



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,
has permission to Install Water Based Suppression System

Located At 254 COMMERCIAL

provided that the person or persons, firm or corporation accepting this permit shall comply with all of the provisions of the Statutes 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.

[Signature]
Fire Prevention Officer

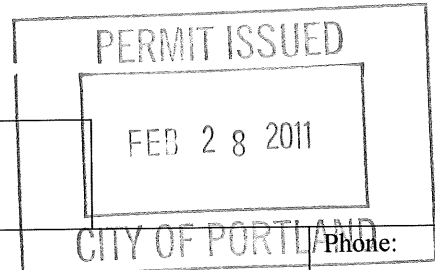
[Signature] 2-24-11
Code Enforcement Officer / Plan Reviewer

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

SCANNED

City of Portland, Maine - Building or Use Permit Application

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



Job No: 2011-02-479-FAFS	Date Applied: 2/18/2011	CBL: 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: <input checked="" type="checkbox"/> Approved w/conditions <input type="checkbox"/> Denied <input type="checkbox"/> N/A	Inspection: Use Group: B Type: 3B IBC 2009 Signature: [Signature]
Proposed Project Description: 254 - 258 Commercial Cumberland Cold Storage - FAFS		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 checked="" type="checkbox"/> Shoreland <i>existing building</i> <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: BK 2/24/11 ABM	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: ABM

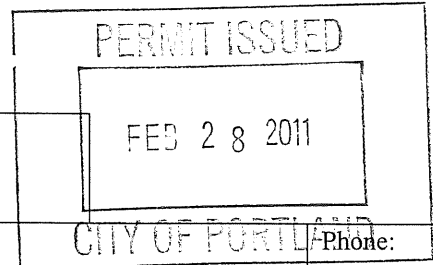
CERTIFICATION

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in the application is issued, I certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provision of the code(s) applicable to such permit.

SIGNATURE OF APPLICANT	ADDRESS	DATE	PHONE
RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE		DATE	PHON

City of Portland, Maine - Building or Use Permit Application

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



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		Fire Dept: <input checked="" type="checkbox"/> Approved w/conditions <input type="checkbox"/> Denied <input type="checkbox"/> N/A	Inspection: Use Group: 3 Type: 3B Signature: JBC 2011
Proposed Project Description: 254 - 258 Commercial Cumberland Cold Storage - FAFS		Pedestrian Activities District (P.A.D.)	

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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.

054-258

Installation address: 258 COMMERCIAL ST. CBL: 041 A017

Exact location: (within structure) 88TH FLOOR

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

Building owner: METEC CORP.

Managing Supervisor (RMS): WILLIAM FLYNN License No: 368

Supervisor phone: 784-1507 E-mail: FLYNN@CITYOFPORTLAND.ME

Installing contractor: STATION FIRE PROTECTION License No: 101

Contractor phone: 784-1507 E-mail: FLYNN@CITYOFPORTLAND.ME

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 PDF full sized plans.

Contractor shall verify location and type of all fire protection equipment to be approved in writing by the Fire Prevention Bureau.

Submit all information to the Building Inspector. Prior to acceptance of any fire protection system, the contractor shall coordinate with all fire system contractors and the Fire Department. All installation(s) must comply with NFPA and

2/22/11
Spoke with William
he will contact
Keith Incautear
wants me to hold
on to permit ??
- apes due
Collection
attorney
Sent Back
need to call

2,000.00
THE FIRST \$1,000
ED
Inspections
Maine
Maine 04101.
be coordinated with

Applicant signature: [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 OCCUOPIED

Job ID: 2011-02-479-FAFS

Located At: 254 COMMERCIAL

CBL041 - - A - 017 - 001 - - - -



PORTLAND MAINE

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

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.

