

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK



CITY OF PORTLAND

BUILDING PERMIT

This is to certify that
DEAN & ALLYN, INC.
PO BOX 709 - 116 LEWISTON RD
GRAY, ME 04039

For installation at
2 PORTLAND SQ
7th FLR - AMERIPRISE

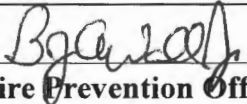
Job ID: 2012-06-4231-FAFS

CBL: 038- B-002-001

has permission to renovate 7th Floor tenant sprinkler system
provided that the person or persons, firm or corporation accepting this permit shall comply with all of the provisions of the Statues of Maine and of the Ordinances of the City of Portland regulating the construction, maintenance and use of the buildings and structures, and of the application on file in the department.

Notification of inspection and written permission procured before this building or part thereof is lathed or otherwise closed-in. 48 HOUR NOTICE IS REQUIRED.

A final inspection must be completed by owner before this building or part thereof is occupied. If a certificate of occupancy is required, it must be


Fire Prevention Officer

58

Code Enforcement Officer / Plan Reviewer

THIS CARD MUST BE POSTED ON THE STREET SIDE OF THE PROPERTY
PENALTY FOR REMOVING THIS CARD



PORTLAND MAINE

Strengthening a Remarkable City, Building a Community for Life • www.portlandmaine.gov

Director of Planning and Urban Development
Penny St. Louis

Job ID: 2012-06-4231-FAFS
renovate 7th Floor tenant sprinkler
system

For installation at:
2 PORTLAND SQ
7th FLR - AMERIPRISE

CBL: 038- B-002-001

Conditions of Approval:

Fire

Installation shall be in accordance with NFPA 13. A signed compliance letter will be required.

A separate sprinkler permit is required from the State Fire Marshal's Office.

System acceptance and commissioning must be coordinated with alarm and suppression system contractors and the Fire Department. Call 874-8703 to schedule.

City ordinance requires a Knox Box for all structures with a sprinkler or fire alarm system.

City of Portland, Maine - Building or Use Permit Application

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

Job No: 2012-06-4231-FAFS	Date Applied: 6/13/2012	CBL: 038- B-002-001	
Location of Construction: 2 PORTLAND SQ	Owner Name: RREEF AMERICA REIT III CORP ZA	Owner Address: PO BOX 4900 DEPT 207 SCOTTSDALE, AZ 85261	Phone:
Business Name:	Contractor Name: Dean & Allyn Inc. – Russ Morton	Contractor Address: P.O. BOX 709 GRAY MAINE 04039	Phone: (207) 657-5646
Lessee/Buyer's Name:	Phone:	Permit Type: FIRE SUPPRESSION	Zone: B-3
Past Use: 1 st floor: bank, retail & restaurant with Offices above	Proposed Use: Same: 1 st floor: bank, retail & restaurant with Offices above- to install fire suppression system on the 7 th floor	Cost of Work: \$10,000.00	CEO District:
		Fire Dept: 6/20/12 Signature: <i>Bjorn [Signature]</i> (58)	Inspection: Use Group: Type: Signature:
Proposed Project Description: Install Water-based Fire Suppression 7th Floor		Pedestrian Activities District (P.A.D.)	
Permit Taken By: Lannie		Zoning Approval	

Special Zone or Reviews	Zoning Appeal	Historic Preservation
<input type="checkbox"/> Shoreland <input type="checkbox"/> Wetlands <input type="checkbox"/> Flood Zone <input type="checkbox"/> Subdivision <input type="checkbox"/> Site Plan <input type="checkbox"/> Maj <input type="checkbox"/> Min <input type="checkbox"/> MM Date: <i>OK 4/3/12</i>	<input type="checkbox"/> Variance <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Conditional Use <input type="checkbox"/> Interpretation <input type="checkbox"/> Approved <input type="checkbox"/> Denied Date:	<input checked="" type="checkbox"/> Not in Dist or Landmark <input type="checkbox"/> Does not Require Review <input type="checkbox"/> Requires Review <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied Date: <i>[Signature]</i>

