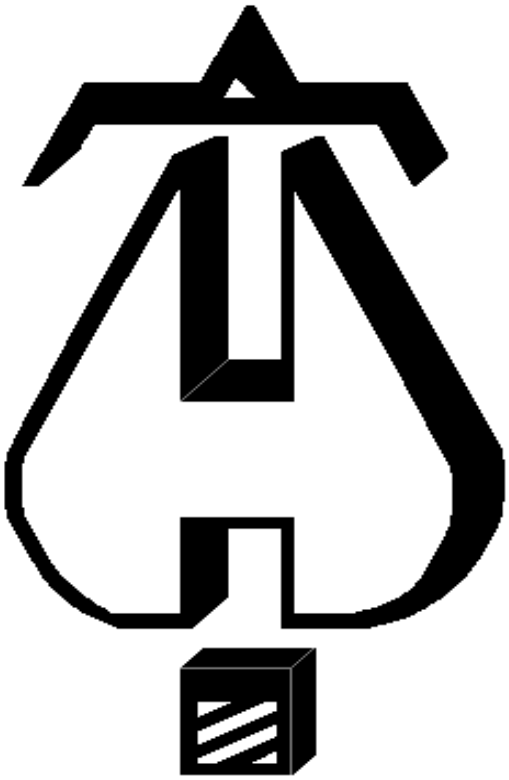

. . . Fire Protection by Computer Design

DEAN & ALLYN, INC.
32 LEWISTON ROAD BUILDING 1C
P.O. BOX 709
GRAY, ME 04039
207-657-5646

Job Name	:	133 MORNING ST
Building	:	129 Morning Street
Location	:	3RD FLOOR - Portland, Maine
System	:	WX6
Contract	:	C780
Data File	:	133-Morn.WX6

Fittings Used Summary

DEAN & ALLYN, INC.
133 MORNING ST

Date 050908

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
Fsp	Flow Switch Potter VSR	Fitting generates a Fixed Loss Based on Flow																			
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
Zaa	Ames 2000B	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

Pressure / Flow Summary - STANDARD

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
D501	36.75	4.2	7.36	na	11.39	0.05	100	7.0
D502	36.75	4.2	7.46	na	11.48	0.05	170	7.0
D503	36.75	4.2	7.24	na	11.3	0.05	80	7.0
D504	36.75	4.2	7.0	na	11.11	0.05	80	7.0
107	37.208		7.18	na				
105	37.208		7.3	na				
106	37.208		7.55	na				
94	37.208		6.93	na				
95	37.208		7.42	na				
96	37.208		9.03	na				
97	37.208		10.84	na				
98	37.208		12.82	na				
99	37.208		15.35	na				
100	37.208		15.51	na				
101	37.208		17.95	na				
102	26.5		25.31	na				
103	26.5		27.29	na				
104	26.5		28.28	na				
73	26.5		29.56	na				
74	26.5		31.7	na				
BTR	6.833		40.44	na				
BR	1.0		46.2	na				
UC	-5.0		55.09	na				
TEST	-10.0		61.76	na				