2011 1519

Job Summary Report

Job ID: 2011-02-479-FAFS

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

Page 1

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: 21,000
Public Building Flag: N
Tenant Number:
Estimated Value: 21,000
Square Footage: MAINE WATERFRONT
Related Parties: Eastern Fire Protection Co.,Inc - Eastern Fire Protection Co.,Inc Eastern Fire Protection Co.,Inc *Property Owner* 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		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



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:	MENNELL'S WAREP PERM PLOM		

TO PONTIAC COOP CONSTRUCTION
389 CONGRESS ST. ROOM 315
PONTIAC, MARY 09101

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	3053	02/01/11	PERM PLOM SPARKLON STOP DWG	B/C
2			PERM PLOM HYDRAULIC CALCULATION	B/C
1			PERM APPLICATION	B
1			PERM CHECK	B

Status code

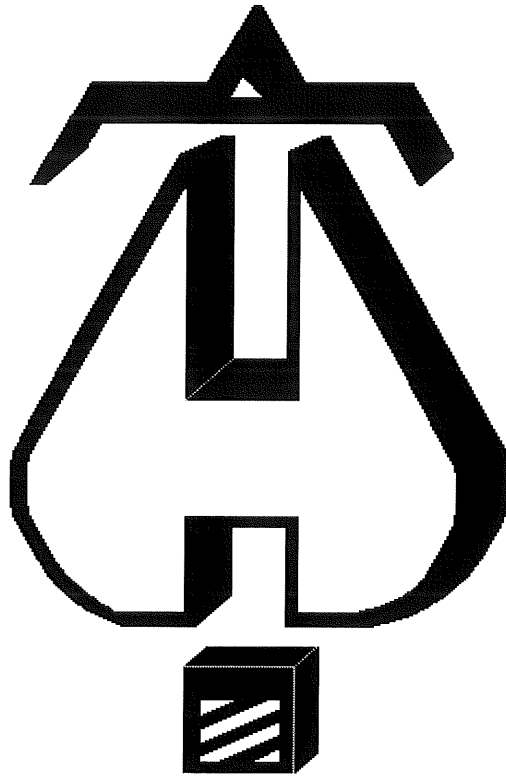
- A. Approved
- B. Approved as noted
- C. Submitted for approval
- D. Corrected & resubmitted
- E. For your files
- F. Refer to remarks

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

REMARKS _____

PY TO _____

SIGNED _____



... 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

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

T	Specific Ruling	Made By	Date
M	Area of Sprinkler Operation - 1118	System Type	Sprinkler/Nozzle
	Density - .1	(X) Wet	Make TYCO
D	Area Per Sprinkler - 130	() Dry	Model TY-FRB/CC2
E	Elevation at Highest Outlet - 74'-8"	() Deluge	Size 1/2"
S	Hose Allowance - Inside -	() Preaction	K-Factor 5.6
I	Rack Sprinkler Allowance -	() Other	Temp.Rat.200/175
G	Hose Allowance - Outside - 100		

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

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

W	Water Flow Test:	Pump Data:	Tank or Reservoir:
A	Date of Test - 05/04/09		Cap. -
T	Time of Test - NA	Rated Cap.-	Elev.-
E	Static Press - 110	@ Press -	
R	Residual Press - 108	Elev. -	Well
	Flow - 2174		Proof Flow
S	Elevation - 10'-0"		

U
 P Location - 12" MAIN IN COMMERCIAL STREET

P
 L Source of Information -
 Y PORTLAND WATER DISTRICT

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

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

G
 E Horizontal Barriers Provided:

Water Supply Curve (C)