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



SP 2012 4 4930

Water-Based Fire Suppression System Permit

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

Installation address: 2 Portland Square CBL: 38-B-2

Exact location: (within structure) 7th Floor

Type of occupancy(s) (NFPA & ICC): Light Hazard

Building owner: CBRE/Boulos Property Management REEF America REIT III Corp

Managing Supervisor (RMS): Dana Stewart License No: 064544 NICET iv 74

Supervisor phone: 207-657-5646 E-mail: dstewart@deanandallyn.com

Installing contractor: Dean & Allyn License No: State of Maine # 262

Contractor phone: 207-657-5646 E-mail: rmorton@deanandallyn.com

The suppression work to be done will be: New: Renovation: Addition to existing system:

This is an amendment to an existing permit: Yes: NO Permit no: _____

NFPA Standard this system is designed to: NFPA 13 Edition: 2010

*Non-NFPA systems are not approved for use within the City of Portland.

Download a new copy of this document from www.portlandmaine.gov/fire for every submittal. Attach all working documents and complete approved submittals as may be required by the State Fire Marshal's Office on electronic PDF's in addition to full sized plans.

Contractor shall verify location and type of all FDCs shall be approved in writing by the Fire Prevention Bureau.

COST OF WORK: \$ 9,332.00
PERMIT FEE: \$ 120.00
(\$10 PER \$1,000 + \$30 FOR THE FIRST \$1,000)
RECEIVED
JUN 13 2012
Dept. of Building Inspections City of Portland Maine

Submit all information to the Building Inspections Department, 389 Congress Street, Room 315, Portland, Maine 04101.

Prior to acceptance of any fire protection system, a complete commissioning and acceptance test must be coordinated with all fire system contractors and the Fire Department, and proper documentation of such test(s) provided.

All installation(s) must comply with NFPA and the Fire Department Technical Standard(s).

Applicant signature: Russell Morton Date: 6/12/2012

Russell Morton



... Fire Protection by Computer Design

Dean & Allyn, Inc
116 Lewiston Road
Gray, Maine 04039
(207)-657-5646

Job Name : Ameriprise
Building : 2 Portland Square
Location : Portland, Maine
System : 7
Contract : C121081
Data File : C121081.WX1

Hydraulic Design Information Sheet

Name - Ameriprise Date - 6/8/12
 Location - Portland, Maine
 Building - 2 Portland Square System No. - 7
 Contractor - Dean & Allyn, Inc. Contract No. - C121081
 Calculated By - C. Stewart Drawing No. - 1 of 1
 Construction: () Combustible (X) Non-Combustible Ceiling Height - 8'-0"
 Occupancy - Office

S (X) NFPA 13 (X) Lt. Haz. Ord.Haz.Gp. () 1 () 2 () 3 () Ex.Haz.
 Y () NFPA 231 () NFPA 231C () Figure Curve

S Other

T Specific Ruling Made By Date

M	Area of Sprinkler Operation	- 900	System Type	Sprinkler/Nozzle
	Density	- 0.10	(X) Wet	Make Reliable
D	Area Per Sprinkler	- 225	() Dry	Model G4A
E	Elevation at Highest Outlet	- 83	() Deluge	Size 1/2"
S	Hose Allowance - Inside	-	() Preaction	K-Factor 5.6
I	Rack Sprinkler Allowance	-	() Other	Temp.Rat.155F
G	Hose Allowance - Outside	- 100		

Note *77.6psi Safety Margin

Calculation Flow Required - 80.1 Press Required - 325.0
 Summary C-Factor Used: 120 Overhead 140 Underground

W	Water Flow Test:	Pump Data:	Tank or Reservoir:
A	Date of Test - 12/5/2011		Cap. -
T	Time of Test -	Rated Cap.-	Elev.-
E	Static Press - 158	@ Press -	
R	Residual Press - 157	Elev. -	Well
	Flow - 671		Proof Flow
S	Elevation - -10		

