

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK



CITY OF PORTLAND

BUILDING PERMIT

This is to certify that DEAN & ALLYN, INC.
of P.O. Box 709, Gray, ME 04039

Located At 61 INDIA ST
Pearl Properties, LLC

Job ID: 2011-3570FSS

CBL: 020 - - E - 021 - 001 - - - -

has permission to install an NFPA 13 & 13R Supervised 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

58

Fire Prevention Officer

Code Enforcement Officer / Plan Reviewer

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

BUILDING PERMIT INSPECTION PROCEDURES

Please call 874-8703 or 874-8693 (ONLY)

or email: buildinginspections@portlandmaine.gov

With the issuance of this permit, the owner, builder or their designee is required to provide adequate notice to the city of Portland Inspections Services for the following inspections. Appointments must be requested 48 to 72 hours in advance of the required inspection. The inspection date will need to be confirmed by this office.

- **Please read the conditions of approval that is attached to this permit!! Contact this office if you have any questions.**
- **Permits expire in 6 months. If the project is not started or ceases for 6 months.**
- **If the inspection requirements are not followed as stated below additional fees may be incurred due to the issuance of a "Stop Work Order" and subsequent release to continue.**

The project cannot move to the next phase prior to the required inspection and approval to continue, REGARDLESS OF THE NOTICE OF CIRCUMSTANCES.

IF THE PERMIT REQUIRES A CERTIFICATE OF OCCUPANCY, IT MUST BE PAID FOR AND ISSUED TO THE OWNER OR DESIGNEE BEFORE THE SPACE MAY BE OCCUPIED.



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: 2011-3570FSS
Installation of an NFPA 13 & 13R
supervised sprinkler system

For installation at:
61 INDIA ST

CBL: 020 - - E - 021 - 001 - - - -

Conditions of Approval:

Fire

The sprinkler system shall be installed in accordance with NFPA 13 and 13R.

The sprinkler shall be supervised in accordance with NFPA 101 and 72.

A separate Fire Alarm Permit is required.

Sprinkler protection shall be maintained. Where the system is to be shut down for maintenance or repair, the system shall be checked at the end of each day to insure the system has been placed back in service.

Fire department connection type location is approved; however additional approved signage shall be required on the building indicating the location of the FDC. The existing 4" stortz connection type is approved. The Fire Department will require Knox locking caps on the FDC.

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

Installation of a sprinkler or fire alarm system requires a Knox Box to be installed per city ordinance.

City of Portland, Maine - Building or Use Permit Application

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

Job No: 2011-02-463-UI 2011-3572FSS <i>20113570</i>	Date Applied: 5/17/2011	CBL: 020 - - E - 021 - 001 - - - - -	
Location of Construction: 61 INDIA ST	Owner Name: PEARL PROPERTIES LLC	Owner Address: 198 TUTTLE RD CUMBERLAND CTR, ME 04021	Phone:
Business Name:	Contractor Name: Theodore Clark - Dean & Allyn, Inc.	Contractor Address: PO Box 709, 116 Lewiston Rd., Gray ME 04039	Phone: (207) 657-5646
Lessee/Buyer's Name:	Phone:	Permit Type: BLDG - FSS	Zone: B-2b
Past Use: Mixed Use	Proposed Use: Mixed use	Cost of Work:	CEO District:
		Fire Dept: <input checked="" type="checkbox"/> Approved <i>w/ conditions</i> <input type="checkbox"/> Denied <input type="checkbox"/> N/A Signature: <i>Branley</i> (58)	Inspection: Use Group: Type: Signature
Proposed Project Description: 61 India UI #081124 - water based fire suppression system		Pedestrian Activities District (P.A.D.)	
Permit Taken By:	Zoning Approval		

	Special Zone or Reviews	Zoning Appeal	Historic Preservation
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 informatin may invalidate a building permit and stop all work.	<input type="checkbox"/> Shoreland <input type="checkbox"/> Wetlands <input type="checkbox"/> Flood Zone <input type="checkbox"/> Subdivision <input type="checkbox"/> Site Plan ___ Maj ___ Min ___ MM Date: <i>OK</i> <i>5/20/11 ABM</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>ABM</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		PHON



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.

Com mixed

Installation address: 601 India Street CBL: 020 E021

Exact location: (within structure) _____

Type of occupancy(s) (NFPA & ICC): Retail / Office / Residential

Building owner: Joseph Reynolds

Managing Supervisor (RMS): Theodore E Clarke License No: 208

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

Installing contractor: Dean & Allyn, Inc License No: 262

Contractor phone: 207-657-5646 E-mail: dStewart@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: 13 & 13R 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.

<p>COST OF WORK: \$17,700.00</p> <p>PERMIT FEE: \$210.00</p> <p>(\$10 PER \$1,000 + \$30 FOR THE FIRST \$1,000)</p> <p style="text-align: center;">RECEIVED</p> <p style="text-align: center;">MAY 17 2011</p>

Submit all information to the Building Inspections Department, 389 Congress Street, Room 415, Portland, Maine 04101.

