Administrative Code and the OTCR Rule.

## 3.0 SPECIFICATIONS – MATERIAL

**Deflector:** Bronze

**Bulb Nominal Diameter:** 3.0 mm

**Load Screw:** Bronze

**Pip Cap:** Bronze

**Spring Seal:** PTFE coated Beryllium nickel alloy

**Frame:** Brass

**Lodgement Spring:** Stainless steel

**Installation Wrench:** Ductile iron

**Sprinkler Frame Finishes:**

- Plain brass
- Chrome plated
- White polyester painted[3, 4]
- Flat black polyester painted[3, 4]
- Custom polyester painted[3, 4]
- VC-250[5]

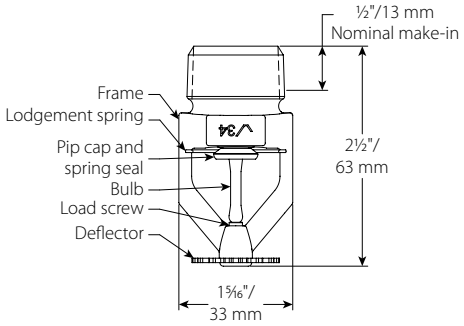
[3] Not available on the Intermediate Level Style Pendent.

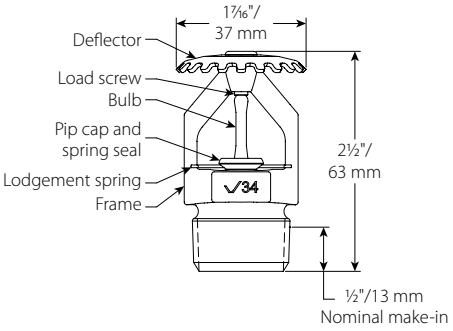
[4] UL Listed for corrosion resistance.

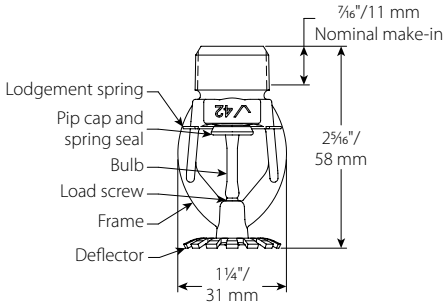
[5] UL Listed and FM Approved for corrosion resistance.

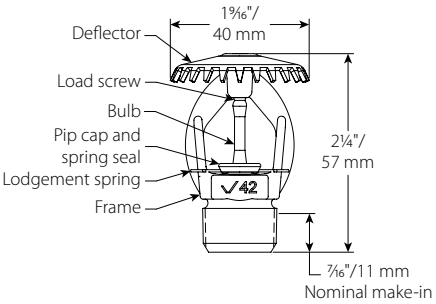
**NOTE**

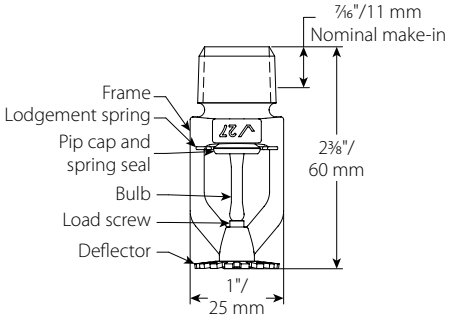
- For cabinets and other accessories, refer to separate sheet.

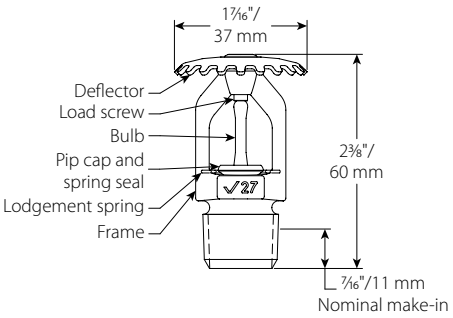


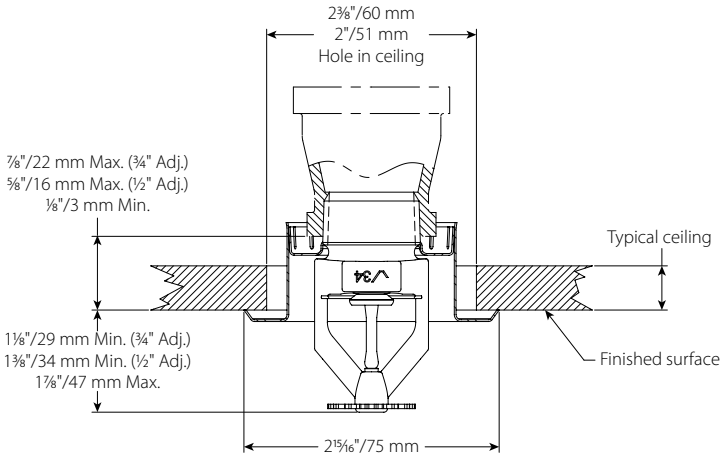



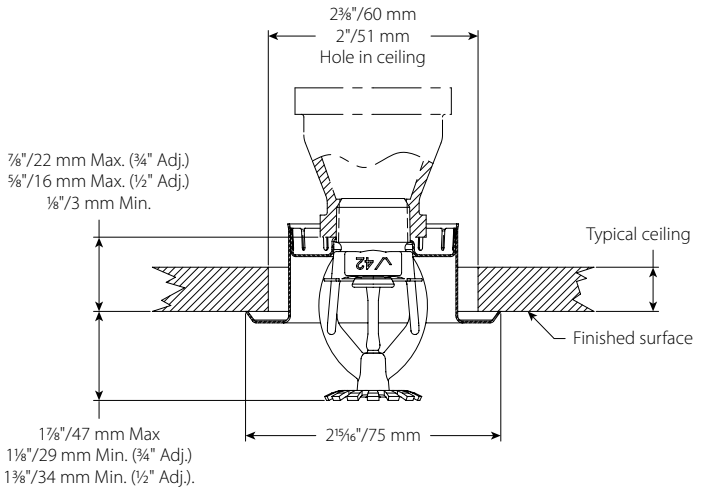



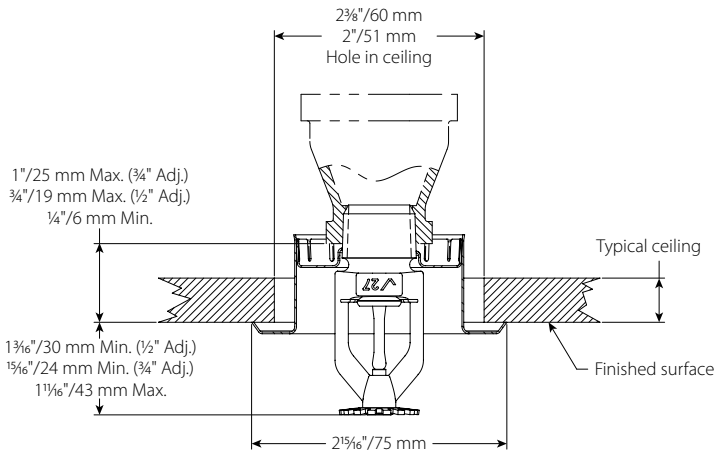



## 4.0 DIMENSIONS



## 5.0 PERFORMANCE

Sprinkler systems are to be designed to and installed per NFPA, FM Datasheets, and any local standards.

## 6.0 NOTIFICATIONS

**⚠ WARNING**

- **Read and understand all instructions before attempting to install any Victaulic products.**
- **Always verify that the piping system has been completely depressurized and drained immediately prior to installation, removal, adjustment, or maintenance of any Victaulic products.**
- **Wear safety glasses, hardhat, and foot protection.**

**Failure to follow these instructions could result in death or serious personal injury and property damage.**

- **These products shall be used only in fire protection systems that are designed and installed in accordance with current, applicable National Fire Protection Association (NFPA) standards, or equivalent standards, and in accordance with applicable building and fire codes. These standards and codes contain important information regarding protection of systems from freezing temperatures, corrosion, mechanical damage, etc.**
- **The installer shall understand the use of this product and why it was specified for the particular application.**
- **The installer shall understand common industry safety standards and potential consequences of improper product installation.**
- **It is the system designer's responsibility to verify suitability of materials for use with the intended fluid media within the piping system and external environment.**
- **The material specifier shall evaluate the effect of chemical composition, pH level, operating temperature, chloride level, oxygen level, and flow rate on materials to confirm system life will be acceptable for the intended service.**

**Failure to follow installation requirements and local and national codes and standards could compromise system integrity or cause system failure, resulting in death or serious personal injury and property damage.**

## 7.0 REFERENCE MATERIALS

Ratings: All glass bulbs are rated for temperatures from -67°F/-55°C.