U Location -

P Source of Information - Dean & Allyn, Inc. 2011 Pump test

L

C	Commodity	Class	Location
O	Storage Ht.	Area	Aisle W.
M	Storage Method: Solid Piled	% Palletized	% Rack
M	() Single Row	() Conven. Pallet	() Auto. Storage
	() Double Row	() Slave Pallet	() Solid Shelf
S	() Mult. Row	() Open Shelf	() Non

R K Flue Spacing Clearance:Storage to Ceiling
 A Longitudinal Transverse

E Horizontal Barriers Provided:

Fittings Used Summary

Dean & Allyn, Inc
Ameriprise

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Date 6/8/12

Fitting Legend

Abbrev.	Name	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8	10	12	14	16	18	20	24	
Aty	Alarm Tyco AV-1								14		23			24	23							
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	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	
I	90' Grvd-Vic Elbow #10	0	0	2	3	4	3.5	6	5	8	7	8.5	10	13	17	20	23	25	33	36	40	
J	90'Tee-Branch Grv Vic #20	0	0	4.5	6	8	8.5	10.8	13	17	16	21	25	33	41	50	65	78	88	98	120	
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	

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

Dean & Allyn, Inc
Ameriprise

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Date 6/8/12

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
700	83.0	5.6	13.49	na	20.57	0.1	115	7.0
701	83.0	5.6	14.43	na	21.28	0.1	84	7.0
702	83.0	5.6	14.81	na	21.55	0.1	165	7.0
703	83.0	5.6	16.06	na	22.44	0.1	158	7.0
704	83.0	5.6	9.0	na	16.8	0.1	168	7.0
705	83.0	5.6	9.32	na	17.09	0.1	72	7.0
706	83.0	5.6	12.61	na	19.89	0.1	121	7.0
707	83.0	5.6	17.18	na	23.21	0.1	112	7.0
708	83.0	5.6	11.69	na	19.14	0.1	119	7.0
709	83.0	5.6	12.35	na	19.68	0.1	154	7.0
710	83.0	5.6	17.45	na	23.39	0.1	112	7.0
70	84.0		14.53	na				
71	84.0		16.17	na				
72	84.0		17.81	na				
73	84.0		9.97	na				
74	84.0		14.11	na				
75	84.0		19.17	na				
76	84.0		12.86	na				
77	84.0		14.3	na				
78	84.0		19.62	na				
79	84.0		22.98	na				
80	84.0		23.79	na				
81	84.0		24.06	na				
82	84.0		24.69	na				
FCS	84.0		37.98	na				
10	-4.0		77.25	na				
TR	-4.0		77.35	na				
BR	-10.0		80.04	na				
PUMP	-10.0		80.1	na	100.0			

