Form # P 04

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK

CITY OF PORTLAND

BUILDING INSPECTION

PERMIT

Please Read Application And Notes, If Any, Attached

Permit Number: 080318

PERMIT ISSUED

APR 10 2008

CITY OF PORTLAND

This is to certify that MORNING EASTERN PROMENADE LLC /Dean & Allyn

has permission to Install sprinkler system

AT 129 MORNING ST 014 N005001

provided that the person or persons, firm or corporation accepting this permit shall comply with all of the provisions of the Statutes of Maine and of the Ordinances of the City of Portland regulating the construction, maintenance and use of buildings and structures, and of the application on file in this department.

Apply to Public Works for street line and grade if nature of work requires such information.

Notification of inspection must be given and when permission procured before this building or part thereof is lined or otherwise closed-in 24 HOUR NOTICE IS REQUIRED.

A certificate of occupancy must be procured by owner before this building or part thereof is occupied.

OTHER REQUIRED APPROVALS

Fire Dept. Craig Crass

Health Dept. _____

Appeal Board _____

Other _____

Department Name

4/10/08

Director, Building & Inspection Services

PENALTY FOR REMOVING THIS CARD

City of Portland, Maine - Building or Use Permit Application

389 Congress Street, 04101 Tel: (207) 874-8703, Fax: (207) 874-8716

Permit No:	Issue Date:	CBL:
08-0318		014 N005001

Location of Construction:	Owner Name:	Owner Address:	Phone:
129 MORNING ST	MORNING EASTERN PROMENA	PO BOX 4271	
Business Name:	**Contractor Name:**	**Contractor Address:**	**Phone**
	Dean & Allyn Inc.	P.O. Box 709 Gray	2076575646
Lessee/Buyer's Name	**Phone:**	**Permit Type:**	**Zone:**
		Fire Alarm System	R-6

Past Use:	Proposed Use:	Permit Fee:	Cost of Work:	CEO District:
6 unit residential apartment building	6 unit residential apartment building -Install sprinkler system	$240.00	$22,000.00	1

FIRE DEPT: ☑ Approved ☐ Denied

See Conditions

Signature: Greg Cass

INSPECTION:

Use Group: V Type:

NFPA

Signature:

Proposed Project Description:

Install sprinkler system

PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.)

Action: ☐ Approved ☐ Approved w/Conditions ☐ Denied

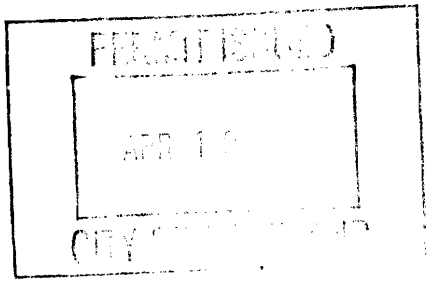
Signature: Date:

Permit Taken By:	Date Applied For:
ldobson	04/08/2008

1. This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.
2. Building permits do not include plumbing, septic or electrical work.
3. Building permits are void if work is not started within six (6) months of the date of issuance. False information may invalidate a building permit and stop all work..

Zoning Approval

Special Zone or Reviews	Zoning Appeal	Historic Preservation
☐ Shoreland	☐ Variance	☑ Not in District or Landmark
☐ Wetland	☐ Miscellaneous	☐ Does Not Require Review
☐ Flood Zone	☐ Conditional Use	☐ Requires Review
☐ Subdivision	☐ Interpretation	☐ Approved
☐ Site Plan	☐ Approved	☐ Approved w/Conditions
Maj ☐ Minor ☐ MM ☐	☐ Denied	☐ Denied
Date: 4/8/08	Date:	Date:



CERTIFICATION

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in the application is issued, I certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provision of the code(s) applicable to such permit.

SIGNATURE OF APPLICANT ADDRESS DATE PHONE

RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE DATE PHONE

City of Portland, Maine - Building or Use Permit

389 Congress Street, 04101 Tel: (207) 874-8703, Fax: (207) 874-8716

Permit No:	Date Applied For:	CBL:
08-0318	04/08/2008	014 N005001

Location of Construction:	Owner Name:	Owner Address:	Phone:
129 MORNING ST	MORNING EASTERN PROMENA	PO BOX 4271	
Business Name:	**Contractor Name:**	**Contractor Address:**	**Phone**
	Dean & Allyn Inc.	P.O. Box 709 Gray	(207) 657-5646
Lessee/Buyer's Name	**Phone:**	**Permit Type:**	
		Fire Alarm System	

Proposed Use:	Proposed Project Description:
6 unit residential apartment building -Install sprinkler system	Install sprinkler system

Dept: Zoning **Status:** Approved with Conditions **Reviewer:** Marge Schmuckal **Approval Date:** 04/08/2008

Note: **Ok to Issue:** ✔

1) This is NOT an approval for an additional dwelling unit. You SHALL NOT add any additional kitchen equipment including, but not limited to items such as stoves, microwaves, refrigerators, or kitchen sinks, etc. Without special approvals.
2) This property shall remain a six (6) family dwelling. Any change of use shall require a separate permit application for review and approval.
3) This permit is being approved on the basis of plans submitted. Any deviations shall require a separate approval before starting that work.

Dept: Building **Status:** Approved **Reviewer:** Tammy Munson **Approval Date:** 04/10/2008

Note: **Ok to Issue:** ✔

Dept: Fire **Status:** Approved with Conditions **Reviewer:** Capt Greg Cass **Approval Date:** 04/08/2008

Note: **Ok to Issue:** ✔

1) Fire dept. connection to remain accessable at all times
2) Application requires State Fire Marshal approval.

General Building Permit Application

If you or the property owner owes real estate or personal property taxes or user charges on any property within the City, payment arrangements must be made before permits of any kind are accepted.

Location/Address of Construction: 129 MORNING STREET		
Total Square Footage of Proposed Structure	Square Footage of Lot	
Tax Assessor's Chart, Block & Lot Chart# 14 Block# 10 Lot# 5	Owner: CRANDALL TOOTHAKER ASSOCIATES 200 HIGH ST. PORTLAND 04101	Telephone: 207-774-5358
Lessee/Buyer's Name (If Applicable)	Applicant name, address & telephone: DEAN & ALLYN, INC 32 LEWISTON RD BLDG 1-C GRAY, ME 04039	Cost Of Work: $ 22,000.00 Fee: $ 240.00 C of O Fee: $

Current legal use (i.e. single family) 207-657-5646 Apartment Building - 6 Unit -
If vacant, what was the previous use? _____
Proposed Specific use: _____
Is property part of a subdivision? _____ If yes, please name _____
Project description:

Fire Attenuation Sprinkler System -

Contractor's name, address & telephone: DEAN & ALLYN, INC

Who should we contact when the permit is ready: JAMES WHITE
Mailing address: Phone: 207-657-5646

32 LEWISTON RD BLDG 1-C
GRAY, ME 04039

Please submit all of the information outlined in the Commercial Application Checklist. Failure to do so will result in the automatic denial of your permit.

In order to be sure the City fully understands the full scope of the project, the Planning and Development Department may request additional information prior to the issuance of a permit. For further information or to download copies of this form and other applications visit the Inspections Division on-line at www.portlandmaine.gov, or stop by the Inspections Division office, room 315 City Hall or call 874-8703.

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in this application is issued, I certify that the Code Official's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

Signature of applicant: James White	Date: 4/7/08

This is not a permit; you may not commence ANY work until the permit is issued.

DEAN & ALLYN, INC.

FIRE PROTECTION · SPECIAL HAZARD

P.O. Box 709 • 32 Lewiston Road • Bldg. 1C
Gray, ME 04039-0709
207/657-5646 • fax 657-5647

LETTER OF TRANSMITTAL

TO CITY OF PORTLAND "CITY HALL"
380 CONGRESS ST, RM 315
PORTLAND ME 04101
3RD FLOOR

DATE 4/7/08	JOB NO. C770
ATTENTION BUILDING DEPT. PLAN REVIEW	
RE: 129 MORNING ST.	
SPRINKLER LAYOUT	
HYDRAULIC CALCS	
CD W/ SPRINKLER LAYOUT	
& HYDRAULIC CALCS FOR ARCHIVE	

WE ARE SENDING YOU ☐ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☒ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☒ HYDRAULIC CALCS

& CD - W/SPRINKLER LAYOUT & CALCS

COPIES	DATE	NO.	DESCRIPTION
1	4/7	1 OF 1	SPRINKLER LAYOUT
1	4/7	2-6	WX2, WX3, WX4, WX5, WX6 - HYDRAULIC CALCS
1	4/7	1	CD W/ SPRINKLER LAYOUT & HYDRAULIC CALCS IN PDF FORMAT AS WELL AS CAD FILES & HYDRA CALC FILES.
1	4/7	1	APPLICATION FOR PERMIT
1	4/7	1	CHECK FOR PERMIT FEE @ 240.00

THESE ARE TRANSMITTED as checked below:

☒ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval

☒ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution

☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints

☐ For review and comment ☐ _____

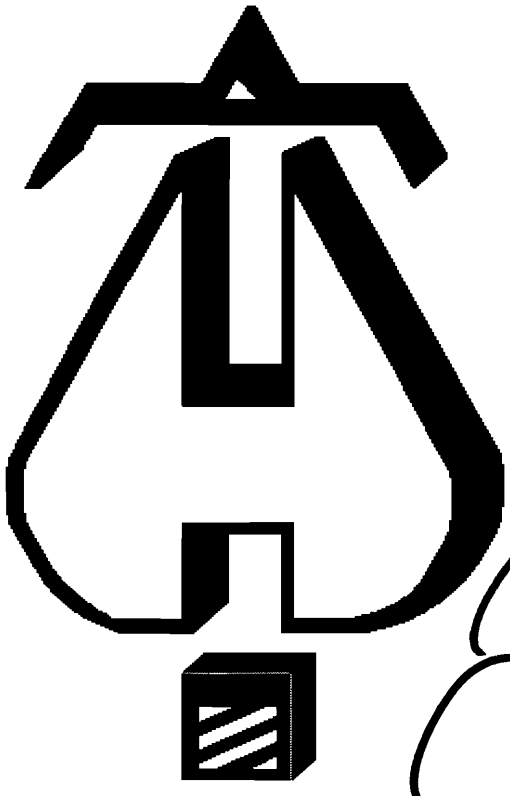
☐ FOR BIDS DUE _____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS _____

COPY TO FILE

SIGNED: James White

If enclosures are not as noted, kindly notify us at once.



