

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK



CITY OF PORTLAND BUILDING PERMIT

This is to certify that HARMON SHERMAN STREET ASSOC

Located At 141 SHERMAN STREET

NJob ID: 2011-02-435-MF-5+

CBL: 048 - - C - 015 - 001 - - - -

has permission to Install Sprinkler Suppression 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

CAPT. R. Gauthier 5/4/11

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

City of Portland, Maine - Building or Use Permit Application

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

Job No: 2011-02-435-MF-5+ 2011-3135 FSS	Date Applied: 4/25/2011	CBL: 048 - - C - 015 - 001 - - - -	
Location of Construction: 141 SHERMAN ST	Owner Name: HARMON SHERMAN STREET ASSOC.	Owner Address: 59 CURTIS RD PORTLAND, ME 04103	Phone:
Business Name:	Contractor Name: Eastern Fire Protection	Contractor Address: PO Box 1390, KittyHawk Ave., Auburn ME 04210	Phone: (207) 784-1507
Lessee/Buyer's Name:	Phone:	Permit Type: BLDG - Building	Zone: R-6
Past Use: Six Dwelling units	Proposed Use: Six Dwelling units - Fire suppression system	Cost of Work: 15000.00	CEO District:
		Fire Dept: <input checked="" type="checkbox"/> Approved <i>w/Conditions</i> <input type="checkbox"/> Denied <input type="checkbox"/> N/A Signature: <i>CAPT. R. Gauthier</i>	Inspection: Use Group: Type: Signature:
Proposed Project Description: 141 Sherman St. - fire suppression system		Pedestrian Activities District (P.A.D.)	
Permit Taken By:		Zoning Approval	
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.		Special Zone or Reviews <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 w/condition</i> <i>4/29/30 ARN</i>	Zoning Appeal <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:
		Historic Preservation <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>ARM</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 appication 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

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: 2011-02-435-MF-5+

Located At: 141 SHERMAN ST

CBL: 048 - - C - 015 - 001 - - - -

Conditions of Approval:

Fire

This permit is being approved on the basis of the plans submitted. Any deviation from the plans would require amendments and approval.

Application requires State Fire Marshal approval.

The Fire alarm and Sprinkler systems shall be reviewed by a licensed contractor[s] for code compliance. Compliance letters are 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 and location shall be approved in writing by fire prevention bureau. The Fire Department will require Knox locking caps on all Fire Department Connections on the exterior of the building.

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

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

Capt. Gautreau

2011-31305

4/25/11

6 family dwelling

Job Summary Report **Job ID: 2011-02-435-MF-5+**

Report generated on Apr 28, 2011 2:43:18 PM

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Job Type:	New Multi-Family 5+	Job Description:	141 Sherman	Job Year:	2011
Building Job Status Code:	Permit Issued	Pin Value:	671	Tenant Name:	
Job Application Date:		Public Building Flag:	N	Tenant Number:	
Estimated Value:	60,000	Square Footage:			
Related Parties:		SHERMAN HARMON		Property Owner	
		JAMY L. BLANCHARD - JAMY BLANCHARD		PLUMBING CONTRACTOR	
		ROY G. SHELTRA - ROY SHELTRA		ELECTRICAL CONTRACTOR	
		Eastern Fire Protection Co.,Inc - Eastern Fire Protection Co.,Inc		SPRINKLER CONTRACTOR	
		Linwood Birchrest - Linwood Bichrest		GENERAL CONTRACTOR	

Job Charges

Fee Code Description	Charge Amount	Permit Charge Adjustment	Net Charge Amount	Payment Date	Receipt Number	Payment Amount	Payment Adjustment Amount	Net Payment Amount	Outstanding Balance
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Location ID: 7682

Location Details

Alternate Id	Parcel Number	Census Tract	GIS X	GIS Y	GIS Z	GIS Reference	Longitude	Latitude
H12796	048 C 015 001		M				-70.272629	43.65527
			Location Type	Subdivision Code	Subdivision Sub Code	Related Persons	Address(es)	
			1				141 SHERMAN STREET WEST	
Location Use Code	Variance Code	Use Zone Code	Fire Zone Code	Inside Outside Code	District Code	General Location Code	Inspection Area Code	Jurisdiction Code
FIVE TO TEN FAMILY		RESIDENTIAL	P-6				DISTRCT 4	WEST END

Structure Details

Structure: 6 unit-legal six family

Occupancy Type Code:

Structure Type Code		Structure Status Type		Square Footage	Estimated Value	Address	
Mutli-Family 5+ Building		0				141 SHERMAN STREET WEST	
Longitude	Latitude	GIS X	GIS Y	GIS Z	GIS Reference	User Defined Property	Value
						Dryers	4



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: 141 Sherman St. CBL. _____
Exact location: (within structure) Entire Building
Type of occupancy(s) (NFPA & ICC): NFPA 13 R
Building owner: Jim Harmon
Managing Supervisor (RMS): Will Flynt License No: 368
Supervisor phone: (207) 784-1507 E-mail: CashDL@TeamEastern.com
Installing contractor: Eastern Fire Protection License No: _____
Contractor phone: (207) 784-1507 E-mail: _____
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 R 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: \$15,000
PERMIT FEE: \$180.00
(\$10 PER \$1,000 + \$30 FOR THE FIRST \$1,000)

RECEIVED
APR 25 2011
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: Derek Cunn Date: 22 APR 2011



EASTERN FIRE PROTECTION

P.O. Box 1390
Kittyhawk Ave.
Auburn, ME 04210

PH # (207) 784-1507
FAX # (207) 782-0566

LETTER OF TRANSMITTAL

DATE <u>22 APR 2011</u>	JOB NO.
ATTENTION	
RE: <u>141 Sherman St.</u>	

TO Code Enforcement
Portland, ME

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

- ☒ Shop drawings ☐ Descriptive data ☒ Hydraulic calculations
☐ Copy of letter ☐ Literature ☐

QUANTITY	DRAWING NO.	DATE	DESCRIPTION	STATUS
1	1 of 1	22 APR	Shop Drawing	E
1	-	-	Hydraulic Calculations	E
1	-	-	Hydraulic Proof Calculations	E
1	-	-	Permit Application	E
1	-	-	Check for App.	E

Status code

- A. Approved
B. Approved as noted
C. Submitted for approval
D. Corrected & resubmitted
E. For your files
F. Refer to remarks

Please return _____ copies each indicating your approval and/or comments.

REMARKS _____

COPY TO _____

SIGNED Derek Cerny



... Fire Protection by Computer Design

EASTERN FIRE PROTECTION
170 KITTYHAWK AVE
AUBURN, ME 04210
(207) 784-1507

Job Name	141 SHERMAN ST
Building	1 OF 1
Location	141 SHERMAN ST PORTLAND, ME
System	AREA # 1
Contract	AU-4719-11
Data File	4719 - 141 SHERMAN ST.WXF

HYDRAULIC CALCULATIONS
for

Project name: 141 SHERMAN ST
Location: 141 SHERMAN ST PORTLAND, ME
Drawing no: 1 OF 1
Date: 04/19/2011

Design

Remote area number: AREA # 1
Remote area location: BASEMENT
Occupancy classification: ORDINARY HAZARD I
Density: 15 - Gpm/SqFt
Area of application: 905 - SqFt
Coverage per sprinkler: 99.100 - SqFt
Type of sprinklers calculated: TYCO TY-FRB
No. of sprinklers calculated: 10
In-rack demand: - GPM
Hose streams: - GPM
Total water required (including hose streams): 220.8 - GPM @ 81.4 - Psi
Type of system: WET
Volume of dry or preaction system: - Gal

Water supply information

Date: 07/06/2006
Location: SHERMAN ST AND MELLEN ST
Source: PORTLAND WATER DISTRICT

Name of contractor: EASTERN FIRE PROTECTION
Address: 170 KITTYHAWK AVE. AUBURN, ME 04210
Phone number: 207-784-1507
Name of designer: DEREK CASH
Authority having jurisdiction: MAINE STATE FIRE MARSHAL
Notes: (Include peaking information or gridded systems here.) 30 GPM ADDED AT NODE
DOM. FOR DOMESTIC DEMAND

