DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK

CITY OF PORTLAND

BUILDING PERMIT

PERMIT ISSUED
FEB 28 2011
CITY OF PORTLAND

This is to certify that Eastern Fire Protection Co.,Inc, **Located At** 254 COMMERCIAL

has permission to Install Water Based 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 procured prior to occupancy.
per BW	2-24-11
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

PERMIT ISSUED
FEB 28 2011
CITY OF PORTLAND

Job No:	Date Applied:	CBL:	
2011-02-479-FAFS	**2/18/2011**	**041 - - A - 017 - 001 - - - - -**	
Location of Construction: **254 COMMERCIAL**	Owner Name: **MAINE WATERFRONT**	Owner Address: **14 MAINE ST BRUNSWICK, ME - MAINE 04011**	Phone:
Business Name:	Contractor Name: **Eastern Fire Protection Co.,Inc,**	Contractor Address: **P.O Box 1390 AUBURNMAINE04211**	Phone: **784-15078014**
Lessee/Buyer's Name:	Phone:	Permit Type: **FIRE SYS WB - Fire Suppression Water Based**	Zone: **WCZ**
Past Use: Offices above ground floor	Proposed Use: Offices above ground floor – install water based fire suppression system	Cost of Work: **21000.00**	CEO District:
		Fire Dept: ✓ Approved w/conditions ___ Denied ___ N/A Signature: BJandolf (50)	Inspection: Use Group: B Type: 3B IBC 2009 Signature:
Proposed Project Description: **254 - 258 Commercial Cumberland Cold Storage - FAFS**		Pedestrian Activities District (P.A.D.)	

Permit Taken By:	**Zoning Approval**		
	Special Zone or Reviews	**Zoning Appeal**	**Historic Preservation**
	✓ Shoreland existing building ___ Wetlands ___ Flood Zone ___ Subdivision ___ Site Plan __ Maj __Min __MM Date: ok 2/24/11 AFM	___ Variance ___ Miscellaneous ___ Conditional Use ___ Interpretation ___ Approved ___ Denied Date:	✓ Not in Dist or Landmark ___ Does not Require Review ___ Requires Review ___ Approved ___ Approved w/Conditions ___ Denied Date: AFM

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 electrial 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.

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

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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.

054 - 358

Installation address: 258 COMMERCIAL ST. CBL: 041 A017

Exact location: (within structure) FOURTH FLOOR

Type of occupancy(s) (NFPA & ICC): LIGHT HAZARD (OFFICE)

Building owner: MOSES COR.

Managing Supervisor (RMS): WESTERN PLANT License No: 368

Supervisor phone: 784-1502 E-mail: PLANTMGR@PORTLAND.COM

Installing contractor: GRINNELL FIRE PROTECTION License No: 101

Contractor phone: 784-1502 E-mail: PLANTMGR@PORTLAND.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: _____

*Non-NFPA systems are not approved for use with

Download a new copy of this document from www.portlandmaine.gov/fire for every submittal documents and complete approved submittals as the State Fire Marshal's Office on electronic Pl full sized plans.

Contractor shall verify location and type of all F be approved in writing by the Fire Prevention B

Submit all information to the Building Inspectio

Prior to acceptance of any fire protection syste all fire system contractors and the Fire Departm

All installation(s) must comply with NFPA and

2/22/11
- SPOKE WITH WILLIAM HE WILL CONTACT KEITH GRANDMAISON WHEN WE ARE TO BOLT OR TO PERMIT ??

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spections
Maine

Maine 04101.

oe coordinated with

COLLECTION ATTORNEY

Applicant signature:

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.**

1. Final Inspection upon completion of work- Commercial

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 OCCU0PIED

Job ID: 2011-02-479-FAFS **Located At:** 254 COMMERCIAL **CBL**041 - - A - 017 - 001 - - - - -

Director of Planning and Urban Development

Penny St. Louis

Conditions of Approval:

Fire

1. Fifth floor sprinkler fit up only.

2. Installation shall comply with City Code Chapter 10 and NFPA 13.

Building

1. Application approval based upon information provided by applicant. Any deviation from approved plans requires separate review and approval prior to work.
2. All penetrations between ceiling, floors, and walls shall be protected with approved firestop materials, per Sec. 712 of IBC
3. Sprinkler systems to be designed and installed per IBC 2009 standards Sec. 903.3
4. Installation shall comply with NFPA 13.

Fire conditions

Fifth floor sprinkler fit up only.

Installation shall comply with City Code Chapter 10 and NFPA 13.

20111519

Job Summary Report
Job ID: 2011-02-479-FAFS

Report generated on Feb 24, 2011 2:38:54 PM

Job Type:	Fire Alarm / Suppression	**Job Description:**	254 - 258 Commercial Cumberland Cold Storage	**Job Year:**	2011
Building Job Status Code:	Initiate Plan Review	**Pin Value:**	726	**Tenant Name:**	
Job Application Date:		**Public Building Flag:**	N	**Tenant Number:**	
Estimated Value:	21,000	**Square Footage:**			
Related Parties:		MAINE WATERFRONT	*Property Owner*		
		Eastern Fire Protection Co.,Inc - Eastern Fire Protection Co.,Inc Eastern Fire Protection Co.,Inc	*SPRINKLER 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
Job Valuation Fees	$230.00		$230.00						$230.00

