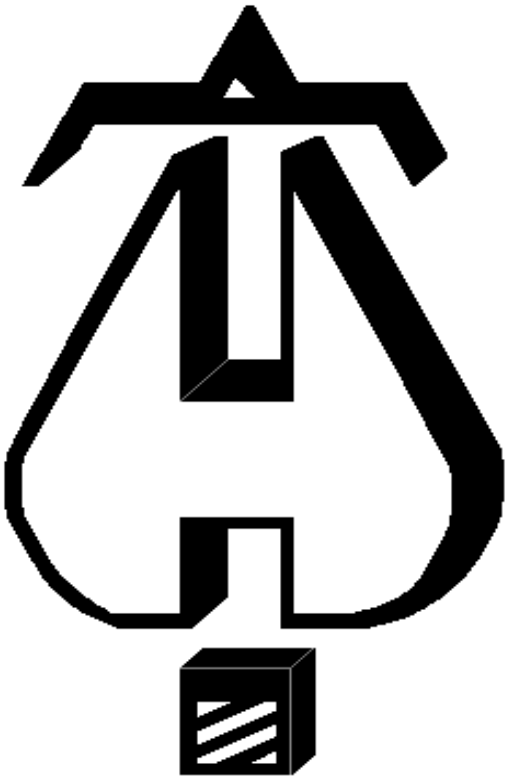

. . . Fire Protection by Computer Design

Dean and Allyn Inc
116 Lewiston Road
Gray ME, 04039
(207)657-5646

Job Name : MMC AHU REPLACEMENT
Building : BEAN BUILDING
Location : 4TH FLOOR AHU
System : ZONE 21
Contract : C151285
Data File : c1285.WXF

Hydraulic Design Information Sheet

Name - MAINE MEDICAL CENTER — Date - 9/17/15
Location - 4TH FLOOR AHU
Building - BEAN BUILDING — System No. - ZONE 21
Contractor - DEAN AND ALLYN INC — Contract No. - C151285
Calculated By - S. COTE — Drawing No. - 4
Construction: ( ) Combustible (X) Non-Combustible — Ceiling Height - 20'
Occupancy - ORDINARY II

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 - 2500	System Type	Sprinkler/Nozzle
Density - .15	(X) Wet	Make RELIABLE
Area Per Sprinkler - VAIRES	( ) Dry	Model F1FR56
Elevation at Highest Outlet - 13'4	( ) Deluge	Size 1/2"
Hose Allowance - Inside -	( ) Preaction	K-Factor 5.6
Rack Sprinkler Allowance -	( ) Other	Temp.Rat.155
Hose Allowance - Outside -		

Note

Calculation Summary — Flow Required - — Press Required -
C-Factor Used: 140 — Overhead 120 — Underground

WATER SUPPLY

Water Flow Test:	Pump Data:	Tank or Reservoir:
Date of Test -		Cap. -
Time of Test -	Rated Cap.-	Elev.-
Static Press - 210	@ Press -	
Residual Press - 180	Elev. -	Well
Flow - 1467		Proof Flow
Elevation -		

Location - BEAN FIRE PUMP

Source of Information - DEAN AND ALLYN PUMP TEST

STORAGE

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:

Pressure / Flow Summary - STANDARD

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
10	195.543	5.6	19.62	na	24.8	0.15	117	7.0
11	195.543	5.6	20.19	na	25.17	0.15	117	7.0
12	195.543	5.6	20.62	na	25.43	0.15	136	7.0
13	195.543	5.6	18.37	na	24.0	0.15	160	7.0
14	195.543	5.6	18.31	na	23.96	0.15	119	7.0
15	195.543	5.6	19.33	na	24.62	0.15	83	7.0
16	195.543	5.6	22.15	na	26.35	0.15	93	7.0
17	195.543	5.6	22.73	na	26.7	0.15	66	7.0
18	195.543	5.6	22.34	na	26.47	0.15	69	7.0
19	195.543	5.6	16.24	na	22.57	0.15	72	7.0
20	195.543	5.6	16.79	na	22.94	0.15	43	7.0
20A	202.043	5.6	17.52	na	23.44	0.15	124	7.0
21	195.543	5.6	19.34	na	24.63	0.15	49	7.0
22	195.21	5.6	25.44	na	28.24	0.15	61	7.0
23	195.543	5.6	22.64	na	26.65	0.15	32	7.0
24	195.21	5.6	26.97	na	29.08	0.15	85	7.0
25	195.543	5.6	23.83	na	27.34	0.15	32	7.0
26	195.543	5.6	27.17	na	29.19	0.15	74	7.0
27	195.543	5.6	28.01	na	29.64	0.15	52	7.0
28	195.543	5.6	29.57	na	30.45	0.15	14	7.0
29	195.543	5.6	24.12	na	27.5	0.15	67	7.0
30	195.543	5.6	23.97	na	27.42	0.15	88	7.0
31	195.543	5.6	24.31	na	27.61	0.15	56	7.0
32	195.543	5.6	25.99	na	28.55	0.15	57	7.0
33	195.543	5.6	32.08	na	31.72	0.15	29	7.0
34	195.543	5.6	29.82	na	30.58	0.15	42	7.0
35	202.043	5.6	26.83	na	29.01	0.15	121	7.0
36	202.043	5.6	28.97	na	30.14	0.15	121	7.0
37	195.543	5.6	32.22	na	31.79	0.15	111	7.0
100	202.043		20.76	na				
101	202.043		21.19	na				
101A	202.043		22.34	na				
102	202.043		22.5	na				
103	202.043		20.07	na				
104	202.043		20.55	na				
105	202.043		21.83	na				
105A	202.043		22.25	na				
151A	202.043		24.88	na				
106	201.626		23.38	na				
107	202.043		24.12	na				
107A	202.043		24.2	na				
153A	202.043		24.53	na				
108	202.043		17.15	na				
109	202.043		18.07	na				
109A	202.043		20.62	na				
110	202.043		21.01	na				
111	202.043		23.82	na				
112	201.626		24.08	na				
114	202.043		25.43	na				
115	201.626		25.7	na				
116	202.043		27.53	na				
117	201.626		28.96	na				
118	202.043		32.03	na				
118A	202.043		32.14	na				
159A	202.043		32.56	na				
119	202.043		23.37	na				
120	202.043		24.62	na				
121	202.043		26.69	na				
122	201.626		28.64	na				
123	202.043		35.99	na				
123A	202.043		36.1	na				
126A	202.043		36.56	na				

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
35A	202.043		27.21	na				
36A	202.043		29.38	na				
124	202.043		34.54	na				
125	202.043		34.96	na				
126	202.043		35.12	na				
150	201.626		25.35	na				
151	201.626		25.61	na				
152	201.626		25.69	na				
153	201.626		26.09	na				
154	201.626		27.12	na				
155	201.626		27.49	na				
156	201.626		28.89	na				
157	201.626		29.67	na				
158	201.626		31.21	na				
159	201.626		32.85	na				
160	201.626		34.52	na				
161	201.626		37.62	na				
162	201.626		115.59	na				
163	107.794		158.22	na				
TR	107.794		164.68	na				
TEST	97.794		171.3	na	250.0			

The maximum velocity is 34.11 and it occurs in the pipe between nodes 161 and 162