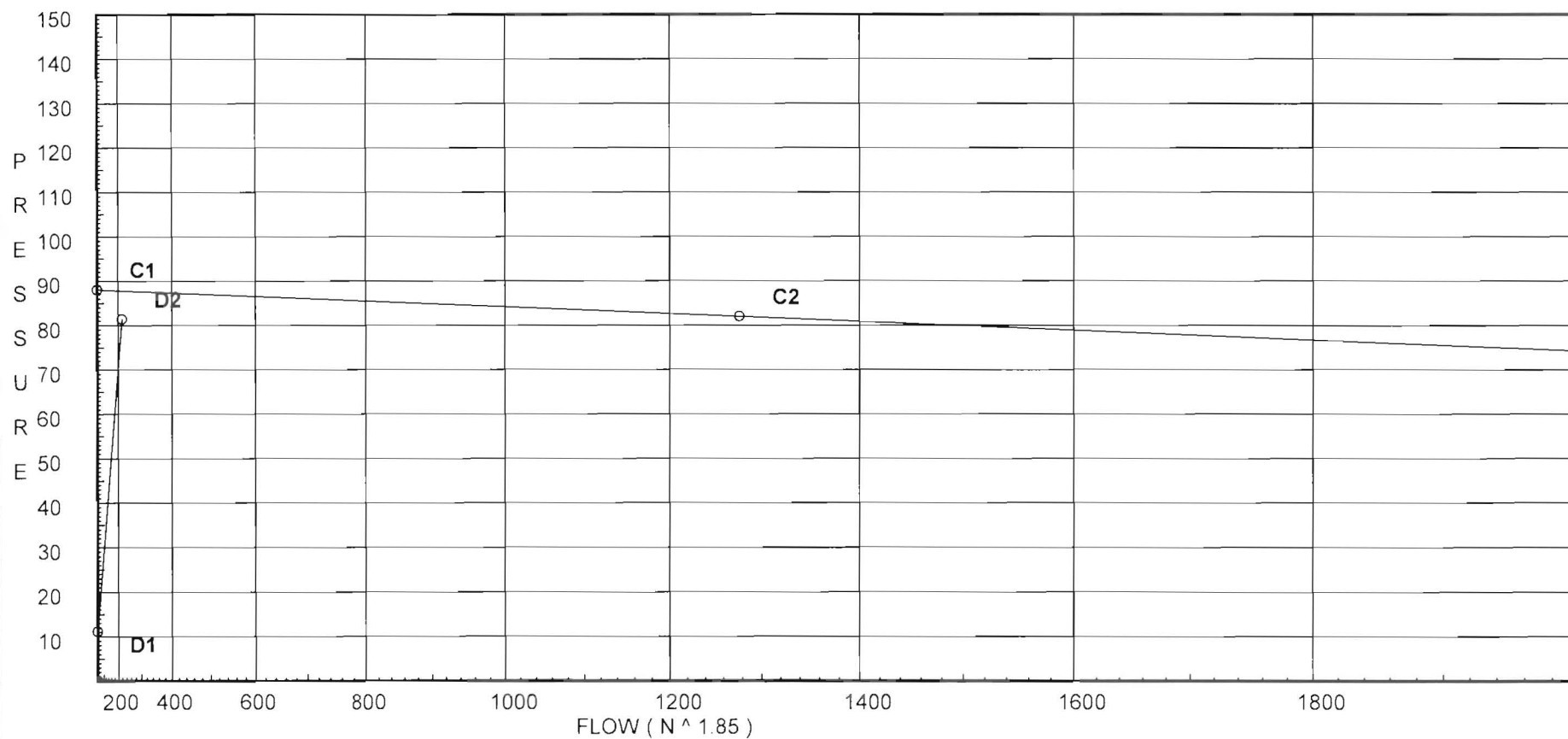
Water Supply Curve (C)

EASTERN FIRE PROTECTION
141 SHERMAN ST

Page 2
Date 04/19/2011

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

Demand:
D1 - Elevation : 11 152
D2 - System Flow 220.829
D2 - System Pressure 81.385
Hose (Demand) :
D3 - System Demand : 220.829
Safety Margin : 6.382



Fittings Used Summary

EASTERN FIRE PROTECTION
141 SHERMAN ST

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Date 04/19/2011

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
Fsp	Flow Switch Potter VSR	Fitting generates a Fixed Loss Based on Flow																			
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
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
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

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.