Location ID: 6220

Location Details

Alternate Id	Parcel Number	Census Tract	GIS X	GIS Y	GIS Z	GIS Reference	Longitude	Latitude
W09130	041 A 017 001		M				-70.253728	43.653624

Location Type	Subdivision Code	Subdivision Sub Code	Related Persons	Address(es)
1				254 COMMERCIAL 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
WAREHOUSE & STORAGE		WATERFRONT					DISTRICT 2	CENTRAL BUSINESS DISTRICT

Structure Details

Structure: Heating System

Occupancy Type Code:

Structure Type Code	Structure Status Type	Square Footage	Estimated Value	Address
Office & Professional Buildings	0			254 COMMERCIAL STREET WEST

Longitude	Latitude	GIS X	GIS Y	GIS Z	GIS Reference

User Defined Property	Value

Permit #: 20111519

Job Summary Report
Job ID: 2011-02-479-FAFS

Permit Data

Location Id	Structure Description	Permit Status	Permit Description	Issue Date	Reissue Date	Expiration Date
6220	Office Building/ Mixed Use	Initialized	Install Water Based Suppression System			

Inspection Details

Inspection Id	Inspection Type	Inspection Result Status	Inspection Status Date	Scheduled Start Timestamp	Result Status Date	Final Inspection Flag

Fees Details

Fee Code Description	Charge Amount	Permit Charge Adjustment	Permit Charge Adj Remark	Payment Date	Receipt Number	Payment Amount	Payment Adjustment Amount	Payment Adj Comment

EASTERN FIRE PROTECTION
P.O. Box 1390
Kittyhawk Ave.
Auburn, ME 04210

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

LETTER OF TRANSMITTAL

DATE 2/10/11	JOB NO. 4668
ATTENTION	
RE: MONNELL'S MANOR	
FIFTH FLOOR	

TO PORTLAND COOP CORPORATION
389 CONGRESS ST. ROOM 315
PORTLAND, MAINE 04101

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
2	3083	02/01/11	FIFTH FLOOR SPRINKLER SHOP DWG	B/C
2			FIFTH FLOOR HYDRAULIC CALCULATION	B/C
1			PUMP APPLICATION	B
1			PUMP CHART	B

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

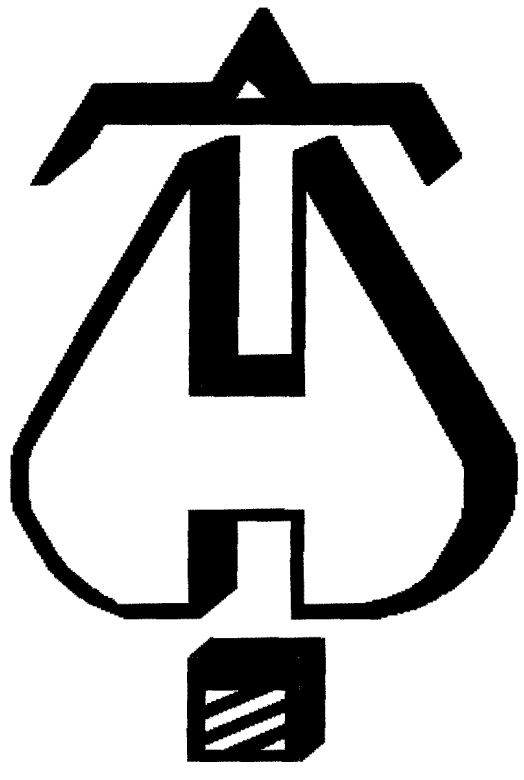
Please return _____ copies each indicating your approval and/or comments.

REMARKS _____

COPY TO _____

SIGNED _____

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



. . . Fire Protection by Computer Design

EASTERN FIRE PROTECTION
170 KITTYHAWK AVE.
P.O. BOX 1390
AUBURN, MAINE 04211-1390
800-274-1507

Job Name	:	MERRILL'S WHARF 5TH FLOOR SPRIGS
Drawing	:	EXISTING WOOD CONSTRUCTION
Location	:	258 COMMERCIAL ST PORTLAND, MAINE
Remote Area	:	1 OF 1
Contract	:	AU-4660-10
Data File	:	5-4660.wx1

Hydraulic Design Information Sheet

Name - MERRILL'S WHARF 5TH FLR SPRIGS — Date - 02/01/11
Location - 258 COMMERCIAL ST PORTLAND, MAINE
Building - EXISTING WOOD CONSTRUCTION — System No. - 1 OF 1
Contractor - EASTERN FIRE PROTECTION CO., INC — Contract No. - AU-4660-10
Calculated By - WILIAM FLYNT — Drawing No. - 3 OF 3
Construction: (X) Combustible ( ) Non-Combustible — Ceiling Height - VARIES
Occupancy - 5TH FLR CONCEALED CLG SPACE .1/1118 SQ FT

SYSTEM DESIGN

(X) NFPA 13 (X) Lt. Haz. Ord.Haz.Gp. ( ) 1 ( ) 2 ( ) 3 ( ) Ex.Haz.
( ) NFPA 231 ( ) NFPA 231C (X) Figure 11.2.3.1.1 Curve LIGHT
Other