I-40: Victaulic FireLock™ Automatic Sprinklers Installation and Maintenance Instructions

I-V9: Style V9 Victaulic FireLock™ IGS™ Installation-Ready™ Sprinkler Coupling Installation Instructions



# Victaulic® FireLock™ Series FL-QR/SW
# Standard Coverage, Quick Response
# Horizontal Sidewall and Recessed Horizontal Sidewall
# Sprinklers K2.8 (4.0), K4.2 (6.1), K5.6 (8.1), K8.0 (11.5)






## 1.0 PRODUCT DESCRIPTION

| QUICK RESPONSE HORIZONTAL SIDEWALL | | | | |
|---|---|---|---|---|
| **SIN** | **V2826** | **V4226** | **V2710** | **V3410** |
| **ORIENTATION** | Horizontal Sidewall | Horizontal Sidewall | Horizontal Sidewall | Horizontal Sidewall |
| **K-FACTOR**[1] | 2.8 Imp./4.0 S.I. | 4.2 Imp./6.1 S.I. | 5.6 Imp./8.1 S.I. | 8.0 Imp./11.5 S.I. |
| **CONNECTION** | ½" NPT/15mm BSPT | ½" NPT/15mm BSPT | ½" NPT/15mm BSPT/IGS | ¾" NPT/ 20mm BSPT/IGS |
| **MAX. WORKING PRESSURE** | 175 psi/1200 kPa | 175 psi/1200 kPa | 175 psi/1200 kPa | 175 psi/1200 kPa |
| **GLOBE RE-DESIGNATION** | GL2826 | GL4226 | | |
| **GLOBE EQUIVALENT** | | | GL5626 | GL8127 |

| QUICK RESPONSE RECESSED HORIZONTAL SIDEWALL | | | | |
|---|---|---|---|---|
| **SIN** | **V2826** | **V4226** | **V2710** | **V3410** |
| **ORIENTATION** | Horizontal Sidewall | Horizontal Sidewall | Horizontal Sidewall | Horizontal Sidewall |
| **K-FACTOR**[1] | 2.8 Imp./4.0 S.I. | 4.2 Imp./6.1 S.I. | 5.6 Imp./8.1 S.I. | 8.0 Imp./11.5 S.I. |
| **CONNECTION** | ½" NPT/15mm BSPT | ½" NPT/15mm BSPT | ½" NPT/15mm BSPT | ¾" NPT/ 20mm BSPT |
| **MAX. WORKING PRESSURE** | 175 psi/1200 kPa | 175 psi/1200 kPa | 175 psi/1200 kPa | 175 psi/1200 kPa |
| **ESCUTCHEON** | Recessed | Recessed | Recessed | Recessed |
| **GLOBE RE-DESIGNATION** | GL2826 | GL4226 | | |
| **GLOBE EQUIVALENT** | | | GL5626 | GL8127 |
| **AVAILABLE GUARDS** | | | | |
| **SPRINKLER** | **V28** | **V42** | **V27** | **V34** |
| **Horizontal Sidewall** | | | ■ | |

| AVAILABLE WRENCHES | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Sprinkler** | **V56-2 Recessed** | **V56 Open End** | **V27-2 Recessed** | **V27 Open End** | **V34-2 Recessed** | **V34 Open End** | **3/16 Hex-Bit** |
| **V2826 and V4226** | ■ | ■ | | | | | |
| **V2710** | | | ■ | ■ | | | ■ |
| **V3410** | | | | | ■ | ■ | ■ |

**Factory Hydrostatic Test:** 100% @ 500 psi/3447 kPa/34 bar

**Min. Operating Pressure:** UL/FM: 7psi/48 kPa/.5 bar

**Temperature Rating:** See tables in section 2.

[1] For K-Factor when pressure is measured in bar, multiply S.I. units by 10.0.

**ALWAYS REFER TO ANY NOTIFICATIONS AT THE END OF THIS DOCUMENT REGARDING PRODUCT INSTALLATION, MAINTENANCE OR SUPPORT.**

## 2.0 CERTIFICATION/LISTINGS

| HORIZONTAL SIDEWALL APPROVALS/LISTINGS | | | | |
|---|---|---|---|---|
| **SIN** | **V2826** | **V4226** | **V2710** | **V3410** |
| Nominal K Factor Imperial | 2.8 | 4.2 | 5.6 | 8 |
| Nominal K Factor S.I.[2] | 4.0 | 6.1 | 8.1 | 11.5 |
| Orientation | Horizontal Sidewall | Horizontal Sidewall | Horizontal Sidewall | Horizontal Sidewall |
| Escutcheon | Flush \| Extended | Flush \| Extended | Flush \| Extended | Flush \| Extended |
| | **Approved Temperature Ratings F°/C°** | | | |
| cULus<br>4" – 12" Deflector Distance | 135°F/57°C<br>155°F/68°C<br>175°F/79°C<br>200°F/93°C<br>286°F/141°C | 135°F/57°C<br>155°F/68°C<br>175°F/79°C<br>200°F/93°C<br>286°F/141°C | 135°F/57°C<br>155°F/68°C<br>175°F/79°C<br>200°F/93°C<br>286°F/141°C | 135°F/57°C<br>155°F/68°C<br>175°F/79°C<br>200°F/93°C<br>286°F/141°C |
| FM | – | – | 135°F/57°C<br>155°F/68°C<br>175°F/79°C<br>200°F/93°C<br>286°F/141°C | – |
| LPCB | – | – | 135°F/57°C<br>155°F/68°C<br>175°F/79°C<br>200°F/93°C<br>286°F/141°C | – |
| CE, UKCA | – | – | 135°F/57°C<br>155°F/68°C<br>175°F/79°C<br>200°F/93°C<br>286°F/141°C | – |

| RECESSED HORIZONTAL SIDEWALL APPROVALS/LISTINGS | | | | |
|---|---|---|---|---|
| **SIN** | **V2826** | **V4226** | **V2710** | **V3410** |
| Nominal K Factor Imperial | 2.8 | 4.2 | 5.6 | 8 |
| Nominal K Factor S.I.[2] | 4.0 | 6.1 | 8.1 | 11.5 |
| Orientation | Horizontal Sidewall | Horizontal Sidewall | Horizontal Sidewall | Horizontal Sidewall |
| Escutcheon | RECESSED | RECESSED | RECESSED | RECESSED |
| | **Approved Temperature Ratings F°/C°** | | | |
| cULus<br>4" – 12" Deflector Distance<br>½" and ¾" Adjustment<br>Escutcheon " | 135°F/57°C<br>155°F/68°C<br>175°F/79°C<br>200°F/93°C<br>286°F/141°C | 135°F/57°C<br>155°F/68°C<br>175°F/79°C<br>200°F/93°C<br>286°F/141°C | 135°F/57°C<br>155°F/68°C<br>175°F/79°C<br>200°F/93°C | 135°F/57°C<br>155°F/68°C<br>175°F/79°C<br>200°F/93°C |
| FM<br>½" Adjustment Escutcheon<br>Only | – | – | 135°F/57°C<br>155°F/68°C<br>175°F/79°C<br>200°F/93°C | – |

[2] For K-Factor when pressure is measured in Bar, multiply S.I. units by 10.

**NOTES**

- Listings and approval as of printing.
- Where cULus Listed, Polyester and VC-250 Coatings Listed as Corrosion Resistant
- Where FM Approved, VC-250 Coating Approved as Corrosion Resistant
- New York City Acceptance - All UL Listed and/or FM Approved sprinklers acceptable to NYC per section 28-113 of the Administrative Code and the OTCR Rule

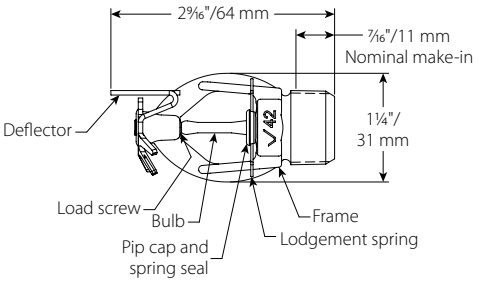
## 3.0 SPECIFICATIONS – MATERIAL

**Deflector:** Bronze
**Bulb Nominal Diameter:** 3.0mm
**Load Screw:** Bronze
**Pip Cap:** Bronze
**Spring Seal:** PTFE coated Beryllium nickel alloy
**Frame:** Brass
**Lodgement Spring:** Stainless steel
**Installation Wrench:** Ductile iron
**Sprinkler Frame Finishes:**

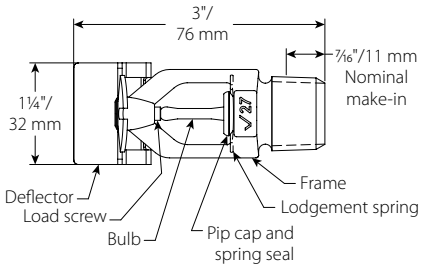
- Plain brass
- Chrome plated
- White polyester painted[3, 4]
- Flat black polyester painted[3, 4]
- Custom polyester painted[3, 4]
- VC-250[5]

[3] Not available on the Intermediate Level Style Pendent.
[4] UL Listed for corrosion resistance.
[5] UL Listed and FM Approved for corrosion resistance.

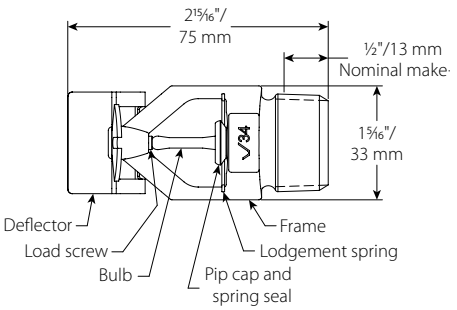
**NOTE**
- For cabinets and other accessories refer to separate sheet.