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
10	24.80	1.049	2E	4.0	11.416	19.619		K Factor = 5.60
to		120.0	T	5.0	9.000	-2.815		
100	24.8	0.1938		0.0	20.416	3.956		Vel = 9.21
	0.0							
	24.80					20.760		K Factor = 5.44
11	25.16	1.049	2E	4.0	10.166	20.194		K Factor = 5.60
to		120.0	T	5.0	9.000	-2.815		
101	25.16	0.1991		0.0	19.166	3.815		Vel = 9.34
	0.0							
	25.16					21.194		K Factor = 5.47
12	25.43	1.049	2E	4.0	14.166	20.618		K Factor = 5.60
to		120.0	T	5.0	9.000	-2.815		
102	25.43	0.2029		0.0	23.166	4.700		Vel = 9.44
	0.0							
	25.43					22.503		K Factor = 5.36
13	24.00	1.049	2E	4.0	15.791	18.367		K Factor = 5.60
to		120.0	T	5.0	9.000	-2.815		
103	24.0	0.1823		0.0	24.791	4.520		Vel = 8.91
	0.0							
	24.00					20.072		K Factor = 5.36
14	23.96	1.049	3E	6.0	16.791	18.314		K Factor = 5.60
to		120.0	T	5.0	11.000	-2.815		
104	23.96	0.1818		0.0	27.791	5.053		Vel = 8.89
	0.0							
	23.96					20.552		K Factor = 5.29
15	24.62	1.049	3E	6.0	16.833	19.328		K Factor = 5.60
to		120.0	T	5.0	11.000	-2.815		
105	24.62	0.1911		0.0	27.833	5.319		Vel = 9.14
	0.0							
	24.62					21.832		K Factor = 5.27
16	26.35	1.049	2E	4.0	8.833	22.145		K Factor = 5.60
to		120.0	T	5.0	9.000	-2.635		
106	26.35	0.2168		0.0	17.833	3.866		Vel = 9.78
	0.0							
	26.35					23.376		K Factor = 5.45
17	26.70	1.049	E	2.0	7.791	22.727		K Factor = 5.60
to		120.0	T	5.0	7.000	-2.635		
106	26.7	0.2220		0.0	14.791	3.284		Vel = 9.91
	0.0							
	26.70					23.376		K Factor = 5.52
18	26.47	1.049	3E	6.0	10.000	22.344		K Factor = 5.60
to		120.0	T	5.0	11.000	-2.815		
107	26.47	0.2186		0.0	21.000	4.590		Vel = 9.83
	0.0							
	26.47					24.119		K Factor = 5.39
19	22.57	1.049	3E	6.0	11.875	16.245		K Factor = 5.60
to		120.0	T	5.0	11.000	-2.815		
108	22.57	0.1628		0.0	22.875	3.723		Vel = 8.38

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 ******
	0.0							
	22.57					17.153		K Factor = 5.45
20	22.94	1.049	3E	6.0	13.416	16.788		K Factor = 5.60
to		120.0	T	5.0	11.000	-2.815		
109	22.94	0.1678		0.0	24.416	4.096		Vel = 8.52
	0.0							
	22.94					18.069		K Factor = 5.40
20A	46.01	1.38		0.0	3.458	17.516		K Factor = 5.60
to		120.0		0.0	0.0	0.0		
109	46.01	0.1599		0.0	3.458	0.553		Vel = 9.87
	0.0							
	46.01					18.069		K Factor = 10.82
21	24.63	1.049	3E	6.0	12.416	19.345		K Factor = 5.60
to		120.0	T	5.0	11.000	-2.815		
110	24.63	0.1913		0.0	23.416	4.479		Vel = 9.14
	0.0							
	24.63					21.009		K Factor = 5.37
22	28.24	1.049	E	2.0	3.458	25.437		K Factor = 5.60
to		120.0		0.0	2.000	-2.959		
111	28.24	0.2462		0.0	5.458	1.344		Vel = 10.48
	0.0							
	28.24					23.822		K Factor = 5.79
23	26.65	1.049	2E	4.0	9.416	22.644		K Factor = 5.60
to		120.0	T	5.0	9.000	-2.635		
112	26.65	0.2213		0.0	18.416	4.076		Vel = 9.89
	0.0							
	26.65					24.085		K Factor = 5.43
24	29.08	1.049	E	2.0	3.458	26.970		K Factor = 5.60
to		120.0		0.0	2.000	-2.959		
114	29.08	0.2600		0.0	5.458	1.419		Vel = 10.80
	0.0							
	29.08					25.430		K Factor = 5.77
25	27.34	1.049	2E	4.0	10.416	23.828		K Factor = 5.60
to		120.0	T	5.0	9.000	-2.635		
115	27.34	0.2320		0.0	19.416	4.505		Vel = 10.15
	0.0							
	27.34					25.698		K Factor = 5.39
26	29.19	1.049	2E	4.0	8.125	27.171		K Factor = 5.60
to		120.0		0.0	4.000	-2.815		
116	29.19	0.2619		0.0	12.125	3.176		Vel = 10.84
	0.0							
	29.19					27.532		K Factor = 5.56
27	29.64	1.049	E	2.0	6.291	28.011		K Factor = 5.60
to		120.0	T	5.0	7.000	-2.635		
117	29.64	0.2694		0.0	13.291	3.581		Vel = 11.00
	0.0							
	29.64					28.957		K Factor = 5.51