Specific Ruling	Made By	Date

Area of Sprinkler Operation	- 1118	System Type	Sprinkler/Nozzle
Density	- .1	(X) Wet	Make TYCO
Area Per Sprinkler	- 130	( ) Dry	Model TY-FRB/CC2
Elevation at Highest Outlet	- 74'-8"	( ) Deluge	Size 1/2"
Hose Allowance - Inside	-	( ) Preaction	K-Factor 5.6
Rack Sprinkler Allowance	-	( ) Other	Temp.Rat.200/175
Hose Allowance - Outside	- 100		

Note REMOTE AREA REDUCED PER NFPA 13 (2010) SECTION 11.2.3.2.3.1

Calculation Summary — Flow Required - 336 — C-Factor Used: 120 — Press Required - 88 — Overhead — 100 — AT TEST POINT — Underground

WATER SUPPLY

	Water Flow Test:	Pump Data:	Tank or Reservoir:
Date of Test	- 05/04/09		Cap. -
Time of Test	- NA	Rated Cap.-	Elev.-
Static Press	- 110	@ Press -	
Residual Press	- 108	Elev. -	Well
Flow	- 2174		Proof Flow
Elevation	- 10'-0"		

Location - 12" MAIN IN COMMERCIAL STREET

Source of Information -
PORTLAND WATER DISTRICT

COMMODITY STORAGE RACKAGE

Commodity		Class	Location
Storage Ht.		Area	Aisle W.
Storage Method:	Solid Piled %	Palletized %	Rack

( ) Single Row	( ) Conven. Pallet	( ) Auto. Storage	( ) Encap.
( ) Double Row	( ) Slave Pallet	( ) Solid Shelf	( ) Non
( ) Mult. Row		( ) Open Shelf	

Flue Spacing — Clearance:Storage to Ceiling
Longitudinal — Transverse

Horizontal Barriers Provided:

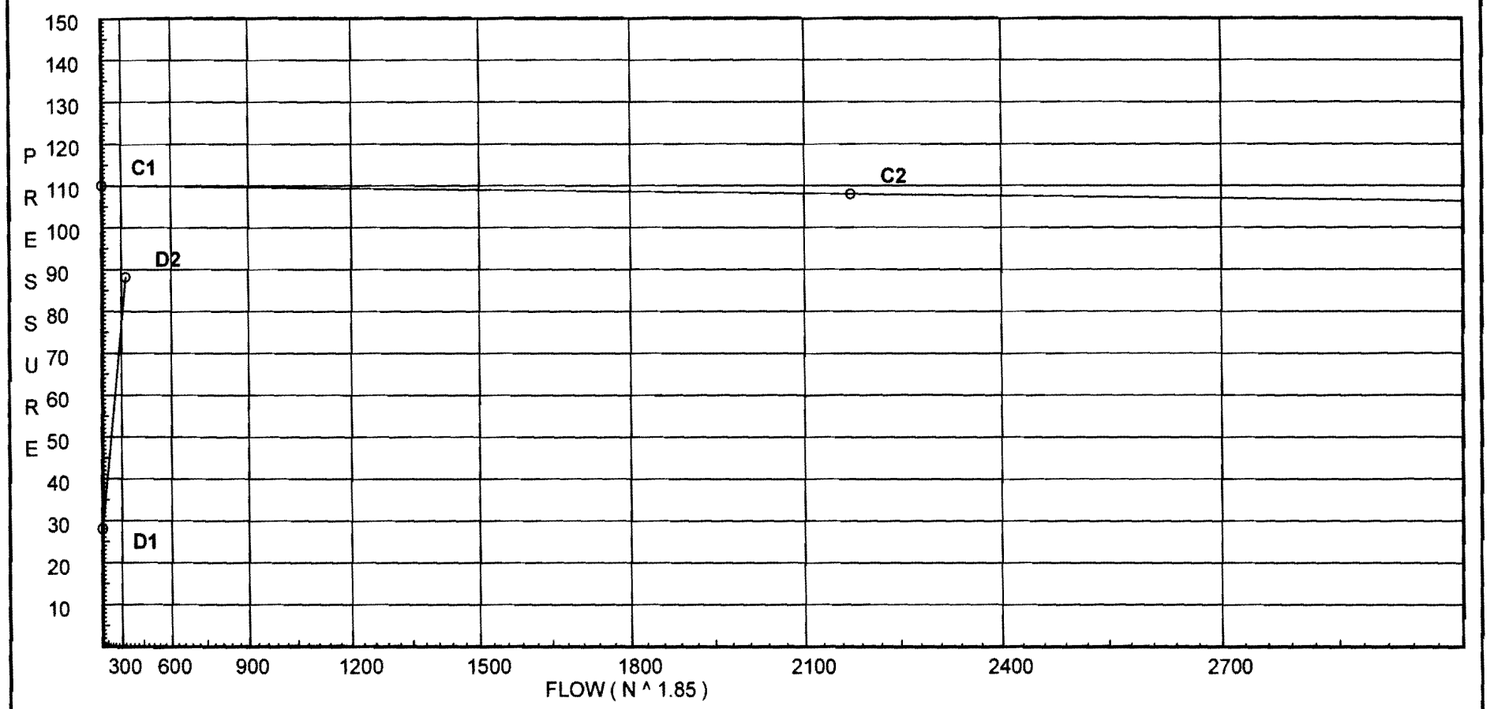
Water Supply Curve (C)