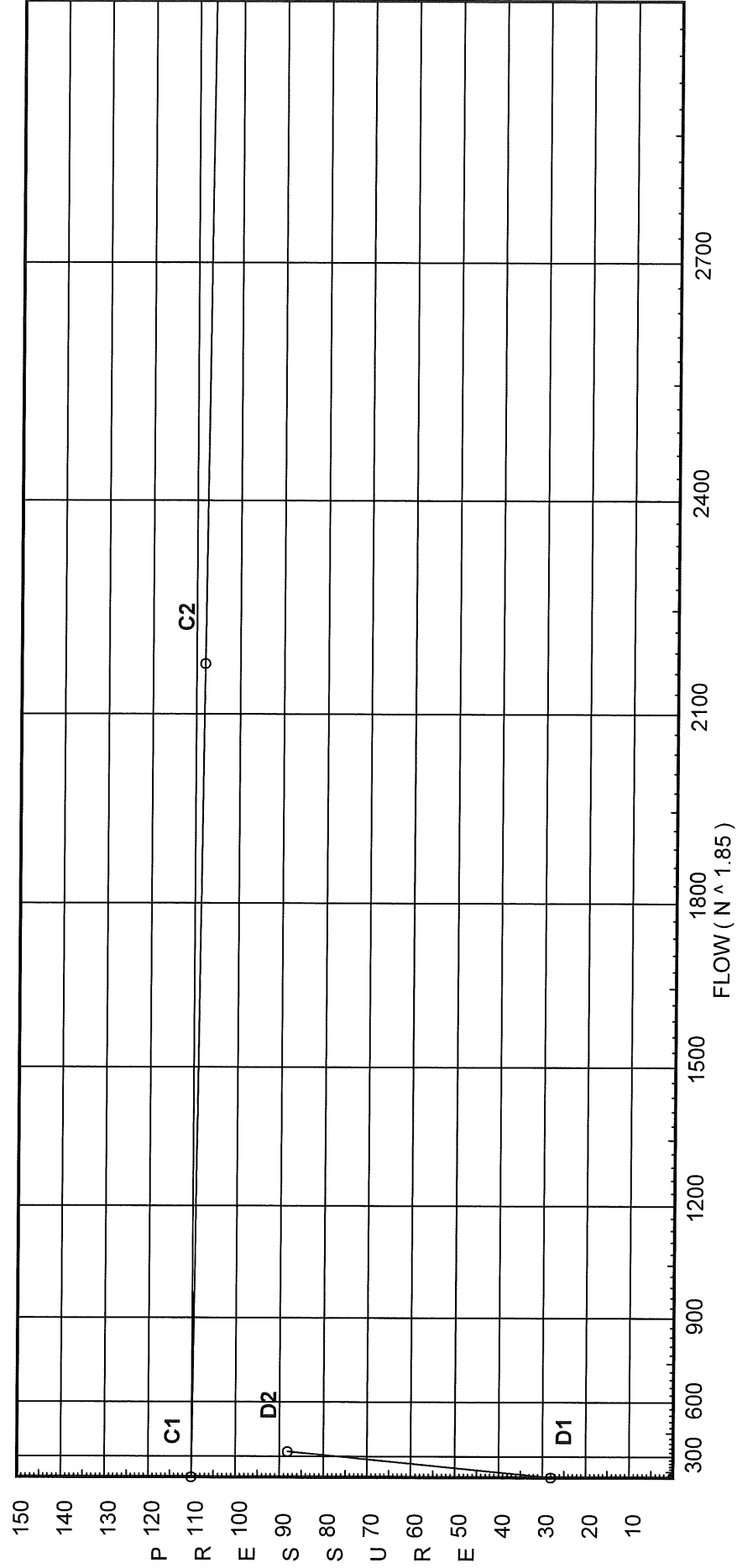
EASTERN FIRE PROTECTION
MERRILL'S WHARF 5TH FLOOR SPRIGS

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) : 335.872
D3 - System Demand : 21.797
Safety Margin : 21.797



Fittings Used Summary

EASTERN FIRE PROTECTION
MERRILL'S WHARF 5TH FLOOR SPRIGS

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
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	4	5	6	8	10	12	15	17	20	25	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.

Flow Summary - NFPA 2007

EASTERN FIRE PROTECTION
MERRILL'S WHARF 5TH FLOOR SPRIGS

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Date 02/01/11

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>
TEST	110.0	108	2174.0	109.937	335.87	88.139

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>
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		

