

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK



# CITY OF PORTLAND BUILDING PERMIT



This is to certify that

S S & M LLC /Dean & Allyn Inc.

Located at

264 STATE ST

PERMIT ID: 2012-65640

CBL: 048 D023001

has permission to **install NFPA 13R 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 clsoed-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 procured prior to occupancy.

  
Fire Prevention Officer

58

Code Enforcement Officer / Plan Reviewer

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

**BUILDING PERMIT INSPECTION PROCEDURES**  
Please call 874-8703 (ONLY)  
or email: [buildinginspections@portlandmaine.gov](mailto: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.**

**REQUIRED INSPECTIONS:**

Final - Fire

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.

**City of Portland, Maine - Building or Use Permit**

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

<b>Permit No:</b> 201265640	<b>Date Applied For:</b> 12/17/2012	<b>CBL:</b> 048 D023001
--------------------------------	--	----------------------------

<b>Location of Construction:</b> 264 STATE ST	<b>Owner Name:</b> S S & M LLC	<b>Owner Address:</b> 88 ANNAFRAN ST	<b>Phone:</b>
<b>Business Name:</b>	<b>Contractor Name:</b> Dean & Allyn Inc.	<b>Contractor Address:</b> P.O. Box 709, 32 Lewiston Rd Gray	<b>Phone</b> (207) 657-5646
<b>Lessee/Buyer's Name</b>	<b>Phone:</b>	<b>Permit Type:</b> Fire Suppression Water Based	

<b>Proposed Use:</b> Same: thirteen residential dwelling units	<b>Proposed Project Description:</b> install NFPA 13R sprinkler system.
---	--

<b>Dept:</b> Zoning	<b>Status:</b> Approved	<b>Reviewer:</b> Marge Schmuckal	<b>Approval Date:</b> 12/18/2012
<b>Note:</b>	<b>Ok to Issue:</b> <input checked="" type="checkbox"/>		

<b>Dept:</b> Fire	<b>Status:</b> Approved w/Conditions	<b>Reviewer:</b> Ben Wallace Jr	<b>Approval Date:</b> 01/01/2013
<b>Note:</b> Installation of supervised sprinkler system for single means of egress.	<b>Ok to Issue:</b> <input checked="" type="checkbox"/>		
<ol style="list-style-type: none"> <li>1) All control, drain, and test connection valves shall be provided with permanently marked weatherproof metal or rigid plastic identification signs secured with corrosion-resistant wire, chain, or other approved means.</li> <li>2) A 4100 series Knox Box is required. A hinged 3200 series Knox Box may be installed if the building is master keyed.</li> <li>3) The entire sprinkler system shall be maintained in accordance with NFPA 25, Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems, 2008 edition.</li> <li>4) System acceptance and commissioning must be coordinated with alarm and suppression system contractors and the Fire Department. Call 874-8703 to schedule.</li> <li>5) Fire department connection shall be one 2 1/2" inlet.</li> <li>6) 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.</li> <li>7) The sprinkler system shall be supervised in accordance with NFPA 101, Life Safety Code, and NFPA 72, National Fire Alarm and Signaling Code.</li> <li>8) Installation shall be in accordance with the City of Portland Fire Department Regulations and NFPA 13R as published. A copy of the State Sprinkler permit(s) with RMS date and signature and the Contractor's Material and Test Certificates for Aboveground Piping (NFPA 13R figure 10.1.2) shall be provided prior to scheduling of a final inspection.</li> </ol>			

**City of Portland, Maine - Building or Use Permit Application**

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

Permit No: 2012-65640	Issue Date:	CBL: 048 D023001
--------------------------	-------------	---------------------

Location of Construction: 264 STATE ST	Owner Name: S S & M LLC	Owner Address: 88 ANNAFRAN ST, Roslindale MA 0213	Phone: NA 0213
Business Name:	Contractor Name: Dean & Allyn Inc.	Contractor Address: P.O. Box 709, 32 Lewiston Rd Gray	Phone: (207) 657-5646
Lessee/Buyer's Name	Phone:	Permit Type: Fire Alarm / Suppression	Zone: R6
Past Use: thirteen residential dwelling units	Proposed Use: Same: thirteen residential dwelling units	Permit Fee: \$480.00	Cost of Work: \$45,900.00
		CEO District: 4	
Proposed Project Description: Install Water Based Fire suppression system		FIRE DEPT: <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Denied <input type="checkbox"/> N/A 1/1/13	INSPECTION: Use Group: Type:
		Signature: <i>[Signature]</i>	Signature:
		PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.)	
		Action: <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied	
		Signature:	Date:

Permit Taken By: Idobson	Date Applied For: 12/17/2012	<b>Zoning Approval</b>		
<ol style="list-style-type: none"> <li>This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.</li> <li>Building permits do not include plumbing, septic or electrical work.</li> <li>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..</li> </ol>		<b>Special Zone or Reviews</b> <input type="checkbox"/> Shoreland <input type="checkbox"/> Wetland <input type="checkbox"/> Flood Zone <input type="checkbox"/> Subdivision <input type="checkbox"/> Site Plan Maj <input type="checkbox"/> Minor <input type="checkbox"/> MM <input checked="" type="checkbox"/> Date: <i>OK - 12/18/12</i>	<b>Zoning Appeal</b> <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:	<b>Historic Preservation</b> <i>with</i> <input type="checkbox"/> Not in District 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>Requires A separate review - Approval</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

2012 656 40



# 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: 264 State St CBL: 48-D-23

Exact location: (within structure) \_\_\_\_\_

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

Building owner: Mike Scannel

Managing Supervisor (RMS): DANA Stewart License No: 261

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

Installing contractor: Dean and Allyn Inc License No: 262

Contractor phone: 657 5646 E-mail: hking@maine.rv.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 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](http://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.

<b>COST OF WORK:</b> <u>45906</u>
<b>PERMIT FEE:</b> <u>\$480</u>
(\$10 PER \$1,000 + \$30 FOR THE FIRST \$1,000)
<b>RECEIVED</b>
<b>DEC 17 2012</b>
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 Standards.