Flow Summary - NFPA 2007

EASTERN FIRE PROTECTION
141 SHERMAN ST

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SUPPLY ANALYSIS

<i>Node at Source</i>	<i>Static Pressure</i>	<i>Residual Pressure</i>	<i>Flow</i>	<i>Available Pressure</i>	<i>Total Demand</i>	<i>Required Pressure</i>
TIE	88.0	82	1277.0	87.767	220.83	81.385

NODE ANALYSIS

<i>Node Tag</i>	<i>Elevation</i>	<i>Node Type</i>	<i>Pressure at Node</i>	<i>Discharge at Node</i>	<i>Notes</i>
1	105.75	5.6	8.06	15.9	
2	105.75	5.6	8.91	16.72	
3	105.75	5.6	12.13	19.5	
4A	105.75		13.78		
5	105.75	5.6	10.08	17.78	
6	105.75		11.13		
7	105.75	5.6	11.57	19.05	
7A	105.75	5.6	12.22	19.58	
11	105.75	5.6	15.38	21.96	
14	105.75	5.6	12.24	19.59	
16	105.75	5.6	12.79	20.02	
18	105.75	5.6	13.7	20.72	
4	105.75		13.84		
8	105.75		14.14		
16A	105.75		14.45		
19	105.75		15.47		
12	105.75		15.71		
20	105.75		20.68		
TOR	105.75		33.72		
DOM	100.0		49.8	30.0	
BASE	100.0		56.33		
TIE	80.0		81.38		

Final Calculations - Hazen-Williams - 2007

EASTERN FIRE PROTECTION
141 SHERMAN ST

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Date 04/19/2011

Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv	Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
1 to 2	105.750 105.750	5.60	15.90 15.9	1 1.049		0.0 0.0 0.0	10.000 0.0 10.000	120 0.0851	8.062 0.0 0.851		Vel = 5.90	
2 to 3	105.750 105.750	5.60	16.72 32.62	1 1.049		0.0 0.0 0.0	10.000 0.0 10.000	120 0.3216	8.913 0.0 3.216		Vel = 12.11	
3 to 4A	105.750 105.750	5.60	19.50 52.12	1.25 1.38	1T	6.0 0.0 0.0	2.208 6.000 8.208	120 0.2014	12.129 0.0 1.653		Vel = 11.18	
4A to 4	105.750 105.750		0.0 52.12	2 2.157		0.0 0.0 0.0	2.750 0.0 2.750	120 0.0229	13.782 0.0 0.063		Vel = 4.58	
4			0.0 52.12						13.845		K Factor = 14.01	
5 to 6	105.750 105.750	5.60	17.78 17.78	1 1.049		0.0 0.0 0.0	10.000 0.0 10.000	120 0.1047	10.079 0.0 1.047		Vel = 6.60	
6 to 7A	105.750 105.750		0.0 17.78	1 1.049		0.0 0.0 0.0	10.500 0.0 10.500	120 0.1046	11.126 0.0 1.098		Vel = 6.60	
7A			0.0 17.78						12.224		K Factor = 5.09	
7 to 7A	105.750 105.750	5.60	19.05 19.05	1 1.049	1T	5.0 0.0 0.0	0.500 5.000 5.500	120 0.1189	11.570 0.0 0.654		Vel = 7.07	
7A to 8	105.750 105.750	5.60	37.36 56.41	1.25 1.38	1T	6.0 0.0 0.0	2.208 6.000 8.208	120 0.2331	12.224 0.0 1.913		Vel = 12.10	
8			0.0 56.41						14.137		K Factor = 15.00	
11 to 12	105.750 105.750	5.60	21.96 21.96	1.25 1.38	1T	6.0 0.0 0.0	2.208 6.000 8.208	120 0.0407	15.375 0.0 0.334		Vel = 4.71	
12			0.0 21.96						15.709		K Factor = 5.54	
14 to 4	105.750 105.750	5.60	19.59 19.59	1 1.049	1T	5.0 0.0 0.0	7.792 5.000 12.792	120 0.1253	12.242 0.0 1.603		Vel = 7.27	
4			0.0 19.59						13.845		K Factor = 5.26	
16 to 16A	105.750 105.750	5.60	20.02 20.02	1 1.049	1T	5.0 0.0 0.0	7.792 5.000 12.792	120 0.1304	12.786 0.0 1.668		Vel = 7.43	
16A			0.0 20.02						14.454		K Factor = 5.27	
18 to 19	105.750 105.750	5.60	20.72 20.72	1 1.049	1T	5.0 0.0 0.0	7.792 5.000 12.792	120 0.1390	13.696 0.0 1.778		Vel = 7.69	