EASTERN FIRE PROTECTION
MERRILL'S WHARF 5TH FLOOR SPRIGS

Date 02/01/11

City Water Supply:
C1 - Static Pressure : 110
C2 - Residual Pressure: 108
C2 - Residual Flow : 2174

Demand:
D1 - Elevation : 28.004
D2 - System Flow : 335.872
D2 - System Pressure : 88.139
Hose (Demand) :
D3 - System Demand : 335.872
Safety Margin : 21.797



Fittings Used Summary

EASTERN FIRE PROTECTION
MERRILL'S WHARF 5TH FLOOR SPRIGS

Fitting Legend

Abbrev.	Name	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8	10	12	14	16	18	20	24
E	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
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
L	NFPA 13 Long Turn Elbow	0.5	1	2	2	2	3	4	5	5	6	8	9	13	16	18	24	27	30	34	40
S	NFPA 13 Swing Check Valve	4	5	5	7	9	11	14	16	19	22	27	32	45	55	65	76	87	98	109	130
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.

SUPPLY ANALYSIS

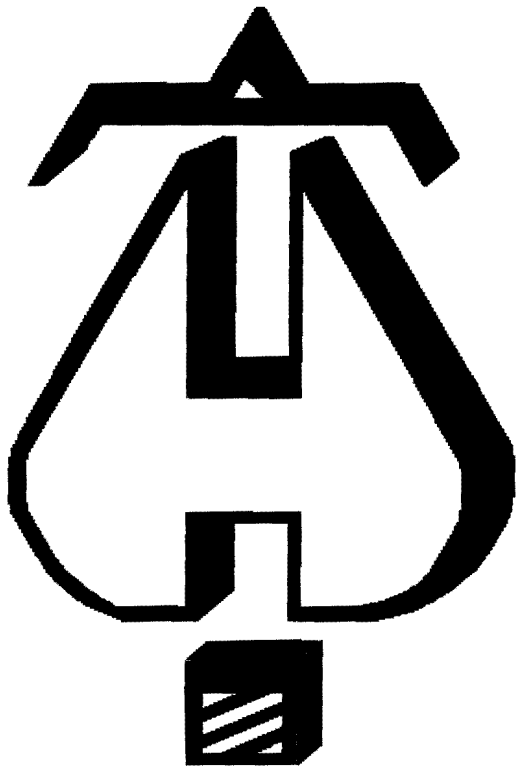
Node at Source	*Static Pressure*	*Residual Pressure*	*Flow*	*Available Pressure*	*Total Demand*	*Required Pressure*
TEST	110.0	108	2174.0	109.937	335.87	88.139

NODE ANALYSIS

Node Tag	*Elevation*	*Node Type*	*Pressure at Node*	*Discharge at Node*	*Notes*
S001	74.67	5.6	7.0	14.82	
S002	74.67	5.6	7.0	14.82	
S003	74.67	5.6	7.0	14.82	
14	74.66	5.48	7.36	14.88	K=K @ EQ03
15	74.66	5.4	7.93	15.21	K=K @ EQ02
16	74.66	5.4	8.51	15.76	K=K @ EQ02
17	74.66	5.4	9.01	16.21	K=K @ EQ02
18	74.66	5.4	10.04	17.12	K=K @ EQ02
19	74.66	5.4	11.59	18.39	K=K @ EQ02
12	74.66	5.4	14.46	20.54	K=K @ EQ01
13	74.66	5.4	14.58	20.63	K=K @ EQ01
1	74.66	5.48	7.3	14.82	K=K @ EQ03
2	74.66	5.4	7.86	15.14	K=K @ EQ02
3	74.66	5.4	8.43	15.68	K=K @ EQ02
4	74.66	5.4	8.93	16.14	K=K @ EQ02
5	74.66	5.4	9.96	17.04	K=K @ EQ02
6	74.66	5.4	11.49	18.31	K=K @ EQ02
7	74.67		14.67		
8	74.67		14.8		
9	74.67		15.23		
10	74.67		26.41		
HDR2	8.0		79.3		
FLG	7.0		85.56		
HOSE	10.0		84.55	100.0	
TEST	10.0		88.14		