*Dept. of Building Inspections
City of Portland, Maine*

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: Theodore E Clarke Date: 5/16/11



State of Maine
Department of Public Safety



Fire Sprinkler System Permit

9506

61 India Street

Located at: 61 India Street
In the Town of: Portland
Occupancy/Use: retail/offices/apartment
Type of System: NFPA 13R & 13

Permission is hereby given to:

Dean & Allyn, Inc.
PO Box 709
Gray, ME 04039
Contractor License # 262

to begin installation according to plans submittal approved by the Office of State Fire Marshal. The submittal is filed under log # 2111160, and no departure from the application submittal shall be made without prior approval in writing. This permit is issued under the provisions of Title 32, Chapter 20, Section 12004-1. Nothing herein shall excuse the holder of this permit from failure to comply with local ordinances, zoning laws, or other pertinent legal restrictions. This permit shall be displayed at the construction site or be made readily available.

This permit was issued on 5/14/2011 for a fee paid of \$100.00
This permit will expire at midnight on Thursday, November 10, 2011

The expiration date applies only if the installation has not begun by that date and no permission has been granted to extend the date. Once installation begins, then the permit is valid for however long it takes to complete the installation, assuming that the work is fairly continuous.

John E. Morris
Commissioner

The type of Fire Department Connection and its location is to be according to the Local Fire Department

Within 30 days of the completion of a new fire sprinkler system or an addition to an existing fire sprinkler system, a fire sprinkler system contractor shall provide to the Office of State Fire Marshal a copy of this permit signed and dated by the certified Responsible Managing Supervisor representing that the fire sprinkler system has been installed according to specifications of the approved plan to the best of the supervisor's knowledge, information, and belief. This requirement is part of the sprinkler law, and neglect of this duty is grounds to not renew the contractor's license to do work in the State of Maine. All renewed sprinkler licenses are good for two years and expire on a June 30th.

Job completed, tested and verified by date of _____

RMS for this job: Clarke Theodore F

RMS Signature: _____



Fire Protection by Computer Design

DEAN & ALLYN, INC.
PO BOX 709
116 LEWISTON ROAD
GRAY, MAINE 04039
207-657-5646

Job Name : C1003 INDIA STREET 1ST FLOOR-SHOP
Building : 1 OF 3
Location : PORTLAND, MAINE
System : WX3
Contract : C111003
Data File : C1003 INDIA STREET 1ST FLOOR AREA 1.wx3

HYDRAULIC CALCULATIONS
for

Project name: 61 INDIA STREET
Location: PORTLAND, MAINE
Drawing no: 1 OF 3
Date: 05/10/2011

Design

Remote area number: WX3
Remote area location: 1ST FLOOR
Occupancy classification: ORDINARY HAZARD 2
Density: 0.20 - Gpm/SqFt
Area of application: LARGEST ROOM - SqFt
Coverage per sprinkler: 100 - SqFt
Type of sprinklers calculated: K=5.6
No. of sprinklers calculated: 11
In-rack demand: 0 - GPM
Hose streams: 250 - GPM
Total water required (including hose streams): 506.11 - GPM @ 74.59 - Psi
Type of system: WET
Volume of dry or preaction system: N/A - Gal

Water supply information

Date: 04/20/2007
Location: HYDRANT #298
Source: PORTLAND WATER DISTRICT

Name of contractor: DEAN & ALLYN, INC.
Address: PO BOX 709 / 116 LEWISTON ROAD / GRAY, MAINE 04039
Phone number: 207-657-5646
Name of designer: T CLARKE
Authority having jurisdiction: MAINE STATE FIRE MARSHAL'S OFFICE
Notes: (Include peaking information or gridded systems here.) SAFETY MARGIN: 21.8 PSI