Final Calculations - Hazen-Williams - 2007

EASTERN FIRE PROTECTION
141 SHERMAN ST

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Date 04/19/2011

Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv	Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
			0.0 20.72						15.474		K Factor = 5.27	
4 to 8	105.750 105.750		71.72 71.72	2 2.157		0.0 0.0	7.083 0.0	120 0.0412	13.845 0.0		Vel = 6.30	
8 to 16A	105.750 105.750		56.40 128.12	2 2.157		0.0 0.0	2.625 2.625	120 0.1208	14.137 0.317		Vel = 11.25	
16A to 19	105.750 105.750		20.03 148.15	2 2.157		0.0 0.0	6.458 6.458	120 0.1579	14.454 1.020		Vel = 13.01	
19 to 12	105.750 105.750		20.72 168.87	2 2.157		0.0 0.0	1.167 1.167	120 0.2014	15.474 0.235		Vel = 14.83	
12 to 20	105.750 105.750		21.96 190.83	2 2.157	1T	12.307 0.0	7.375 12.307	120 0.2524	15.709 0.0		Vel = 16.75	
20 to TOR	105.750 105.750		0.0 190.83	2 2.157	1E 1T 1Fsp	6.153 12.307 0.0	21.333 18.460 39.793	120 0.2523	20.676 3.000 10.041		* Fixed loss = 3 Vel = 16.75	
TOR to DOM	105.750 100		0.0 190.83	2 2.157	1Zaa 1T 1E	0.0 12.307 6.153	5.750 18.460 24.210	120 0.2524	33.717 9.976 6.110		* Fixed loss = 7.486 Vel = 16.75	
DOM to BASE	100 100	+ 30.00	30.00 220.83	2 2.157	4E	24.613 0.0	3.000 6.153	120 0.3306	49.803 3.500		* Fixed loss = 3.5 Vel = 19.39	
BASE to TIE	100 80		0.0 220.83	2 1.72	1E 1G 1T	3.087 0.617 6.174	15.000 9.879 24.879	150 0.6589	56.329 8.662 16.394		Vel = 30.49	
TIE			0.0 220.83						81.385		K Factor = 24.48	



... Fire Protection by Computer Design

EASTERN FIRE PROTECTION
170 KITTYHAWK AVE
AUBURN, ME 04210
(207) 784-1507

Job Name	141 SHERMAN ST
Building	WOOD FRAME
Location	141 SHERMAN ST PORTLAND ME.
System	WET
Contract	· AU-4719-11
Data File	· 4719 - 141 SHERMAN ST.(PROOF).wxf

HYDRAULIC DESIGN INFORMATION SHEET

Name - 141 SHERMAN ST Date - 04/21/2011
Location - 141 SHERMAN ST. PORTLAND ME.
Building - WOOD FRAME System No. - WET
Contractor - OWNER Contract No. - AU-4719-11
Calculated By - DLC Drawing No. - 1 OF 1
Construction: (X) Combustible () Non-Combustible Ceiling Height VARIES
OCCUPANCY - DWELLING UNIT RESIDENTIAL

S Type of Calculation: () NFPA 13 Residential (X) NFPA 13R () NFPA 13D
Y Number of Sprinklers Flowing: () 1 () 2 () 4 (X) 3
S () Other
T () Specific Ruling Made by Date
E
M Listed Flow at Start Point - 16 Gpm System Type
Listed Pres. at Start Point - 14.5 Psi (X) Wet () Dry
D MAXIMUM LISTED SPACING 16' x 16' () Deluge () PreAction
E Domestic Flow Added - 30 Gpm Sprinkler or Nozzle
S Additional Flow Added - Gpm Make TYCO Model LF II
I Elevation at Highest Outlet - 133'7" Feet Size 1/2" K-Factor 4.2
G Note: Temperature Rating 155
N

Calculation Gpm Required 80.97 Psi Required 69.1 At Test
Summary C-Factor Used: Overhead 150 Underground 150

W Water Flow Test: Pump Data: Tank or Reservoir:
A Date of Test - 07/06/2006 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 - 80

P Location: SHERMAN ST. AND MELLEN ST.
P
L Source of Information: PORTLAND WATER DISTRICT
Y