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 ******
S001	74.67	5.60	14.82	1	1T	5.0	2.000	120	7.000	
to						0.0	5.000		0.0	
EQ01	74.67		14.82	1.049		0.0	7.000	0.0747	0.523	Vel = 5.50
			0.0							
EQ01			14.82						7.523	K Factor = 5.40
S002	74.67	5.60	14.82	1	1T	5.0	2.000	120	7.000	
to						0.0	5.000		0.0	
EQ02	74.67		14.82	1.049		0.0	7.000	0.0747	0.523	Vel = 5.50
			0.0							
EQ02			14.82						7.523	K Factor = 5.40
S003	74.67	5.60	14.82	1	1E	2.0	2.000	120	7.000	
to						0.0	2.000		0.0	
EQ03	74.67		14.82	1.049		0.0	4.000	0.0748	0.299	Vel = 5.50
			0.0							
EQ03			14.82						7.299	K Factor = 5.49
14	74.66	5.48	14.88	1		0.0	7.500	120	7.364	K = K @ EQ03
to						0.0	0.0		0.0	
15	74.66		14.88	1.049		0.0	7.500	0.0753	0.565	Vel = 5.52
15	74.66	5.4	15.21	1.25		0.0	7.930	120	7.929	K = K @ EQ02
to						0.0	0.0		0.0	
16	74.66		30.09	1.38		0.0	7.930	0.0729	0.578	Vel = 6.45
16	74.66	5.4	15.76	1.5		0.0	6.650	120	8.507	K = K @ EQ02
to						0.0	0.0		0.0	
17	74.66		45.85	1.61		0.0	6.650	0.0750	0.499	Vel = 7.23
17	74.66	5.4	16.21	1.5		0.0	7.910	120	9.006	K = K @ EQ02
to						0.0	0.0		0.0	
18	74.66		62.06	1.61		0.0	7.910	0.1312	1.038	Vel = 9.78
18	74.66	5.4	17.12	1.5		0.0	7.500	120	10.044	K = K @ EQ02
to						0.0	0.0		0.0	
19	74.66		79.18	1.61		0.0	7.500	0.2060	1.545	Vel = 12.48
19	74.66	5.4	18.39	1.5	1T	8.0	2.600	120	11.589	K = K @ EQ02
to						0.0	8.000		-0.004	
8	74.67		97.57	1.61		0.0	10.600	0.3031	3.213	Vel = 15.38
			0.0							
8			97.57						14.798	K Factor = 25.36
12	74.66	5.4	20.54	1.5		0.0	7.500	120	14.455	K = K @ EQ01
to						0.0	0.0		0.0	
13	74.66		20.54	1.61		0.0	7.500	0.0169	0.127	Vel = 3.24
13	74.66	5.4	20.63	1.5	1T	8.0	2.600	120	14.582	K = K @ EQ01
to						0.0	8.000		-0.004	
9	74.670		41.17	1.61		0.0	10.600	0.0614	0.651	Vel = 6.49
			0.0							
9			41.17						15.229	K Factor = 10.55
1	74.66	5.48	14.82	1		0.0	7.500	120	7.299	K = K @ EQ03
to						0.0	0.0		0.0	
2	74.66		14.82	1.049		0.0	7.500	0.0747	0.560	Vel = 5.50
2	74.66	5.4	15.14	1.25		0.0	7.910	120	7.859	K = K @ EQ02
to						0.0	0.0		0.0	
3	74.66		29.96	1.38		0.0	7.910	0.0723	0.572	Vel = 6.43

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 ******
3	74.66	5.4	15.68	1.5		0.0	6.660	120	8.431	K = K @ EQ02
to						0.0	0.0		0.0	
4	74.66		45.64	1.61		0.0	6.660	0.0743	0.495	Vel = 7.19
4	74.66	5.4	16.14	1.5		0.0	7.910	120	8.926	K = K @ EQ02
to						0.0	0.0		0.0	
5	74.66		61.78	1.61		0.0	7.910	0.1302	1.030	Vel = 9.74
5	74.66	5.4	17.05	1.5		0.0	7.500	120	9.956	K = K @ EQ02
to						0.0	0.0		0.0	
6	74.66		78.83	1.61		0.0	7.500	0.2043	1.532	Vel = 12.42
6	74.66	5.4	18.31	1.5	1T	8.0	2.600	120	11.488	K = K @ EQ02
to						0.0	8.000		-0.004	
7	74.67		97.14	1.61		0.0	10.600	0.3007	3.187	Vel = 15.31
7	74.67		0.0	3		0.0	13.160	120	14.671	
to						0.0	0.0		0.0	
8	74.67		97.14	3.26		0.0	13.160	0.0097	0.127	Vel = 3.73
8	74.67		97.57	3		0.0	12.300	120	14.798	
to						0.0	0.0		0.0	
9	74.670		194.71	3.26		0.0	12.300	0.0350	0.431	Vel = 7.48
9	74.670		41.16	3	1L	6.72	73.590	120	15.229	
to					3T	60.478	90.045		3.000	* Fixed loss = 3
10	74.670		235.87	3.26	1S	21.503	163.635	0.0500	8.177	Vel = 9.07
					1G	1.344				
					1Fsp	0.0				
10	74.670		0.0	3	10L	67.198	270.000	120	26.406	
to					3T	60.478	150.523		31.875	* Fixed loss = 3
HDR2	8		235.87	3.26	1S	21.503	420.523	0.0500	21.015	Vel = 9.07
					1G	1.344				
					1Fsp	0.0				
HDR2	8		0.0	3	5L	33.599	10.000	120	79.296	
to						0.0	6.720		5.433	* Fixed loss = 5
FLG	7		235.87	3.26		0.0	16.720	0.0500	0.836	Vel = 9.07
FLG	7		0.0	6	3L	20.785	45.000	100	85.565	
to					1G	2.309	46.189		-1.299	
HOSE	10		235.87	6.16	1T	23.094	91.189	0.0031	0.287	Vel = 2.54
HOSE	10	+ 100.00	100.00	8	4F	30.553	300.000	100	84.553	
to					2G	6.789	105.237		3.000	* Fixed loss = 3
TEST	10		335.87	8.27	1S	38.191	405.237	0.0014	0.586	Vel = 2.01
					1T	29.704				
			0.0							
TEST			335.87						88.139	K Factor = 35.78



