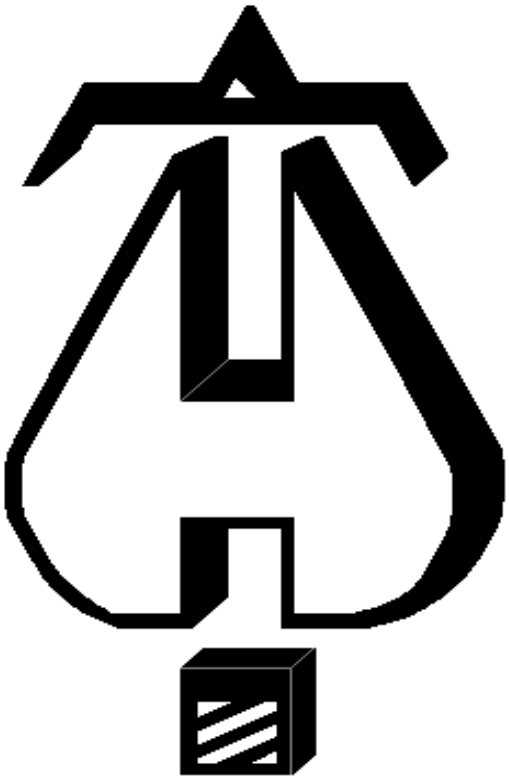

. . . Fire Protection by Computer Design

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

Job Name	:	PAYSON STREET CHILD CARE
Building	:	ONE
Location	:	1340 RIVERSIDE STREET PORTLAND MAINE
System	:	ONE
Contract	:	TBD
Data File	:	PAYSON CHILD CARE 2.WXF

HYDRAULIC DESIGN INFORMATION SHEET

Name - PAYSON STREET CHILD CARE Date - 8-9-08
Location - 1340 RIVERSIDE STREET PORTLAND MAINE
Building - ONE System No. - ONE
Contractor - DEAN AND ALLYN, INC. Contract No. - TBD
Calculated By - H KING Drawing No. - 1 OF 1
Construction: (X) Combustible ( ) Non-Combustible Ceiling Height 8'
OCCUPANCY - CHILD CARE FAC.

SYSTEM DESIGN

Type of Calculation: ( )NFPA 13 Residential ( )NFPA 13R (X)NFPA 13D
Number of Sprinklers Flowing: ( )1 ( )2 ( )4 (X)3
( )Other
( )Specific Ruling Made by Date

Listed Flow at Start Point - 17 Gpm
Listed Pres. at Start Point - 12.5 Psi
MAXIMUM LISTED SPACING 16 x 16
Domestic Flow Added - 0 Gpm
Additional Flow Added - 0 Gpm
Elevation at Highest Outlet - 24' Feet
Note:CUSHION 5.96PSI

System Type
(X) Wet ( ) Dry
( ) Deluge ( ) PreAction
Sprinkler or Nozzle
Make VIKING Model FREEDOM
Size 1/2" K-Factor 4.9
Temperature Rating 155

Calculation Summary: Gpm Required 34.46 Psi Required 46.53 At Test
C-Factor Used: Overhead 120 Underground 120

WATER SUPPLY

Water Flow Test:
Date of Test -
Time of Test -
Static (Psi) - 55
Residual (Psi) - 50
Flow (Gpm) - 50
Elevation - 0

Pump Data:
Rated Cap.
@ Psi
Elev.
Other

Tank or Reservoir:
Cap.
Elev.

Well
Proof Flow Gpm

Location:

Source of Information:

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	90' Standard Elbow	2	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61
S	Generic Swing Check Valve	4	5	5	7	9	11	14	16	19	22	27	32	45	55	65	76	87	98	109	130
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

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.
5A	24.0	4.9	12.0	na	16.97	0.06	256	12.0
5	24.0	K = K @ 5	12.58	na	16.97			
6	24.0	K = K @ 5	13.34	na	17.49			
1	24.0		19.04	na				
2	24.0		19.79	na				
3	24.0		21.24	na				
10	24.0		21.24	na				
11	23.0		25.42	na				
12	16.0		29.76	na				
13	16.0		32.06	na				
14	8.0		38.05	na				
TR	8.0		40.53	na				
FF	0.0		46.06	na				
PMP	0.0		46.52	na				

The maximum velocity is 12.79 and it occurs in the pipe between nodes 6 and 1

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
5A	16.97	1.049	1T	5.0	1.000	12.000		K Factor = 4.90
to		120		0.0	5.000	0.0		
5	16.97	0.0960		0.0	6.000	0.576		Vel = 6.30
	0.0							
	16.97					12.576		K Factor = 4.79
5	16.97	1.049		0.0	8.000	12.576		K Factor @ node 5
to		120		0.0	0.0	0.0		
6	16.97	0.0961		0.0	8.000	0.769		Vel = 6.30
6	17.49	1.049	2E	4.0	12.000	13.345		K Factor @ node 5
to		120		0.0	4.000	0.0		
1	34.46	0.3561		0.0	16.000	5.697		Vel = 12.79
1	0.0	1.38		0.0	8.000	19.042		
to		120		0.0	0.0	0.0		
2	34.46	0.0936		0.0	8.000	0.749		Vel = 7.39
2	0.0	1.38	1E	3.0	6.500	19.791		
to		120	1T	6.0	9.000	0.0		
10	34.46	0.0936		0.0	15.500	1.451		Vel = 7.39
	0.0							
	34.46					21.242		K Factor = 7.48
3	0.0	1.38	1E	3.0	5.200	21.242		
to		120	1T	6.0	9.000	0.0		
10	0.0	0.0		0.0	14.200	0.0		Vel = 0
10	34.46	1.38	3E	9.0	25.000	21.242		
to		120	1T	6.0	15.000	0.433		
11	34.46	0.0936		0.0	40.000	3.746		Vel = 7.39
11	0.0	1.38	1T	6.0	8.000	25.421		
to		120		0.0	6.000	3.032		
12	34.46	0.0936		0.0	14.000	1.310		Vel = 7.39
12	0.0	1.38	2E	6.0	6.500	29.763		
to		120	2T	12.0	18.000	0.0		
13	34.46	0.0936		0.0	24.500	2.294		Vel = 7.39
13	0.0	1.38	3E	9.0	12.000	32.057		
to		120	1T	6.0	15.000	3.465		
14	34.46	0.0936		0.0	27.000	2.528		Vel = 7.39
14	0.0	1.38	2T	12.0	14.500	38.050		
to		120		0.0	12.000	0.0		
TR	34.46	0.0937		0.0	26.500	2.482		Vel = 7.39
TR	0.0	1.38	2E	6.0	6.000	40.532		
to		120	1S	7.0	13.000	3.465		
FF	34.46	0.1084	1Z	0.0	19.000	2.060		Vel = 7.39
FF	0.0	1.38		0.0	5.000	46.057		
to		120		0.0	0.0	0.0		
PMP	34.46	0.0936		0.0	5.000	0.468		Vel = 7.39
	0.0							
	34.46					46.525		K Factor = 5.05

Water Supply Curve (C)

DEAN & ALLYN, INC.
PAYSON STREET CHILD CARE

Date 8-9-08

City Water Supply:
- C1 - Static Pressure : 55
- C2 - Residual Pressure: 50
- C2 - Residual Flow : 50

Demand:

D1 - Elevation	:	10.394
D2 - System Flow	:	34.4592
D2 - System Pressure	:	46.525
Hose (Adj City)	:	_____
Hose (Demand)	:	_____
D3 - System Demand	:	34.4592
Safety Margin	:	5.964