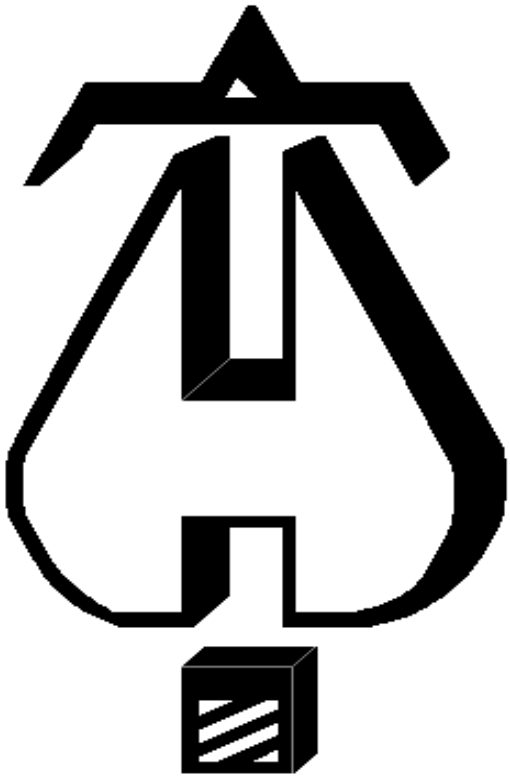


. . . Fire Protection by Computer Design

Accendo Fire Protection, LLC
38 Additon Road
Greene, Maine 04236
207-946-6182

Job Name	:	BEDECS MOB FIRST FLOOR
Drawing	:	2
Location	:	1945 CONGRESS STREET PORTLAND, MAINE
Remote Area	:	3
Contract	:	17-1015
Data File	:	3-17-1015 FIRST FLOOR.WXF

HYDRAULIC CALCULATIONS
for

Project name: BEDECS MOB
Location: 1945 CONGRESS STREET PORTLAND, MAINE
Drawing no: 2
Date: 8/22/17

Design

Remote area number: 3
Remote area location: FIRST FLOOR
Occupancy classification: LIGHT
Density: .10 - Gpm/SqFt
Area of application: 1135 - SqFt
Coverage per sprinkler: 96/256 - SqFt
Type of sprinklers calculated: RELIABLE KFR-CCS SPECIFIC APPLICATION UPRIGH
No. of sprinklers calculated: 8
In-rack demand: - GPM
Hose streams: 100 - GPM
Total water required (including hose streams): 341.010 - GPM @ 67.758 - Psi
Type of system: WET
Volume of dry or preaction system: - Gal

Water supply information

Date: 9/28/2000
Location: 150'-0" FROM THE BUILDING
Source: THE PORTLAND WATER DISTRICT

Name of contractor: ACCENDO FIRE PROTECTION LLC
Address: 38 ADDITON ROAD GREENE, MAINE 04236
Phone number: 946-6182
Name of designer: CKD
Authority having jurisdiction: SFM, PORTLAND
Notes: (Include peaking information or gridded systems here.)
REMOTE AREA RELIABLE SHEET BULLETIN 044 REV. C