. . . Fire Protection by Computer Design

EASTERN FIRE PROTECTION
170 KITTYHAWK AVE.
P.O. BOX 1390
AUBURN, MAINE 04211-1390
800-274-1507

Job Name	:	MERRILL'S WHARF 5TH FLOOR SPRIGS
Drawing	:	EXISTING WOOD CONSTRUCTION
Location	:	258 COMMERCIAL ST PORTLAND, MAINE
Remote Area	:	1 OF 1
Contract	:	AU-4660-10
Data File	:	5-4660.wx1

Hydraulic Design Information Sheet

Name - MERRILL'S WHARF 5TH FLR SPRIGS — Date - 02/01/11
Location - 258 COMMERCIAL ST PORTLAND, MAINE
Building - EXISTING WOOD CONSTRUCTION — System No. - 1 OF 1
Contractor - EASTERN FIRE PROTECTION CO., INC — Contract No. - AU-4660-10
Calculated By - WILIAM FLYNT — Drawing No. - 3 OF 3
Construction: (X) Combustible ( ) Non-Combustible — Ceiling Height - VARIES
Occupancy - 5TH FLR CONCEALED CLG SPACE .1/1118 SQ FT

SYSTEM DESIGN

(X) NFPA 13 (X) Lt. Haz. Ord.Haz.Gp. ( ) 1 ( ) 2 ( ) 3 ( ) Ex.Haz.
( ) NFPA 231 ( ) NFPA 231C (X) Figure 11.2.3.1.1 Curve LIGHT
Other

Specific Ruling	Made By	Date

Area of Sprinkler Operation - 1118	System Type	Sprinkler/Nozzle
Density - .1	(X) Wet	Make TYCO
Area Per Sprinkler - 130	( ) Dry	Model TY-FRB/CC2
Elevation at Highest Outlet - 74'-8"	( ) Deluge	Size 1/2"
Hose Allowance - Inside -	( ) Preaction	K-Factor 5.6
Rack Sprinkler Allowance -	( ) Other	Temp.Rat.200/175
Hose Allowance - Outside - 100		

Note REMOTE AREA REDUCED PER NFPA 13 (2010) SECTION 11.2.3.2.3.1

Calculation Summary — Flow Required - 336, C-Factor Used: 120 — Press Required - 88, Overhead 100 — AT TEST POINT, Underground

WATER SUPPLY

	Water Flow Test:	Pump Data:	Tank or Reservoir:
Date of Test	- 05/04/09		Cap. -
Time of Test	- NA	Rated Cap.-	Elev.-
Static Press	- 110	@ Press -	
Residual Press	- 108	Elev. -	Well
Flow	- 2174		Proof Flow
Elevation	- 10'-0"		

Location - 12" MAIN IN COMMERCIAL STREET

Source of Information -
PORTLAND WATER DISTRICT

COMMODITY STORAGE

Commodity	Class	Location
Storage Ht.	Area	Aisle W.
Storage Method: Solid Piled %	Palletized %	Rack

Solid Piled		Palletized		Rack
( ) Single Row	( ) Conven. Pallet	( ) Auto. Storage		( ) Encap.
( ) Double Row	( ) Slave Pallet	( ) Solid Shelf		( ) Non
( ) Mult. Row		( ) Open Shelf		

Flue Spacing — Clearance:Storage to Ceiling
Longitudinal — Transverse

Horizontal Barriers Provided:

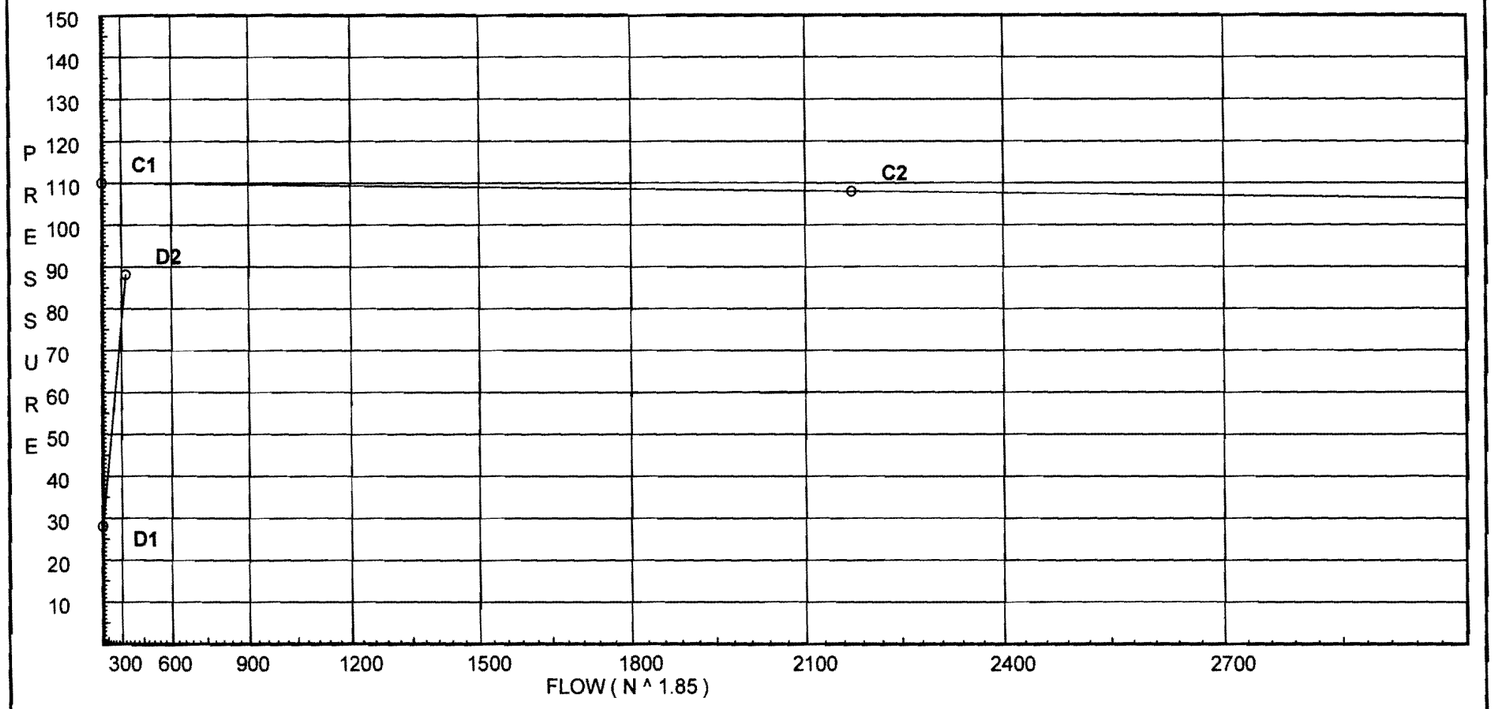
Water Supply Curve (C)