The maximum velocity is 15.26 and it occurs in the pipe between nodes 74 and 75

Final Calculations - Hazen-Williams

Dean & Allyn, Inc
Ameriprise

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Date 6/8/12

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
700	20.57	1.049	3E	6.0	4.750	13.487			K Factor = 5.60	
to		120.0		0.0	6.000	-0.433				
70	20.57	0.1370		0.0	10.750	1.473			Vel = 7.64	
	0.0									
	20.57					14.527			K Factor = 5.40	
701	21.28	1.049	2E	4.0	5.870	14.434			K Factor = 5.60	
to		120.0	1T	5.0	9.000	-0.433				
71	21.28	0.1459		0.0	14.870	2.170			Vel = 7.90	
	0.0									
	21.28					16.171			K Factor = 5.29	
702	21.55	1.049	2E	4.0	3.040	14.806			K Factor = 5.60	
to		120.0	1T	5.0	9.000	-0.433				
71	21.55	0.1493		0.0	12.040	1.798			Vel = 8.00	
	0.0									
	21.55					16.171			K Factor = 5.36	
703	22.44	1.049	2E	4.0	4.540	16.061			K Factor = 5.60	
to		120.0	1T	5.0	9.000	-0.433				
72	22.44	0.1611		0.0	13.540	2.181			Vel = 8.33	
	0.0									
	22.44					17.809			K Factor = 5.32	
704	16.80	1.049	3E	6.0	8.870	9.000			K Factor = 5.60	
to		120.0		0.0	6.000	-0.433				
73	16.8	0.0942		0.0	14.870	1.401			Vel = 6.24	
	0.0									
	16.80					9.968			K Factor = 5.32	
705	17.09	1.049	3E	6.0	5.160	9.316			K Factor = 5.60	
to		120.0		0.0	6.000	-0.433				
73	17.09	0.0972		0.0	11.160	1.085			Vel = 6.34	
	0.0									
	17.09					9.968			K Factor = 5.41	
706	19.89	1.049	2E	4.0	6.000	12.613			K Factor = 5.60	
to		120.0	1T	5.0	9.000	-0.433				
74	19.89	0.1288		0.0	15.000	1.932			Vel = 7.38	
	0.0									
	19.89					14.112			K Factor = 5.29	
707	23.21	1.049	2E	4.0	5.120	17.181			K Factor = 5.60	
to		120.0	1T	5.0	9.000	-0.433				
75	23.21	0.1714		0.0	14.120	2.420			Vel = 8.62	
	0.0									
	23.21					19.168			K Factor = 5.30	
708	19.14	1.049	3E	6.0	7.370	11.686			K Factor = 5.60	
to		120.0		0.0	6.000	-0.433				
76	19.14	0.1200		0.0	13.370	1.605			Vel = 7.11	
	0.0									
	19.14					12.858			K Factor = 5.34	
709	19.68	1.049	2E	4.0	9.870	12.348			K Factor = 5.60	
to		120.0	1T	5.0	9.000	-0.433				
77	19.68	0.1263		0.0	18.870	2.383			Vel = 7.31	

Firral Calculations - Hazen-Williams

Dean & Allyn, Inc
Ameriprise

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Date 6/8/12

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 19.68					14.298			K Factor = 5.20	
710 to 78	23.39	1.049 120.0 0.1739	2E 1T	4.0 5.0 0.0	6.000 9.000 15.000	17.450 -0.433 2.608			K Factor = 5.60	Vel = 8.68
	0.0 23.39					19.625			K Factor = 5.28	
70 to 71	20.57	1.049 120.0 0.1370		0.0 0.0 0.0	12.000 0.0 12.000	14.527 0.0 1.644				Vel = 7.64
71 to 72	42.82	1.61 120.0 0.1365		0.0 0.0 0.0	12.000 0.0 12.000	16.171 0.0 1.638				Vel = 9.99
72 to 80	22.44	1.61 120.0 0.2392	1T	8.0 0.0 0.0	17.000 8.000 25.000	17.809 0.0 5.979				Vel = 13.53
	0.0 85.83					23.788			K Factor = 17.60	
73 to 74	33.89	1.049 120.0 0.3453		0.0 0.0 0.0	12.000 0.0 12.000	9.968 0.0 4.144				Vel = 12.58
74 to 75	19.89	1.2 120.0 0.4213		0.0 0.0 0.0	12.000 0.0 12.000	14.112 0.0 5.056				Vel = 15.26
75 to 81	23.21	1.61 120.0 0.1956	1T	8.0 0.0 0.0	17.000 8.000 25.000	19.168 0.0 4.890				Vel = 12.13
	0.0 76.99					24.058			K Factor = 15.70	
76 to 77	19.14	1.049 120.0 0.1200		0.0 0.0 0.0	12.000 0.0 12.000	12.858 0.0 1.440				Vel = 7.11
77 to 78	19.68	1.049 120.0 0.4439		0.0 0.0 0.0	12.000 0.0 12.000	14.298 0.0 5.327				Vel = 14.41
78 to 79	23.40	1.38 120.0 0.2793		0.0 0.0 0.0	12.000 0.0 12.000	19.625 0.0 3.352				Vel = 13.35
79 to 82	0.0	1.61 120.0 0.1318	1T	8.0 0.0 0.0	5.000 8.000 13.000	22.977 0.0 1.714				Vel = 9.81
	0.0 62.22					24.691			K Factor = 12.52	
80 to 81	85.83	2.635 120.0 0.0217		0.0 0.0 0.0	12.460 0.0 12.460	23.788 0.0 0.270				Vel = 5.05
81 to 82	76.99	2.635 120.0 0.0710		0.0 0.0 0.0	8.920 0.0 8.920	24.058 0.0 0.633				Vel = 9.58