Final Calculations - Hazen-Williams

DEAN & ALLYN, INC.
C1003 INDIA STREET 1ST FLOOR-SHOP

Page 4
Date 05/10/2011

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	***** Notes *****
111 to 103	20.79	1.049 120.0	0.0	1.500	13.782		K Factor = 5.60
	20.79	0.1393	0.0	1.500	0.209		Vel = 7.72
	0.0						
	20.79				13.991		K Factor = 5.56
112 to 113	20.59	1.049 120.0	0.0	6.000	13.523		K Factor = 5.60
	20.59	0.1373	0.0	6.000	0.824		Vel = 7.64
113 to 114	21.21	1.049 120.0	0.0	7.170	14.347		K Factor = 5.60
	41.8	0.5091	0.0	7.170	3.650		Vel = 15.52
114 to 115	23.76	1.38 120.0	0.0	7.170	17.997		K Factor = 5.60
	65.56	0.3078	0.0	7.170	2.207		Vel = 14.06
115 to 116	25.17	1.61 120.0	0.0	7.170	20.204		K Factor = 5.60
	90.73	0.2650	0.0	7.170	1.900		Vel = 14.30
116 to 117	26.33	1.61 120.0	2E 8.0	2.840	22.104		K Factor = 5.60
	117.06	0.4245	0.0	8.000	-0.935		Vel = 18.45
117 to 108	0.0	1.682 120.0	0.0	10.840	4.602		Vel = 18.45
	117.06	0.3431	0.0	13.330	25.771		Vel = 16.90
	0.0						
	117.06				30.345		K Factor = 21.25
101 to 102	20.00	1.049 120.0	0.0	1.000	12.755		K Factor = 5.60
	20.0	0.1300	0.0	1.000	0.130		Vel = 7.42
102 to 103	0.0	1.049 120.0	1T 5.0	3.500	12.885		
	20.0	0.1301	0.0	5.000	0.0		Vel = 7.42
103 to 104	20.79	1.049 120.0	0.0	8.500	1.106		Vel = 7.42
	20.79	1.049	0.0	4.500	13.991		
104 to 105	40.79	0.4864 120.0	0.0	0.0	0.0		Vel = 15.14
	22.53	1.38	0.0	4.500	2.189		Vel = 15.14
105 to 106	63.32	0.2886 120.0	0.0	7.170	16.180		K Factor = 5.60
	23.92	1.61	0.0	0.0	0.0		Vel = 13.58
106 to 107	87.24	0.2464 120.0	0.0	7.170	18.249		K Factor = 5.60
	25.05	1.61	0.0	0.0	0.0		Vel = 13.75
	112.29	0.3932	0.0	7.170	1.767		Vel = 13.75
			0.0	7.170	20.016		K Factor = 5.60
			0.0	0.0	0.0		Vel = 17.70

Final Calculations - Hazen-Williams

DEAN & ALLYN, INC.
C1003 INDIA STREET 1ST FLOOR-SHOP

Page 5
Date 05/10/2011

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	***** Notes *****
107	26.76	1.61	1T 8.0	1.420	22.835		K Factor = 5.60
to		120.0	1E 4.0	12.000	-0.325		
108	139.05	0.5838	0.0	13.420	7.835		Vel = 21.91
108	117.06	2.067	4I 14.0	11.333	30.345		Vel = 24.49
to		120.0	0.0	14.000	0.902		
109	256.11	0.5352	0.0	25.333	13.559		Vel = 24.49
109	0.0	2.157	1J 10.461	11.542	44.806		Vel = 22.49
to		120.0	0.0	10.461	0.0		
110	256.11	0.4349	0.0	22.003	9.569		Vel = 22.49
110	0.0	2.157	1I 4.307	9.125	54.375		Vel = 22.49
to		120.0	1J 10.461	14.768	0.144		
TR	256.11	0.4349	0.0	23.893	10.392		Vel = 22.49
TR	0.0	3.26	1Zca 0.0	16.792	64.911		* Fixed loss = 4.111
to		120.0	1E 9.408	16.128	8.929		
BR	256.11	0.0582	1I 6.72	32.920	1.916		Vel = 9.84
BR	0.0	4.1	2E 29.067	150.000	75.756		Vel = 6.22
to		140.0	1T 29.067	61.041	3.465		
CITY	256.11	0.0143	1G 2.907	211.041	3.023		Qa = 250
CITY	250.00	8.27	1E 28.468	520.000	82.244		Vel = 3.02
to		140.0	1T 55.354	90.148	-8.662		
TEST	506.11	0.0017	1G 6.326	610.148	1.011		Vel = 3.02
	0.0						K Factor = 58.60
	506.11				74.593		