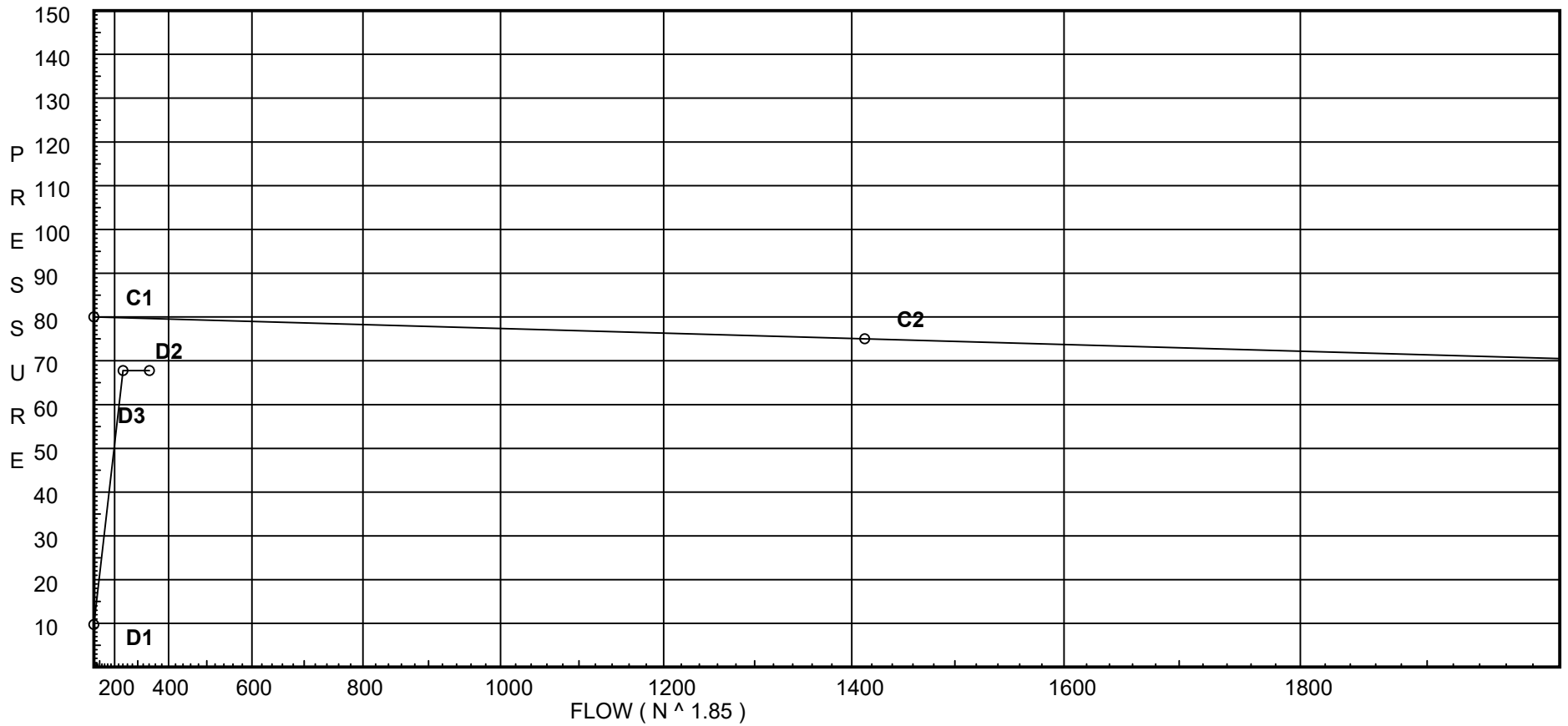
Water Supply Curve C

Accendo Fire Protection, LLC
BEDECS MOB FIRST FLOOR

Page 2
Date 8/22/17

City Water Supply:
- C1 - Static Pressure : 80
- C2 - Residual Pressure: 75
- C2 - Residual Flow : 1413

Demand:
- D1 - Elevation : 9.745
- D2 - System Flow : 241.01
- D2 - System Pressure : 67.758
- Hose (Demand) : 100
- D3 - System Demand : 341.01
- Safety Margin : 11.881



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
B	NFPA 13 Butterfly Valve	0	0	0	0	0	6	7	10	0	12	9	10	12	19	21	0	0	0	0	0
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																			
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
L	NFPA 13 Long Turn Elbow	0.5	1	2	2	2	3	4	5	5	6	8	9	13	16	18	24	27	30	34	40
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
Zca	Colt C200 Horz Butt	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.

Pressure / Flow Summary - STANDARD

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
SP1	0.0	5.6	20.9	na	25.6	0.1	256	7.0
SP2	0.0	5.6	20.9	na	25.6	0.1	256	7.0
50	120.5	8	31.12	na	44.63	0.1	10	13.2
51	120.5	K = K @ L1	22.34	na	25.6			
52	120.5	K = K @ L1	22.63	na	25.77			
53	120.5	K = K @ L1	23.21	na	26.1			
54	120.5	K = K @ L1	23.51	na	26.27			
54A	120.5		24.51	na				
55	120.5	K = K @ L1	28.58	na	28.96			
55A	120.5		30.09	na				
56	120.5	K = K @ L2	34.36	na	31.75			
57	120.5	K = K @ L2	34.77	na	31.94			
NN	120.5		34.61	na				
NO	120.5		35.98	na				
O	120.5		35.99	na				
P	120.5		36.29	na				
Q	120.5		49.72	na				
R	108.33		55.52	na				
TOR	108.33		56.79	na				
HDR	102.0		60.22	na				
HDR1	102.0		60.62	na				
BASE	101.0		66.08	na				
TEST	98.0		67.76	na	100.0			