Final Calculations - Hazen-Williams

Dean & Allyn, Inc
Ameriprise

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Date 6/8/12

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
82 to FCS	62.22 225.04	2.635 120.0 0.1292	1I 1J 1B 1Eq	8.237 14.827 9.61 4.119	66.080 36.793 102.873	24.691 0.0 13.287		Vel = 13.24		
FCS to 10	0.0 225.04	4.26 120.0 0.0125	1I	9.217 0.0 0.0	84.000 9.217 93.217	37.978 38.113 1.161		Vel = 5.07		
10 to TR	0.0 225.04	6.357 120.0 0.0018	3I	37.72 0.0 0.0	20.000 37.720 57.720	77.252 0.0 0.102		Vel = 2.27		
TR to BR	0.0 225.04	6.357 120.0 0.0018	1Aty 1B	30.176 12.573 0.0	6.000 42.749 48.749	77.354 2.599 0.086		Vel = 2.27		
BR to PUMP	0.0 225.04	6.357 120.0 0.0018	2I	25.147 0.0 0.0	10.000 25.147 35.147	80.039 0.0 0.062		Vel = 2.27		
	100.00 325.04					80.101		Qa = 100.00 K Factor = 36.32		

Water Supply Curve (C)

Dean & Allyn, Inc
Ameriprise

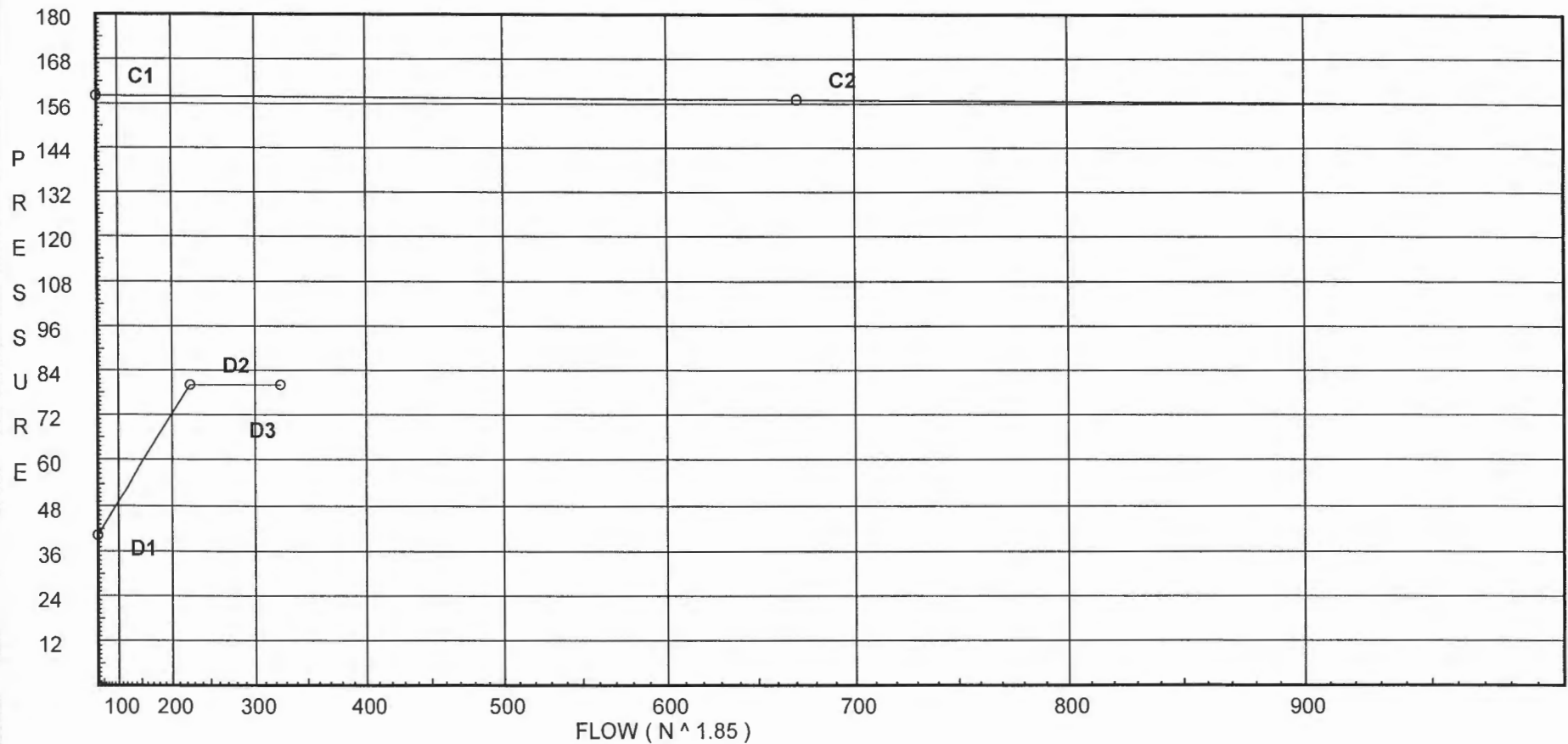
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Date 6/8/12