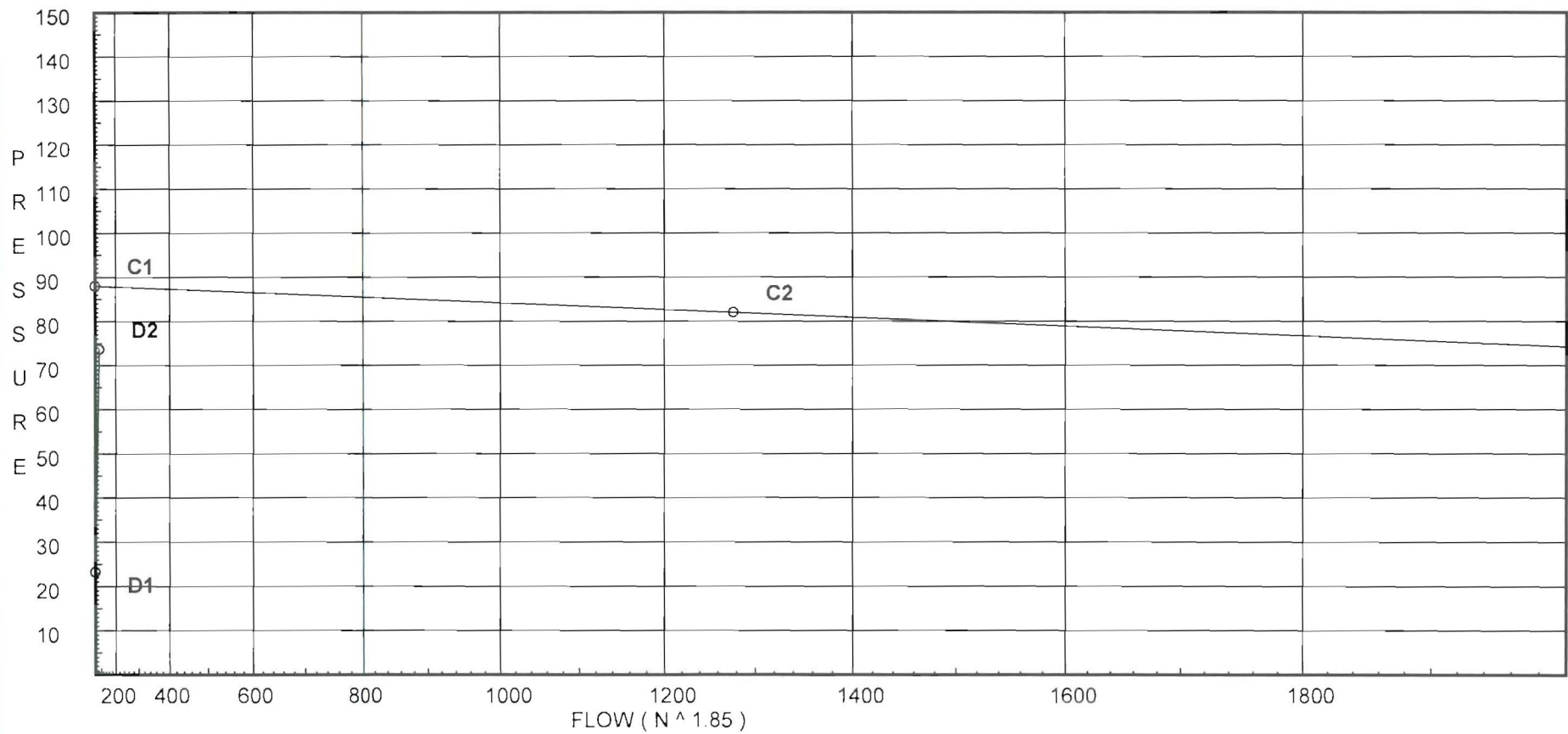
Water Supply Curve (C)

EASTERN FIRE PROTECTION
141 SHERMAN ST

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Date 04/19/2011

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

Demand:
D1 - Elevation 23.205
D2 - System Flow 81.761
D2 - System Pressure 73.628
Hose (Demand)
D3 - System Demand 81.761
Safety Margin 14.334



Fittings Used Summary

EASTERN FIRE PROTECTION
141 SHERMAN ST

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Date 04/19/2011

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																				
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Fsp	Flow Switch Potter VSR	Fitting generates a Fixed Loss Based on Flow																			
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
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
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

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.