. . . 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	:	129 MORNING STREET
Building	:	129 Morning Street
Location	:	3RD FLOOR - Portland, Maine
System	:	WX2
Contract	:	C770
Data File	:	CALC.WX2

Hydraulic Design Information Sheet

Name - 129 Morning Street — Date - 4/7/08
Location - 3RD FLOOR - Portland, Maine
Building - 129 Morning Street — System No. - WX2
Contractor - Dean & Allyn, Inc — Contract No. - C770
Calculated By - James R White — Drawing No. - 1 OF 1
Construction: (X) Combustible ( ) Non-Combustible — Ceiling Height - 8'-0"
Occupancy - RESIDENTIAL APARTMENTS

SYSTEM DESIGN

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

Specific Ruling	Made By	Date

Area of Sprinkler Operation - 4 HEADS	System Type	Sprinkler/Nozzle
Density - .05	(X) Wet	Make TYCO
Area Per Sprinkler - 256/75	( ) Dry	Model TY2596
Elevation at Highest Outlet - 36'-0"	( ) Deluge	Size 1/2"
Hose Allowance - Inside - 0	( ) Preaction	K-Factor 4.2
Rack Sprinkler Allowance - 0	( ) Other	Temp.Rat.155 DEGRE
Hose Allowance - Outside - 0		

Note SAFETY MARGIN = 7.61 LBS PSI

Calculation Summary

Flow Required - 58.78 Press Required - 64.37
C-Factor Used: 120 Overhead 150 Underground

WATER SUPPLY

Water Flow Test:		Pump Data:		Tank or Reservoir:
Date of Test	- 9/26/06			Cap. -
Time of Test	-	Rated Cap.-		Elev.-
Static Press	- 72	@ Press	-	
Residual Press	- 68	Elev.	-	Well
Flow	- 903			Proof Flow
Elevation	- 6			

Location - HYDRANT # 413

Source of Information - PORTLAND WATER DISTRICT

COMMODITY 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	

RACK STORAGE

Flue Spacing	Clearance:Storage to Ceiling
Longitudinal	Transverse

Horizontal Barriers Provided:

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
Fsp	Flow Switch Potter VSR	Fitting generates a Fixed Loss Based on Flow																			
G	Generic Gate Valve	0	0	0	0	1	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
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
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

DEAN & ALLYN, INC.
129 MORNING STREET

Date 031608

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
D101	36.0	4.2	17.75	na	17.69	0.05	256	14.5
D102	36.0	4.2	9.6	na	13.01	0.05	75	9.6
D103	36.0	4.2	9.93	na	13.23	0.05	75	9.6
D104	36.0	4.2	12.49	na	14.85	0.05	75	9.6
20	36.0		12.72	na				
1	36.0		9.78	na				
2	36.0		10.29	na				
3	36.0		13.13	na				
4	36.0		16.21	na				
5	36.0		17.38	na				
6	36.0		18.37	na				
7	6.5		32.15	na				
8	6.5		36.12	na				
9	6.5		42.52	na				
10	6.5		43.71	na				
11	6.5		44.31	na				
12	6.5		44.69	na				
13	6.5		44.94	na				
14	6.5		45.17	na				
15	6.5		45.62	na				
16	6.5		46.0	na				
17	6.5		47.71	na				
18	6.5		48.02	na				
TOR	6.5		51.16	na				
BOR	6.5		57.44	na				
19	6.5		57.69	na				
TEST	6.0		64.36	na				

The maximum velocity is 15.25 and it occurs in the pipe between nodes 3 and 4

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
D101	17.69	1.049	1T	5.0	1.000	17.746		K Factor = 4.20
to		120		0.0	5.000	0.0		
6	17.69	0.1038		0.0	6.000	0.623		Vel = 6.57
	0.0							
	17.69					18.369		K Factor = 4.13
D102	13.01	1.049	1E	2.0	1.000	9.600		K Factor = 4.20
to		120		0.0	2.000	0.0		
1	13.01	0.0587		0.0	3.000	0.176		Vel = 4.83
	0.0							
	13.01					9.776		K Factor = 4.16
D103	13.23	1.049	1T	5.0	1.000	9.925		K Factor = 4.20
to		120		0.0	5.000	0.0		
2	13.23	0.0607		0.0	6.000	0.364		Vel = 4.91
	0.0							
	13.23					10.289		K Factor = 4.12
D104	14.85	1.049	1E	2.0	1.000	12.493		K Factor = 4.20
to		120		0.0	2.000	0.0		
20	14.85	0.0750		0.0	3.000	0.225		Vel = 5.51
	0.0							
	14.85					12.718		K Factor = 4.16
20	14.85	1.049	1T	5.0	0.500	12.718		
to		120		0.0	5.000	0.0		
3	14.85	0.0751		0.0	5.500	0.413		Vel = 5.51
	0.0							
	14.85					13.131		K Factor = 4.10
1	13.01	1.049		0.0	8.720	9.776		
to		120		0.0	0.0	0.0		
2	13.01	0.0588		0.0	8.720	0.513		Vel = 4.83
2	13.23	1.049	1T	5.0	8.210	10.289		
to		120		0.0	5.000	0.0		
3	26.24	0.2151		0.0	13.210	2.842		Vel = 9.74
3	14.85	1.049	1E	2.0	4.250	13.131		
to		120		0.0	2.000	0.0		
4	41.09	0.4930		0.0	6.250	3.081		Vel = 15.25
4	0.0	1.049	1E	2.0	0.370	16.212		
to		120		0.0	2.000	0.0		
5	41.09	0.4932		0.0	2.370	1.169		Vel = 15.25
5	0.0	1.38		0.0	7.620	17.381		
to		120		0.0	0.0	0.0		
6	41.09	0.1297		0.0	7.620	0.988		Vel = 8.81
6	17.69	1.61	1T	8.0	0.500	18.369		
to		120		0.0	8.000	12.776		
7	58.78	0.1187		0.0	8.500	1.009		Vel = 9.26
7	0.0	1.61	1T	8.0	25.410	32.154		
to		120		0.0	8.000	0.0		
8	58.78	0.1187		0.0	33.410	3.967		Vel = 9.26
8	0.0	1.61	4E	16.0	37.910	36.121		
to		120		0.0	16.000	0.0		
9	58.78	0.1187		0.0	53.910	6.400		Vel = 9.26

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
9	0.0	1.61	1E	4.0	6.000	42.521		
to		120		0.0	4.000	0.0		
10	58.78	0.1187		0.0	10.000	1.187		Vel = 9.26
10	0.0	2.067	1E	5.0	1.000	43.708		
to		120	1S	11.0	16.000	0.0		
11	58.78	0.0352		0.0	17.000	0.598		Vel = 5.62
11	0.0	2.067	1E	5.0	6.000	44.306		
to		120		0.0	5.000	0.0		
12	58.78	0.0352		0.0	11.000	0.387		Vel = 5.62
12	0.0	2.067	1E	5.0	1.000	44.693		
to		120	1G	1.0	6.000	0.0		
13	58.78	0.0351		0.0	7.000	0.246		Vel = 5.62
13	0.0	2.067	1E	5.0	1.500	44.939		
to		120		0.0	5.000	0.0		
14	58.78	0.0352		0.0	6.500	0.229		Vel = 5.62
14	0.0	2.067	1T	10.0	2.830	45.168		
to		120		0.0	10.000	0.0		
15	58.78	0.0352		0.0	12.830	0.451		Vel = 5.62
15	0.0	2.067	1T	10.0	0.750	45.619		
to		120		0.0	10.000	0.0		
16	58.78	0.0352		0.0	10.750	0.378		Vel = 5.62
16	0.0	2.067	2E	10.0	38.660	45.997		
to		120		0.0	10.000	0.0		
17	58.78	0.0352		0.0	48.660	1.711		Vel = 5.62
17	0.0	2.067	1E	5.0	3.910	47.708		
to		120		0.0	5.000	0.0		
18	58.78	0.0351		0.0	8.910	0.313		Vel = 5.62
18	0.0	2.067	1Fsp	0.0	4.042	48.021		
to		120		0.0	0.0	3.000		* Fixed loss = 3
TOR	58.78	0.0351		0.0	4.042	0.142		Vel = 5.62
TOR	0.0	2.067	1E	5.0	10.500	51.163		
to		120	1Zaa	0.0	5.000	5.736		* Fixed loss = 5.736
BOR	58.78	0.0352		0.0	15.500	0.545		Vel = 5.62
BOR	0.0	2.067	1E	5.0	2.000	57.444		
to		120		0.0	5.000	0.0		
19	58.78	0.0351		0.0	7.000	0.246		Vel = 5.62
19	0.0	1.985		0.0	227.870	57.690		
to		150		0.0	0.0	0.217		
TEST	58.78	0.0283		0.0	227.870	6.458		Vel = 6.09
	0.0							
	58.78					64.365		K Factor = 7.33