The maximum velocity is 19.16 and it occurs in the pipe between nodes 55A and O

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 ******
SP1	0	5.60	25.60	1	T	5.0	2.000	120	20.898	
to						0.0	5.000		0.0	
L1	0		25.6	1.049		0.0	7.000	0.2054	1.438	Vel = 9.50
			0.0							
L1			25.60						22.336	K Factor = 5.42
SP2	0	5.60	25.60	1	T	5.0	2.000	120	20.898	
to						0.0	5.000		0.0	
L2	0		25.6	1.049		0.0	7.000	0.2054	1.438	Vel = 9.50
			0.0							
L2			25.60						22.336	K Factor = 5.42
50	120.500	8.00	44.63	1	T	5.0	1.080	120	31.118	
to						0.0	5.000		0.0	
NN	120.500		44.63	1.049		0.0	6.080	0.5743	3.492	Vel = 16.57
			0.0							
NN			44.63						34.610	K Factor = 7.59
51	120.500	5.42	25.60	1.5		0.0	14.080	120	22.336	K = K @ L1
to						0.0	0.0		0.0	
52	120.500		25.6	1.682		0.0	14.080	0.0206	0.290	Vel = 3.70
52	120.500	5.42	25.77	1.5	L	2.475	12.870	120	22.626	K = K @ L1
to					T	9.9	12.375		0.0	
54A	120.500		51.37	1.682		0.0	25.245	0.0748	1.888	Vel = 7.42
			0.0							
54A			51.37						24.514	K Factor = 10.38
53	120.500	5.42	26.10	1.5		0.0	14.080	120	23.214	K = K @ L1
to						0.0	0.0		0.0	
54	120.500		26.1	1.682		0.0	14.080	0.0213	0.300	Vel = 3.77
54	120.500	5.42	26.26	1.5	T	9.9	3.000	120	23.514	K = K @ L1
to						0.0	9.900		0.0	
54A	120.500		52.36	1.682		0.0	12.900	0.0775	1.000	Vel = 7.56
54A	120.500		51.37	1.5	T	9.9	10.420	120	24.514	
to						0.0	9.900		0.0	
55A	120.500		103.73	1.682		0.0	20.320	0.2743	5.574	Vel = 14.98
			0.0							
55A			103.73						30.088	K Factor = 18.91
55	120.500	5.42	28.96	1	T	5.0	0.830	120	28.584	K = K @ L1
to						0.0	5.000		0.0	
55A	120.500		28.96	1.049		0.0	5.830	0.2580	1.504	Vel = 10.75
55A	120.500		103.73	1.5	T	9.9	3.750	120	30.088	
to						0.0	9.900		0.0	
O	120.500		132.69	1.682		0.0	13.650	0.4327	5.906	Vel = 19.16
			0.0							
O			132.69						35.994	K Factor = 22.12
56	120.500	5.42	31.75	1.5		0.0	13.420	120	34.361	K = K @ L2
to						0.0	0.0		0.0	
57	120.500		31.75	1.682		0.0	13.420	0.0307	0.412	Vel = 4.58
57	120.500	5.42	31.94	1.5	T	9.9	3.750	120	34.773	K = K @ L2
to						0.0	9.900		0.0	
P	120.500		63.69	1.682		0.0	13.650	0.1113	1.519	Vel = 9.20

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 ******
			0.0							
P			63.69						36.292	K Factor = 10.57
NN	120.500		44.63	1.5	L	2.475	11.420	120	34.610	
to					T	9.9	12.375		0.0	
NO	120.500		44.63	1.682		0.0	23.795	0.0576	1.371	Vel = 6.44
NO	120.500		0.0	3		0.0	5.460	120	35.981	
to						0.0	0.0		0.0	
O	120.500		44.63	3.26		0.0	5.460	0.0024	0.013	Vel = 1.72
O	120.500		132.69	3		0.0	10.120	120	35.994	
to						0.0	0.0		0.0	
P	120.500		177.32	3.26		0.0	10.120	0.0294	0.298	Vel = 6.82
P	120.500		63.69	3	Fsp	0.0	118.540	120	36.292	
to					B	13.44	81.982		3.000	* * Fixed Loss = 3
Q	120.500		241.01	3.26	L	6.72	200.522	0.0520	10.428	Vel = 9.26
					2T	40.319				
					S	21.503				
Q	120.500		0.0	4	T	26.334	11.170	120	49.720	
to						0.0	26.334		5.271	
R	108.330		241.01	4.26		0.0	37.504	0.0141	0.530	Vel = 5.43
R	108.330		0.0	4	4L	31.601	58.330	120	55.521	
to						0.0	31.601		0.0	
TOR	108.330		241.01	4.26		0.0	89.931	0.0141	1.271	Vel = 5.43
TOR	108.330		0.0	4	T	26.334	6.330	120	56.792	
to					B	15.8	42.134		2.742	
HDR	102		241.01	4.26		0.0	48.464	0.0141	0.684	Vel = 5.43
HDR	102		0.0	4	T	26.334	2.000	120	60.218	
to						0.0	26.334		0.0	
HDR1	102		241.01	4.26		0.0	28.334	0.0142	0.401	Vel = 5.43
HDR1	102		0.0	4	E	13.167	6.000	120	60.619	
to					Zca	0.0	13.167		5.186	* * Fixed Loss = 4.753
BASE	101		241.01	4.26		0.0	19.167	0.0141	0.271	Vel = 5.43
BASE	101		0.0	6	E	20.084	150.000	140	66.076	
to					G	4.304	67.425		1.299	
TEST	98		241.01	6.16	T	43.037	217.425	0.0018	0.383	Vel = 2.59
			100.00							Qa = 100.00
TEST			341.01						67.758	K Factor = 41.43