City Water Supply:

C1 - Static Pressure : 158
C2 - Residual Pressure: 157
C2 - Residual Flow : 671

Demand:

D1 - Elevation : 40.278
D2 - System Flow : 225.04
D2 - System Pressure : 80.101
Hose (Demand) : 100
D3 - System Demand : 325.04
Safety Margin : 77.637





... Fire Protection by Computer Design

Dean & Allyn, Inc
116 Lewiston Road
Gray, Maine 04039
(207)-657-5646

Job Name : Ameriprise
Building : 2 Portland Square
Location : Portland, Maine
System : 7
Contract : C121081
Data File : C121081.WX1

Hydraulic Design Information Sheet

Name - Ameriprise Date - 6/8/12
 Location - Portland, Maine
 Building - 2 Portland Square System No. - 7
 Contractor - Dean & Allyn, Inc. Contract No. - C121081
 Calculated By - C. Stewart Drawing No. - 1 of 1
 Construction: () Combustible (X) Non-Combustible Ceiling Height - 8'-0"
 Occupancy - Office

S (X) NFPA 13 (X) Lt. Haz. Ord.Haz.Gp. () 1 () 2 () 3 () Ex.Haz.
 Y () NFPA 231 () NFPA 231C () Figure Curve

S Other

T Specific Ruling Made By Date

M	Area of Sprinkler Operation	- 900	System Type	Sprinkler/Nozzle
	Density	- 0.10	(X) Wet	Make Reliable
D	Area Per Sprinkler	- 225	() Dry	Model G4A
E	Elevation at Highest Outlet	- 83	() Deluge	Size 1/2"
S	Hose Allowance - Inside	-	() Preaction	K-Factor 5.6
I	Rack Sprinkler Allowance	-	() Other	Temp.Rat.155F
G	Hose Allowance - Outside	- 100		

N Note *77.6psi Safety Margin

Calculation Flow Required - 80.1 Press Required - 325.0
 Summary C-Factor Used: 120 Overhead 140 Underground

W	Water Flow Test:	Pump Data:	Tank or Reservoir:
A	Date of Test - 12/5/2011		Cap. -
T	Time of Test -	Rated Cap.-	Elev.-
E	Static Press - 158	@ Press -	
R	Residual Press - 157	Elev. -	Well
	Flow - 671		Proof Flow
S	Elevation - -10		