Applicant signature: Harry King Date: 12/12/12



... Fire Protection by Computer Design

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

Job Name : 264 STATE STREET SECOND FLOOR  
Building : 264 STATE ST  
Location : 264 STATE ST  
System : ONE  
Contract : 1119  
Data File : 264STATE SECOND FLOOR.WXF

HYDRAULIC DESIGN INFORMATION SHEET

Name - 264 STATE STREET SECOND FLOOR Date - 12-8-12  
Location - 264 STATE ST  
Building - 264 STATE ST System No. - ONE  
Contractor - DEAN AND ALLYN, INC. Contract No. - 1119  
Calculated By - H. KING Drawing No. - 1 OF 1  
Construction: (X) Combustible ( ) Non-Combustible Ceiling Height 10'  
OCCUPANCY - APARTMENT BUILDING

S Type of Calculation: ( )NFPA 13 Residential (X)NFPA 13R ( )NFPA 13D  
Y Number of Sprinklers Flowing: ( )1 ( )2 (X)4 ( )  
S ( )Other  
T ( )Specific Ruling Made by Date  
E  
M Listed Flow at Start Point - 13 Gpm System Type  
Listed Pres. at Start Point - 11 Psi (X) Wet ( ) Dry  
D MAXIMUM LISTED SPACING 16 x 16 ( ) Deluge ( ) PreAction  
E Domestic Flow Added - Gpm Sprinkler or Nozzle  
S Additional Flow Added - Gpm Make VIKING Model FREEDOM  
I Elevation at Highest Outlet - 20' Feet Size 1/2" K-Factor 4.0  
G Note:CUSHION 20.6 PSI Temperature Rating 155  
N

Calculation Summary Gpm Required 62.5 C-Factor Used: Psi Required 67.4 Overhead At Test Underground

W Water Flow Test: Pump Data: Tank or Reservoir:  
A Date of Test - 6-7-06 Rated Cap. Cap.  
T Time of Test - @ Psi Elev.  
E Static (Psi) - 88 Elev.  
R Residual (Psi) - 82 Other Well  
Flow (Gpm) - 1277 Proof Flow Gpm  
S Elevation - 0

P Location: SHERMAN STREET

P  
L Source of Information: PWD  
Y

# Fittings Used Summary

DEAN & ALLYN, INC.  
264 STATE STREET SECOND FLOOR

Page 2  
Date 12-8-12

## Fitting Legend

Abbrev.	Name	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
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
F	NFPA 13 45° Elbow	1	1	1	1	2	2	3	3	3	4	5	7	9	11	13	17	19	21	24	28
G	NFPA 13 Gate Valve	0	0	1	1	1	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
S	NFPA 13 Swing Check	0	0	5	7	9	11	14	16	19	22	27	32	45	55*	65					
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.  
 264 STATE STREET SECOND FLOOR

Page 3  
 Date 12-8-12

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
01	20.0	4	11.0	na	13.27	0.05	256	11.0
02	20.0	4	11.57	na	13.6	0.05	256	11.0
03	20.0	4	14.71	na	15.34	0.05	256	11.0
04	20.0	4	25.7	na	20.28	0.05	256	11.0
12	20.0		37.48	na				
13	0.0		52.62	na				
63	0.0		58.82	na				
65	0.0		60.94	na				
TR	0.0		61.53	na				
FF	0.0		67.32	na				
CTY	0.0		67.41	na				

The maximum velocity is 23.2 and it occurs in the pipe between nodes 04 and 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	*****
01	13.27	1.049		9.300	11.000			K Factor = 4.00	
to		120.0		0.0	0.0				
02	13.27	0.0609		9.300	0.566			Vel = 4.93	
02	13.60	1.049	2E 4.0	10.000	11.566			K Factor = 4.00	
to		120.0		4.000	0.0				
03	26.87	0.2247		14.000	3.146			Vel = 9.97	
03	15.34	1.049	1E 2.0	17.200	14.712			K Factor = 4.00	
to		120.0	2F 2.0	4.000	0.0				
04	42.21	0.5183		21.200	10.988			Vel = 15.67	
04	20.28	1.049	3E 6.0	5.000	25.700			K Factor = 4.00	
to		120.0		6.000	0.0				
12	62.49	1.0708		11.000	11.779			Vel = 23.20	
12	0.0	1.38	1E 3.0	20.000	37.479				
to		120.0		3.000	8.662				
13	62.49	0.2817		23.000	6.478			Vel = 13.40	
13	0.0	1.38	2T 12.0	10.000	52.619				
to		120.0		12.000	0.0				
63	62.49	0.2816		22.000	6.196			Vel = 13.40	
63	0.0	1.61		16.000	58.815				
to		120.0		0.0	0.0				
65	62.49	0.1329		16.000	2.127			Vel = 9.85	
65	0.0	2.067	1E 5.0	10.000	60.942				
to		120.0		5.000	0.0				
TR	62.49	0.0394		15.000	0.591			Vel = 5.97	
TR	0.0	2.067	1G 1.0	8.000	61.533				
to		120.0	1S 11.0	12.000	5.000			* Fixed loss = 5	
FF	62.49	0.0394		20.000	0.787			Vel = 5.97	
FF	0.0	4.1	1T 29.067	50.000	67.320				
to		140.0	1G 2.907	31.974	0.0				
CTY	62.49	0.0010		81.974	0.086			Vel = 1.52	
	0.0								
	62.49				67.406			K Factor = 7.61	