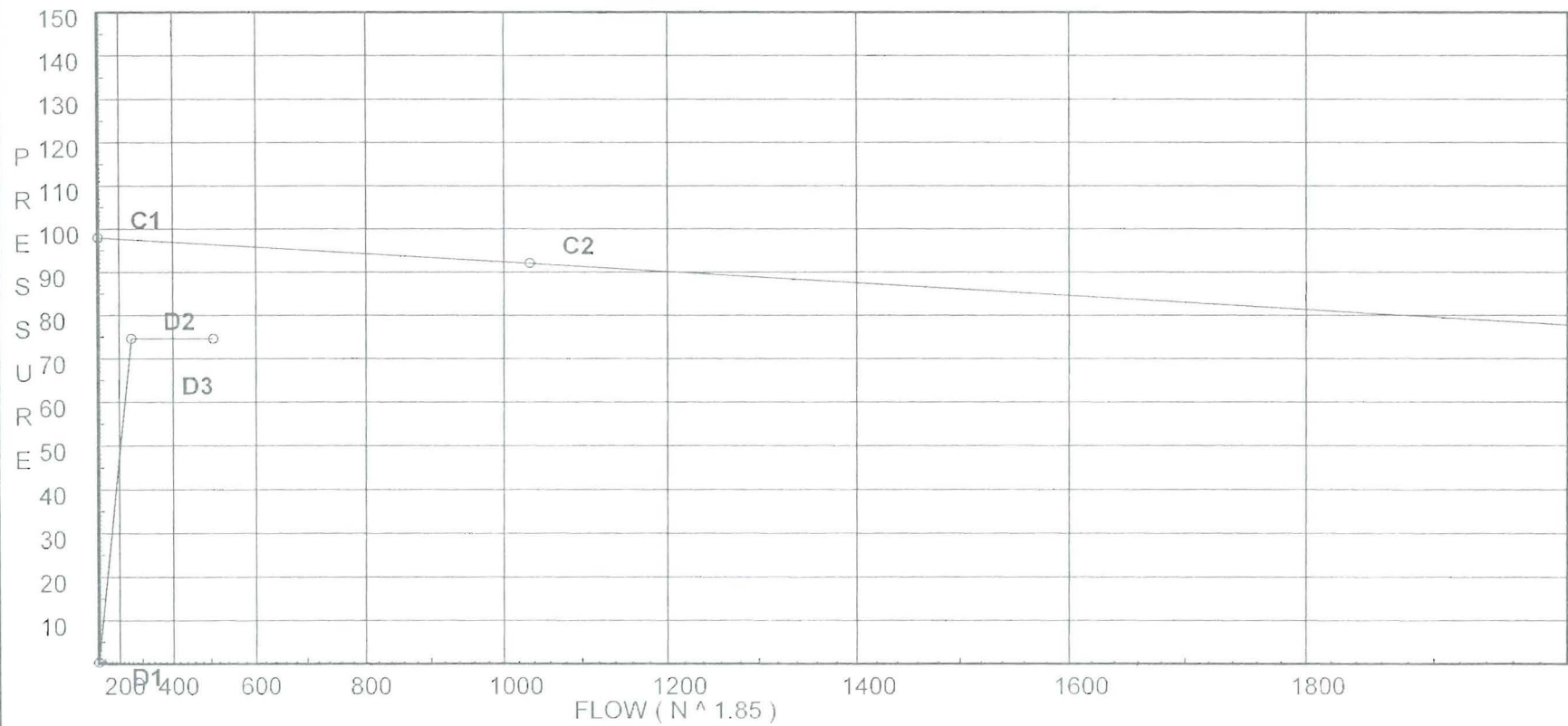
Water Supply Curve (C)

DEAN & ALLYN, INC.
 C1003 INDIA STREET 1ST FLOOR-SHOP

Page 6
 Date 05/10/2011

City Water Supply:
 C1 - Static Pressure : 98
 C2 - Residual Pressure: 92
 C2 - Residual Flow : 1034

Demand:
 D1 - Elevation : 0.342
 D2 - System Flow : 256.113
 D2 - System Pressure : 74.593
 Hose (Demand) : 250
 D3 - System Demand : 506.113
 Safety Margin : 21.807





... Fire Protection by Computer Design

DEAN & ALLYN, INC.
PO BOX 709
116 LEWISTON ROAD
GRAY, MAINE 04039
207-657-5646

Job Name : C1003 INDIA STREET 2ND FLOOR
Building : 2 OF 3
Location : PORTLAND, MAINE
System : WX1
Contract : C111003
Data File : C1003 INDIA STREET 2ND FLOOR.wx1

HYDRAULIC CALCULATIONS
for

Project name: 61 INDIA STREET
Location: PORTLAND, MAINE
Drawing no: 2 OF 3
Date: 05/10/2011

Design

Remote area number: WX1
Remote area location: 2ND FLOOR
Occupancy classification: LIGHT/ORDINARY HAZARD 1
Density: .15 - Gpm/SqFt
Area of application: LARGEST ROOM - SqFt
Coverage per sprinkler: 130 - SqFt
Type of sprinklers calculated: K=5.6
No. of sprinklers calculated: 7
In-rack demand: 0 - GPM
Hose streams: 250 - GPM
Total water required (including hose streams): 402.075 - GPM @ 65.14 - Psi
Type of system: WET
Volume of dry or preaction system: N/A - Gal

Water supply information

Date: 04/20/2007
Location: HYDRANT #298
Source: PORTLAND WATER DISTRICT

Name of contractor: DEAN & ALLYN, INC.
Address: PO BOX 709 / 116 LEWISTON ROAD / GRAY, MAINE 04039
Phone number: 207-657-5646
Name of designer: T CLARKE
Authority having jurisdiction: MAINE STATE FIRE MARSHAL'S OFFICE
Notes: (Include peaking information or gridded systems here.) SAFETY MARGIN: 31.8 PSI

Fittings Used Summary

DEAN & ALLYN, INC.
C1003 INDIA STREET 2ND FLOOR

Page 2
Date 05/10/2011

Fitting Legend		1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	8	10	12	14	16	18	20	24	
Abbrev.	Name																					
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	
G	NFPA 13 Gate Valve	0	0	0	0	0	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13	
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	
T	NFPA 13 90° Flow thru Tee	3	4	5	6	8	10	12	15	17	20	25	30	35	50	60	71	81	91	101	121	
Zca	Colt C200 Horz Butt	Fitting generates a Fixed Loss Based on Flow																				

Units Summary

Diameter Units	Inches
Length Units	Feet
Flow Units	US Gallons per Minute
Pressure Units	Pounds per Square Inch

Note: Fitting Legend provides equivalent pipe lengths for fittings types of various diameters. Equivalent lengths shown are standard for actual diameters of Sched 40 pipe and CFactors of 120 except as noted with *. The fittings marked with a * show equivalent lengths values supplied by manufacturers based on specific pipe diameters and CFactors and they require no adjustment. All values for fittings not marked with a * will be adjusted in the calculation for CFactors of other than 120 and diameters other than Sched 40 per NFPA.