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
28	30.45	1.049	2E	4.0	9.625	29.567		K Factor = 5.60
to		120.0	T	5.0	9.000	-2.815		
118	30.45	0.2832		0.0	18.625	5.274		Vel = 11.30
	0.0							
	30.45					32.026		K Factor = 5.38
29	27.50	1.049	2E	4.0	4.791	24.121		K Factor = 5.60
to		120.0		0.0	4.000	-2.815		
119	27.5	0.2346		0.0	8.791	2.062		Vel = 10.21
	0.0							
	27.50					23.368		K Factor = 5.69
30	27.42	1.049	E	2.0	7.833	23.974		K Factor = 5.60
to		120.0	T	5.0	7.000	-2.815		
120	27.42	0.2333		0.0	14.833	3.461		Vel = 10.18
	0.0							
	27.42					24.620		K Factor = 5.53
31	27.61	1.049	3E	6.0	11.000	24.309		K Factor = 5.60
to		120.0	T	5.0	11.000	-2.815		
121	27.61	0.2363		0.0	22.000	5.199		Vel = 10.25
	0.0							
	27.61					26.693		K Factor = 5.34
32	28.55	1.049	3E	6.0	10.000	25.995		K Factor = 5.60
to		120.0	T	5.0	11.000	-2.635		
122	28.55	0.2514		0.0	21.000	5.280		Vel = 10.60
	0.0							
	28.55					28.640		K Factor = 5.33
33	31.72	1.049	3E	6.0	11.000	32.083		K Factor = 5.60
to		120.0	T	5.0	11.000	-2.815		
123	31.72	0.3055		0.0	22.000	6.720		Vel = 11.78
	0.0							
	31.72					35.988		K Factor = 5.29
34	30.58	1.049	4E	8.0	15.416	29.824		K Factor = 5.60
to		120.0	T	5.0	13.000	-2.815		
126	30.58	0.2855		0.0	28.416	8.113		Vel = 11.35
	0.0							
	30.58					35.122		K Factor = 5.16
35	29.01	1.61	T	8.0	4.000	26.827		K Factor = 5.60
to		120.0		0.0	8.000	0.0		
35A	29.01	0.0322		0.0	12.000	0.386		Vel = 4.57
	0.0							
	29.01					27.213		K Factor = 5.56
36	30.14	1.61	T	8.0	4.000	28.966		K Factor = 5.60
to		120.0		0.0	8.000	0.0		
36A	30.14	0.0345		0.0	12.000	0.414		Vel = 4.75
	0.0							
	30.14					29.380		K Factor = 5.56
37	31.78	1.049	2E	4.0	7.750	32.216		K Factor = 5.60
to		120.0	T	5.0	9.000	-2.815		
124	31.78	0.3066		0.0	16.750	5.135		Vel = 11.80