Water Supply Curve (C)

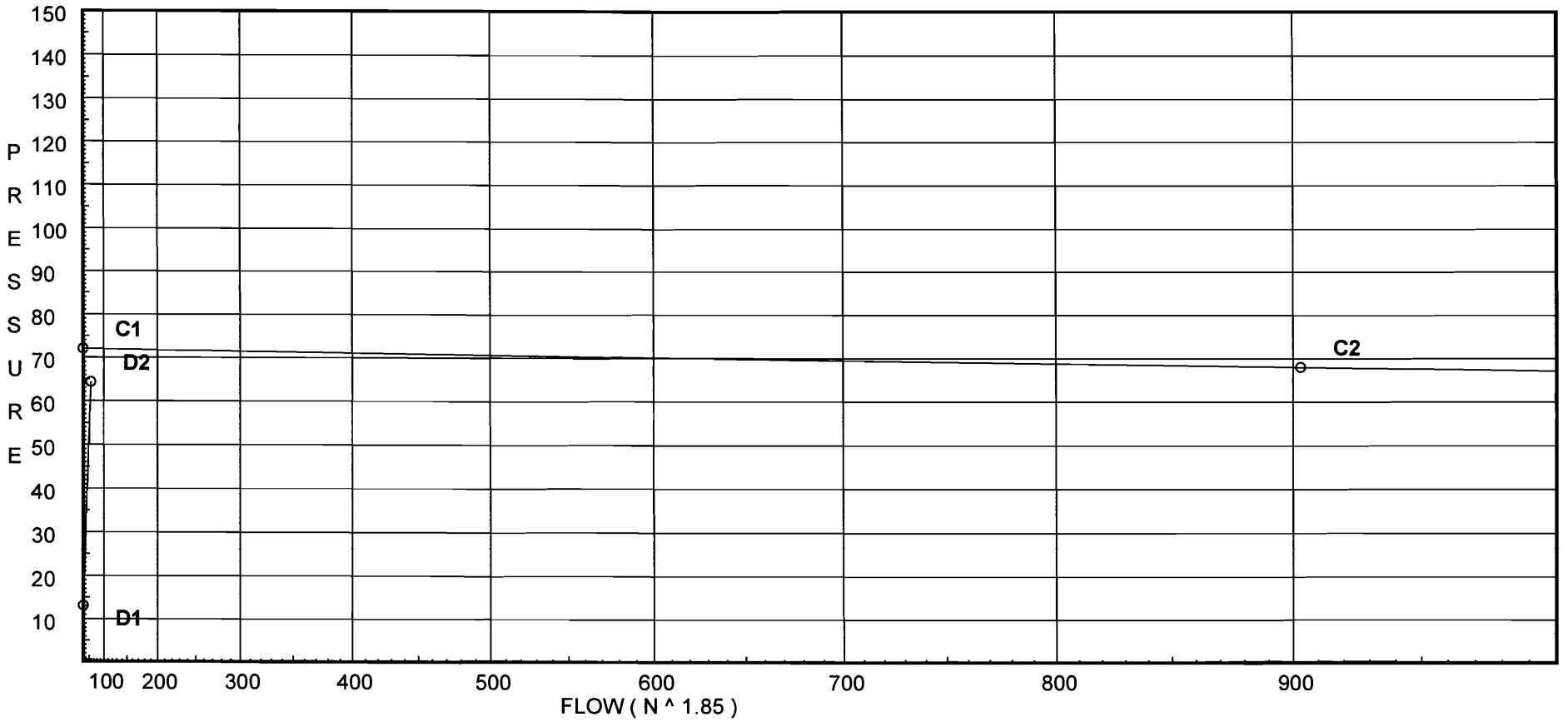
DEAN & ALLYN, INC.
129 MORNING STREET

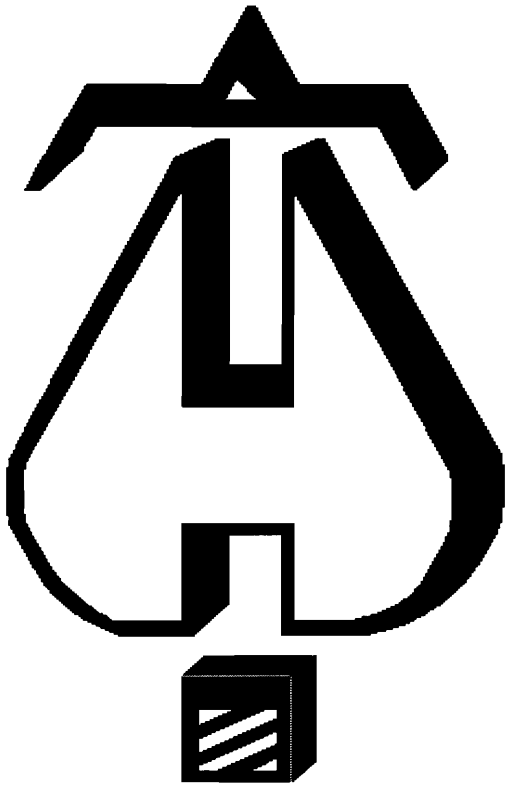
Date 031608

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

Demand:

D1 - Elevation	:	12.993
D2 - System Flow	:	58.7834
D2 - System Pressure	:	64.365
Hose (Adj City)	:	_____
Hose (Demand)	:	_____
D3 - System Demand	:	58.7834
Safety Margin	:	7.610





. . . 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	:	129 MORNING STREET
Building	:	129 Morning Street
Location	:	3RD FLOOR - Portland, Maine
System	:	WX3
Contract	:	C770
Data File	:	CALC.WX3

Hydraulic Design Information Sheet

Name - 129 Morning Street
Location - Portland, Maine
Building - 129 Morning Street
Contractor - Dean & Allyn, Inc
Calculated By - James R White
Construction: (X) Combustible ( ) Non-Combustible
Occupancy - RESIDENTIAL APARTMENTS

Date - 4/7/08
System No. - WX3
Contract No. - C770
Drawing No. - 1 OF 1
Ceiling Height - 8'-0"

SYSTEM DESIGN

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

Area of Sprinkler Operation	- 4 HEADS	System Type	Sprinkler/Nozzle
Density	- .05	(X) Wet	Make TYCO
Area Per Sprinkler	- 256/75	( ) Dry	Model TY2596
Elevation at Highest Outlet	- 36'-0"	( ) Deluge	Size 1/2"
Hose Allowance - Inside	- 0	( ) Preaction	K-Factor 4.2
Rack Sprinkler Allowance	- 0	( ) Other	Temp.Rat.155 DEGREE
Hose Allowance - Outside	- 0		

Note SAFETY MARGIN = 9.52 LBS PSI

Calculation Summary: Flow Required - 60.23 Press Required - 62.46
C-Factor Used: 120 Overhead 150 Underground

WATER SUPPLY

Water Flow Test:		Pump Data:		Tank or Reservoir:
Date of Test	- 9/26/06			Cap. -
Time of Test	-	Rated Cap.	-	Elev.-
Static Press	- 72	@ Press	-	
Residual Press	- 68	Elev.	-	Well
Flow	- 903			Proof Flow
Elevation	- 6			

Location - HYDRANT # 413

Source of Information - PORTLAND WATER DISTRICT

COMMODITY 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	

RACK STORAGE

Flue Spacing
Longitudinal
Clearance:Storage to Ceiling
Transverse

Horizontal Barriers Provided:

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
Fsp	Flow Switch Potter VSR	Fitting generates a Fixed Loss Based on Flow																			
G	Generic Gate Valve	0	0	0	0	1	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
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
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.
D201	36.0	4.2	14.5	na	15.99	0.05	140	14.5
D202	36.0	4.2	12.79	na	15.02	0.05	140	9.6
D203	36.0	4.2	12.17	na	14.65	0.05	140	9.6
D204	36.0	4.2	12.02	na	14.56	0.05	140	9.6
40	37.0		12.02	na				
39	37.0		12.58	na				
38	37.0		14.33	na				
33	37.0		11.96	na				
34	37.0		12.27	na				
35	37.0		12.46	na				
36	37.0		13.39	na				
37	37.0		15.48	na				
8	6.5		33.32	na				
9	6.5		40.02	na				
10	6.5		41.26	na				
11	6.5		41.89	na				
12	6.5		42.29	na				
13	6.5		42.55	na				
14	6.5		42.79	na				
15	6.5		43.26	na				
16	6.5		43.65	na				
17	6.5		45.44	na				
18	6.5		45.77	na				
TOR	6.5		48.92	na				
BOR	6.5		55.23	na				
19	6.5		55.49	na				
TEST	6.0		62.46	na				