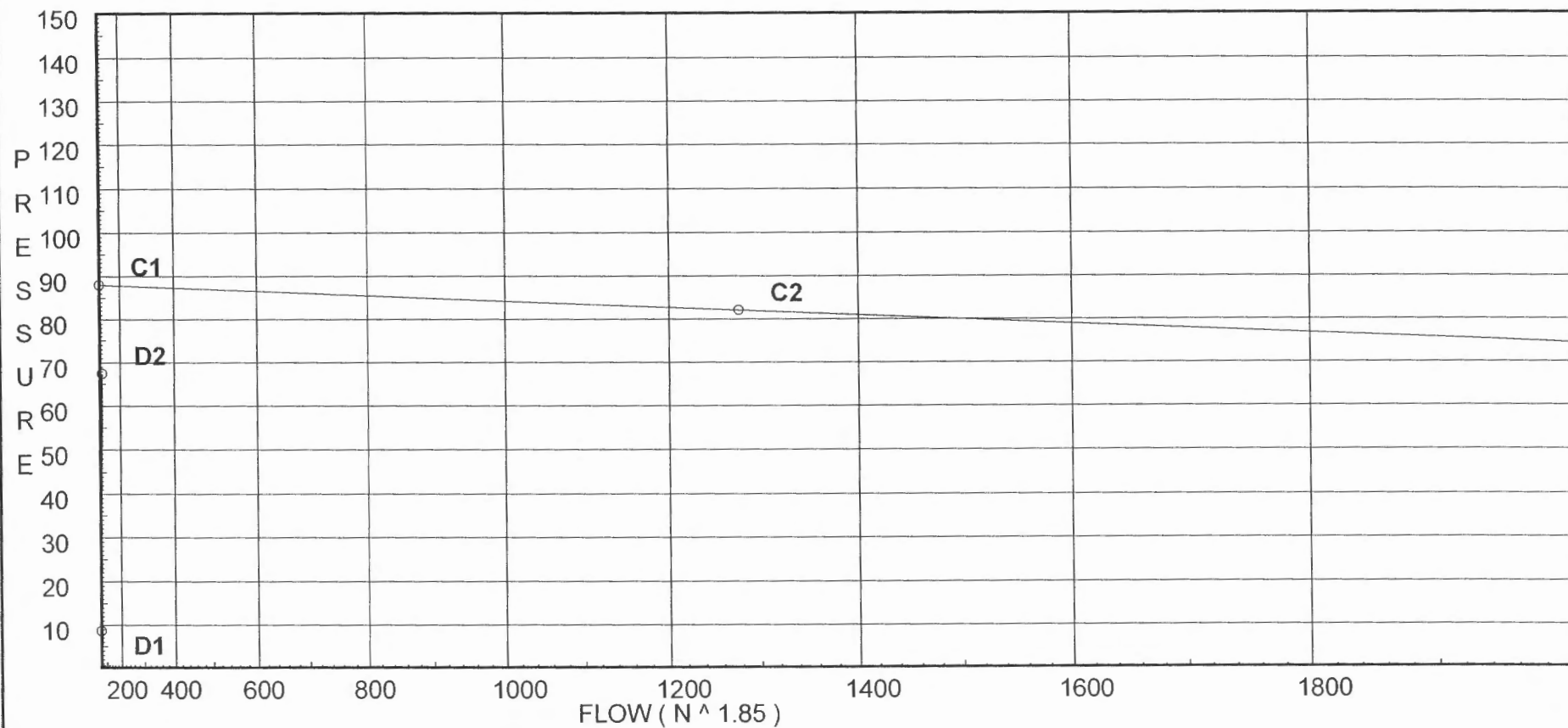
# Water Supply Curve (C)

DEAN & ALLYN, INC.  
264 STATE STREET SECOND FLOOR

Page 5  
Date 12-8-12

City Water Supply:  
 C1 - Static Pressure : 88  
 C2 - Residual Pressure: 82  
 C2 - Residual Flow : 1277

Demand:  
 D1 - Elevation : 8.662  
 D2 - System Flow : 62.491  
 D2 - System Pressure : 67.406  
 Hose ( Demand ) :  
 D3 - System Demand : 62.491  
 Safety Margin : 20.571





... Fire Protection by Computer Design

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

Job Name : 264 STATE STREET SECOND FLOOR  
Building : 264 STATE ST  
Location : 264 STATE ST  
System : ONE  
Contract : 1119  
Data File : 264STATE SECOND FLOOR.WXF

HYDRAULIC DESIGN INFORMATION SHEET

Name - 264 STATE STREET SECOND FLOOR Date - 12-8-12  
Location - 264 STATE ST  
Building - 264 STATE ST System No. - ONE  
Contractor - DEAN AND ALLYN, INC. Contract No. - 1119  
Calculated By - H. KING Drawing No. - 1 OF 1  
Construction: (X) Combustible ( ) Non-Combustible Ceiling Height 10'  
OCCUPANCY - APARTMENT BUILDING

S Type of Calculation: ( )NFPA 13 Residential (X)NFPA 13R ( )NFPA 13D  
Y Number of Sprinklers Flowing: ( )1 ( )2 (X)4 ( )  
S ( )Other  
T ( )Specific Ruling Made by Date  
E  
M Listed Flow at Start Point - 13 Gpm System Type  
Listed Pres. at Start Point - 11 Psi (X) Wet ( ) Dry  
D MAXIMUM LISTED SPACING 16 x 16 ( ) Deluge ( ) PreAction  
E Domestic Flow Added - Gpm Sprinkler or Nozzle  
S Additional Flow Added - Gpm Make VIKING Model FREEDOM  
I Elevation at Highest Outlet - 20' Feet Size 1/2" K-Factor 4.0  
G Note:CUSHION 20.6 PSI Temperature Rating 155  
N

Calculation Summary Gpm Required 62.5 C-Factor Used: Psi Required 67.4 Overhead At Test Underground

W Water Flow Test: Pump Data: Tank or Reservoir:  
A Date of Test - 6-7-06 Rated Cap. Cap.  
T Time of Test - @ Psi Elev.  
E Static (Psi) - 88 Elev.  
R Residual (Psi) - 82 Other Well  
Flow (Gpm) - 1277 Proof Flow Gpm  
S Elevation - 0

P Location: SHERMAN STREET

P  
L Source of Information: PWD  
Y

# Fittings Used Summary

DEAN & ALLYN, INC.  
264 STATE STREET SECOND FLOOR

Page 2  
Date 12-8-12

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
F	NFPA 13 45' Elbow	1	1	1	1	2	2	3	3	3	4	5	7	9	11	13	17	19	21	24	28
G	NFPA 13 Gate Valve	0	0	1	1	1	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
S	NFPA 13 Swing Check	0	0	5	7	9	11	14	16	19	22	27	32	45	55	65					
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.  
264 STATE STREET SECOND FLOOR