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
	0.0							
	31.78					34.536		K Factor = 5.41
100	24.80	1.38		0.0	8.500	20.760		
to		120.0		0.0	0.0	0.0		
101	24.8	0.0511		0.0	8.500	0.434		Vel = 5.32
101	25.17	1.38		0.0	6.166	21.194		
to		120.0		0.0	0.0	0.0		
101A	49.97	0.1862		0.0	6.166	1.148		Vel = 10.72
101A	0.0	1.61		0.0	1.833	22.342		
to		120.0		0.0	0.0	0.0		
102	49.97	0.0878		0.0	1.833	0.161		Vel = 7.87
102	25.43	1.61	E	4.0	2.166	22.503		
to		120.0	T	8.0	12.000	0.181		
150	75.4	0.1881		0.0	14.166	2.665		Vel = 11.88
	0.0							
	75.40					25.349		K Factor = 14.98
103	24.00	1.38		0.0	10.000	20.072		
to		120.0		0.0	0.0	0.0		
104	24.0	0.0480		0.0	10.000	0.480		Vel = 5.15
104	23.96	1.38		0.0	7.416	20.552		
to		120.0		0.0	0.0	0.0		
105	47.96	0.1726		0.0	7.416	1.280		Vel = 10.29
105	24.62	1.38		0.0	1.125	21.832		
to		120.0		0.0	0.0	0.0		
105A	72.58	0.3716		0.0	1.125	0.418		Vel = 15.57
105A	0.0	1.61	T	8.0	7.000	22.250		
to		120.0		0.0	8.000	0.0		
151A	72.58	0.1754		0.0	15.000	2.631		Vel = 11.44
151A	0.0	2.067	T	10.0	0.500	24.881		
to		120.0		0.0	10.000	0.181		
151	72.58	0.0519		0.0	10.500	0.545		Vel = 6.94
	0.0							
	72.58					25.607		K Factor = 14.34
106	53.05	1.38	T	6.0	5.125	23.376		
to		120.0		0.0	6.000	0.0		
152	53.05	0.2081		0.0	11.125	2.315		Vel = 11.38
	0.0							
	53.05					25.691		K Factor = 10.47
107	26.47	1.38		0.0	1.458	24.119		
to		120.0		0.0	0.0	0.0		
107A	26.47	0.0576		0.0	1.458	0.084		Vel = 5.68
107A	0.0	1.61	T	8.0	4.000	24.203		
to		120.0		0.0	8.000	0.0		
153A	26.47	0.0271		0.0	12.000	0.325		Vel = 4.17
153A	93.58	2.067	T	10.0	0.500	24.528		
to		120.0		0.0	10.000	0.181		
153	120.05	0.1318		0.0	10.500	1.384		Vel = 11.48