U Location -

P Source of Information - Dean & Allyn, Inc. 2011 Pump test

C	Commodity	Class	Location
O	Storage Ht.	Area	Aisle W.
M	Storage Method:	%	Palletized % Rack
	() Single Row	() Conven. Pallet	() Auto. Storage () Encap.
S R	() Double Row	() Slave Pallet	() Solid Shelf () Non
T A	() Mult. Row		() Open Shelf

R K Flue Spacing Clearance:Storage to Ceiling
 A Longitudinal Transverse

G Horizontal Barriers Provided:

Pressure / Flow Summary - STANDARD

Dean & Allyn, Inc
Ameriprise

Page 3
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Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
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71	84.0		16.17	na				
72	84.0		17.81	na				
73	84.0		9.97	na				
74	84.0		14.11	na				
75	84.0		19.17	na				
76	84.0		12.86	na				
77	84.0		14.3	na				
78	84.0		19.62	na				
79	84.0		22.98	na				
80	84.0		23.79	na				
81	84.0		24.06	na				
82	84.0		24.69	na				
FCS	84.0		37.98	na				
10	-4.0		77.25	na				
TR	-4.0		77.35	na				
BR	-10.0		80.04	na				
PUMP	-10.0		80.1	na	100.0			

The maximum velocity is 15.26 and it occurs in the pipe between nodes 74 and 75

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Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
700	20.57	1.049	3E	6.0	4.750	13.487			K Factor = 5.60	
to		120.0		0.0	6.000	-0.433				
70	20.57	0.1370		0.0	10.750	1.473			Vel = 7.64	
	0.0									
	20.57					14.527			K Factor = 5.40	
701	21.28	1.049	2E	4.0	5.870	14.434			K Factor = 5.60	
to		120.0	1T	5.0	9.000	-0.433				
71	21.28	0.1459		0.0	14.870	2.170			Vel = 7.90	
	0.0									
	21.28					16.171			K Factor = 5.29	
702	21.55	1.049	2E	4.0	3.040	14.806			K Factor = 5.60	
to		120.0	1T	5.0	9.000	-0.433				
71	21.55	0.1493		0.0	12.040	1.798			Vel = 8.00	
	0.0									
	21.55					16.171			K Factor = 5.36	
703	22.44	1.049	2E	4.0	4.540	16.061			K Factor = 5.60	
to		120.0	1T	5.0	9.000	-0.433				
72	22.44	0.1611		0.0	13.540	2.181			Vel = 8.33	
	0.0									
	22.44					17.809			K Factor = 5.32	
704	16.80	1.049	3E	6.0	8.870	9.000			K Factor = 5.60	
to		120.0		0.0	6.000	-0.433				
73	16.8	0.0942		0.0	14.870	1.401			Vel = 6.24	
	0.0									
	16.80					9.968			K Factor = 5.32	
705	17.09	1.049	3E	6.0	5.160	9.316			K Factor = 5.60	
to		120.0		0.0	6.000	-0.433				
73	17.09	0.0972		0.0	11.160	1.085			Vel = 6.34	
	0.0									
	17.09					9.968			K Factor = 5.41	
706	19.89	1.049	2E	4.0	6.000	12.613			K Factor = 5.60	
to		120.0	1T	5.0	9.000	-0.433				
74	19.89	0.1288		0.0	15.000	1.932			Vel = 7.38	
	0.0									
	19.89					14.112			K Factor = 5.29	
707	23.21	1.049	2E	4.0	5.120	17.181			K Factor = 5.60	
to		120.0	1T	5.0	9.000	-0.433				
75	23.21	0.1714		0.0	14.120	2.420			Vel = 8.62	
	0.0									
	23.21					19.168			K Factor = 5.30	
708	19.14	1.049	3E	6.0	7.370	11.686			K Factor = 5.60	
to		120.0		0.0	6.000	-0.433				
76	19.14	0.1200		0.0	13.370	1.605			Vel = 7.11	
	0.0									
	19.14					12.858			K Factor = 5.34	
709	19.68	1.049	2E	4.0	9.870	12.348			K Factor = 5.60	
to		120.0	1T	5.0	9.000	-0.433				
77	19.68	0.1263		0.0	18.870	2.383			Vel = 7.31	