Pressure / Flow Summary - STANDARD

DEAN & ALLYN, INC.
 C1003 INDIA STREET 2ND FLOOR

Page 3
 Date 05/10/2011

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
201	29.208	5.6	12.13	na	19.5	0.15	130	7.0
202	29.208	5.6	12.32	na	19.65	0.15	130	7.0
203	29.208		13.32	na				
204	29.208	5.6	15.13	na	21.79	0.15	130	7.0
205	29.208	5.6	12.76	na	20.0	0.15	130	7.0
206	29.208	5.6	13.8	na	20.8	0.15	130	7.0
207	29.208		18.79	na				
208	27.375	5.6	19.44	na	24.69	0.15	130	7.0
209	27.375	5.6	20.97	na	25.65	0.15	130	7.0
210	27.375		26.59	na				
211	29.542		31.4	na				
212	28.708		37.68	na				
213	28.708		39.04	na				
214	28.708		39.86	na				
215	28.708		40.91	na				
216	28.708		42.05	na				
217	28.708		43.96	na				
218	28.708		46.43	na				
219	28.708		51.07	na				
TR	19.125		59.14	na				
BR	8.0		68.52	na				
CITY	0.0		73.14	na	250.0			
TEST	20.0		65.14	na				

The maximum velocity is 18.68 and it occurs in the pipe between nodes 209 and 210

Final Calculations - Hazen-Williams

DEAN & ALLYN, INC.
C1003 INDIA STREET 2ND FLOOR

Page 4
Date 05/10/2011

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	***** Notes *****
201	19.50	1.049	1T	5.0	4.583	12.125		K Factor = 5.60
to		120.0		0.0	5.000	0.0		
203	19.5	0.1242		0.0	9.583	1.190		Vel = 7.24
	0.0							
	19.50					13.315		K Factor = 5.34
202	19.65	1.049	1T	5.0	2.917	12.318		K Factor = 5.60
to		120.0		0.0	5.000	0.0		
203	19.65	0.1259		0.0	7.917	0.997		Vel = 7.29
203	19.50	1.38	1E	3.0	12.333	13.315		
to		120.0		0.0	3.000	0.0		
204	39.15	0.1186		0.0	15.333	1.819		Vel = 8.40
204	21.79	1.38	1E	3.0	10.583	15.134		K Factor = 5.60
to		120.0		0.0	3.000	0.0		
207	60.94	0.2689		0.0	13.583	3.652		Vel = 13.07
	0.0							
	60.94					18.786		K Factor = 14.06
205	20.00	1.049		0.0	8.000	12.756		K Factor = 5.60
to		120.0		0.0	0.0	0.0		
206	20.0	0.1301		0.0	8.000	1.041		Vel = 7.42
206	20.80	1.049	1E	2.0	3.250	13.797		K Factor = 5.60
to		120.0	1T	5.0	7.000	0.0		
207	40.8	0.4867		0.0	10.250	4.989		Vel = 15.15
207	60.94	1.61	2E	8.0	13.417	18.786		
to		120.0		0.0	8.000	0.794		
210	101.74	0.3275		0.0	21.417	7.014		Vel = 16.03
	0.0							
	101.74					26.594		K Factor = 19.73
208	24.69	1.049		0.0	8.000	19.436		K Factor = 5.60
to		120.0		0.0	0.0	0.0		
209	24.69	0.1921		0.0	8.000	1.537		Vel = 9.17
209	25.64	1.049	1T	5.0	2.833	20.973		K Factor = 5.60
to		120.0		0.0	5.000	0.0		
210	50.33	0.7176		0.0	7.833	5.621		Vel = 18.68
210	101.74	2.067	1E	5.0	13.125	26.594		
to		120.0	1T	10.0	15.000	-0.939		
211	152.07	0.2041		0.0	28.125	5.740		Vel = 14.54
211	0.0	2.067	2T	20.0	9.042	31.395		
to		120.0		0.0	20.000	0.361		
212	152.07	0.2041		0.0	29.042	5.927		Vel = 14.54
212	0.0	2.067		0.0	6.667	37.683		
to		120.0		0.0	0.0	0.0		
213	152.07	0.2040		0.0	6.667	1.360		Vel = 14.54