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
	0.0							
	120.05					26.093		K Factor = 23.50
108	22.57	1.38		0.0	8.500	17.153		
to		120.0		0.0	0.0	0.0		
20A	22.57	0.0427		0.0	8.500	0.363		Vel = 4.84
	0.0							
	22.57					17.516		K Factor = 5.39
109	68.95	1.38		0.0	7.541	18.069		
to		120.0		0.0	0.0	0.0		
109A	68.95	0.3379		0.0	7.541	2.548		Vel = 14.79
109A	0.0	1.61		0.0	2.458	20.617		
to		120.0		0.0	0.0	0.0		
110	68.95	0.1595		0.0	2.458	0.392		Vel = 10.87
110	24.63	1.61	T	8.0	4.541	21.009		
to		120.0		0.0	8.000	0.0		
153A	93.58	0.2806		0.0	12.541	3.519		Vel = 14.75
	0.0							
	93.58					24.528		K Factor = 18.90
111	28.24	1.049		0.0	0.333	23.822		
to		120.0		0.0	0.0	0.181		
112	28.24	0.2462		0.0	0.333	0.082		Vel = 10.48
112	26.65	1.38	T	6.0	7.708	24.085		
to		120.0		0.0	6.000	0.0		
154	54.89	0.2215		0.0	13.708	3.037		Vel = 11.77
	0.0							
	54.89					27.122		K Factor = 10.54
114	29.08	1.049		0.0	0.333	25.430		
to		120.0		0.0	0.0	0.181		
115	29.08	0.2613		0.0	0.333	0.087		Vel = 10.80
115	27.34	1.38	T	6.0	7.708	25.698		
to		120.0		0.0	6.000	0.0		
156	56.42	0.2331		0.0	13.708	3.195		Vel = 12.10
	0.0							
	56.42					28.893		K Factor = 10.50
116	29.19	1.049		0.0	4.750	27.532		
to		120.0		0.0	0.0	0.181		
117	29.19	0.2619		0.0	4.750	1.244		Vel = 10.84
117	29.64	1.38	T	6.0	2.958	28.957		
to		120.0		0.0	6.000	0.0		
158	58.83	0.2518		0.0	8.958	2.256		Vel = 12.62
	0.0							
	58.83					31.213		K Factor = 10.53
118	30.45	1.38		0.0	1.500	32.026		
to		120.0		0.0	0.0	0.0		
118A	30.45	0.0747		0.0	1.500	0.112		Vel = 6.53
118A	0.0	1.61	T	8.0	4.000	32.138		
to		120.0		0.0	8.000	0.0		
159A	30.45	0.0352		0.0	12.000	0.422		Vel = 4.80

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
159A	0.0	2.067	T	10.0	0.500	32.560		
to		120.0		0.0	10.000	0.181		
159	30.45	0.0104		0.0	10.500	0.109		Vel = 2.91
	0.0							
	30.45					32.850		K Factor = 5.31
119	27.50	1.049	T	5.0	0.333	23.368		
to		120.0		0.0	5.000	0.0		
120	27.5	0.2348		0.0	5.333	1.252		Vel = 10.21
120	27.42	1.049		0.0	2.458	24.620		
to		120.0		0.0	0.0	0.0		
121	54.92	0.8434		0.0	2.458	2.073		Vel = 20.39
121	27.61	1.38		0.0	3.750	26.693		
to		120.0		0.0	0.0	0.181		
122	82.53	0.4709		0.0	3.750	1.766		Vel = 17.70
122	28.55	1.38	T	6.0	1.208	28.640		
to		120.0		0.0	6.000	0.0		
160	111.08	0.8165		0.0	7.208	5.885		Vel = 23.83
	0.0							
	111.08					34.525		K Factor = 18.90
123	31.72	1.38		0.0	1.416	35.988		
to		120.0		0.0	0.0	0.0		
123A	31.72	0.0805		0.0	1.416	0.114		Vel = 6.80
123A	0.0	1.61	T	8.0	4.000	36.102		
to		120.0		0.0	8.000	0.0		
126A	31.72	0.0378		0.0	12.000	0.454		Vel = 5.00
126A	62.37	2.067	T	10.0	0.500	36.556		
to		120.0		0.0	10.000	0.181		
161	94.09	0.0839		0.0	10.500	0.881		Vel = 9.00
	0.0							
	94.09					37.618		K Factor = 15.34
35A	29.01	2.067	T	10.0	0.500	27.213		
to		120.0		0.0	10.000	0.181		
155	29.01	0.0095		0.0	10.500	0.100		Vel = 2.77
	0.0							
	29.01					27.494		K Factor = 5.53
36A	30.14	2.067	T	10.0	0.500	29.380		
to		120.0		0.0	10.000	0.181		
157	30.14	0.0102		0.0	10.500	0.107		Vel = 2.88
	0.0							
	30.14					29.668		K Factor = 5.53
124	31.78	1.38		0.0	5.250	34.536		
to		120.0		0.0	0.0	0.0		
125	31.78	0.0808		0.0	5.250	0.424		Vel = 6.82
125	0.0	1.61		0.0	4.250	34.960		
to		120.0		0.0	0.0	0.0		
126	31.78	0.0381		0.0	4.250	0.162		Vel = 5.01
126	30.59	1.61	T	8.0	2.833	35.122		
to		120.0		0.0	8.000	0.0		
126A	62.37	0.1324		0.0	10.833	1.434		Vel = 9.83