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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 19.68					14.298			K Factor = 5.20	
710 to 78	23.39	1.049 120.0	2E 1T	4.0 5.0 0.0	6.000 9.000 15.000	17.450 -0.433 2.608			K Factor = 5.60	
	0.0 23.39					19.625			K Factor = 5.28	
70 to 71	20.57	1.049 120.0		0.0 0.0 0.0	12.000 0.0 12.000	14.527 0.0 1.644			Vel = 7.64	
71 to 72	42.82	1.61 120.0		0.0 0.0 0.0	12.000 0.0 12.000	16.171 0.0 1.638			Vel = 9.99	
72 to 80	22.44	1.61 120.0	1T	8.0 0.0 0.0	17.000 8.000 25.000	17.809 0.0 5.979			Vel = 13.53	
	0.0 85.83					23.788			K Factor = 17.60	
73 to 74	33.89	1.049 120.0		0.0 0.0 0.0	12.000 0.0 12.000	9.968 0.0 4.144			Vel = 12.58	
74 to 75	19.89	1.2 120.0		0.0 0.0 0.0	12.000 0.0 12.000	14.112 0.0 5.056			Vel = 15.26	
75 to 81	23.21	1.61 120.0	1T	8.0 0.0 0.0	17.000 8.000 25.000	19.168 0.0 4.890			Vel = 12.13	
	0.0 76.99					24.058			K Factor = 15.70	
76 to 77	19.14	1.049 120.0		0.0 0.0 0.0	12.000 0.0 12.000	12.858 0.0 1.440			Vel = 7.11	
77 to 78	19.68	1.049 120.0		0.0 0.0 0.0	12.000 0.0 12.000	14.298 0.0 5.327			Vel = 14.41	
78 to 79	23.40	1.38 120.0		0.0 0.0 0.0	12.000 0.0 12.000	19.625 0.0 3.352			Vel = 13.35	
79 to 82	0.0	1.61 120.0	1T	8.0 0.0 0.0	5.000 8.000 13.000	22.977 0.0 1.714			Vel = 9.81	
	0.0 62.22					24.691			K Factor = 12.52	
80 to 81	85.83	2.635 120.0		0.0 0.0 0.0	12.460 0.0 12.460	23.788 0.0 0.270			Vel = 5.05	
81 to 82	76.99	2.635 120.0		0.0 0.0 0.0	8.920 0.0 8.920	24.058 0.0 0.633			Vel = 9.58	

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Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
82 to FCS	62.22 225.04	2.635 120.0 0.1292	1I 1J 1B 1EqI	8.237 14.827 9.61 4.119	66.080 36.793 102.873	24.691 0.0 13.287		Vel = 13.24		
FCS to 10	0.0 225.04	4.26 120.0 0.0125	1I	9.217 0.0 0.0	84.000 9.217 93.217	37.978 38.113 1.161		Vel = 5.07		
10 to TR	0.0 225.04	6.357 120.0 0.0018	3I	37.72 0.0 0.0	20.000 37.720 57.720	77.252 0.0 0.102		Vel = 2.27		
TR to BR	0.0 225.04	6.357 120.0 0.0018	1Aty 1B	30.176 12.573 0.0	6.000 42.749 48.749	77.354 2.599 0.086		Vel = 2.27		
BR to PUMP	0.0 225.04	6.357 120.0 0.0018	2I	25.147 0.0 0.0	10.000 25.147 35.147	80.039 0.0 0.062		Vel = 2.27		
	100.00 325.04					80.101		Qa = 100.00 K Factor = 36.32		

Water Supply Curve (C)

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City Water Supply:
C1 - Static Pressure : 158
C2 - Residual Pressure: 157
C2 - Residual Flow : 671

Demand:
D1 - Elevation : 40.278
D2 - System Flow : 225.04
D2 - System Pressure : 80.101
Hose (Demand) : 100
D3 - System Demand : 325.04
Safety Margin : 77.637