Page 3  
Date 12-8-12

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
01	20.0	4	11.0	na	13.27	0.05	256	11.0
02	20.0	4	11.57	na	13.6	0.05	256	11.0
03	20.0	4	14.71	na	15.34	0.05	256	11.0
04	20.0	4	25.7	na	20.28	0.05	256	11.0
12	20.0		37.48	na				
13	0.0		52.62	na				
63	0.0		58.82	na				
65	0.0		60.94	na				
TR	0.0		61.53	na				
FF	0.0		67.32	na				
CTY	0.0		67.41	na				

The maximum velocity is 23.2 and it occurs in the pipe between nodes 04 and 12

Final Calculations - Hazen-Williams

DEAN & ALLYN, INC.  
264 STATE STREET SECOND FLOOR

Page 4  
Date 12-8-12

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	***** Notes *****
01	13.27	1.049		9.300	11.000		K Factor = 4.00
to		120.0		0.0	0.0		
02	13.27	0.0609		9.300	0.566		Vel = 4.93
02	13.60	1.049	2E 4.0	10.000	11.566		K Factor = 4.00
to		120.0	0.0	4.000	0.0		
03	26.87	0.2247		14.000	3.146		Vel = 9.97
03	15.34	1.049	1E 2.0	17.200	14.712		K Factor = 4.00
to		120.0	2F 2.0	4.000	0.0		
04	42.21	0.5183		21.200	10.988		Vel = 15.67
04	20.28	1.049	3E 6.0	5.000	25.700		K Factor = 4.00
to		120.0	0.0	6.000	0.0		
12	62.49	1.0708		11.000	11.779		Vel = 23.20
12	0.0	1.38	1E 3.0	20.000	37.479		
to		120.0	0.0	3.000	8.662		
13	62.49	0.2817		23.000	6.478		Vel = 13.40
13	0.0	1.38	2T 12.0	10.000	52.619		
to		120.0	0.0	12.000	0.0		
63	62.49	0.2816		22.000	6.196		Vel = 13.40
63	0.0	1.61		16.000	58.815		
to		120.0		0.0	0.0		
65	62.49	0.1329		16.000	2.127		Vel = 9.85
65	0.0	2.067	1E 5.0	10.000	60.942		
to		120.0	0.0	5.000	0.0		
TR	62.49	0.0394		15.000	0.591		Vel = 5.97
TR	0.0	2.067	1G 1.0	8.000	61.533		
to		120.0	1S 11.0	12.000	5.000		* Fixed loss = 5
FF	62.49	0.0394		20.000	0.787		Vel = 5.97
FF	0.0	4.1	1T 29.067	50.000	67.320		
to		140.0	1G 2.907	31.974	0.0		
CTY	62.49	0.0010		81.974	0.086		Vel = 1.52
	0.0						
	62.49				67.406		K Factor = 7.61



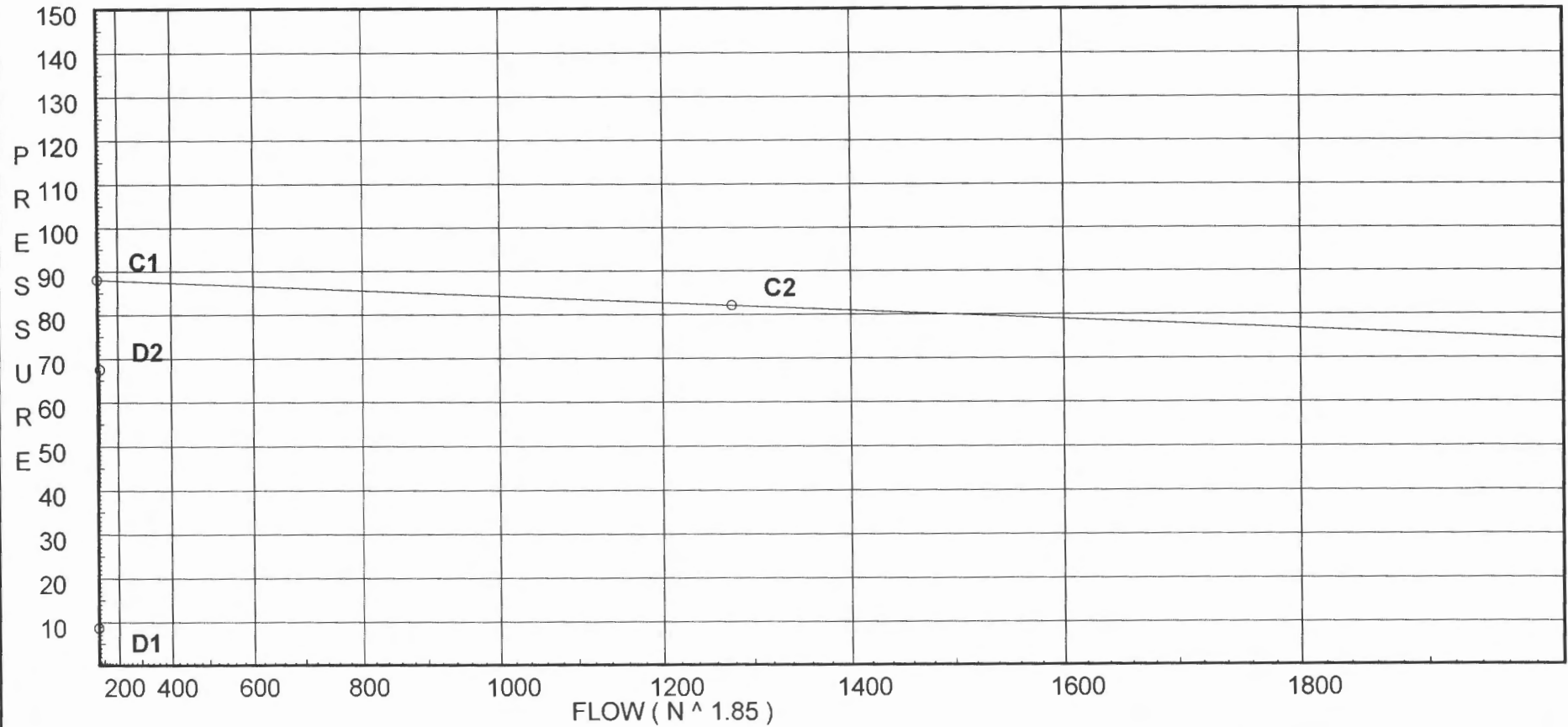
# Water Supply Curve (C)