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
	0.0							
	62.37					36.556		K Factor = 10.32
150	75.40	2.469		0.0	11.000	25.349		
to		120.0		0.0	0.0	0.0		
151	75.4	0.0235		0.0	11.000	0.258		Vel = 5.05
151	72.58	3.068		0.0	2.958	25.607		
to		120.0		0.0	0.0	0.0		
152	147.98	0.0284		0.0	2.958	0.084		Vel = 6.42
152	53.05	3.068		0.0	8.041	25.691		
to		120.0		0.0	0.0	0.0		
153	201.03	0.0500		0.0	8.041	0.402		Vel = 8.72
153	120.05	3.068		0.0	8.666	26.093		
to		120.0		0.0	0.0	0.0		
154	321.08	0.1187		0.0	8.666	1.029		Vel = 13.93
154	54.90	3.068		0.0	2.333	27.122		
to		120.0		0.0	0.0	0.0		
155	375.98	0.1595		0.0	2.333	0.372		Vel = 16.32
155	29.00	3.068		0.0	7.666	27.494		
to		120.0		0.0	0.0	0.0		
156	404.98	0.1825		0.0	7.666	1.399		Vel = 17.58
156	56.42	3.068		0.0	3.333	28.893		
to		120.0		0.0	0.0	0.0		
157	461.4	0.2325		0.0	3.333	0.775		Vel = 20.02
157	30.14	3.068		0.0	5.916	29.668		
to		120.0		0.0	0.0	0.0		
158	491.54	0.2612		0.0	5.916	1.545		Vel = 21.33
158	58.83	3.068		0.0	5.083	31.213		
to		120.0		0.0	0.0	0.0		
159	550.37	0.3221		0.0	5.083	1.637		Vel = 23.89
159	30.45	3.068		0.0	4.708	32.850		
to		120.0		0.0	0.0	0.0		
160	580.82	0.3558		0.0	4.708	1.675		Vel = 25.21
160	111.08	3.068		0.0	6.291	34.525		
to		120.0		0.0	0.0	0.0		
161	691.9	0.4917		0.0	6.291	3.093		Vel = 30.03
161	94.09	3.068	Fsp	0.0	72.416	37.618		
to		120.0	B	10.0	48.000	3.000		* * Fixed Loss = 3
162	785.99	0.6226	5E	35.0	120.416	74.968		Vel = 34.11
			F	3.0				
162	0.0	6.065	E	14.0	74.416	115.586		
to		120.0		0.0	14.000	40.639		
163	785.99	0.0225		0.0	88.416	1.992		Vel = 8.73
163	0.0	6.065	8E	112.0	175.000	158.217		
to		120.0		0.0	112.000	0.0		
TR	785.99	0.0225		0.0	287.000	6.466		Vel = 8.73
TR	0.0	6.065	Bvca	14.0	10.000	164.683		
to		120.0	S	32.0	47.000	5.331		* * Fixed Loss = 1
TEST	785.99	0.0225	Fsp	0.0	57.000	1.285		Vel = 8.73

Final Calculations - Hazen-Williams

Dean and Allyn Inc
MMC AHU REPLACEMENT

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*******	Notes	******
			Y	1.0						
	250.00							Qa = 250.00		
	1035.99					171.299		K Factor = 79.15		

Water Supply Curve C

City Water Supply:
- C1 - Static Pressure : 210
- C2 - Residual Pressure: 180
- C2 - Residual Flow : 1467

Demand:
- D1 - Elevation : 42.335
- D2 - System Flow : 785.99
- D2 - System Pressure : 171.299
- Hose (Demand) : 250
- D3 - System Demand : 1035.99
- Safety Margin : 22.939