The maximum velocity is 9.71 and it occurs in the pipe between nodes 96 and 97

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
D501	11.39	1.049	1E	2.0	1.000	7.358		K Factor = 4.20
to		120		0.0	2.000	-0.198		
105	11.39	0.0457		0.0	3.000	0.137		Vel = 4.23
	0.0							
	11.39					7.297		K Factor = 4.22
D502	11.48	1.049	1T	5.0	1.000	7.465		K Factor = 4.20
to		120		0.0	5.000	-0.198		
106	11.48	0.0465		0.0	6.000	0.279		Vel = 4.26
	0.0							
	11.48					7.546		K Factor = 4.18
D503	11.30	1.049	1E	2.0	1.000	7.241		K Factor = 4.20
to		120		0.0	2.000	-0.198		
107	11.3	0.0450		0.0	3.000	0.135		Vel = 4.19
	0.0							
	11.30					7.178		K Factor = 4.22
D504	11.11	1.049	1E	2.0	1.000	7.000		K Factor = 4.20
to		120		0.0	2.000	-0.198		
94	11.11	0.0437		0.0	3.000	0.131		Vel = 4.12
	0.0							
	11.11					6.933		K Factor = 4.22
107	11.30	1.049	1T	5.0	0.450	7.178		
to		120		0.0	5.000	0.0		
95	11.3	0.0453		0.0	5.450	0.247		Vel = 4.19
	0.0							
	11.30					7.425		K Factor = 4.15
105	11.39	1.049		0.0	5.410	7.297		
to		120		0.0	0.0	0.0		
106	11.39	0.0460		0.0	5.410	0.249		Vel = 4.23
106	11.48	1.049	1T	5.0	3.910	7.546		
to		120		0.0	5.000	0.0		
96	22.87	0.1667		0.0	8.910	1.485		Vel = 8.49
	0.0							
	22.87					9.031		K Factor = 7.61
94	11.11	1.049	1E	2.0	9.200	6.933		
to		120		0.0	2.000	0.0		
95	11.11	0.0439		0.0	11.200	0.492		Vel = 4.12
95	11.30	1.049	1T	5.0	5.000	7.425		
to		120		0.0	5.000	0.0		
96	22.41	0.1606		0.0	10.000	1.606		Vel = 8.32
96	22.87	1.38	2E	6.0	5.660	9.031		
to		120		0.0	6.000	0.0		
97	45.28	0.1552		0.0	11.660	1.810		Vel = 9.71
97	0.0	1.38	1E	3.0	9.750	10.841		
to		120		0.0	3.000	0.0		
98	45.28	0.1552		0.0	12.750	1.979		Vel = 9.71
98	0.0	1.38	1E	3.0	7.330	12.820		
to		120	1T	6.0	9.000	0.0		
99	45.28	0.1552		0.0	16.330	2.534		Vel = 9.71

Final Calculations - Hazen-Williams

DEAN & ALLYN, INC.
133 MORNING ST

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
99	0.0	1.38		0.0	1.000	15.354		
to		120		0.0	0.0	0.0		
100	45.28	0.1550		0.0	1.000	0.155		Vel = 9.71
100	0.0	1.38	1T	6.0	9.750	15.509		
to		120		0.0	6.000	0.0		
101	45.28	0.1552		0.0	15.750	2.445		Vel = 9.71
101	0.0	1.38	2E	6.0	5.500	17.954		
to		120	1T	6.0	12.000	4.638		
102	45.28	0.1551		0.0	17.500	2.715		Vel = 9.71
102	0.0	1.38	1E	3.0	9.750	25.307		
to		120		0.0	3.000	0.0		
103	45.28	0.1552		0.0	12.750	1.979		Vel = 9.71
103	0.0	1.61	1E	4.0	1.540	27.286		
to		120	1T	8.0	12.000	0.0		
104	45.28	0.0733		0.0	13.540	0.992		Vel = 7.14
104	0.0	1.61		0.0	17.500	28.278		
to		120		0.0	0.0	0.0		
73	45.28	0.0733		0.0	17.500	1.282		Vel = 7.14
73	0.0	1.61	1E	4.0	9.146	29.560		
to		120	2T	16.0	20.000	0.0		
74	45.28	0.0733		0.0	29.146	2.135		Vel = 7.14
74	0.0	2.067	1T	10.0	0.500	31.695		
to		120		0.0	10.000	8.518		
BTR	45.28	0.0217		0.0	10.500	0.228		Vel = 4.33
BTR	0.0	2.067	1Fsp	0.0	5.583	40.441		
to		120	1E	5.0	5.000	5.526		* Fixed loss = 3
BR	45.28	0.0217		0.0	10.583	0.230		Vel = 4.33
BR	0.0	2.067	6E	30.0	3.688	46.197		
to		120	1Zaa	0.0	30.000	8.159		* Fixed loss = 5.56
UC	45.28	0.0217		0.0	33.688	0.730		Vel = 4.33
UC	0.0	1.917	2E	10.47	206.950	55.086		
to		150		0.0	10.470	2.166		
TEST	45.28	0.0207		0.0	217.420	4.505		Vel = 5.03
	0.0							
	45.28					61.757		K Factor = 5.76

Water Supply Curve (C)

DEAN & ALLYN, INC.
133 MORNING ST

Date 050908

City Water Supply:
- C1 - Static Pressure : 72
- C2 - Residual Pressure: 68
- C2 - Residual Flow : 903

Demand:

D1 - Elevation	:	20.247
D2 - System Flow	:	45.2811
D2 - System Pressure	:	61.757
Hose (Adj City)	:	_____
Hose (Demand)	:	_____
D3 - System Demand	:	45.2811
Safety Margin	:	10.227