**V2826, V4226**

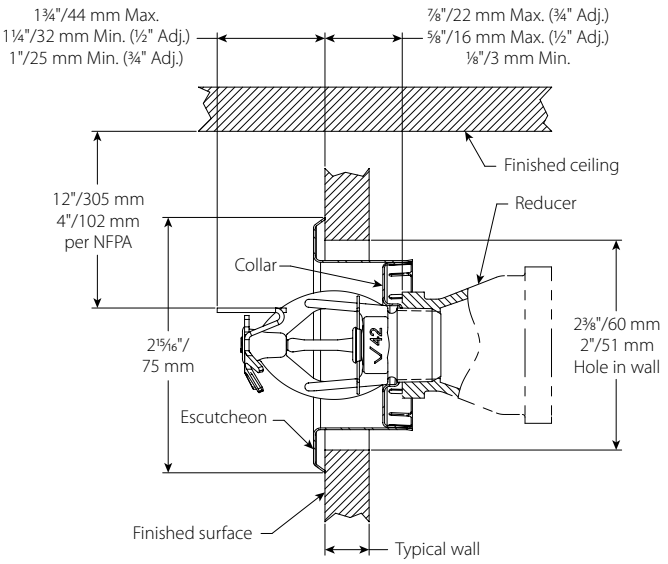



**V2710**




**V3410**

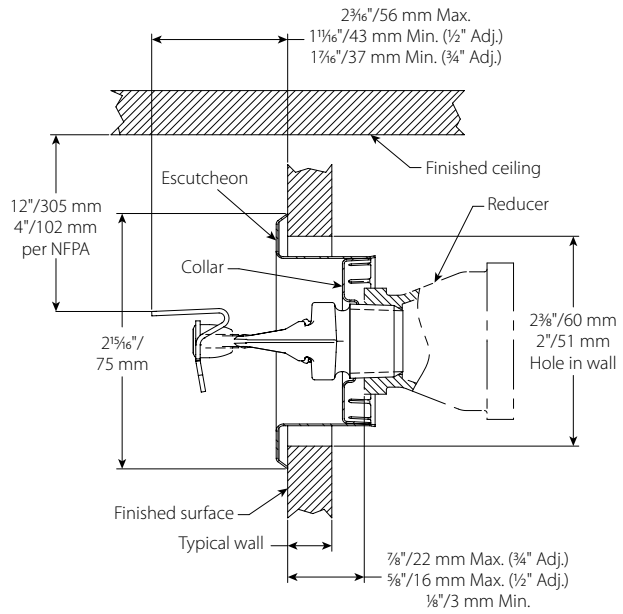
## 4.0 DIMENSIONS



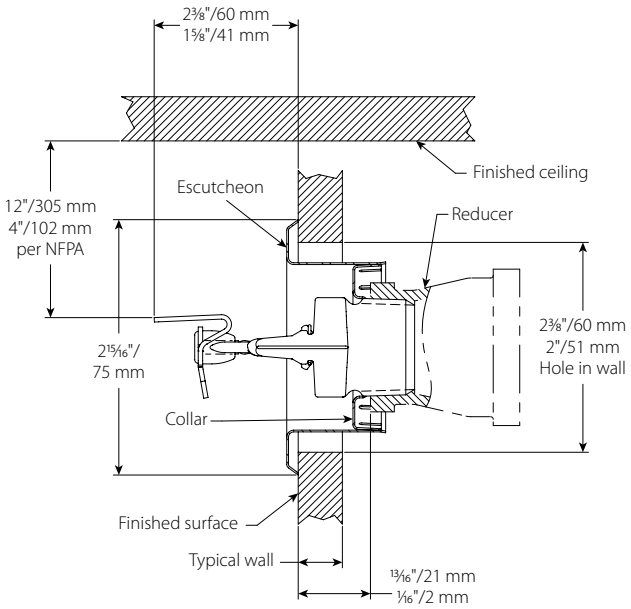

**V2826, V4226**

## 4.0 DIMENSIONS (CONTINUED)




**V2710**




**V3410**

## 5.0 PERFORMANCE

Sprinkler is to be installed and designed as per NFPA, FM Datasheets, or any local standards.

## 6.0 NOTIFICATIONS

**⚠ WARNING**

- **Read and understand all instructions before attempting to install any Victaulic products.**
- **Always verify that the piping system has been completely depressurized and drained immediately prior to installation, removal, adjustment, or maintenance of any Victaulic products.**
- **Wear safety glasses, hardhat, and foot protection.**

**Failure to follow these instructions could result in death or serious personal injury and property damage.**

- **These products shall be used only in fire protection systems that are designed and installed in accordance with current, applicable National Fire Protection Association (NFPA 13, 13D, 13R, etc.) standards, or equivalent standards, and in accordance with applicable building and fire codes. These standards and codes contain important information regarding protection of systems from freezing temperatures, corrosion, mechanical damage, etc.**
- **The installer shall understand the use of this product and why it was specified for the particular application.**
- **The installer shall understand common industry safety standards and potential consequences of improper product installation.**
- **It is the system designer's responsibility to verify suitability of materials for use with the intended fluid media within the piping system and external environment.**
- **The material specifier shall evaluate the effect of chemical composition, pH level, operating temperature, chloride level, oxygen level, and flow rate on materials to confirm system life will be acceptable for the intended service.**

**Failure to follow installation requirements and local and national codes and standards could compromise system integrity or cause system failure, resulting in death or serious personal injury and property damage.**

## 7.0 REFERENCE MATERIALS

**Ratings:** All glass bulbs are rated for temperatures from -67°F/-55°C.

1-40: Victaulic FireLock™ Automatic Sprinklers Installation and Maintenance Instructions

I-V9: Style V9 Victaulic FireLock™ IGS™ Installation-Ready™ Sprinkler Coupling Installation Instructions



## *Engineering Specification*

Job Name _____ Contractor _____

Job Location _____ Approval _____

Engineer _____ Contractor's P.O. No. _____

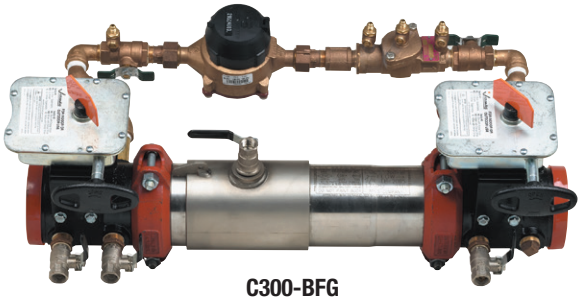
Approval _____ Representative _____

# Colt™ Series C300, C300N

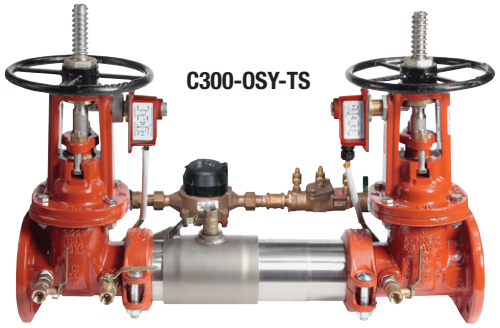
## Double Check Detector Assemblies

### Sizes: 2½" – 10"

The Colt C300 and C300N Double Check Detector Assemblies are designed to protect drinking water supplies from dangerous cross-connections in accordance with national plumbing codes and water authority requirements for non-potable service applications such as irrigation, fire line, or industrial processing. Both assemblies may be installed under continuous pressure service and may be subjected to backpressure for non-toxic applications. The Colt C300 and C300N are used primarily on fire line sprinkler systems when it is necessary to monitor unauthorized use of water, and are for use in non-health hazard applications.



C300-BFG



C300-OSY-TS

### Features

- Extremely compact design
- 70% Lighter than traditional designs
- 304 (Schedule 40) Stainless steel housing & sleeve
- Groove fittings allow integral pipeline adjustment
- Patented Tri-Link Check provides lowest pressure loss
- Unmatched ease of serviceability
- Available with grooved butterfly valve shutoffs
- May be used for horizontal, vertical or N pattern installations
- Replaceable check disc rubber
- Includes an integrated supervisory tamper switch on each gate valve of the OSY model

**⚠ WARNING**

It is illegal to use this product in any plumbing system providing water for human consumption, such as drinking or dishwashing, in the United States. Before installing standard material product, consult your local water authority, building and plumbing codes.

***NOTICE***

The information contained herein is not intended to replace the full product installation and safety information available or the experience of a trained product installer. You are required to thoroughly read all installation instructions and product safety information before beginning the installation of this product.

### Specification

The Colt C300, C300N Double Check Detector Assemblies shall consist of two independent Tri-Link Check modules within a single housing, sleeve access port, four test cocks, and two drip tight shutoff valves. Tri-Link Check shall be removable and serviceable, without the use of special tools. The housing shall be constructed of 304 (Schedule 40) stainless steel pipe with groove end connections. Tri-Link Checks shall have reversible elastomer discs and in operation shall produce drip tight closure against the reverse flow of liquid caused by backpressure or backsiphonage. The bypass assembly shall consist of a meter, which registers in either gallon or cubic measurement, a double check valve assembly, and required test cocks.