Final Calculations - Hazen-Williams

DEAN & ALLYN, INC.
C1003 INDIA STREET 2ND FLOOR

Page 5
Date 05/10/2011

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	***** Notes *****
213	0.0	2.067		4.000	39.043		
to		120.0		0.0	0.0		
214	152.07	0.2040		4.000	0.816		Vel = 14.54
214	0.0	2.067		5.167	39.859		
to		120.0		0.0	0.0		
215	152.07	0.2042		5.167	1.055		Vel = 14.54
215	0.0	2.067		5.583	40.914		
to		120.0		0.0	0.0		
216	152.07	0.2040		5.583	1.139		Vel = 14.54
216	0.0	2.067		9.333	42.053		
to		120.0		0.0	0.0		
217	152.07	0.2040		9.333	1.904		Vel = 14.54
217	0.0	2.067	1T 10.0	2.125	43.957		
to		120.0		0.0	10.000	0.0	
218	152.07	0.2041		12.125	2.475		Vel = 14.54
218	0.0	2.067	1T 10.0	12.708	46.432		
to		120.0		0.0	10.000	0.0	
219	152.07	0.2040		22.708	4.633		Vel = 14.54
219	0.0	2.067	2E 10.0	9.208	51.065		
to		120.0		0.0	10.000	4.150	
TR	152.07	0.2041		19.208	3.920		Vel = 14.54
TR	0.0	3.26	1Zca 0.0	16.792	59.135		
to		120.0	1E 9.408	16.128	8.658		* Fixed loss = 3.84
BR	152.07	0.0222	1I 6.72	32.920	0.731		Vel = 5.85
BR	0.0	4.1	2E 29.067	150.000	68.524		
to		140.0	1T 29.067	61.041	3.465		
CITY	152.07	0.0055	1G 2.907	211.041	1.152		Vel = 3.70
CITY	250.01	8.27	1E 28.468	520.000	73.141		Qa = 250
to		140.0	1T 55.354	90.148	-8.662		
TEST	402.08	0.0011	1G 6.326	610.148	0.661		Vel = 2.40
	0.0						
	402.08				65.140		K Factor = 49.82

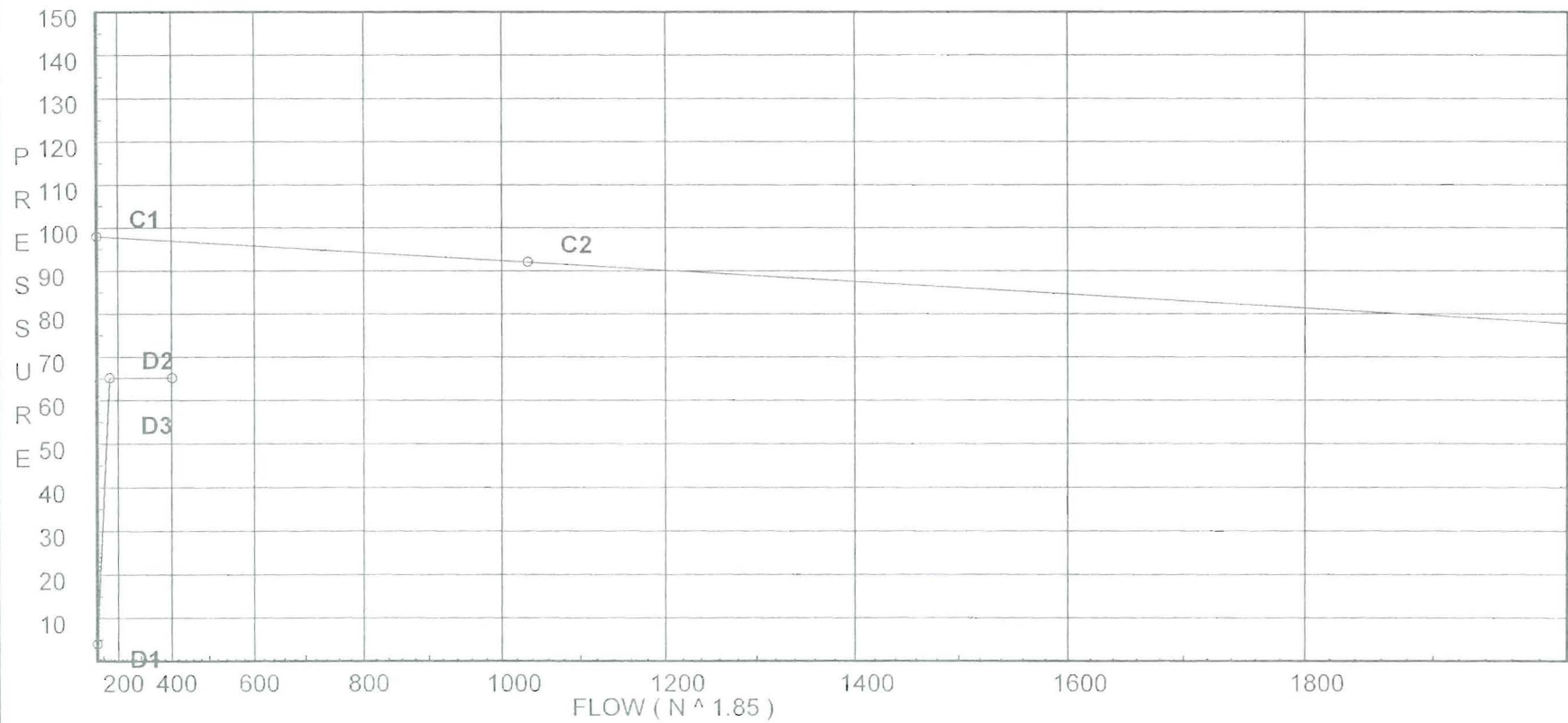
Water Supply Curve (C)