Final Calculations - Hazen-Williams - 2007

EASTERN FIRE PROTECTION
MERRILL'S WHARF 5TH FLOOR SPRIGS

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Date 02/01/11

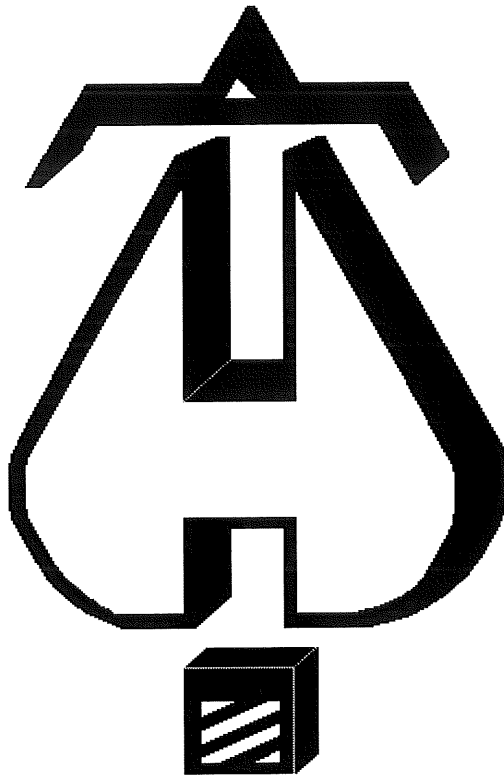
Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv.	Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
S001 to EQ01	74.67 74.67	5.60	14.82 14.82	1 1.049	1T	5.0 0.0 0.0	2.000 5.000 7.000	120 0.0747	7.000 0.0 0.523			Vel = 5.50
EQ01			0.0 14.82						7.523			K Factor = 5.40
S002 to EQ02	74.67 74.67	5.60	14.82 14.82	1 1.049	1T	5.0 0.0 0.0	2.000 5.000 7.000	120 0.0747	7.000 0.0 0.523			Vel = 5.50
EQ02			0.0 14.82						7.523			K Factor = 5.40
S003 to EQ03	74.67 74.67	5.60	14.82 14.82	1 1.049	1E	2.0 0.0 0.0	2.000 2.000 4.000	120 0.0748	7.000 0.0 0.299			Vel = 5.50
EQ03			0.0 14.82						7.299			K Factor = 5.49
14 to 15	74.66 74.66	5.48	14.88 14.88	1 1.049		0.0 0.0 0.0	7.500 0.0 7.500	120 0.0753	7.364 0.0 0.565			K = K @ EQ03 Vel = 5.52
15 to 16	74.66 74.66	5.4	15.21 30.09	1.25 1.38		0.0 0.0 0.0	7.930 0.0 7.930	120 0.0729	7.929 0.0 0.578			K = K @ EQ02 Vel = 6.45
16 to 17	74.66 74.66	5.4	15.76 45.85	1.5 1.61		0.0 0.0 0.0	6.650 0.0 6.650	120 0.0750	8.507 0.0 0.499			K = K @ EQ02 Vel = 7.23
17 to 18	74.66 74.66	5.4	16.21 62.06	1.5 1.61		0.0 0.0 0.0	7.910 0.0 7.910	120 0.1312	9.006 0.0 1.038			K = K @ EQ02 Vel = 9.78
18 to 19	74.66 74.66	5.4	17.12 79.18	1.5 1.61		0.0 0.0 0.0	7.500 0.0 7.500	120 0.2060	10.044 0.0 1.545			K = K @ EQ02 Vel = 12.48
19 to 8	74.66 74.67	5.4	18.39 97.57	1.5 1.61	1T	8.0 0.0 0.0	2.600 8.000 10.600	120 0.3031	11.589 -0.004 3.213			K = K @ EQ02 Vel = 15.38
8			0.0 97.57						14.798			K Factor = 25.36
12 to 13	74.66 74.66	5.4	20.54 20.54	1.5 1.61		0.0 0.0 0.0	7.500 0.0 7.500	120 0.0169	14.455 0.0 0.127			K = K @ EQ01 Vel = 3.24
13 to 9	74.66 74.670	5.4	20.63 41.17	1.5 1.61	1T	8.0 0.0 0.0	2.600 8.000 10.600	120 0.0614	14.582 -0.004 0.651			K = K @ EQ01 Vel = 6.49
9			0.0 41.17						15.229			K Factor = 10.55
1 to 2	74.66 74.66	5.48	14.82 14.82	1 1.049		0.0 0.0 0.0	7.500 0.0 7.500	120 0.0747	7.299 0.0 0.560			K = K @ EQ03 Vel = 5.50
2 to 3	74.66 74.66	5.4	15.14 29.96	1.25 1.38		0.0 0.0 0.0	7.910 0.0 7.910	120 0.0723	7.859 0.0 0.572			K = K @ EQ02 Vel = 6.43