The integrated supervisory tamper switch on the OSY model shall have continuity with the valve fully open and activate within two (2) turns from open. The device consists of two SPDT switches and is designed to send a tamper signal when the valve is closed and when the switch is removed from the valve. In the neutral position, the switch indicates the valve is fully open. Closing the valve causes the switch rod to come out of the valve stem groove, activating the switch. Removing the tamper switch also activates the switch. Assembly shall be a Colt C300, C300N as manufactured by Ames Fire & Waterworks.



AMES FIRE & WATERWORKS

A WATTS Brand

## Configurations

- Horizontal
- Vertical up
- "N" pattern horizontal

## Materials

- Housing & Sleeve: 304 (Schedule 40) stainless steel
- Elastomers: EPDM, silicone, and Buna 'N'
- Tri-Link Checks: Noryl®, stainless steel
- Check Discs: Reversible silicone or EPDM
- Test Cocks: Lead Free* bronze body
- Pins & Fasteners: 300 Series stainless steel
- Springs: Stainless steel

## Available Models

**Suffix:**

OSY-TS — UL/FM outside stem and yoke resilient seated gate valves with integrated tamper switch

BFG — UL/FM grooved gear operated butterfly valves with tamper switch

OSY FxG** — Flanged inlet gate connection and grooved outlet gate connection

OSY GxF** — Grooved inlet gate connection and flanged outlet gate connection

OSY GxG** — Grooved inlet gate connection and grooved outlet gate connection

** Consult factory for the following:

– Grooved NRS gate valves

– Post-indicator plate and operating nut

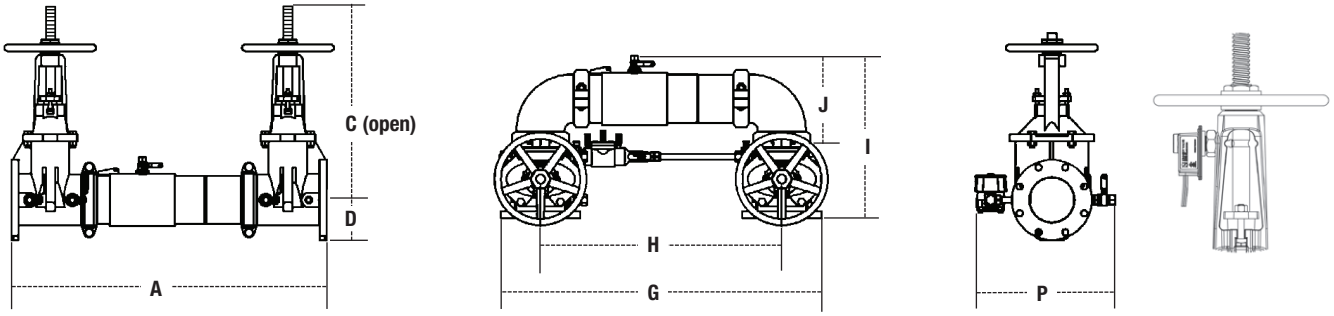
– Dimensions

## Pressure – Temperature

Temperature Range: 33°F – 140°F (0.5°C – 60°C)

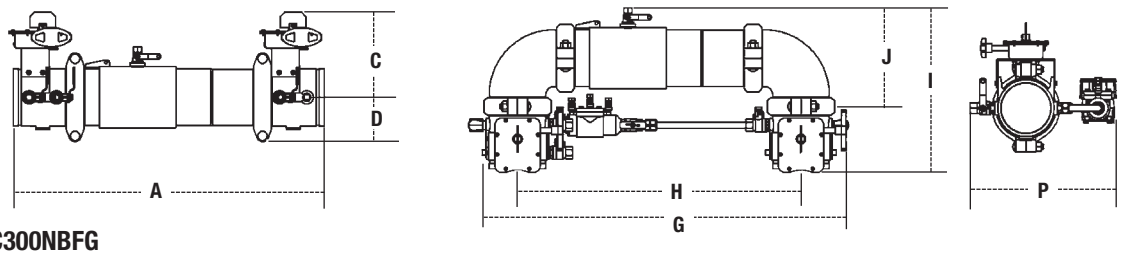
Maximum Working Pressure: 175psi (12.1 bar)

## Dimensions — Weights




### C300, C300N

| SIZE | DIMENSIONS | | | | | | | | | | | | | | | | WEIGHT | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | | C (OSY) | | D | | G | | H | | I | | J | | P | | C300 | | C300N | |
| *in.* | *in.* | *mm* | *in.* | *mm* | *in.* | *mm* | *in.* | *mm* | *in.* | *mm* | *in.* | *mm* | *in.* | *mm* | *in.* | *mm* | *lb* | *kg* | *lb* | *kg* |
| 2½ | 30¾ | 781 | 16⅜ | 416 | 3½ | 89 | 29 1/16 | 738 | 21½ | 546 | 15½ | 393 | 8 13/16 | 223 | 13 3/16 | 335 | 144 | 65 | 152 | 69 |
| 3 | 31¾ | 806 | 18⅞ | 479 | 3 11/16 | 94 | 30¼ | 768 | 22¼ | 565 | 17⅛ | 435 | 9 3/16 | 233 | 14½ | 368 | 164 | 74 | 177 | 80 |
| 4 | 33¾ | 857 | 22¾ | 578 | 4 | 102 | 33 | 838 | 23½ | 597 | 18½ | 470 | 9 15/16 | 252 | 15 3/16 | 386 | 180 | 81 | 203 | 92 |
| 6 | 43½ | 1105 | 30⅛ | 765 | 5½ | 140 | 44¾ | 1137 | 33¼ | 845 | 23 3/16 | 589 | 13 1/16 | 332 | 19 | 483 | 314 | 142 | 355 | 161 |
| 8 | 49¾ | 1264 | 37¾ | 959 | 6 11/16 | 170 | 54⅛ | 1375 | 40⅛ | 1019 | 27 7/16 | 697 | 15 11/16 | 399 | 21 3/16 | 538 | 499 | 226 | 574 | 260 |
| 10 | 57¾ | 1467 | 45¾ | 1162 | 8 3/16 | 208 | 66 | 1676 | 49½ | 1257 | 32½ | 826 | 17 5/16 | 440 | 24 | 610 | 800 | 363 | 970 | 440 |




### C300BFG, C300NBFG

| SIZE | DIMENSIONS | | | | | | | | | | | | | | | | WEIGHT | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | | C | | D | | G | | H | | I | | J | | P | | C300BFG | | C300NBFG | |
| *in.* | *in.* | *mm* | *in.* | *mm* | *in.* | *mm* | *in.* | *mm* | *in.* | *mm* | *in.* | *mm* | *in.* | *mm* | *in.* | *mm* | *lb* | *kg* | *lb* | *kg* |
| 2½ | 27¾ | 705 | 8 | 203 | 3½ | 89 | 29⅞ | 759 | 21½ | 546 | 14 15/16 | 379 | 8 13/16 | 223 | 13 | 330 | 70 | 32 | 78 | 35 |
| 3 | 28¼ | 718 | 8 5/16 | 211 | 3 11/16 | 94 | 30 1/16 | 779 | 22¼ | 565 | 15 7/16 | 392 | 9 3/16 | 233 | 13½ | 343 | 68 | 31 | 81 | 37 |
| 4 | 29 | 737 | 8 15/16 | 227 | 3 11/16 | 94 | 31 15/16 | 811 | 23½ | 597 | 16¼ | 412 | 9 15/16 | 252 | 14 | 356 | 75 | 34 | 98 | 44 |
| 6 | 36½ | 927 | 10 | 254 | 5 | 127 | 43 3/16 | 1097 | 33¼ | 845 | 19 11/16 | 500 | 13 1/16 | 332 | 14½ | 368 | 131 | 59 | 171 | 78 |
| 8 | 42¾ | 1086 | 12¼ | 311 | 6½ | 165 | 51 1/16 | 1297 | 40⅛ | 1019 | 23 5/16 | 592 | 15 1/16 | 399 | 18 3/16 | 462 | 275 | 125 | 351 | 159 |

Noryl® is a registered trademark of SHPP Global Technologies B.V.

*The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.

## Approvals

- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at The Unversity of Southern California (FCCCHR-USC)
- AWWA C510-97

For additional approval information, contact the factory or check Ames Fire & Waterworks at watts.com.

1048 B64.5 (**BFG & OSY Only)

**Flow capacity chart identifies valve performance based upon rated water velocity up to 25fps.**

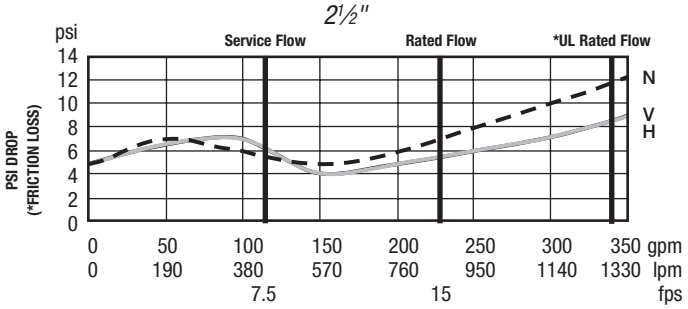
- Service Flow is typically determined by a rated velocity of 7.5fps based upon schedule 40 pipe.
- Rated Flow identifies maximum continuous duty performance determined by AWWA.
- UL Flow Rate is 150% of Rated Flow and is not recommended for continuous duty.
- AWWA Manual M22 [Appendix C] recommends that the maximum water velocity in services be not more than 10fps.