DEAN & ALLYN, INC.  
264 STATE STREET SECOND FLOOR

Page 5  
Date 12-8-12

City Water Supply:  
C1 - Static Pressure : 88  
C2 - Residual Pressure: 82  
C2 - Residual Flow : 1277

Demand:  
D1 - Elevation : 8.662  
D2 - System Flow : 62.491  
D2 - System Pressure : 67.406  
Hose ( Demand ) :  
D3 - System Demand : 62.491  
Safety Margin : 20.571





... Fire Protection by Computer Design

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

Job Name : 264 STATE STREET BASEMENT  
Building : 264 STATE ST  
Location : 264 STATE STREET PORTLAND MAINE  
System : ONE  
Contract : 1119  
Data File : 264STATE.WXF

Hydraulic Design Information Sheet

Name - 264 STATE STREET Date - 12-8-12  
 Location - 264 STATE STREET PORTLAND MAINE  
 Building - 264 STATE ST System No. - ONE  
 Contractor - DEAN AND ALLYN, INC. Contract No. - 1119  
 Calculated By - H. KING Drawing No. - 1 OF 1  
 Construction: (X) Combustible ( ) Non-Combustible Ceiling Height - 10'  
 Occupancy - APARTMENT HOUSE

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

S Other  
 T Specific Ruling Made By Date  
 E  
 M Area of Sprinkler Operation - ENTIRE System Type Sprinkler/Nozzle  
 Density - .15 (X) Wet Make VIKING  
 D Area Per Sprinkler - 130 ( ) Dry Model MICROFAST  
 E Elevation at Highest Outlet - 0 ( ) Deluge Size 1/2"  
 S Hose Allowance - Inside - ( ) Preaction K-Factor 5.6  
 I Rack Sprinkler Allowance - 250 ( ) Other Temp.Rat.155  
 G Hose Allowance - Outside -  
 N Note CUSHION 19.0 PSI

Calculation Flow Required - 544.8 Press Required - 67.7 at  
 Summary C-Factor Used: 120 Overhead 140 Underground

W Water Flow Test: Pump Data: Tank or Reservoir:  
 A Date of Test - 7-6-06 Cap. -  
 T Time of Test - Rated Cap.- Elev.-  
 E Static Press - 88 @ Press -  
 R Residual Press - 82 Elev. - Well  
 Flow - 1277 Proof Flow  
 S Elevation - 0

U Location - PWD ON SHERMAN ST  
 P  
 L Source of Information - PWD  
 Y

C Commodity Class Location  
 O Storage Ht. Area Aisle W.  
 M Storage Method: Solid Piled % Palletized % Rack  
 M  
 S R ( ) Single Row ( ) Conven. Pallet ( ) Auto. Storage ( ) Encap.  
 T A ( ) Double Row ( ) Slave Pallet ( ) Solid Shelf ( ) Non  
 O C ( ) Mult. Row ( ) Open Shelf  
 R K Flue Spacing Clearance:Storage to Ceiling  
 A Longitudinal Transverse  
 G  
 E Horizontal Barriers Provided:

## Fittings Used Summary

DEAN & ALLYN, INC.  
264 STATE STREET BASEMENT

Page 2  
Date 12-8-12

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	1	1	1	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13	
S	NFPA 13 Swing Check	0	0	5	7	9	11	14	16	19	22	27	32	45	55	65						
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.  
264 STATE STREET BASEMENT

Page 3  
Date 12-8-12

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
50	0.0	5.6	12.13	na	19.5	0.15	130	7.0
51	0.0	5.6	12.59	na	19.87	0.15	130	7.0
52	0.0	5.6	13.02	na	20.2	0.15	130	7.0
53	0.0	5.6	13.51	na	20.59	0.15	130	7.0
54	0.0	5.6	17.48	na	23.41	0.15	130	7.0
55	0.0	5.6	21.3	na	25.84	0.15	130	7.0
56	0.0	5.6	16.26	na	22.58	0.15	130	7.0
57	0.0	5.6	23.67	na	27.25	0.15	130	7.0
58	0.0	5.6	17.48	na	23.42	0.15	130	7.0
59	0.0	5.6	19.48	na	24.72	0.15	130	7.0
80	0.0	5.6	34.32	na	32.81	0.15	130	7.0
81	0.0	5.6	38.38	na	34.69	0.15	130	7.0
60	0.0		13.49	na				
61	0.0		14.47	na				
62	0.0		18.06	na				
63	0.0		23.01	na				
64	0.0		25.56	na				
65	0.0		38.62	na				
66	0.0		43.13	na				
TR	0.0		47.3	na				
FF	0.0		66.2	na				
CTY	0.0		67.72	na	250.0			