The maximum velocity is 10.85 and it occurs in the pipe between nodes 35 and 36

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
D201	15.99	1.049	1E	2.0	1.000	14.500		K Factor = 4.20
to		120		0.0	2.000	-0.433		
38	15.99	0.0860		0.0	3.000	0.258		Vel = 5.94
	0.0							
	15.99					14.325		K Factor = 4.22
D202	15.02	1.049	1E	2.0	1.000	12.785		K Factor = 4.20
to		120		0.0	2.000	-0.433		
39	15.02	0.0767		0.0	3.000	0.230		Vel = 5.58
	0.0							
	15.02					12.582		K Factor = 4.23
D203	14.65	1.049	1E	2.0	1.000	12.174		K Factor = 4.20
to		120		0.0	2.000	-0.433		
33	14.65	0.0730		0.0	3.000	0.219		Vel = 5.44
	0.0							
	14.65					11.960		K Factor = 4.24
D204	14.56	1.049	1T	5.0	1.000	12.022		K Factor = 4.20
to		120		0.0	5.000	-0.433		
40	14.56	0.0723		0.0	6.000	0.434		Vel = 5.41
	0.0							
	14.56					12.023		K Factor = 4.20
40	14.56	1.049	1T	5.0	1.000	12.023		
to		120		0.0	5.000	0.0		
35	14.56	0.0725		0.0	6.000	0.435		Vel = 5.41
	0.0							
	14.56					12.458		K Factor = 4.13
39	15.02	1.049	1T	5.0	5.500	12.582		
to		120		0.0	5.000	0.0		
36	15.02	0.0766		0.0	10.500	0.804		Vel = 5.58
	0.0							
	15.02					13.386		K Factor = 4.11
38	15.99	1.049	1E	2.0	11.410	14.325		
to		120		0.0	2.000	0.0		
37	15.99	0.0861		0.0	13.410	1.154		Vel = 5.94
	0.0							
	15.99					15.479		K Factor = 4.06
33	14.65	1.049		0.0	4.250	11.960		
to		120		0.0	0.0	0.0		
34	14.65	0.0734		0.0	4.250	0.312		Vel = 5.44
34	0.0	1.049		0.0	2.540	12.272		
to		120		0.0	0.0	0.0		
35	14.65	0.0732		0.0	2.540	0.186		Vel = 5.44
35	14.57	1.049		0.0	3.540	12.458		
to		120		0.0	0.0	0.0		
36	29.22	0.2621		0.0	3.540	0.928		Vel = 10.85
36	15.01	1.38	1T	6.0	8.080	13.386		
to		120		0.0	6.000	0.0		
37	44.23	0.1487		0.0	14.080	2.093		Vel = 9.49

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
37	16.00	1.61	1E	4.0	25.330	15.479		
to		120	1T	8.0	12.000	13.210		
8	60.23	0.1242		0.0	37.330	4.635		Vel = 9.49
8	0.0	1.61	4E	16.0	37.910	33.324		
to		120		0.0	16.000	0.0		
9	60.23	0.1242		0.0	53.910	6.694		Vel = 9.49
9	0.0	1.61	1E	4.0	6.000	40.018		
to		120		0.0	4.000	0.0		
10	60.23	0.1242		0.0	10.000	1.242		Vel = 9.49
10	0.0	2.067	1E	5.0	1.000	41.260		
to		120	1S	11.0	16.000	0.0		
11	60.23	0.0368		0.0	17.000	0.625		Vel = 5.76
11	0.0	2.067	1E	5.0	6.000	41.885		
to		120		0.0	5.000	0.0		
12	60.23	0.0368		0.0	11.000	0.405		Vel = 5.76
12	0.0	2.067	1E	5.0	1.000	42.290		
to		120	1G	1.0	6.000	0.0		
13	60.23	0.0367		0.0	7.000	0.257		Vel = 5.76
13	0.0	2.067	1E	5.0	1.500	42.547		
to		120		0.0	5.000	0.0		
14	60.23	0.0368		0.0	6.500	0.239		Vel = 5.76
14	0.0	2.067	1T	10.0	2.830	42.786		
to		120		0.0	10.000	0.0		
15	60.23	0.0368		0.0	12.830	0.472		Vel = 5.76
15	0.0	2.067	1T	10.0	0.750	43.258		
to		120		0.0	10.000	0.0		
16	60.23	0.0368		0.0	10.750	0.396		Vel = 5.76
16	0.0	2.067	2E	10.0	38.660	43.654		
to		120		0.0	10.000	0.0		
17	60.23	0.0368		0.0	48.660	1.789		Vel = 5.76
17	0.0	2.067	1E	5.0	3.910	45.443		
to		120		0.0	5.000	0.0		
18	60.23	0.0368		0.0	8.910	0.328		Vel = 5.76
18	0.0	2.067	1Fsp	0.0	4.042	45.771		
to		120		0.0	0.0	3.000		* Fixed loss = 3
TOR	60.23	0.0366		0.0	4.042	0.148		Vel = 5.76
TOR	0.0	2.067	1E	5.0	10.500	48.919		
to		120	1Zaa	0.0	5.000	5.740		* Fixed loss = 5.74
BOR	60.23	0.0368		0.0	15.500	0.571		Vel = 5.76
BOR	0.0	2.067	1E	5.0	2.000	55.230		
to		120		0.0	5.000	0.0		
19	60.23	0.0367		0.0	7.000	0.257		Vel = 5.76
19	0.0	1.985		0.0	227.870	55.487		
to		150		0.0	0.0	0.217		
TEST	60.23	0.0296		0.0	227.870	6.754		Vel = 6.24
	0.0							
	60.23					62.458		K Factor = 7.62

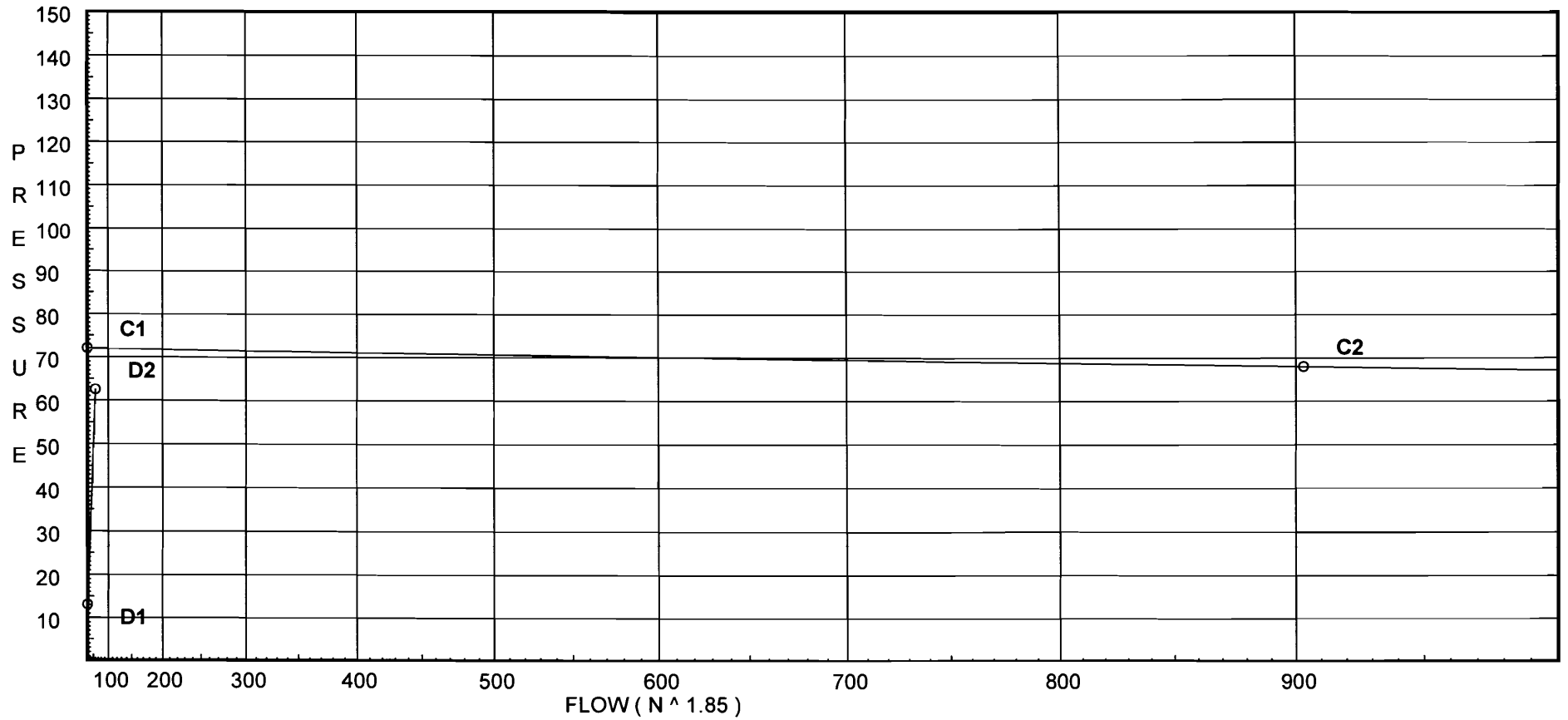
Water Supply Curve (C)

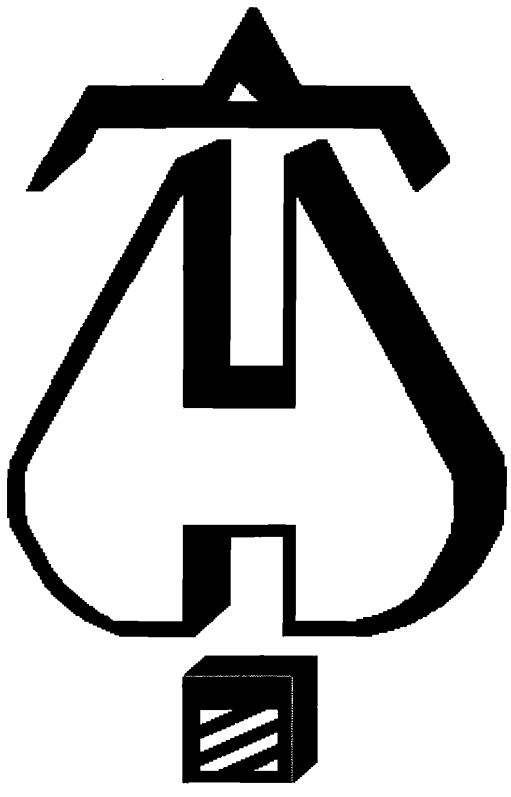
DEAN & ALLYN, INC.
129 MORNING STREET

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

Demand:

D1 - Elevation	:	12.993
D2 - System Flow	:	60.228
D2 - System Pressure	:	62.458
Hose (Adj City)	:	_____
Hose (Demand)	:	_____
D3 - System Demand	:	60.228
Safety Margin	:	9.515





. . . 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	:	129 MORNING STREET
Building	:	129 Morning Street
Location	:	2CND FLOOR - Portland, Maine
System	:	WX4
Contract	:	C770
Data File	:	CALC.WX4

Hydraulic Design Information Sheet

Name - 129 Morning Street — Date - 4/7/08
Location - 2CND FLOOR - Portland, Maine
Building - 129 Morning Street — System No. - WX4
Contractor - Dean & Allyn, Inc — Contract No. - C770
Calculated By - James R White — Drawing No. - 1 OF 1
Construction: (X) Combustible ( ) Non-Combustible — Ceiling Height - 8'-0"
Occupancy - RESIDENTIAL APARTMENTS

SYSTEM DESIGN

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

Area of Sprinkler Operation	- 4 HEADS	System Type	Sprinkler/Nozzle
Density	- .05	(X) Wet	Make TYCO
Area Per Sprinkler	- 140	( ) Dry	Model TY2596
Elevation at Highest Outlet	- 26'-5"	( ) Deluge	Size 1/2"
Hose Allowance - Inside	- 0	( ) Preaction	K-Factor 4.2
Rack Sprinkler Allowance	- 0	( ) Other	Temp.Rat.155 DEGRE
Hose Allowance - Outside	- 0		

Note SAFETY MARGIN = 7.23 LBS PSI

Calculation Summary

Flow Required - 56.38 Press Required - 64.75
C-Factor Used: 150 Overhead 150 Underground

WATER SUPPLY

Water Flow Test:		Pump Data:		Tank or Reservoir:
Date of Test	- 9/26/06			Cap. -
Time of Test	-	Rated Cap.-		Elev.-
Static Press	- 72	@ Press	-	
Residual Press	- 68	Elev.	-	Well
Flow	- 903			Proof Flow
Elevation	- 6			

Location - HYDRANT # 413

Source of Information - PORTLAND WATER DISTRICT

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		

RACK

Flue Spacing — Clearance:Storage to Ceiling
Longitudinal — Transverse

Horizontal Barriers Provided:

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
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

DEAN & ALLYN, INC.
129 MORNING STREET

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
D301	26.5	4.2	15.27	na	16.41	0.05	256	14.5
D302	26.5	4.2	9.6	na	13.01	0.05	75	9.6
D303	26.5	4.2	9.69	na	13.07	0.05	75	9.6
D304	26.5	4.2	10.92	na	13.88	0.05	75	9.6
62	27.0		10.87	na				
61	27.0		15.28	na				
51	27.0		9.53	na				
52	27.0		9.8	na				
53	27.0		11.35	na				
54	27.0		15.47	na				
55	27.0		17.8	na				
56	27.0		28.86	na				
57	6.5		40.43	na				
58	6.5		41.48	na				
59	6.5		42.36	na				
60	6.5		46.41	na				
16	6.5		47.09	na				
17	6.5		48.67	na				
18	6.5		48.96	na				
TOR	6.5		52.1	na				
BOR	6.5		58.32	na				
19	6.5		58.55	na				
TEST	6.0		64.75	na				

The maximum velocity is 19 and it occurs in the pipe between nodes 54 and 55

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
D301	16.41	1.101	1E	3.825	1.000	15.274		K Factor = 4.20
to		150		0.0	3.825	-0.217		
61	16.41	0.0473		0.0	4.825	0.228		Vel = 5.53
	0.0							
	16.41					15.285		K Factor = 4.20
D302	13.01	1.101	1E	3.825	1.000	9.600		K Factor = 4.20
to		150		0.0	3.825	-0.217		
51	13.01	0.0309		0.0	4.825	0.149		Vel = 4.38
	0.0							
	13.01					9.532		K Factor = 4.21
D303	13.07	1.101	1T	9.563	1.000	9.688		K Factor = 4.20
to		150		0.0	9.562	-0.217		
52	13.07	0.0311		0.0	10.562	0.328		Vel = 4.40
	0.0							
	13.07					9.799		K Factor = 4.18
D304	13.88	1.101	1E	3.825	1.000	10.918		K Factor = 4.20
to		150		0.0	3.825	-0.217		
62	13.88	0.0346		0.0	4.825	0.167		Vel = 4.68
	0.0							
	13.88					10.868		K Factor = 4.21
62	13.88	1.101	1T	9.563	4.330	10.868		
to		150		0.0	9.562	0.0		
53	13.88	0.0346		0.0	13.892	0.481		Vel = 4.68
	0.0							
	13.88					11.349		K Factor = 4.12
61	16.41	1.101		0.0	3.830	15.285		
to		150		0.0	0.0	0.0		
54	16.41	0.0473		0.0	3.830	0.181		Vel = 5.53
	0.0							
	16.41					15.466		K Factor = 4.17
51	13.01	1.101		0.0	8.700	9.532		
to		150		0.0	0.0	0.0		
52	13.01	0.0307		0.0	8.700	0.267		Vel = 4.38
52	13.08	1.101	1T	9.563	4.370	9.799		
to		150		0.0	9.562	0.0		
53	26.09	0.1113		0.0	13.932	1.550		Vel = 8.79
53	13.87	1.101	1T	9.563	7.250	11.349		
to		150		0.0	9.562	0.0		
54	39.96	0.2449		0.0	16.812	4.117		Vel = 13.47
54	16.42	1.101		0.0	5.040	15.466		
to		150		0.0	0.0	0.0		
55	56.38	0.4627		0.0	5.040	2.332		Vel = 19.00
55	0.0	1.101	1E	3.825	20.080	17.798		
to		150		0.0	3.825	0.0		
56	56.38	0.4628		0.0	23.905	11.064		Vel = 19.00
56	0.0	1.38	1E	3.0	2.540	28.862		
to		120	1T	6.0	9.000	8.879		
57	56.38	0.2328		0.0	11.540	2.686		Vel = 12.09

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
57	0.0	1.38	1E	3.0	1.540	40.427		
to		120		0.0	3.000	0.0		
58	56.38	0.2328		0.0	4.540	1.057		Vel = 12.09
58	0.0	1.38	1E	3.0	0.750	41.484		
to		120		0.0	3.000	0.0		
59	56.38	0.2328		0.0	3.750	0.873		Vel = 12.09
59	0.0	1.38	1E	3.0	8.410	42.357		
to		120	1T	6.0	9.000	0.0		
60	56.38	0.2328		0.0	17.410	4.053		Vel = 12.09
60	0.0	1.682		0.0	7.660	46.410		
to		120		0.0	0.0	0.0		
16	56.38	0.0888		0.0	7.660	0.680		Vel = 8.14
16	0.0	2.067	2E	10.0	38.660	47.090		
to		120		0.0	10.000	0.0		
17	56.38	0.0326		0.0	48.660	1.584		Vel = 5.39
17	0.0	2.067	1E	5.0	3.910	48.674		
to		120		0.0	5.000	0.0		
18	56.38	0.0325		0.0	8.910	0.290		Vel = 5.39
18	0.0	2.067	1Fsp	0.0	4.042	48.964		
to		120		0.0	0.0	3.000		* Fixed loss = 3
TOR	56.38	0.0327		0.0	4.042	0.132		Vel = 5.39
TOR	0.0	2.067	1E	5.0	10.500	52.096		
to		120	1Zaa	0.0	5.000	5.724		* Fixed loss = 5.724
BOR	56.38	0.0325		0.0	15.500	0.504		Vel = 5.39
BOR	0.0	2.067	1E	5.0	2.000	58.324		
to		120		0.0	5.000	0.0		
19	56.38	0.0326		0.0	7.000	0.228		Vel = 5.39
19	0.0	1.985		0.0	227.870	58.552		
to		150		0.0	0.0	0.217		
TEST	56.38	0.0262		0.0	227.870	5.977		Vel = 5.85
	0.0							
	56.38					64.746		K Factor = 7.01

Water Supply Curve (C)