EASTERN FIRE PROTECTION
MERRILL'S WHARF 5TH FLOOR SPRIGS

Date 02/01/11

City Water Supply:
C1 - Static Pressure : 110
C2 - Residual Pressure: 108
C2 - Residual Flow : 2174

Demand:
D1 - Elevation : 28.004
D2 - System Flow : 335.872
D2 - System Pressure : 88.139
Hose (Demand) :
D3 - System Demand : 335.872
Safety Margin : 21.797



Fittings Used Summary

EASTERN FIRE PROTECTION
MERRILL'S WHARF 5TH FLOOR SPRIGS

Fitting Legend

Abbrev.	Name	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8	10	12	14	16	18	20	24
E	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
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
L	NFPA 13 Long Turn Elbow	0.5	1	2	2	2	3	4	5	5	6	8	9	13	16	18	24	27	30	34	40
S	NFPA 13 Swing Check Valve	4	5	5	7	9	11	14	16	19	22	27	32	45	55	65	76	87	98	109	130
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.

SUPPLY ANALYSIS

Node at Source	*Static Pressure*	*Residual Pressure*	*Flow*	*Available Pressure*	*Total Demand*	*Required Pressure*
TEST	110.0	108	2174.0	109.937	335.87	88.139

NODE ANALYSIS

Node Tag	*Elevation*	*Node Type*	*Pressure at Node*	*Discharge at Node*	*Notes*
S001	74.67	5.6	7.0	14.82	
S002	74.67	5.6	7.0	14.82	
S003	74.67	5.6	7.0	14.82	
14	74.66	5.48	7.36	14.88	K=K @ EQ03
15	74.66	5.4	7.93	15.21	K=K @ EQ02
16	74.66	5.4	8.51	15.76	K=K @ EQ02
17	74.66	5.4	9.01	16.21	K=K @ EQ02
18	74.66	5.4	10.04	17.12	K=K @ EQ02
19	74.66	5.4	11.59	18.39	K=K @ EQ02
12	74.66	5.4	14.46	20.54	K=K @ EQ01
13	74.66	5.4	14.58	20.63	K=K @ EQ01
1	74.66	5.48	7.3	14.82	K=K @ EQ03
2	74.66	5.4	7.86	15.14	K=K @ EQ02
3	74.66	5.4	8.43	15.68	K=K @ EQ02
4	74.66	5.4	8.93	16.14	K=K @ EQ02
5	74.66	5.4	9.96	17.04	K=K @ EQ02
6	74.66	5.4	11.49	18.31	K=K @ EQ02
7	74.67		14.67		
8	74.67		14.8		
9	74.67		15.23		
10	74.67		26.41		
HDR2	8.0		79.3		
FLG	7.0		85.56		
HOSE	10.0		84.55	100.0	
TEST	10.0		88.14		