The maximum velocity is 35.83 and it occurs in the pipe between nodes 64 and 65

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	***** Notes *****
50 to 60	19.50 19.5	1.049 120.0 0.1242	1T 5.0 0.0 0.0	6.000 5.000 11.000	12.125 0.0 1.366		K Factor = 5.60 Vel = 7.24
	0.0 19.50					13.491	K Factor = 5.31
51 to 60	19.87 19.87	1.049 120.0 0.1286	1T 5.0 0.0 0.0	2.000 5.000 7.000	12.591 0.0 0.900		K Factor = 5.60 Vel = 7.38
	0.0 19.87					13.491	K Factor = 5.41
52 to 61	20.20 20.2	1.049 120.0 0.1326	1T 5.0 0.0 0.0	6.000 5.000 11.000	13.015 0.0 1.459		K Factor = 5.60 Vel = 7.50
	0.0 20.20					14.474	K Factor = 5.31
53 to 61	20.59 20.59	1.049 120.0 0.1373	1T 5.0 0.0 0.0	2.000 5.000 7.000	13.513 0.0 0.961		K Factor = 5.60 Vel = 7.64
	0.0 20.59					14.474	K Factor = 5.41
54 to 62	23.41 23.41	1.049 120.0 0.1742	0.0 0.0 0.0	3.300 0.0 3.300	17.481 0.0 0.575		K Factor = 5.60 Vel = 8.69
	0.0 23.41					18.056	K Factor = 5.51
55 to 63	25.84 25.84	1.049 120.0 0.2090	1T 5.0 0.0 0.0	3.200 5.000 8.200	21.298 0.0 1.714		K Factor = 5.60 Vel = 9.59
	0.0 25.84					23.012	K Factor = 5.39
56 to 58	22.58 22.58	1.049 120.0 0.1629	0.0 0.0 0.0	7.500 0.0 7.500	16.262 0.0 1.222		K Factor = 5.60 Vel = 8.38
	0.0 22.58					17.484	K Factor = 5.40
57 to 64	27.25 27.25	1.049 120.0 0.2305	1T 5.0 0.0 0.0	3.200 5.000 8.200	23.674 0.0 1.890		K Factor = 5.60 Vel = 10.12
	0.0 27.25					25.564	K Factor = 5.39
58 to 63	46.00 46.0	1.049 120.0 0.6075	1T 5.0 0.0 0.0	4.100 5.000 9.100	17.484 0.0 5.528		K Factor = 5.60 Vel = 17.08

Final Calculations - Hazen-Williams

DEAN & ALLYN, INC.  
264 STATE STREET BASEMENT

Page 5  
Date 12-8-12

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 46.00					23.012			K Factor = 9.59	
59 to 64	128.29	1.61 120.0 0.5030	1T	8.0 0.0	4.100 8.000 12.100	19.478 0.0 6.086			K Factor = 5.60 Vel = 20.22	
	0.0 128.29					25.564			K Factor = 25.37	
80 to 65	32.81	1.049 120.0 0.3251	1E 1T	2.0 5.0 0.0	6.200 7.000 13.200	34.324 0.0 4.291			K Factor = 5.60 Vel = 12.18	
	0.0 32.81					38.615			K Factor = 5.28	
81 to 66	34.69	1.049 120.0 0.3605	1E 1T	2.0 5.0 0.0	6.200 7.000 13.200	38.376 0.0 4.758			K Factor = 5.60 Vel = 12.88	
	0.0 34.69					43.134			K Factor = 5.28	
60 to 61	39.37	1.38 120.0 0.1199		0.0 0.0 0.0	8.200 0.0 8.200	13.491 0.0 0.983			Vel = 8.44	
61 to 62	40.79	1.61 120.0 0.2107	1T	8.0 0.0 0.0	9.000 8.000 17.000	14.474 0.0 3.582			Vel = 12.63	
62 to 59	23.41	1.61 120.0 0.3386		0.0 0.0 0.0	4.200 0.0 4.200	18.056 0.0 1.422			Vel = 16.32	
	0.0 103.57					19.478			K Factor = 23.47	
63 to 64	71.84	1.38 120.0 0.3646		0.0 0.0 0.0	7.000 0.0 7.000	23.012 0.0 2.552			Vel = 15.41	
64 to 65	155.54	1.61 120.0 1.4501		0.0 0.0 0.0	9.000 0.0 9.000	25.564 0.0 13.051			Vel = 35.83	
65 to 66	32.81	2.067 120.0 0.5511		0.0 0.0 0.0	8.200 0.0 8.200	38.615 0.0 4.519			Vel = 24.88	
66 to TR	34.69	2.067 120.0 0.6947	1E	5.0 0.0 0.0	1.000 5.000 6.000	43.134 0.0 4.168			Vel = 28.19	
TR to FF	0.0	2.067 120.0 0.6947	1G 1S	1.0 11.0 0.0	8.000 12.000 20.000	47.302 5.000 13.894			* Fixed loss = 5 Vel = 28.19	

Hyd. Ref. Point	Qa  Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****  	Notes  	*****  
FF to CTY	0.0  294.88	4.1 140.0 0.0186	1T 29.067 1G 2.907 0.0	50.000 31.974 81.974	66.196 0.0 1.524				
	250.00 544.88					67.720	Vel = 7.17 Qa = 250.00 K Factor = 66.21		