## Capacity

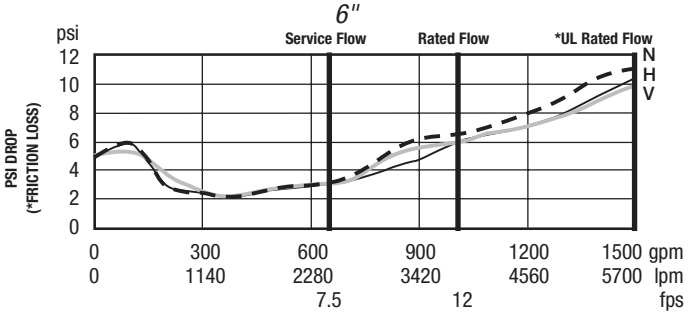
UL/FM Certified Flow Characteristics
Flow characteristics collected using butterfly shutoff valves

Horizontal Vertical N - Pattern

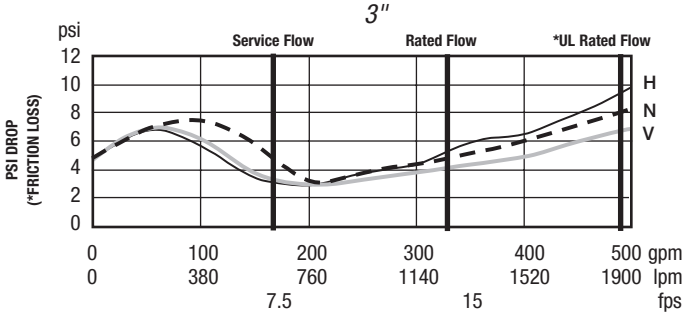
*2½"*



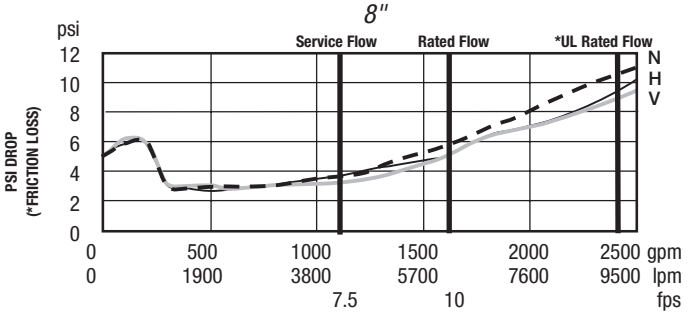

*6"*



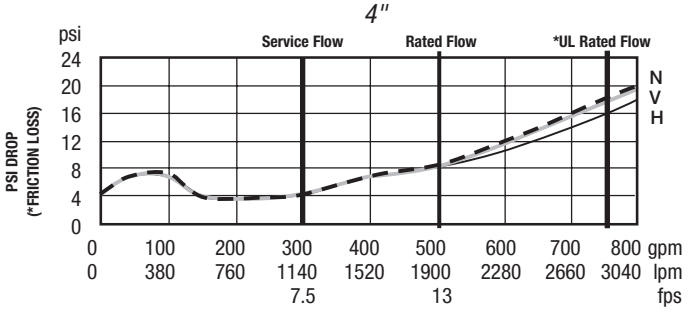

*3"*



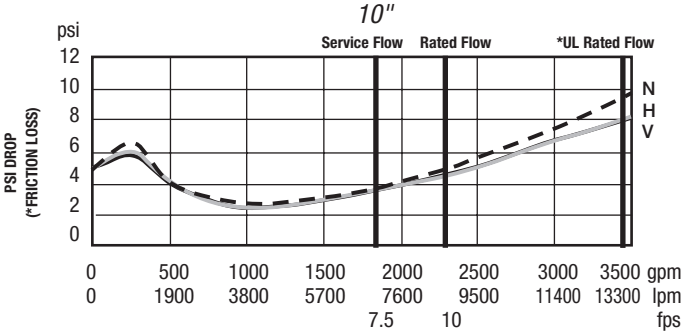

*8"*




*4"*




*10"*



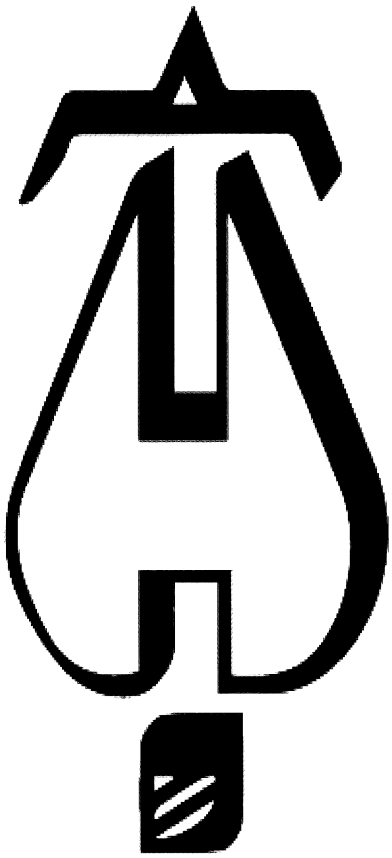

***NOTICE***

Inquire with governing authorities for local installation requirements.

AMES
FIRE & WATERWORKS

A **WATTS** *Brand*

**USA: Backflow** Tel: (978) 689-6066 • Fax: (978) 975-8350 • AmesFireWater.com
**USA: Control Valves** Tel: (713) 943-0688 • Fax: (713) 944-9445 • AmesFireWater.com
**Canada:** Tel: (888) 208-8927 • Fax: (905) 481-2316 • AmesFireWater.ca
**Latin America:** Tel: (52) 55-4122-0136 • AmesFireWater.com



# Hydraulic Calculations by HydraCALC

Carolina Fire Protection
4055 Hodges Chapel Rd.
Dunn, NC 28334
910-892-1700

| | | |
|---|---|---|
| Job Name | : | Lillington FD |
| Drawing | : | Truck Bay |
| Location | : | Lillington, NC |
| Remote Area | : | 1 |
| Contract | : | 25C999 |
| Data File | : | Project1 Area TRUCK BAY-Manual.WXF |

## Hydraulic Design Information Sheet

Name - Lillington FD
Location - Lillington, NC
Building - Truck Bay
Contractor - Carolina Fire Protection
Calculated By - Austin Lee
Construction: ( ) Combustible (X) Non-Combustible
Occupancy - ORDINARY HAZARD 2

Date - 03-31-2025
System No. - 1
Contract No. - 25C999
Drawing No. -
Ceiling Height - VARIES

**SYSTEM DESIGN**

(X) NFPA 13 ( ) Lt. Haz. Ord.Haz.Gp. ( ) 1 (X) 2 ( ) 3 ( ) Ex.Haz.
( ) NFPA 231 ( ) NFPA 231C ( ) Figure Curve
Other

| Specific Ruling | Made By | Date |
|---|---|---|
| | | |

| | | | |
|---|---|---|---|
| Area of Sprinkler Operation - 1565 | System Type | Sprinkler/Nozzle |
| Density - .20 | (X) Wet | Make VICTAULIC |
| Area Per Sprinkler - 130 | ( ) Dry | Model V2704 |
| Elevation at Highest Outlet - 19.5 | ( ) Deluge | Size 1/2" |
| Hose Allowance - Inside - | ( ) Preaction | K-Factor 5.6 |
| Rack Sprinkler Allowance - | ( ) Other | Temp.Rat.155 |
| Hose Allowance - Outside - 250 | | |

Note

Calculation Summary: Flow Required - 643.476 Press Required - 60.808 TEST
C-Factor Used: 120 Overhead 150 Underground

**WATER SUPPLY**

| Water Flow Test: | | Pump Data: | | Tank or Reservoir: |
|---|---|---|---|---|
| Date of Test | - 02/25/2025 | | | Cap. - |
| Time of Test | - 11AM | Rated Cap.- | | Elev.- |
| Static Press | - 103 | @ Press | - | |
| Residual Press | - 94 | Elev. | - | Well |
| Flow | - 1694 | | | Proof Flow |
| Elevation | - | | | |

Location - Lillington, NC

Source of Information - Austin Lee & Wayne Dunn

**COMMODITY STORAGE RACK**

| Commodity | | Class | Location |
|---|---|---|---|
| Storage Ht. | | Area | Aisle W. |
| Storage Method: | Solid Piled % | Palletized % | Rack |

| | | | |
|---|---|---|---|
| ( ) Single Row | ( ) Conven. Pallet | ( ) Auto. Storage | ( ) Encap. |
| ( ) Double Row | ( ) Slave Pallet | ( ) Solid Shelf | ( ) Non |
| ( ) Mult. Row | | ( ) Open Shelf | |

| Flue Spacing | Clearance:Storage to Ceiling |
|---|---|
| Longitudinal | Transverse |

Horizontal Barriers Provided:

# Water Supply Curve

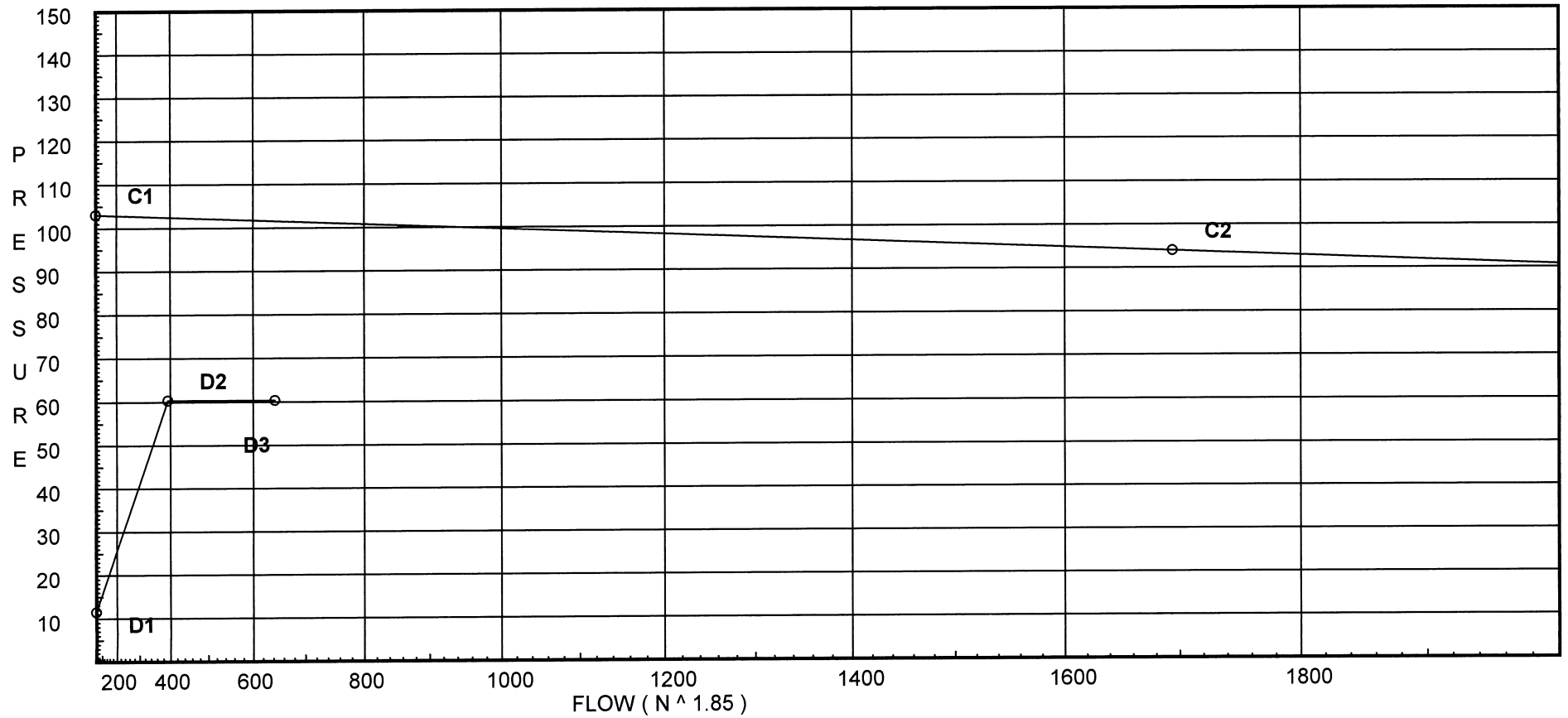
Carolina Fire Protection
Lillington FD



City Water Supply:
- C1 - Static Pressure : 103
- C2 - Residual Pressure: 94
- C2 - Residual Flow : 1694

Demand:

| | |
|---|---|
| D1 - Elevation | : 11.477 |
| D2 - System Flow | : 393.476 |
| D2 - System Pressure | : 60.364 |
| Hose ( Demand ) | : 250 |
| D3 - System Demand | : 643.476 |
| Safety Margin | : 41.134 |



# 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 | 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 |
| 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 |
| Zce | Colt C300 Vert | 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

| Node at Source | Static Pressure | Residual Pressure | Flow | Available Pressure | Total Demand | Required Pressure |
|---|---|---|---|---|---|---|
| TEST | 103.0 | 94 | 1694.0 | 101.498 | 643.48 | 60.364 |

## NODE ANALYSIS

| Node Tag | Elevation | Node Type | Pressure at Node | Discharge at Node | Notes | |
|---|---|---|---|---|---|---|
| 103 | 19.5 | 5.6 | 21.56 | 26.0 | 0.2 | 130 |
| 102 | 19.5 | 5.6 | 21.69 | 26.08 | 0.2 | 130 |
| 101 | 19.5 | 5.6 | 22.31 | 26.45 | 0.2 | 130 |
| 30 | 19.5 | | 27.55 | | | |
| N7 | 17.79 | | 30.27 | | | |
| N6 | 17.79 | | 30.33 | | | |
| N5 | 17.79 | | 30.51 | | | |
| N4 | 17.79 | | 30.9 | | | |
| N3 | 17.79 | | 31.43 | | | |
| N2 | 17.79 | | 32.24 | | | |
| N1 | 17.79 | | 35.32 | | | |
| 13 | 19.5 | | 33.48 | | | |
| 14 | 19.5 | | 26.9 | | | |
| F1 | 16.25 | | 27.21 | | | |
| F2 | 16.25 | | 27.11 | | | |
| F3 | 16.25 | | 26.83 | | | |
| F4 | 16.25 | | 26.37 | | | |
| F5 | 16.25 | | 25.64 | | | |
| F6 | 16.25 | | 25.3 | | | |
| F7 | 16.25 | | 25.18 | | | |
| 18 | 19.5 | | 22.49 | | | |
| 105 | 19.5 | 5.6 | 21.87 | 26.19 | 0.2 | 130 |
| 104 | 19.5 | 5.6 | 21.57 | 26.01 | 0.2 | 130 |
| 25 | 19.5 | | 22.59 | | | |
| 110 | 19.5 | 5.6 | 21.97 | 26.25 | 0.2 | 130 |
| 109 | 19.5 | 5.6 | 21.66 | 26.06 | 0.2 | 130 |
| 108 | 19.5 | 5.6 | 21.64 | 26.05 | 0.2 | 130 |
| 107 | 19.5 | 5.6 | 21.78 | 26.13 | 0.2 | 130 |
| 106 | 19.5 | 5.6 | 22.39 | 26.5 | 0.2 | 130 |
| 31 | 19.5 | | 27.62 | | | |
| 32 | 19.5 | | 22.88 | | | |
| 115 | 19.5 | 5.6 | 22.24 | 26.41 | 0.2 | 130 |
| 114 | 19.5 | 5.6 | 21.92 | 26.22 | 0.2 | 130 |
| 113 | 19.5 | 5.6 | 21.9 | 26.21 | 0.2 | 130 |
| 112 | 19.5 | 5.6 | 22.02 | 26.28 | 0.2 | 130 |
| 111 | 19.5 | 5.6 | 22.63 | 26.64 | 0.2 | 130 |
| 38 | 19.5 | | 27.82 | | | |
| 39 | 19.5 | | 25.61 | | | |
| 40 | 19.5 | | 29.51 | | | |
| 41 | 19.5 | | 26.08 | | | |
| 42 | 19.5 | | 30.04 | | | |
| 43 | 19.5 | | 26.42 | | | |

***NODE ANALYSIS (cont.)***

| *Node Tag* | *Elevation* | *Node Type* | *Pressure at Node* | *Discharge at Node* | *Notes* |
|---|---|---|---|---|---|
| 44 | 19.5 | | 30.78 | | |
| 22 | 17.79 | | 38.38 | | |
| TOR | 17.79 | | 39.34 | | |
| BOR | 5.04 | | 52.28 | | |
| UG1 | -7.0 | | 57.62 | | |
| TEST | -7.0 | | 60.36 | 250.0 | |