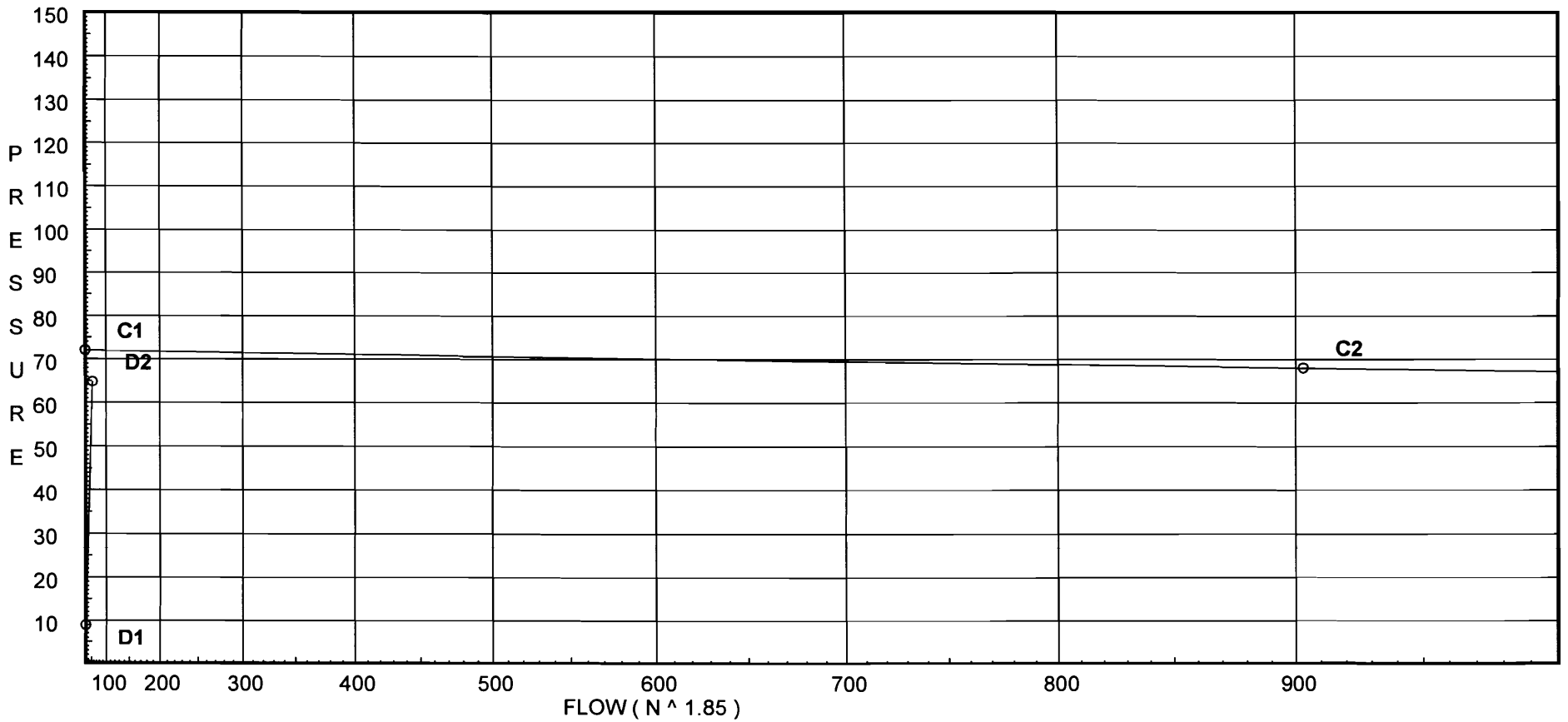
DEAN & ALLYN, INC.
129 MORNING STREET

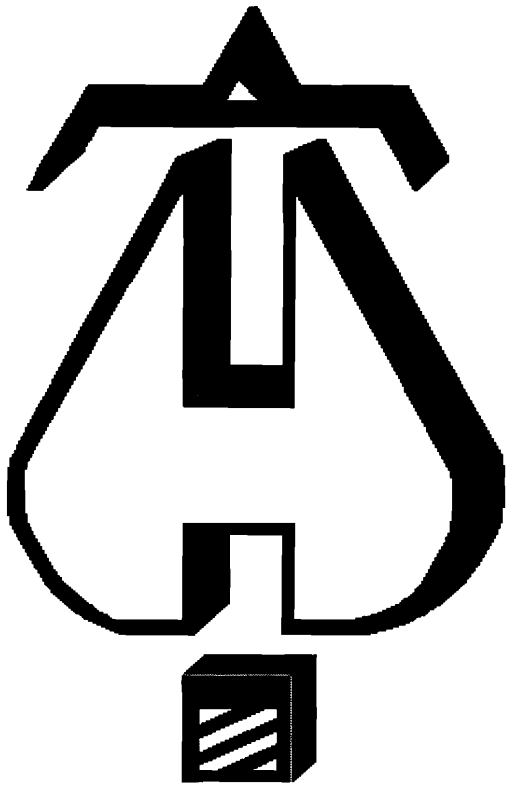
Page 6
Date 031608

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

Demand:

D1 - Elevation	:	8.879
D2 - System Flow	:	56.3778
D2 - System Pressure	:	64.746
Hose (Adj City)	:	_____
Hose (Demand)	:	_____
D3 - System Demand	:	56.3778
Safety Margin	:	7.231





. . . 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	:	129 MORNING STREET
Building	:	129 Morning Street
Location	:	BASEMENT - Portland, Maine
System	:	WX5
Contract	:	C770
Data File	:	CALC.WX5

Computer Programs by Hydratec Inc. Route 111 Windham N.H. USA 03087

Hydraulic Design Information Sheet

Name - 129 Morning Street — Date - 4/7/08
Location - BASEMENT - Portland, Maine
Building - 129 Morning Street — System No. - WX5
Contractor - Dean & Allyn, Inc — Contract No. - C770
Calculated By - James R White — Drawing No. - 1 OF 1
Construction: (X) Combustible ( ) Non-Combustible — Ceiling Height - 6'-6"
Occupancy - LAUNDRY/STORAGE

SYSTEM DESIGN

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

Area of Sprinkler Operation	- 4 HEADS	System Type	Sprinkler/Nozzle
Density	- .15	(X) Wet	Make TYCO
Area Per Sprinkler	- 110	( ) Dry	Model TY3531/ 3331
Elevation at Highest Outlet	- 6'-6'	( ) Deluge	Size 1/2"
Hose Allowance - Inside	- 0	( ) Preaction	K-Factor 5.6
Rack Sprinkler Allowance	- 0	( ) Other	Temp.Rat.155 DEGRE
Hose Allowance - Outside	- 0		

Note SAFETY MARGIN = 39.82 LBS PSI

Calculation Summary

Flow Required - 66.16 Press Required - 32.15
C-Factor Used: 120 Overhead 150 Underground

WATER SUPPLY

Water Flow Test:		Pump Data:		Tank or Reservoir:	
Date of Test	- 9/26/06			Cap. -	
Time of Test	-	Rated Cap.-		Elev.-	
Static Press	- 72	@ Press	-		
Residual Press	- 68	Elev.	-		Well
Flow	- 903				Proof Flow
Elevation	- 6				

Location - HYDRANT # 413

Source of Information - PORTLAND WATER DISTRICT

COMMODITY 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	

RACK STORAGE

Flue Spacing — Clearance:Storage to Ceiling
Longitudinal — Transverse

Horizontal Barriers Provided:

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
Fsp	Flow Switch Potter VSR	Fitting generates a Fixed Loss Based on Flow																			
G	Generic Gate Valve	0	0	0	0	1	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
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
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

DEAN & ALLYN, INC.
129 MORNING STREET

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
D401	6.66	5.6	8.95	na	16.75	0.15	110	7.0
D402	6.66	5.6	8.68	na	16.5	0.15	110	7.0
D403	6.66	5.6	9.3	na	17.08	0.15	110	7.0
130	6.66		8.95	na				
128	6.66		9.6	na				
129	7.583		10.69	na				
57	7.583		10.7	na				
58	7.583		10.77	na				
59	7.583		10.83	na				
60	7.583		11.07	na				
127	6.66		9.23	na				
123	6.66	5.6	7.98	na	15.82	0.15	75	7.0
124	7.583		9.79	na				
125	7.583		10.17	na				
9	6.5		10.7	na				
10	6.5		10.81	na				
11	6.5		10.95	na				
12	6.5		11.06	na				
13	6.5		11.12	na				
14	6.5		11.18	na				
15	6.5		11.29	na				
16	6.5		11.64	na				
126	6.5		11.89	na				
17	6.5		13.58	na				
18	6.5		13.97	na				
TOR	6.5		17.15	na				
BOR	6.5		23.59	na				
19	6.5		23.9	na				
TEST	6.0		32.15	na				

The maximum velocity is 6.86 and it occurs in the pipe between nodes 19 and TEST

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
D401	16.75	1.049	1E	2.0	1.000	8.950		K Factor = 5.60
to		120		0.0	2.000	0.0		
127	16.75	0.0937		0.0	3.000	0.281		Vel = 6.22
	0.0							
	16.75					9.231		K Factor = 5.51
D402	16.50	1.049	1E	2.0	1.000	8.681		K Factor = 5.60
to		120		0.0	2.000	0.0		
130	16.5	0.0913		0.0	3.000	0.274		Vel = 6.13
	0.0							
	16.50					8.955		K Factor = 5.51
D403	17.08	1.049	1E	2.0	1.000	9.305		K Factor = 5.60
to		120		0.0	2.000	0.0		
128	17.08	0.0970		0.0	3.000	0.291		Vel = 6.34
	0.0							
	17.08					9.596		K Factor = 5.51
130	16.50	1.049	2E	4.0	15.870	8.955		
to		120	1T	5.0	9.000	0.069		
15	16.5	0.0912		0.0	24.870	2.268		Vel = 6.13
	0.0							
	16.50					11.292		K Factor = 4.91
128	17.08	1.049	1E	2.0	8.370	9.596		
to		120	1T	5.0	7.000	-0.400		
129	17.08	0.0973		0.0	15.370	1.495		Vel = 6.34
129	0.0	1.61		0.0	1.040	10.691		
to		120		0.0	0.0	0.0		
57	17.08	0.0115		0.0	1.040	0.012		Vel = 2.69
57	0.0	1.61	1E	4.0	1.540	10.703		
to		120		0.0	4.000	0.0		
58	17.08	0.0121		0.0	5.540	0.067		Vel = 2.69
58	0.0	1.61	1E	4.0	0.750	10.770		
to		120		0.0	4.000	0.0		
59	17.08	0.0120		0.0	4.750	0.057		Vel = 2.69
59	0.0	1.61	1E	4.0	8.410	10.827		
to		120	1T	8.0	12.000	0.0		
60	17.08	0.0121		0.0	20.410	0.247		Vel = 2.69
60	0.0	1.61		0.0	7.660	11.074		
to		120		0.0	0.0	0.469		
16	17.08	0.0120		0.0	7.660	0.092		Vel = 2.69
	0.0							
	17.08					11.635		K Factor = 5.01
127	16.75	1.049	3E	6.0	16.620	9.231		
to		120	1T	5.0	11.000	0.069		
126	16.75	0.0938		0.0	27.620	2.590		Vel = 6.22
	0.0							
	16.75					11.890		K Factor = 4.86
123	15.82	1.049	3E	6.0	20.120	7.984		K Factor = 5.60
to		120		0.0	6.000	-0.400		
124	15.82	0.0844		0.0	26.120	2.204		Vel = 5.87