Flow Summary - NFPA 2007

EASTERN FIRE PROTECTION
141 SHERMAN ST

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SUPPLY ANALYSIS

<i>Node at Source</i>	<i>Static Pressure</i>	<i>Residual Pressure</i>	<i>Flow</i>	<i>Available Pressure</i>	<i>Total Demand</i>	<i>Required Pressure</i>
TIE	88.0	82	1277.0	87.963	81.76	73.628

NODE ANALYSIS

<i>Node Tag</i>	<i>Elevation</i>	<i>Node Type</i>	<i>Pressure at Node</i>	<i>Discharge at Node</i>	<i>Notes</i>
A	133.58	4.2	14.5	15.99	
B	133.58	4.2	16.59	17.11	
C	133.58	4.2	19.74	18.66	
D	117.08		23.03		
E	117.08		25.11		
I	117.08		29.77		
F	117.08		29.18		
J	117.08		30.7		
G	117.08		31.84		
H	105.75		42.01		
20	105.75		47.26		
TOR	105.75		51.16		
DOM	100.0		59.91	30.0	
BASE	100.0		62.36		
TIE	80.0		73.63		

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv.	Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
A to D	133.580 117.080	4.20	15.99 15.99	1 1.101	1E 1T	3.825 9.563 0.0	17.333 13.387 30.720	150 0.0450	14.500 7.146 1.382		Vel = 5.39	
D			0.0 15.99						23.028		K Factor = 3.33	
B to E	133.580 117.080	4.20	17.11 17.11	1 1.101	1T	9.563 0.0 0.0	17.333 9.562 26.895	150 0.0510	16.592 7.146 1.371		Vel = 5.77	
E			0.0 17.11						25.109		K Factor = 3.41	
C to F	133.580 117.080	4.20	18.66 18.66	1 1.101	3E 1T	11.475 9.563 0.0	17.333 21.037 38.370	150 0.0598	19.739 7.146 2.296		Vel = 6.29	
F			0.0 18.66						29.181		K Factor = 3.45	
D to E	117.080 117.080		15.99 15.99	1 1.101	2T	19.125 0.0 0.0	27.125 19.126 46.251	150 0.0450	23.028 0.0 2.081		Vel = 5.39	
E to I	117.080 117.080		17.11 33.1	1 1.101	1T	9.563 0.0 0.0	17.417 9.562 26.979	150 0.1728	25.109 0.0 4.663		Vel = 11.15	
I to G	117.080 117.080		0.0 33.1	1 1.101	1T	9.563 0.0 0.0	2.417 9.562 11.979	150 0.1728	29.772 0.0 2.070		Vel = 11.15	
G			0.0 33.10						31.842		K Factor = 5.87	
F to J	117.080 117.080		18.66 18.66	1 1.101	1T	9.563 0.0 0.0	15.750 9.562 25.312	150 0.0599	29.181 0.0 1.515		Vel = 6.29	
J to G	117.080 117.080		0.0 18.66	1 1.101	1T	9.563 0.0 0.0	9.583 9.562 19.145	150 0.0599	30.696 0.0 1.146		Vel = 6.29	
G to H	117.080 105.750		33.10 51.76	1 1.101	1E	3.825 0.0 0.0	9.500 3.825 13.325	150 0.3951	31.842 4.907 5.265		Vel = 17.44	
H to 20	105.750 105.750		0.0 51.76	1 1.097	1T	6.217 0.0 0.0	2.417 6.217 8.634	120 0.6078	42.014 0.0 5.248		Vel = 17.57	
20 to TOR	105.750 105.750		0.0 51.76	2 2.157	1E 1T 1Fsp	6.153 12.307 0.0	21.333 18.460 39.793	120 0.0226	47.262 3.000 0.898		* Fixed loss = 3 Vel = 4.54	
TOR to DOM	105.750 100		0.0 51.76	2 2.157	1E 1T 1Zaa	6.153 12.307 0.0	5.750 18.460 24.210	120 0.0226	51.160 8.198 0.547		* Fixed loss = 5.708 Vel = 4.54	
DOM to BASE	100 100	+ 30.00	30.00 81.76	2 2.157	1E	6.153 0.0 0.0	3.000 24.613 27.613	120 0.0526	59.905 1.000 1.453		* Fixed loss = 1 Vel = 7.18	
BASE to TIE	100 80		0.0 81.76	2 1.72	1E 1G 1T	3.087 0.617 6.174	15.000 9.879 24.879	150 0.1048	62.358 8.662 2.608		Vel = 11.29	

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Node1	Elev1	K	Qa	Nom	Fitting		Pipe	CFact	Pt		Notes	
to					or		Ftng's		Pe	*****		*****
Node2	Elev2	Fact	Qt	Act	Eqv.	Ln.	Total	Pf/Ft	Pf			
<hr/>												
			0.0									
TIE			81.76						73.628	K Factor =	9.53	