| Node1<br>to<br>Node2 | Elev1<br><br>Elev2 | K<br><br>Fact | Qa<br><br>Qt | Nom<br><br>Act | Fitting<br>or<br>Eqiv | Len | Pipe<br>Ftngs<br>Total | CFact<br><br>Pf/Ft | Pt<br>Pe<br>Pf | ******* Notes ****** |
|---|---|---|---|---|---|---|---|---|---|---|
| 103 | 19.5 | 5.60 | 20.33 | 1.5 | | | 10.000 | 120 | 21.556 | |
| to | | | | | | | | | 0.0 | |
| 102 | 19.5 | | 20.33 | 1.682 | | | 10.000 | 0.0135 | 0.135 | Vel = 2.94 |
| 102 | 19.5 | 5.60 | 26.08 | 1.5 | | | 10.000 | 120 | 21.691 | |
| to | | | | | | | | | 0.0 | |
| 101 | 19.5 | | 46.41 | 1.682 | | | 10.000 | 0.0619 | 0.619 | Vel = 6.70 |
| 101 | 19.5 | 5.60 | 26.45 | 1.5 | E | 4.95 | 31.780 | 120 | 22.310 | |
| to | | | | | | | 4.950 | | 0.0 | |
| 30 | 19.5 | | 72.86 | 1.682 | | | 36.730 | 0.1427 | 5.242 | Vel = 10.52 |
| 30 | 19.5 | | 0.0 | 1.5 | T | 9.9 | 3.940 | 120 | 27.552 | |
| to | | | | | | | 9.900 | | 0.741 | |
| N7 | 17.79 | | 72.86 | 1.682 | | | 13.840 | 0.1427 | 1.975 | Vel = 10.52 |
| N7 | 17.79 | | 0.0 | 3 | | | 11.000 | 120 | 30.268 | |
| to | | | | | | | | | 0.0 | |
| N6 | 17.790 | | 72.86 | 3.26 | | | 11.000 | 0.0056 | 0.062 | Vel = 2.80 |
| N6 | 17.790 | | 72.76 | 3 | | | 9.000 | 120 | 30.330 | |
| to | | | | | | | | | 0.0 | |
| N5 | 17.790 | | 145.62 | 3.26 | | | 9.000 | 0.0204 | 0.184 | Vel = 5.60 |
| N5 | 17.790 | | 72.46 | 3 | | | 9.000 | 120 | 30.514 | |
| to | | | | | | | | | 0.0 | |
| N4 | 17.790 | | 218.08 | 3.26 | | | 9.000 | 0.0432 | 0.389 | Vel = 8.38 |
| N4 | 17.790 | | 39.89 | 3 | | | 9.000 | 120 | 30.903 | |
| to | | | | | | | | | 0.0 | |
| N3 | 17.790 | | 257.97 | 3.26 | | | 9.000 | 0.0590 | 0.531 | Vel = 9.92 |
| N3 | 17.790 | | 40.20 | 3 | | | 10.500 | 120 | 31.434 | |
| to | | | | | | | | | 0.0 | |
| N2 | 17.790 | | 298.17 | 3.26 | | | 10.500 | 0.0771 | 0.810 | Vel = 11.46 |
| N2 | 17.790 | | 42.36 | 3 | T | 20.159 | 11.040 | 120 | 32.244 | |
| to | | | | | | | 20.159 | | 0.0 | |
| N1 | 17.790 | | 340.53 | 3.26 | | | 31.199 | 0.0986 | 3.075 | Vel = 13.09 |
| N1 | 17.790 | | 52.95 | 3 | T | 20.159 | 3.580 | 120 | 35.319 | |
| to | | | | | | | 20.159 | | 0.0 | |
| 22 | 17.790 | | 393.48 | 3.26 | | | 23.739 | 0.1288 | 3.057 | Vel = 15.12 |
| | | | 0.0 | | | | | | | |
| 22 | | | 393.48 | | | | | | 38.376 | K Factor = 63.52 |
| N1 | 17.790 | | -52.95 | 1.5 | T | 9.9 | 3.940 | 120 | 35.319 | |
| to | | | | | | | 9.900 | | -0.741 | |
| 13 | 19.5 | | -52.95 | 1.682 | | | 13.840 | -0.0790 | -1.094 | Vel = 7.65 |
| 13 | 19.5 | | 0.0 | 1.5 | 2E | 9.9 | 73.390 | 120 | 33.484 | |
| to | | | | | | | 9.900 | | 0.0 | |
| 14 | 19.5 | | -52.95 | 1.682 | | | 83.290 | -0.0791 | -6.586 | Vel = 7.65 |
| 14 | 19.5 | | 0.0 | 1.5 | T | 9.9 | 3.940 | 120 | 26.898 | |
| to | | | | | | | 9.900 | | 1.408 | |
| F1 | 16.250 | | -52.95 | 1.682 | | | 13.840 | -0.0790 | -1.094 | Vel = 7.65 |
| F1 | 16.250 | | 0.0 | 2.5 | | | 12.000 | 120 | 27.212 | |
| to | | | | | | | | | 0.0 | |
| F2 | 16.250 | | -52.95 | 2.635 | | | 12.000 | -0.0089 | -0.107 | Vel = 3.12 |
| F2 | 16.250 | | -42.35 | 2.5 | | | 10.500 | 120 | 27.105 | |
| to | | | | | | | | | 0.0 | |
| F3 | 16.250 | | -95.3 | 2.635 | | | 10.500 | -0.0264 | -0.277 | Vel = 5.61 |

| Node1<br>to<br>Node2 | Elev1<br><br>Elev2 | K<br><br>Fact | Qa<br><br>Qt | Nom<br><br>Act | Fitting<br>or<br>Eqiv | Len | Pipe<br>Ftngs<br>Total | CFact<br><br>Pf/Ft | Pt<br>Pe<br>Pf | ******* Notes ****** |
|---|---|---|---|---|---|---|---|---|---|---|
| F3 | 16.250 | | -40.21 | 2.5 | | | 9.000 | 120 | 26.828 | |
| to | | | | | | | | | 0.0 | |
| F4 | 16.250 | | -135.51 | 2.635 | | | 9.000 | -0.0504 | -0.454 | Vel = 7.97 |
| F4 | 16.250 | | -39.89 | 2.5 | | | 9.000 | 120 | 26.374 | |
| to | | | | | | | | | 0.0 | |
| F5 | 16.250 | | -175.4 | 2.635 | | | 9.000 | -0.0814 | -0.733 | Vel = 10.32 |
| F5 | 16.250 | | 59.29 | 2.5 | | | 9.000 | 120 | 25.641 | |
| to | | | | | | | | | 0.0 | |
| F6 | 16.250 | | -116.11 | 2.635 | | | 9.000 | -0.0380 | -0.342 | Vel = 6.83 |
| F6 | 16.250 | | 58.24 | 2.5 | | | 11.000 | 120 | 25.299 | |
| to | | | | | | | | | 0.0 | |
| F7 | 16.250 | | -57.87 | 2.635 | | | 11.000 | -0.0105 | -0.115 | Vel = 3.40 |
| F7 | 16.250 | | 0.0 | 1.5 | T | 9.9 | 3.940 | 120 | 25.184 | |
| to | | | | | | | 9.900 | | -1.408 | |
| 18 | 19.5 | | -57.87 | 1.682 | | | 13.840 | -0.0932 | -1.290 | Vel = 8.36 |
| 18 | 19.5 | | 0.0 | 1.5 | E | 4.95 | 1.610 | 120 | 22.486 | |
| to | | | | | | | 4.950 | | 0.0 | |
| 105 | 19.500 | | -57.87 | 1.682 | | | 6.560 | -0.0931 | -0.611 | Vel = 8.36 |
| 105 | 19.500 | 5.60 | 26.19 | 1.5 | | | 10.000 | 120 | 21.875 | |
| to | | | | | | | | | 0.0 | |
| 104 | 19.5 | | -31.68 | 1.682 | | | 10.000 | -0.0306 | -0.306 | Vel = 4.57 |
| 104 | 19.5 | 5.60 | 26.01 | 1.5 | | | 10.000 | 120 | 21.569 | |
| to | | | | | | | | | 0.0 | |
| 103 | 19.5 | | -5.67 | 1.682 | | | 10.000 | -0.0013 | -0.013 | Vel = 0.82 |
| | | | 0.0 | | | | | | | |
| 103 | | | -5.67 | | | | | | 21.556 | K Factor = -1.22 |
| F6 | 16.250 | | -58.23 | 1.5 | T | 9.9 | 3.940 | 120 | 25.299 | |
| to | | | | | | | 9.900 | | -1.408 | |
| 25 | 19.5 | | -58.23 | 1.682 | | | 13.840 | -0.0943 | -1.305 | Vel = 8.41 |
| 25 | 19.5 | | 0.0 | 1.5 | E | 4.95 | 1.610 | 120 | 22.586 | |
| to | | | | | | | 4.950 | | 0.0 | |
| 110 | 19.5 | | -58.23 | 1.682 | | | 6.560 | -0.0942 | -0.618 | Vel = 8.41 |
| 110 | 19.5 | 5.60 | 26.24 | 1.5 | | | 10.000 | 120 | 21.968 | |
| to | | | | | | | | | 0.0 | |
| 109 | 19.5 | | -31.99 | 1.682 | | | 10.000 | -0.0311 | -0.311 | Vel = 4.62 |
| 109 | 19.5 | 5.60 | 26.07 | 1.5 | | | 10.000 | 120 | 21.657 | |
| to | | | | | | | | | 0.0 | |
| 108 | 19.5 | | -5.92 | 1.682 | | | 10.000 | -0.0014 | -0.014 | Vel = 0.85 |
| 108 | 19.5 | 5.60 | 26.05 | 1.5 | | | 10.000 | 120 | 21.643 | |
| to | | | | | | | | | 0.0 | |
| 107 | 19.5 | | 20.13 | 1.682 | | | 10.000 | 0.0132 | 0.132 | Vel = 2.91 |
| 107 | 19.5 | 5.60 | 26.13 | 1.5 | | | 10.000 | 120 | 21.775 | |
| to | | | | | | | | | 0.0 | |
| 106 | 19.5 | | 46.26 | 1.682 | | | 10.000 | 0.0616 | 0.616 | Vel = 6.68 |
| 106 | 19.5 | 5.60 | 26.50 | 1.5 | E | 4.95 | 31.780 | 120 | 22.391 | |
| to | | | | | | | 4.950 | | 0.0 | |
| 31 | 19.5 | | 72.76 | 1.682 | | | 36.730 | 0.1423 | 5.228 | Vel = 10.51 |
| 31 | 19.5 | | 0.0 | 1.5 | T | 9.9 | 3.940 | 120 | 27.619 | |
| to | | | | | | | 9.900 | | 0.741 | |
| N6 | 17.790 | | 72.76 | 1.682 | | | 13.840 | 0.1423 | 1.970 | Vel = 10.51 |