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
124	0.0	1.38	1T	6.0	11.080	9.788		
to		120		0.0	6.000	0.0		
125	15.82	0.0222		0.0	17.080	0.379		Vel = 3.39
125	0.0	1.61	1E	4.0	2.200	10.167		
to		120		0.0	4.000	0.469		
9	15.82	0.0105		0.0	6.200	0.065		Vel = 2.49
9	0.0	1.61	1E	4.0	6.000	10.701		
to		120		0.0	4.000	0.0		
10	15.82	0.0105		0.0	10.000	0.105		Vel = 2.49
10	0.0	1.61	1E	4.0	1.000	10.806		
to		120	1S	9.0	13.000	0.0		
11	15.82	0.0105		0.0	14.000	0.147		Vel = 2.49
11	0.0	1.61	1E	4.0	6.000	10.953		
to		120		0.0	4.000	0.0		
12	15.82	0.0105		0.0	10.000	0.105		Vel = 2.49
12	0.0	1.61	1E	4.0	1.000	11.058		
to		120	1G	1.0	5.000	0.0		
13	15.82	0.0103		0.0	6.000	0.062		Vel = 2.49
13	0.0	1.61	1E	4.0	1.500	11.120		
to		120		0.0	4.000	0.0		
14	15.82	0.0105		0.0	5.500	0.058		Vel = 2.49
14	0.0	1.61	1T	8.0	2.830	11.178		
to		120		0.0	8.000	0.0		
15	15.82	0.0105		0.0	10.830	0.114		Vel = 2.49
15	16.50	1.61	1T	8.0	0.750	11.292		
to		120		0.0	8.000	0.0		
16	32.32	0.0392		0.0	8.750	0.343		Vel = 5.09
16	17.09	2.067		0.0	10.000	11.635		
to		120		0.0	0.0	0.0		
126	49.41	0.0255		0.0	10.000	0.255		Vel = 4.72
126	16.75	2.067	2E	10.0	28.660	11.890		
to		120		0.0	10.000	0.0		
17	66.16	0.0438		0.0	38.660	1.692		Vel = 6.33
17	0.0	2.067	1E	5.0	3.910	13.582		
to		120		0.0	5.000	0.0		
18	66.16	0.0437		0.0	8.910	0.389		Vel = 6.33
18	0.0	2.067	1Fsp	0.0	4.042	13.971		
to		120		0.0	0.0	3.000		* Fixed loss = 3
TOR	66.16	0.0438		0.0	4.042	0.177		Vel = 6.33
TOR	0.0	2.067	1E	5.0	10.500	17.148		
to		120	1Zaa	0.0	5.000	5.764		* Fixed loss = 5.764
BOR	66.16	0.0437		0.0	15.500	0.678		Vel = 6.33
BOR	0.0	2.067	1E	5.0	2.000	23.590		
to		120		0.0	5.000	0.0		
19	66.16	0.0439		0.0	7.000	0.307		Vel = 6.33
19	0.0	1.985		0.0	227.870	23.897		
to		150		0.0	0.0	0.217		
TEST	66.16	0.0353		0.0	227.870	8.036		Vel = 6.86

Final Calculations - Hazen-Williams

DEAN & ALLYN, INC.
129 MORNING STREET

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								
	66.16				32.150		K Factor = 11.67		

Water Supply Curve (C)

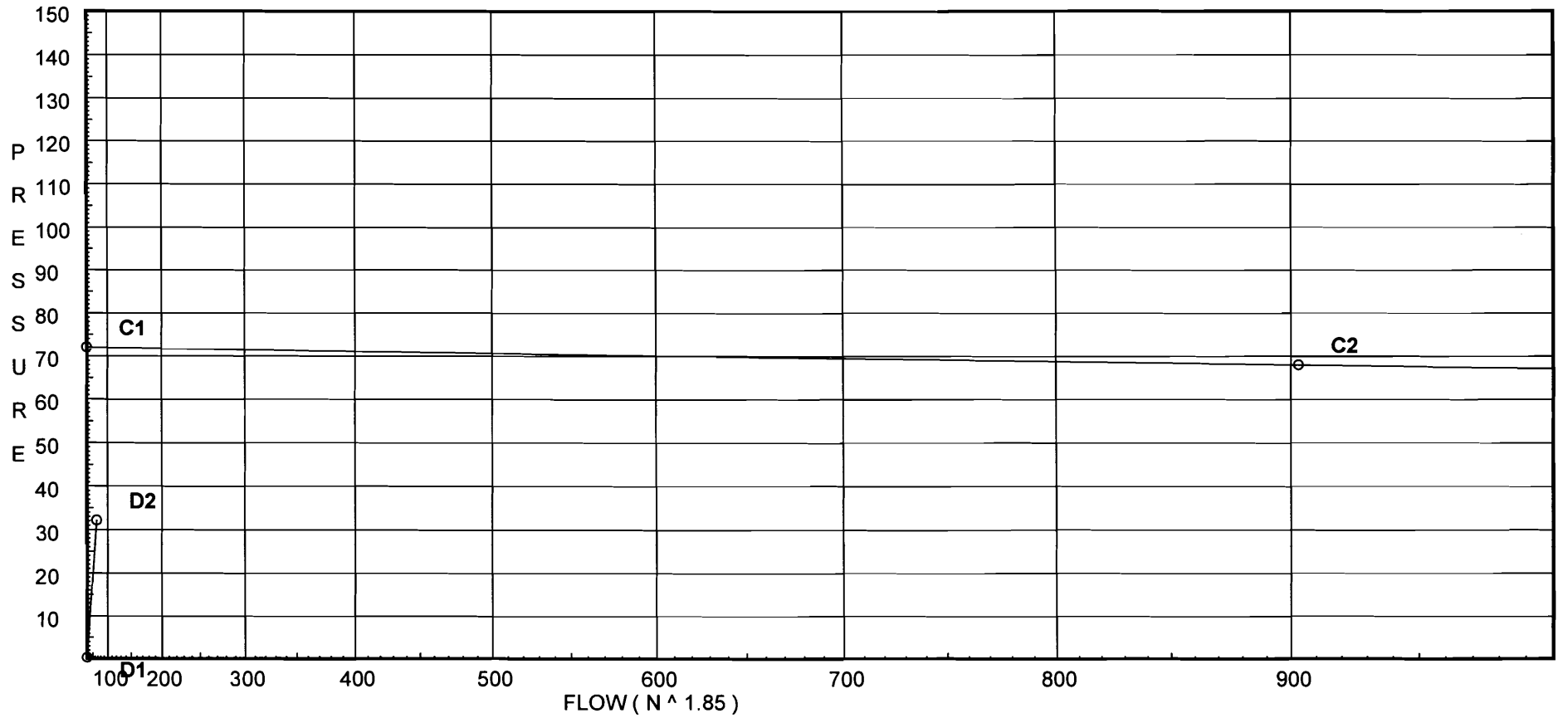
DEAN & ALLYN, INC.
129 MORNING STREET

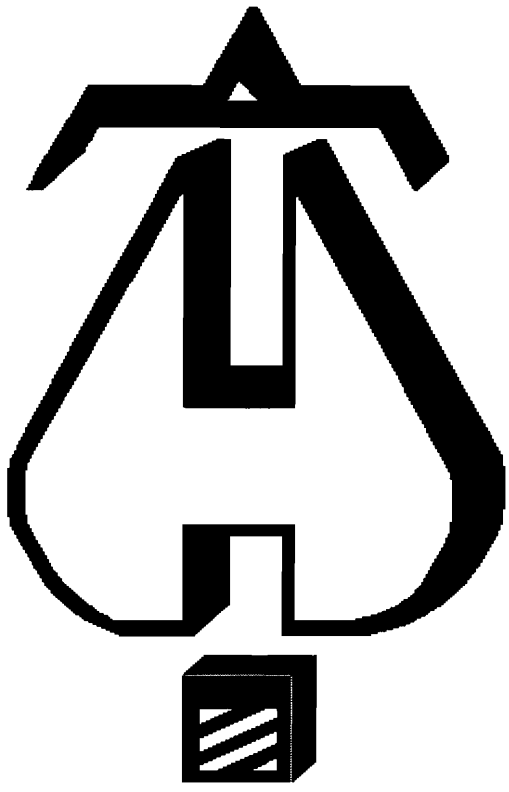
Date 031608

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

Demand:

D1 - Elevation	:	0.286
D2 - System Flow	:	66.1587
D2 - System Pressure	:	32.150
Hose (Adj City)	:	_____
Hose (Demand)	:	_____
D3 - System Demand	:	66.1587
Safety Margin	:	39.819





. . . 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	:	129 MORNING STREET
Building	:	129 Morning Street
Location	:	2CND FLOOR - Portland, Maine
System	:	WX6
Contract	:	C770
Data File	:	CALC.WX6

Hydraulic Design Information Sheet

Name - 129 Morning Street — Date - 4/7/08
Location - 2CND FLOOR - Portland, Maine
Building - 129 Morning Street — System No. - WX6
Contractor - Dean & Allyn, Inc — Contract No. - C770
Calculated By - James R White — Drawing No. - 1 OF 1
Construction: (X) Combustible ( ) Non-Combustible — Ceiling Height - 8'-0"
Occupancy - RESIDENTIAL APARTMENTS

SYSTEM DESIGN

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

Specific Ruling	Made By	Date

Area of Sprinkler Operation - 4 HEADS	System Type	Sprinkler/Nozzle
Density - .05	(X) Wet	Make TYCO
Area Per Sprinkler - 140	( ) Dry	Model TY2596
Elevation at Highest Outlet - 26'-5"	( ) Deluge	Size 1/2"
Hose Allowance - Inside - 0	( ) Preaction	K-Factor 4.2
Rack Sprinkler Allowance - 0	( ) Other	Temp.Rat.155 DEGRE
Hose Allowance - Outside - 0		

Note SAFETY MARGIN = 19.22 LBS PSI

Calculation Summary

Flow Required - 65.09 Press Required - 52.75
C-Factor Used: 150 Overhead 150 Underground

WATER SUPPLY

Water Flow Test:	Pump Data:	Tank or Reservoir:
Date of Test - 9/26/06		Cap. -
Time of Test -	Rated Cap.-	Elev.-
Static Press - 72	@ Press -	
Residual Press - 68	Elev. -	Well
Flow - 903		Proof Flow
Elevation - 6		

Location - HYDRANT # 413

Source of Information - PORTLAND WATER DISTRICT

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	

RACK

Flue Spacing — Clearance:Storage to Ceiling
Longitudinal — Transverse

Horizontal Barriers Provided:

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
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	26.5	4.2	14.56	na	16.02	0.05	140	14.5
D502	26.5	4.2	14.5	na	15.99	0.05	140	14.5
D503	26.5	4.2	15.39	na	16.48	0.05	140	14.5
D504	26.5	4.2	15.62	na	16.6	0.05	140	14.5
76	27.0		14.56	na				
75	27.0		15.4	na				
72	27.0		14.5	na				
73	27.0		15.31	na				
74	27.0		19.86	na				
61	27.0		15.64	na				
54	27.0		15.82	na				
55	27.0		16.06	na				
56	20.0		23.22	na				
129	20.0		24.13	na				
57	20.0		24.22	na				
58	20.0		24.62	na				
59	20.0		24.94	na				
60	20.0		26.45	na				
16	20.0		26.71	na				
71	20.0		26.77	na				
126	20.0		26.98	na				
17	6.5		34.47	na				
18	6.5		34.85	na				
TOR	6.5		38.02	na				
BOR	6.5		44.44	na				
19	6.5		44.73	na				
TEST	6.0		52.75	na				

The maximum velocity is 11.89 and it occurs in the pipe between nodes 74 and 71

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	16.02	1.101	1E	3.825	1.000	14.555		K Factor = 4.20
to		150		0.0	3.825	-0.217		
76	16.02	0.0454		0.0	4.825	0.219		Vel = 5.40
	0.0							
	16.02					14.557		K Factor = 4.20
D502	15.99	1.101	1E	3.825	1.000	14.500		K Factor = 4.20
to		150		0.0	3.825	-0.217		
72	15.99	0.0450		0.0	4.825	0.217		Vel = 5.39
	0.0							
	15.99					14.500		K Factor = 4.20
D503	16.48	1.101	1E	3.825	1.000	15.389		K Factor = 4.20
to		150		0.0	3.825	-0.217		
75	16.48	0.0477		0.0	4.825	0.230		Vel = 5.55
	0.0							
	16.48					15.402		K Factor = 4.20
D504	16.60	1.101	1E	3.825	1.000	15.619		K Factor = 4.20
to		150		0.0	3.825	-0.217		
61	16.6	0.0483		0.0	4.825	0.233		Vel = 5.59
	0.0							
	16.60					15.635		K Factor = 4.20
76	16.02	1.101	1E	3.825	3.200	14.557		
to		150	1T	9.563	13.387	0.0		
73	16.02	0.0452		0.0	16.587	0.749		Vel = 5.40
	0.0							
	16.02					15.306		K Factor = 4.09
75	16.48	1.101	2E	7.65	6.250	15.402		
to		150		0.0	7.650	0.0		
55	16.48	0.0476		0.0	13.900	0.661		Vel = 5.55
	0.0							
	16.48					16.063		K Factor = 4.11
72	15.99	1.101	1T	9.563	8.330	14.500		
to		150		0.0	9.562	0.0		
73	15.99	0.0450		0.0	17.892	0.806		Vel = 5.39
73	16.03	1.101	2E	7.65	20.410	15.306		
to		150		0.0	7.650	0.0		
74	32.02	0.1625		0.0	28.060	4.559		Vel = 10.79
74	0.0	1.049	1E	2.0	5.450	19.865		
to		120	1T	5.0	7.000	3.032		
71	32.02	0.3108		0.0	12.450	3.869		Vel = 11.89
	0.0							
	32.02					26.766		K Factor = 6.19
61	16.60	1.101		0.0	3.830	15.635		
to		150		0.0	0.0	0.0		
54	16.6	0.0483		0.0	3.830	0.185		Vel = 5.59
54	0.0	1.101		0.0	5.040	15.820		
to		150		0.0	0.0	0.0		
55	16.6	0.0482		0.0	5.040	0.243		Vel = 5.59

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
55	16.48	1.101	1E	3.825	20.080	16.063		
to		150		0.0	3.825	3.032		
56	33.08	0.1725		0.0	23.905	4.124		Vel = 11.15
56	0.0	1.38	1E	3.0	1.500	23.219		
to		120	1T	6.0	9.000	0.0		
129	33.08	0.0869		0.0	10.500	0.912		Vel = 7.10
129	0.0	1.38		0.0	1.040	24.131		
to		120		0.0	0.0	0.0		
57	33.08	0.0865		0.0	1.040	0.090		Vel = 7.10
57	0.0	1.38	1E	3.0	1.540	24.221		
to		120		0.0	3.000	0.0		
58	33.08	0.0868		0.0	4.540	0.394		Vel = 7.10
58	0.0	1.38	1E	3.0	0.750	24.615		
to		120		0.0	3.000	0.0		
59	33.08	0.0869		0.0	3.750	0.326		Vel = 7.10
59	0.0	1.38	1E	3.0	8.410	24.941		
to		120	1T	6.0	9.000	0.0		
60	33.08	0.0868		0.0	17.410	1.511		Vel = 7.10
60	0.0	1.682		0.0	7.660	26.452		
to		120		0.0	0.0	0.0		
16	33.08	0.0330		0.0	7.660	0.253		Vel = 4.78
16	0.0	2.067		0.0	4.950	26.705		
to		120		0.0	0.0	0.0		
71	33.08	0.0123		0.0	4.950	0.061		Vel = 3.16
71	32.01	2.067		0.0	5.040	26.766		
to		120		0.0	0.0	0.0		
126	65.09	0.0425		0.0	5.040	0.214		Vel = 6.22
126	0.0	2.067	2E	10.0	28.660	26.980		
to		120		0.0	10.000	5.847		
17	65.09	0.0424		0.0	38.660	1.641		Vel = 6.22
17	0.0	2.067	1E	5.0	3.910	34.468		
to		120		0.0	5.000	0.0		
18	65.09	0.0424		0.0	8.910	0.378		Vel = 6.22
18	0.0	2.067	1Fsp	0.0	4.042	34.846		
to		120		0.0	0.0	3.000		* Fixed loss = 3
TOR	65.09	0.0426		0.0	4.042	0.172		Vel = 6.22
TOR	0.0	2.067	1E	5.0	10.500	38.018		
to		120	1Zaa	0.0	5.000	5.760		* Fixed loss = 5.76
BOR	65.09	0.0425		0.0	15.500	0.658		Vel = 6.22
BOR	0.0	2.067	1E	5.0	2.000	44.436		
to		120		0.0	5.000	0.0		
19	65.09	0.0424		0.0	7.000	0.297		Vel = 6.22
19	0.0	1.985		0.0	227.870	44.733		
to		150		0.0	0.0	0.217		
TEST	65.09	0.0342		0.0	227.870	7.798		Vel = 6.75
	0.0							
	65.09					52.748		K Factor = 8.96

Water Supply Curve (C)

DEAN & ALLYN, INC.
129 MORNING STREET

Page 6
Date 031608

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

Demand:

D1 - Elevation	:	8.879
D2 - System Flow	:	65.0917
D2 - System Pressure	:	52.748
Hose (Adj City)	:	_____
Hose (Demand)	:	_____
D3 - System Demand	:	65.0917
Safety Margin	:	19.222