DEAN & ALLYN, INC.
C1003 INDIA STREET 2ND FLOOR

Page 6
Date 05/10/2011

City Water Supply:
C1 - Static Pressure : 98
C2 - Residual Pressure: 92
C2 - Residual Flow : 1034

Demand:
D1 - Elevation : 3.988
D2 - System Flow : 152.075
D2 - System Pressure : 65.140
Hose (Demand) : 250
D3 - System Demand : 402.075
Safety Margin : 31.815





... Fire Protection by Computer Design

DEAN & ALLYN, INC.
PO BOX 709
116 LEWISTON ROAD
GRAY, MAINE 04039
207-657-5646

Job Name : C1003 INDIA STREET 4TH FLOOR
Building : 3 OF 3
Location : PORTLAND, MAINE
System : WX1
Contract : C111003
Data File : C1003 INDIA STREET 4TH FLOOR.wx1

HYDRAULIC CALCULATIONS
for

Project name: 61 INDIA STREET
Location: PORTLAND, MAINE
Drawing no: 3 OF 3
Date: 05/10/2011

Design

Remote area number: WX1
Remote area location: 4TH FLOOR
Occupancy classification: RESIDENTIAL
Density: 0.05 - Gpm/SqFt
Area of application: 4 HEADS - SqFt
Coverage per sprinkler: 256 - SqFt
Type of sprinklers calculated: K=4.0
No. of sprinklers calculated: 4
In-rack demand: 0 - GPM
Hose streams: 0 - GPM
Total water required (including hose streams): 64.86 - GPM @ 46.73 - Psi
Type of system: WET
Volume of dry or preaction system: N/A - Gal

Water supply information

Date: 04/20/2007
Location: HYDRANT #298
Source: PORTLAND WATER DISTRICT

Name of contractor: DEAN & ALLYN, INC.
Address: PO BOX 709 / 116 LEWISTON ROAD / GRAY, MAINE 04039
Phone number: 207-657-5646
Name of designer: T CLARKE
Authority having jurisdiction: MAINE STATE FIRE MARSHAL'S OFFICE
Notes: (Include peaking information or gridded systems here.)SAFETY MARGIN: 51.2 PSI

Fittings Used Summary

DEAN & ALLYN, INC.
C1003 INDIA STREET 4TH FLOOR

Page 2
Date 05/10/2011

Fitting Legend		½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8	10	12	14	16	18	20	24
Abbrev.	Name																				
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
G	NFPA 13 Gate Valve	0	0	0	0	0	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
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
T	NFPA 13 90' Flow thru Tee	3	4	5	6	8	10	12	15	17	20	25	30	35	50	60	71	81	91	101	121
Zca	Colt C200 Horz Butt	Fitting generates a Fixed Loss Based on Flow																			

Units Summary

Diameter Units	Inches
Length Units	Feet
Flow Units	US Gallons per Minute
Pressure Units	Pounds per Square Inch

Note: Fitting Legend provides equivalent pipe lengths for fittings types of various diameters. Equivalent lengths shown are standard for actual diameters of Sched 40 pipe and CFactors of 120 except as noted with *. The fittings marked with a * show equivalent lengths values supplied by manufacturers based on specific pipe diameters and CFactors and they require no adjustment. All values for fittings not marked with a * will be adjusted in the calculation for CFactors of other than 120 and diameters other than Sched 40 per NFPA.

Pressure / Flow Summary - STANDARD

DEAN & ALLYN, INC.
C1003 INDIA STREET 4TH FLOOR

Page 3
Date 05/10/2011

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
401	48.063		16.72	na				
402A	47.563		16.94	na				
402	48.063		16.72	na				
403	47.146		17.12	na				
404	46.75	4	16.0	na	16.0	0.05	256	16.0
408	46.75	4	16.18	na	16.09	0.05	256	16.0
413	46.75	4	16.47	na	16.23	0.05	256	16.0
417	46.75	4	17.09	na	16.54	0.05	256	16.0
405	47.146		17.12	na				
407	47.146		17.16	na				
409	47.146		17.23	na				
412	47.146		17.45	na				
414	47.146		17.54	na				
416	47.146		18.03	na				
418	47.146		18.2	na				
419	47.854		22.27	na				
319	38.0		27.94	na				
219	28.708		34.88	na				
TR	19.125		39.84	na				
BR	8.0		51.66	na				
CITY	0.0		55.37	na				
TEST	20.0		46.73	na				

The maximum velocity is 10.22 and it occurs in the pipe between nodes 418 and 419