| 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 | ****** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 0.0 | | | | | | | | | |
| N6 | | | 72.76 | | | | | | 30.330 | K Factor = 13.21 | | |
| F5 | 16.250 | | -59.30 | 1.5 | T | 9.9 | 3.940 | 120 | 25.641 | | | |
| to | | | | | | | 9.900 | | -1.408 | | | |
| 32 | 19.5 | | -59.3 | 1.682 | | | 13.840 | -0.0975 | -1.349 | Vel = 8.56 | | |
| 32 | 19.5 | | 0.0 | 1.5 | E | 4.95 | 1.610 | 120 | 22.884 | | | |
| to | | | | | | | 4.950 | | 0.0 | | | |
| 115 | 19.500 | | -59.3 | 1.682 | | | 6.560 | -0.0976 | -0.640 | Vel = 8.56 | | |
| 115 | 19.500 | 5.60 | 26.42 | 1.5 | | | 10.000 | 120 | 22.244 | | | |
| to | | | | | | | | | 0.0 | | | |
| 114 | 19.5 | | -32.88 | 1.682 | | | 10.000 | -0.0327 | -0.327 | Vel = 4.75 | | |
| 114 | 19.5 | 5.60 | 26.21 | 1.5 | | | 10.000 | 120 | 21.917 | | | |
| to | | | | | | | | | 0.0 | | | |
| 113 | 19.5 | | -6.67 | 1.682 | | | 10.000 | -0.0017 | -0.017 | Vel = 0.96 | | |
| 113 | 19.5 | 5.60 | 26.21 | 1.5 | | | 10.000 | 120 | 21.900 | | | |
| to | | | | | | | | | 0.0 | | | |
| 112 | 19.5 | | 19.54 | 1.682 | | | 10.000 | 0.0125 | 0.125 | Vel = 2.82 | | |
| 112 | 19.5 | 5.60 | 26.28 | 1.5 | | | 10.000 | 120 | 22.025 | | | |
| to | | | | | | | | | 0.0 | | | |
| 111 | 19.5 | | 45.82 | 1.682 | | | 10.000 | 0.0605 | 0.605 | Vel = 6.62 | | |
| 111 | 19.5 | 5.60 | 26.64 | 1.5 | E | 4.95 | 31.780 | 120 | 22.630 | | | |
| to | | | | | | | 4.950 | | 0.0 | | | |
| 38 | 19.5 | | 72.46 | 1.682 | | | 36.730 | 0.1413 | 5.189 | Vel = 10.46 | | |
| 38 | 19.5 | | 0.0 | 1.5 | T | 9.9 | 3.940 | 120 | 27.819 | | | |
| to | | | | | | | 9.900 | | 0.741 | | | |
| N5 | 17.790 | | 72.46 | 1.682 | | | 13.840 | 0.1412 | 1.954 | Vel = 10.46 | | |
| | | | 0.0 | | | | | | | | | |
| N5 | | | 72.46 | | | | | | 30.514 | K Factor = 13.12 | | |
| F4 | 16.250 | | 39.89 | 1.5 | T | 9.9 | 3.940 | 120 | 26.374 | | | |
| to | | | | | | | 9.900 | | -1.408 | | | |
| 39 | 19.5 | | 39.89 | 1.682 | | | 13.840 | 0.0468 | 0.648 | Vel = 5.76 | | |
| 39 | 19.5 | | 0.0 | 1.5 | 2E | 9.9 | 73.390 | 120 | 25.614 | | | |
| to | | | | | | | 9.900 | | 0.0 | | | |
| 40 | 19.5 | | 39.89 | 1.682 | | | 83.290 | 0.0468 | 3.901 | Vel = 5.76 | | |
| 40 | 19.5 | | 0.0 | 1.5 | T | 9.9 | 3.940 | 120 | 29.515 | | | |
| to | | | | | | | 9.900 | | 0.741 | | | |
| N4 | 17.790 | | 39.89 | 1.682 | | | 13.840 | 0.0467 | 0.647 | Vel = 5.76 | | |
| | | | 0.0 | | | | | | | | | |
| N4 | | | 39.89 | | | | | | 30.903 | K Factor = 7.18 | | |
| F3 | 16.250 | | 40.21 | 1.5 | T | 9.9 | 3.940 | 120 | 26.828 | | | |
| to | | | | | | | 9.900 | | -1.408 | | | |
| 41 | 19.5 | | 40.21 | 1.682 | | | 13.840 | 0.0475 | 0.658 | Vel = 5.81 | | |
| 41 | 19.5 | | 0.0 | 1.5 | 2E | 9.9 | 73.390 | 120 | 26.078 | | | |
| to | | | | | | | 9.900 | | 0.0 | | | |
| 42 | 19.5 | | 40.21 | 1.682 | | | 83.290 | 0.0475 | 3.958 | Vel = 5.81 | | |
| 42 | 19.5 | | 0.0 | 1.5 | T | 9.9 | 3.940 | 120 | 30.036 | | | |
| to | | | | | | | 9.900 | | 0.741 | | | |
| N3 | 17.790 | | 40.21 | 1.682 | | | 13.840 | 0.0475 | 0.657 | Vel = 5.81 | | |

| 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 ****** |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 0.0 | | | | | | | |
| N3 | | | 40.21 | | | | | | 31.434 | K Factor = 7.17 |
| F2 | 16.250 | | 42.35 | 1.5 | T | 9.9 | 3.940 | 120 | 27.105 | |
| to | | | | | | | 9.900 | | -1.408 | |
| 43 | 19.5 | | 42.35 | 1.682 | | | 13.840 | 0.0524 | 0.725 | Vel = 6.11 |
| 43 | 19.5 | | 0.0 | 1.5 | 2E | 9.9 | 73.390 | 120 | 26.422 | |
| to | | | | | | | 9.900 | | 0.0 | |
| 44 | 19.5 | | 42.35 | 1.682 | | | 83.290 | 0.0523 | 4.357 | Vel = 6.11 |
| 44 | 19.5 | | 0.0 | 1.5 | T | 9.9 | 3.940 | 120 | 30.779 | |
| to | | | | | | | 9.900 | | 0.741 | |
| N2 | 17.790 | | 42.35 | 1.682 | | | 13.840 | 0.0523 | 0.724 | Vel = 6.11 |
| | | | 0.0 | | | | | | | |
| N2 | | | 42.35 | | | | | | 32.244 | K Factor = 7.46 |
| 22 | 17.790 | | 393.48 | 4 | T | 26.334 | 1.330 | 120 | 38.376 | |
| to | | | | | | | 26.334 | | 0.0 | |
| TOR | 17.790 | | 393.48 | 4.26 | | | 27.664 | 0.0350 | 0.969 | Vel = 8.86 |
| TOR | 17.790 | | 0.0 | 4 | E | 13.167 | 13.130 | 120 | 39.345 | |
| to | | | | | Zce | 0.0 | 22.516 | | 11.686 | * * Fixed Loss = 6.164 |
| BOR | 5.04 | | 393.48 | 4.26 | Eql | 0.0 | 35.646 | 0.0350 | 1.247 | Vel = 8.86 |
| BOR | 5.04 | | 0.0 | 6 | E | 21.583 | 9.750 | 150 | 52.278 | |
| to | | | | | | | 21.583 | | 5.215 | |
| UG1 | -7 | | 393.48 | 6.09 | | | 31.333 | 0.0041 | 0.127 | Vel = 4.33 |
| UG1 | -7 | | 0.0 | 6 | 2E | 43.166 | 479.460 | 150 | 57.620 | |
| to | | | | | 3G | 13.875 | 195.789 | | 0.0 | |
| TEST | -7 | | 393.48 | 6.09 | 3T | 138.748 | 675.249 | 0.0041 | 2.744 | Vel = 4.33 |
| | | | 250.00 | | | | | | | Qa = 250.00 |
| TEST | | | 643.48 | | | | | | 60.364 | K Factor = 82.82 |

# Lillington Fire Department

## Flow Test for Hydrant 4311 444

**Start Time: 2024-08-16 11:02:19**
**End Time: 2024-08-16 11:03:05**
**Tested By: Roberts III, James L**

**Test Hydrant**

| | |
|---|---|
| **Static Pressure:** | **70.0** |
| **Residual Pressure:** | **69.0** |
| **Desired Pressure:** | **20.0** |
| **Volume at Desired Pressure:** | **11096.0** |

**Flow Hydrants**

| Downstream Hydrant ID | Port Diameter | Friction Coefficient | Pitot Pressure | Flow (Calculated) |
|---|---|---|---|---|
| | 2.5 | 0.90000000000000002 | 64.0 | 1342.0 |


4313C006
Flow hydrant
4313C005
Hydrant is missing
NC 751 N
Lillington, B19
nerville Bunnlevel, C1
4311397
Test Hydrant
4313C004
CALVIN BROWN RD
4311399
GREGORY VILLAGE DR