Finàl Calculations - Hazen-Williams - 2007

EASTERN FIRE PROTECTION
MERRILL'S WHARF 5TH FLOOR SPRIGS

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 ******
S001	74.67	5.60	14.82	1	1T	5.0	2.000	120	7.000	
to						0.0	5.000		0.0	
EQ01	74.67		14.82	1.049		0.0	7.000	0.0747	0.523	Vel = 5.50
			0.0							
EQ01			14.82						7.523	K Factor = 5.40
S002	74.67	5.60	14.82	1	1T	5.0	2.000	120	7.000	
to						0.0	5.000		0.0	
EQ02	74.67		14.82	1.049		0.0	7.000	0.0747	0.523	Vel = 5.50
			0.0							
EQ02			14.82						7.523	K Factor = 5.40
S003	74.67	5.60	14.82	1	1E	2.0	2.000	120	7.000	
to						0.0	2.000		0.0	
EQ03	74.67		14.82	1.049		0.0	4.000	0.0748	0.299	Vel = 5.50
			0.0							
EQ03			14.82						7.299	K Factor = 5.49
14	74.66	5.48	14.88	1		0.0	7.500	120	7.364	K = K @ EQ03
to						0.0	0.0		0.0	
15	74.66		14.88	1.049		0.0	7.500	0.0753	0.565	Vel = 5.52
15	74.66	5.4	15.21	1.25		0.0	7.930	120	7.929	K = K @ EQ02
to						0.0	0.0		0.0	
16	74.66		30.09	1.38		0.0	7.930	0.0729	0.578	Vel = 6.45
16	74.66	5.4	15.76	1.5		0.0	6.650	120	8.507	K = K @ EQ02
to						0.0	0.0		0.0	
17	74.66		45.85	1.61		0.0	6.650	0.0750	0.499	Vel = 7.23
17	74.66	5.4	16.21	1.5		0.0	7.910	120	9.006	K = K @ EQ02
to						0.0	0.0		0.0	
18	74.66		62.06	1.61		0.0	7.910	0.1312	1.038	Vel = 9.78
18	74.66	5.4	17.12	1.5		0.0	7.500	120	10.044	K = K @ EQ02
to						0.0	0.0		0.0	
19	74.66		79.18	1.61		0.0	7.500	0.2060	1.545	Vel = 12.48
19	74.66	5.4	18.39	1.5	1T	8.0	2.600	120	11.589	K = K @ EQ02
to						0.0	8.000		-0.004	
8	74.67		97.57	1.61		0.0	10.600	0.3031	3.213	Vel = 15.38
			0.0							
8			97.57						14.798	K Factor = 25.36
12	74.66	5.4	20.54	1.5		0.0	7.500	120	14.455	K = K @ EQ01
to						0.0	0.0		0.0	
13	74.66		20.54	1.61		0.0	7.500	0.0169	0.127	Vel = 3.24
13	74.66	5.4	20.63	1.5	1T	8.0	2.600	120	14.582	K = K @ EQ01
to						0.0	8.000		-0.004	
9	74.670		41.17	1.61		0.0	10.600	0.0614	0.651	Vel = 6.49
			0.0							
9			41.17						15.229	K Factor = 10.55
1	74.66	5.48	14.82	1		0.0	7.500	120	7.299	K = K @ EQ03
to						0.0	0.0		0.0	
2	74.66		14.82	1.049		0.0	7.500	0.0747	0.560	Vel = 5.50
2	74.66	5.4	15.14	1.25		0.0	7.910	120	7.859	K = K @ EQ02
to						0.0	0.0		0.0	
3	74.66		29.96	1.38		0.0	7.910	0.0723	0.572	Vel = 6.43

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 ******
3	74.66	5.4	15.68	1.5		0.0	6.660	120	8.431	K = K @ EQ02
to						0.0	0.0		0.0	
4	74.66		45.64	1.61		0.0	6.660	0.0743	0.495	Vel = 7.19
4	74.66	5.4	16.14	1.5		0.0	7.910	120	8.926	K = K @ EQ02
to						0.0	0.0		0.0	
5	74.66		61.78	1.61		0.0	7.910	0.1302	1.030	Vel = 9.74
5	74.66	5.4	17.05	1.5		0.0	7.500	120	9.956	K = K @ EQ02
to						0.0	0.0		0.0	
6	74.66		78.83	1.61		0.0	7.500	0.2043	1.532	Vel = 12.42
6	74.66	5.4	18.31	1.5	1T	8.0	2.600	120	11.488	K = K @ EQ02
to						0.0	8.000		-0.004	
7	74.67		97.14	1.61		0.0	10.600	0.3007	3.187	Vel = 15.31
7	74.67		0.0	3		0.0	13.160	120	14.671	
to						0.0	0.0		0.0	
8	74.67		97.14	3.26		0.0	13.160	0.0097	0.127	Vel = 3.73
8	74.67		97.57	3		0.0	12.300	120	14.798	
to						0.0	0.0		0.0	
9	74.670		194.71	3.26		0.0	12.300	0.0350	0.431	Vel = 7.48
9	74.670		41.16	3	1L	6.72	73.590	120	15.229	
to					3T	60.478	90.045		3.000	* Fixed loss = 3
10	74.670		235.87	3.26	1S	21.503	163.635	0.0500	8.177	Vel = 9.07
					1G	1.344				
					1Fsp	0.0				
10	74.670		0.0	3	10L	67.198	270.000	120	26.406	
to					3T	60.478	150.523		31.875	* Fixed loss = 3
HDR2	8		235.87	3.26	1S	21.503	420.523	0.0500	21.015	Vel = 9.07
					1G	1.344				
					1Fsp	0.0				
HDR2	8		0.0	3	5L	33.599	10.000	120	79.296	
to						0.0	6.720		5.433	* Fixed loss = 5
FLG	7		235.87	3.26		0.0	16.720	0.0500	0.836	Vel = 9.07
FLG	7		0.0	6	3L	20.785	45.000	100	85.565	
to					1G	2.309	46.189		-1.299	
HOSE	10		235.87	6.16	1T	23.094	91.189	0.0031	0.287	Vel = 2.54
HOSE	10	+ 100.00	100.00	8	4F	30.553	300.000	100	84.553	
to					2G	6.789	105.237		3.000	* Fixed loss = 3
TEST	10		335.87	8.27	1S	38.191	405.237	0.0014	0.586	Vel = 2.01
					1T	29.704				
			0.0							
TEST			335.87						88.139	K Factor = 35.78