Final Calculations - Hazen-Williams

DEAN & ALLYN, INC.
C1003 INDIA STREET 4TH FLOOR

Page 4
Date 05/10/2011

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	***** Notes *****
401	0.0	1.049	3E 6.0	15.000	16.723		
to		120.0	0.0	6.000	0.0		
402	0.0	0.0	0.0	21.000	0.0		Vel = 0
	0.0				16.723		K Factor = 0
402A	0.0	1.049	1T 5.0	0.500	16.940		
to		120.0	0.0	5.000	-0.217		
402	0.0	0.0	0.0	5.500	0.0		Vel = 0
402	0.0	1.049	1E 2.0	10.250	16.723		
to		120.0	1T 5.0	7.000	0.397		
403	0.0	0.0	0.0	17.250	0.0		Vel = 0
403	0.0	1.38	0.0	3.917	17.120		
to		120.0	0.0	0.0	0.0		
405	0.0	0.0	0.0	3.917	0.0		Vel = 0
	0.0				17.120		K Factor = 0
404	16.00	1.049	3E 6.0	4.000	16.000		K Factor = 4.00
to		120.0	1T 5.0	11.000	-0.172		
405	16.0	0.0861	0.0	15.000	1.292		Vel = 5.94
	0.0				17.120		K Factor = 3.87
408	16.09	1.049	3E 6.0	3.000	16.181		K Factor = 4.00
to		120.0	1T 5.0	11.000	-0.172		
409	16.09	0.0871	0.0	14.000	1.219		Vel = 5.97
	0.0				17.228		K Factor = 3.88
413	16.23	1.049	3E 6.0	3.000	16.471		K Factor = 4.00
to		120.0	1T 5.0	11.000	-0.172		
414	16.23	0.0885	0.0	14.000	1.239		Vel = 6.03
	0.0				17.538		K Factor = 3.88
417	16.54	1.049	3E 6.0	3.000	17.089		K Factor = 4.00
to		120.0	1T 5.0	11.000	-0.172		
418	16.54	0.0916	0.0	14.000	1.282		Vel = 6.14
	0.0				18.199		K Factor = 3.88
405	16.00	1.38	0.0	1.833	17.120		
to		120.0	0.0	0.0	0.0		
407	16.0	0.0229	0.0	1.833	0.042		Vel = 3.43
407	0.0	1.61	0.0	6.167	17.162		
to		120.0	0.0	0.0	0.0		
409	16.0	0.0107	0.0	6.167	0.066		Vel = 2.52

Final Calculations - Hazen-Williams

DEAN & ALLYN, INC.
C1003 INDIA STREET 4TH FLOOR

Page 5
Date 05/10/2011

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	***** Notes *****
409	16.09	1.61		5.792		17.228	
to		120.0	0.0	0.0	0.0		
412	32.09	0.0387		5.792		0.224	Vel = 5.06
412	0.0	1.61		2.208		17.452	
to		120.0	0.0	0.0	0.0		
414	32.09	0.0389		2.208		0.086	Vel = 5.06
414	16.23	1.61		6.000		17.538	
to		120.0	0.0	0.0	0.0		
416	48.32	0.0825		6.000		0.495	Vel = 7.61
416	0.0	1.61		2.000		18.033	
to		120.0	0.0	0.0	0.0		
418	48.32	0.0830		2.000		0.166	Vel = 7.61
418	16.54	1.61	3E 12.0	18.750		18.199	
to		120.0	0.0	12.000		-0.307	
419	64.86	0.1424		30.750		4.379	Vel = 10.22
419	0.0	1.61		9.854		22.271	
to		120.0	0.0	0.0		4.268	
319	64.86	0.1424		9.854		1.403	Vel = 10.22
319	0.0	1.61	1E 4.0	8.458		27.942	
to		120.0	1T 8.0	12.000		4.024	
219	64.86	0.1424		20.458		2.914	Vel = 10.22
219	0.0	2.067	2E 10.0	9.208		34.880	
to		120.0	0.0	10.000		4.150	
TR	64.86	0.0422		19.208		0.811	Vel = 6.20
TR	0.0	3.26	1Zca 0.0	16.792		39.841	
to		120.0	1E 9.408	16.128		11.670	* Fixed loss = 6.852
BR	64.86	0.0046	1I 6.72	32.920		0.151	Vel = 2.49
BR	0.0	4.1	2E 29.067	150.000		51.662	
to		140.0	1T 29.067	61.041		3.465	
CITY	64.86	0.0011	1G 2.907	211.041		0.238	Vel = 1.58
CITY	0.0	8.27	1E 28.468	520.000		55.365	
to		140.0	1T 55.354	90.148		-8.662	
TEST	64.86	0.0	1G 6.326	610.148		0.023	Vel = 0.39
	0.0						
	64.86					46.726	K Factor = 9.49

Water Supply Curve (C)

DEAN & ALLYN, INC.
 C1003 INDIA STREET 4TH FLOOR

City Water Supply:		Demand:	
C1 - Static Pressure	: 98	D1 - Elevation	: 11.585
C2 - Residual Pressure	: 92	D2 - System Flow	: 64.859
C2 - Residual Flow	: 1034	D2 - System Pressure	: 46.726
		Hose (Demand)	:
		D3 - System Demand	: 64.859
		Safety Margin	: 51.238