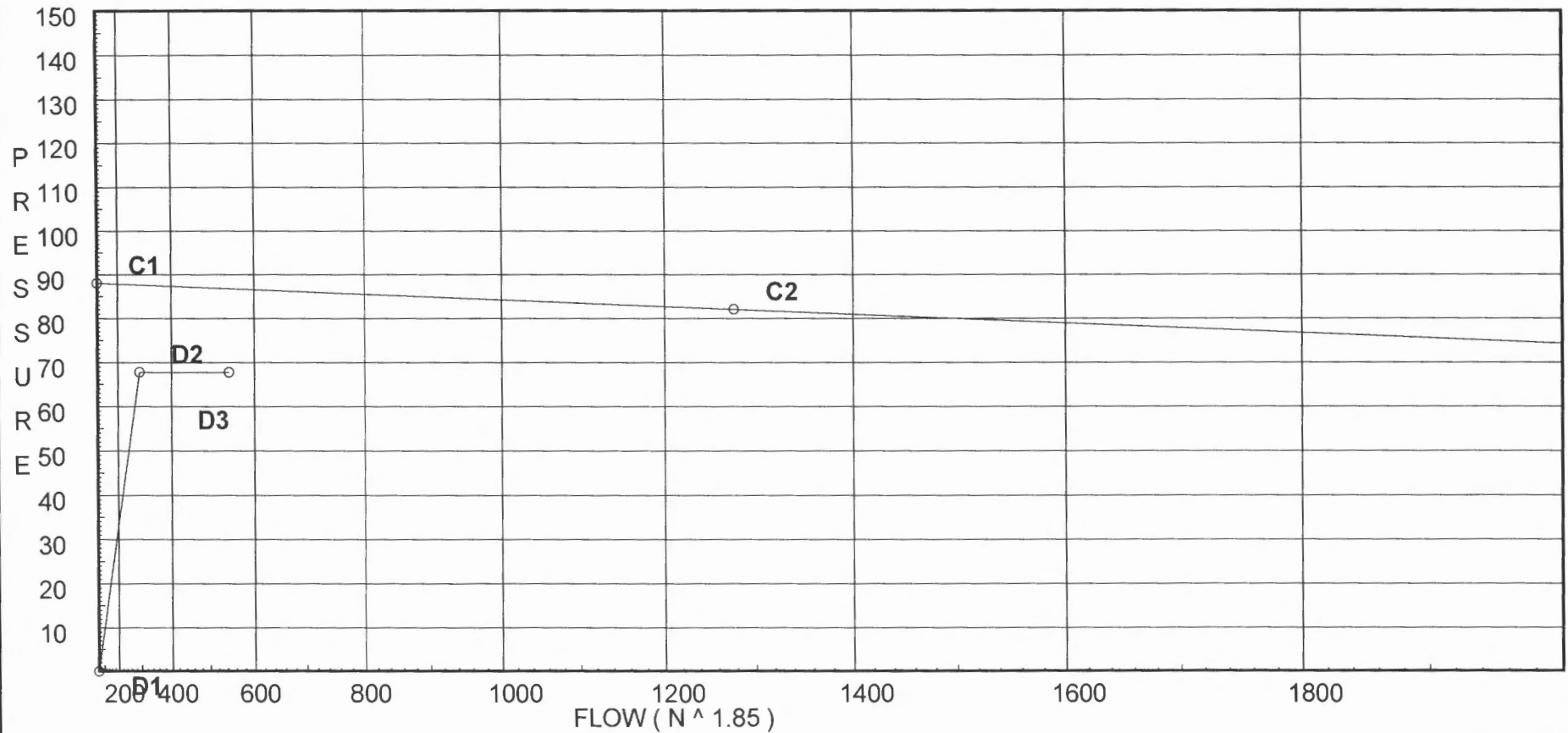
# Water Supply Curve (C)

DEAN & ALLYN, INC.  
264 STATE STREET BASEMENT

Page 7  
Date 12-8-12

City Water Supply:  
 C1 - Static Pressure : 88  
 C2 - Residual Pressure: 82  
 C2 - Residual Flow : 1277

Demand:  
 D1 - Elevation :  
 D2 - System Flow : 294.878  
 D2 - System Pressure : 67.720  
 Hose ( Demand ) : 250  
 D3 - System Demand : 544.878  
 Safety Margin : 19.039





... Fire Protection by Computer Design

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

Job Name : 264 STATE STREET BASEMENT  
Building : 264 STATE ST  
Location : 264 STATE STREET PORTLAND MAINE  
System : ONE  
Contract : 1119  
Data File : 264STATE.WXF

Hydraulic Design Information Sheet

Name - 264 STATE STREET Date - 12-8-12  
 Location - 264 STATE STREET PORTLAND MAINE  
 Building - 264 STATE ST System No. - ONE  
 Contractor - DEAN AND ALLYN, INC. Contract No. - 1119  
 Calculated By - H. KING Drawing No. - 1 OF 1  
 Construction: (X) Combustible ( ) Non-Combustible Ceiling Height - 10'  
 Occupancy - APARTMENT HOUSE

S (X) NFPA 13 (X) Lt. Haz. Ord.Haz.Gp. (X) 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	- ENTIRE	System Type	Sprinkler/Nozzle
	Density	- .15	(X) Wet	Make VIKING
D	Area Per Sprinkler	- 130	( ) Dry	Model MICROFAST
E	Elevation at Highest Outlet	- 0	( ) Deluge	Size 1/2"
S	Hose Allowance - Inside	-	( ) Preaction	K-Factor 5.6
I	Rack Sprinkler Allowance	- 250	( ) Other	Temp.Rat.155
G	Hose Allowance - Outside	-		

Note CUSHION 19.0 PSI

Calculation Flow Required - 544.8 Press Required - 67.7 at  
 Summary C-Factor Used: 120 Overhead 140 Underground

W	Water Flow Test:	Pump Data:	Tank or Reservoir:
A	Date of Test - 7-6-06		Cap. -
T	Time of Test -	Rated Cap.-	Elev.-
E	Static Press - 88	@ Press -	
R	Residual Press - 82	Elev. -	Well
	Flow - 1277		Proof Flow
S	Elevation - 0		

U Location - PWD ON SHERMAN ST  
 P  
 L Source of Information - PWD  
 Y

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

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

Horizontal Barriers Provided:

# Fittings Used Summary

DEAN & ALLYN, INC.  
264 STATE STREET BASEMENT

Page 2  
Date 12-8-12

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	1	1	1	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
S	NFPA 13 Swing Check	0	0	5	7	9	11	14	16	19	22	27	32	45	55	65					
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.

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
50	0.0	5.6	12.13	na	19.5	0.15	130	7.0
51	0.0	5.6	12.59	na	19.87	0.15	130	7.0
52	0.0	5.6	13.02	na	20.2	0.15	130	7.0
53	0.0	5.6	13.51	na	20.59	0.15	130	7.0
54	0.0	5.6	17.48	na	23.41	0.15	130	7.0
55	0.0	5.6	21.3	na	25.84	0.15	130	7.0
56	0.0	5.6	16.26	na	22.58	0.15	130	7.0
57	0.0	5.6	23.67	na	27.25	0.15	130	7.0
58	0.0	5.6	17.48	na	23.42	0.15	130	7.0
59	0.0	5.6	19.48	na	24.72	0.15	130	7.0
80	0.0	5.6	34.32	na	32.81	0.15	130	7.0
81	0.0	5.6	38.38	na	34.69	0.15	130	7.0
60	0.0		13.49	na				
61	0.0		14.47	na				
62	0.0		18.06	na				
63	0.0		23.01	na				
64	0.0		25.56	na				
65	0.0		38.62	na				
66	0.0		43.13	na				
TR	0.0		47.3	na				
FF	0.0		66.2	na				
CTY	0.0		67.72	na	250.0			

The maximum velocity is 35.83 and it occurs in the pipe between nodes 64 and 65

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	***** Notes *****
50 to 60	19.50 19.5	1.049 120.0 0.1242	1T 5.0 0.0 0.0	6.000 5.000 11.000	12.125 0.0 1.366		K Factor = 5.60 Vel = 7.24
	0.0 19.50				13.491		K Factor = 5.31
51 to 60	19.87 19.87	1.049 120.0 0.1286	1T 5.0 0.0 0.0	2.000 5.000 7.000	12.591 0.0 0.900		K Factor = 5.60 Vel = 7.38
	0.0 19.87				13.491		K Factor = 5.41
52 to 61	20.20 20.2	1.049 120.0 0.1326	1T 5.0 0.0 0.0	6.000 5.000 11.000	13.015 0.0 1.459		K Factor = 5.60 Vel = 7.50
	0.0 20.20				14.474		K Factor = 5.31
53 to 61	20.59 20.59	1.049 120.0 0.1373	1T 5.0 0.0 0.0	2.000 5.000 7.000	13.513 0.0 0.961		K Factor = 5.60 Vel = 7.64
	0.0 20.59				14.474		K Factor = 5.41
54 to 62	23.41 23.41	1.049 120.0 0.1742	0.0 0.0 0.0	3.300 0.0 3.300	17.481 0.0 0.575		K Factor = 5.60 Vel = 8.69
	0.0 23.41				18.056		K Factor = 5.51
55 to 63	25.84 25.84	1.049 120.0 0.2090	1T 5.0 0.0 0.0	3.200 5.000 8.200	21.298 0.0 1.714		K Factor = 5.60 Vel = 9.59
	0.0 25.84				23.012		K Factor = 5.39
56 to 58	22.58 22.58	1.049 120.0 0.1629	0.0 0.0 0.0	7.500 0.0 7.500	16.262 0.0 1.222		K Factor = 5.60 Vel = 8.38
	0.0 22.58				17.484		K Factor = 5.40
57 to 64	27.25 27.25	1.049 120.0 0.2305	1T 5.0 0.0 0.0	3.200 5.000 8.200	23.674 0.0 1.890		K Factor = 5.60 Vel = 10.12
	0.0 27.25				25.564		K Factor = 5.39
58 to 63	46.00 46.0	1.049 120.0 0.6075	1T 5.0 0.0 0.0	4.100 5.000 9.100	17.484 0.0 5.528		K Factor = 5.60 Vel = 17.08

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 46.00					23.012		K Factor = 9.59	
59 to 64	128.29	1.61 120.0 0.5030	1T 8.0 0.0 0.0	4.100 8.000 12.100	19.478 0.0 6.086			K Factor = 5.60 Vel = 20.22	
	0.0 128.29					25.564		K Factor = 25.37	
80 to 65	32.81	1.049 120.0 0.3251	1E 2.0 1T 5.0 0.0	6.200 7.000 13.200	34.324 0.0 4.291			K Factor = 5.60 Vel = 12.18	
	0.0 32.81					38.615		K Factor = 5.28	
81 to 66	34.69	1.049 120.0 0.3605	1E 2.0 1T 5.0 0.0	6.200 7.000 13.200	38.376 0.0 4.758			K Factor = 5.60 Vel = 12.88	
	0.0 34.69					43.134		K Factor = 5.28	
60 to 61	39.37	1.38 120.0 0.1199	0.0 0.0 0.0	8.200 0.0 8.200	13.491 0.0 0.983			Vel = 8.44	
61 to 62	40.79	1.61 120.0 0.2107	1T 8.0 0.0 0.0	9.000 8.000 17.000	14.474 0.0 3.582			Vel = 12.63	
62 to 59	23.41	1.61 120.0 0.3386	0.0 0.0 0.0	4.200 0.0 4.200	18.056 0.0 1.422			Vel = 16.32	
	0.0 103.57					19.478		K Factor = 23.47	
63 to 64	71.84	1.38 120.0 0.3646	0.0 0.0 0.0	7.000 0.0 7.000	23.012 0.0 2.552			Vel = 15.41	
64 to 65	155.54	1.61 120.0 1.4501	0.0 0.0 0.0	9.000 0.0 9.000	25.564 0.0 13.051			Vel = 35.83	
65 to 66	32.81	2.067 120.0 0.5511	0.0 0.0 0.0	8.200 0.0 8.200	38.615 0.0 4.519			Vel = 24.88	
66 to TR	34.69	2.067 120.0 0.6947	1E 5.0 0.0 0.0	1.000 5.000 6.000	43.134 0.0 4.168			Vel = 28.19	
TR to FF	0.0	2.067 120.0 0.6947	1G 1.0 1S 11.0 0.0	8.000 12.000 20.000	47.302 5.000 13.894			* Fixed loss = 5 Vel = 28.19	

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
FF	0.0	4.1	1T 29.067	50.000	66.196				
to		140.0	1G 2.907	31.974	0.0				
CTY	294.88	0.0186	0.0	81.974	1.524		Vel = 7.17		
	250.00						Qa = 250.00		
	544.88				67.720		K Factor = 66.21		



# Water Supply Curve (C)

DEAN & ALLYN, INC.  
264 STATE STREET BASEMENT

Page 7  
Date 12-8-12

City Water Supply:  
C1 - Static Pressure : 88  
C2 - Residual Pressure: 82  
C2 - Residual Flow : 1277

Demand:  
D1 - Elevation :  
D2 - System Flow : 294.878  
D2 - System Pressure : 67.720  
Hose ( Demand ) : 250  
D3 - System Demand : 544.878  
Safety Margin : 19.039