Final Calculations - Hazen-Williams - 2007

EASTERN FIRE PROTECTION
MERRILL'S WHARF 5TH FLOOR SPRIGS

Page 6
Date 02/01/11

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 to 4	74.66 74.66	5.4	15.68 45.64	1.5 1.61		0.0 0.0	6.660 0.0	120 0.0743	8.431 0.0	K = K @ EQ02 Vel = 7.19
4 to 5	74.66 74.66	5.4	16.14 61.78	1.5 1.61		0.0 0.0	7.910 0.0	120 0.1302	8.926 0.0	K = K @ EQ02 Vel = 9.74
5 to 6	74.66 74.66	5.4	17.05 78.83	1.5 1.61		0.0 0.0	7.500 0.0	120 0.2043	9.956 0.0	K = K @ EQ02 Vel = 12.42
6 to 7	74.66 74.67	5.4	18.31 97.14	1.5 1.61	1T	8.0 0.0	2.600 8.000	120 0.3007	11.488 -0.004	K = K @ EQ02 Vel = 15.31
7 to 8	74.67 74.67		0.0 97.14	3 3.26		0.0 0.0	13.160 0.0	120 0.0097	14.671 0.0	Vel = 3.73
8 to 9	74.67 74.670		97.57 194.71	3 3.26		0.0 0.0	12.300 0.0	120 0.0350	14.798 0.0	Vel = 7.48
9 to 10	74.670 74.670		41.16 235.87	3 3.26	1L 3T 1S 1G 1Fsp	6.72 60.478 21.503 1.344 0.0	73.590 90.045 163.635	120 0.0500	15.229 3.000 8.177	* Fixed loss = 3 Vel = 9.07
10 to HDR2	74.670 8		0.0 235.87	3 3.26	10L 3T 1S 1G 1Fsp	67.198 60.478 21.503 1.344 0.0	270.000 150.523 420.523	120 0.0500	26.406 31.875 21.015	* Fixed loss = 3 Vel = 9.07
HDR2 to FLG	8 7		0.0 235.87	3 3.26	5L	33.599 0.0	10.000 6.720	120 0.0500	79.296 5.433	* Fixed loss = 5 Vel = 9.07
FLG to HOSE	7 10		0.0 235.87	6 6.16	3L 1G 1T	20.785 2.309 23.094	45.000 46.189 91.189	100 0.0031	85.565 -1.299 0.287	Vel = 2.54
HOSE to TEST	10 10	+ 100.00	100.00 335.87	8 8.27	4F 2G 1S 1T	30.553 6.789 38.191 29.704	300.000 105.237 405.237	100 0.0014	84.553 3.000 0.586	* Fixed loss = 3 Vel = 2.01
TEST			0.0 335.87						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 - WILLIAM FLYNT Drawing No. - 3 OF 3
 Construction: (X) Combustible () Non-Combustible Ceiling Height - VARIES
 Occupancy - 5TH FLR CONCEALED CLG SPACE .1/1118 SQ FT

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

T	Specific Ruling	Made By	Date
M	Area of Sprinkler Operation - 1118	System Type	Sprinkler/Nozzle
	Density - .1	(X) Wet	Make TYCO
D	Area Per Sprinkler - 130	() Dry	Model TY-FRB/CC2
E	Elevation at Highest Outlet - 74'-8"	() Deluge	Size 1/2"
S	Hose Allowance - Inside -	() Preaction	K-Factor 5.6
I	Rack Sprinkler Allowance -	() Other	Temp.Rat.200/175
G	Hose Allowance - Outside - 100		

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

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

W	Water Flow Test:	Pump Data:	Tank or Reservoir:
A	Date of Test - 05/04/09		Cap. -
T	Time of Test - NA	Rated Cap.-	Elev.-
E	Static Press - 110	@ Press -	
R	Residual Press - 108	Elev. -	Well
	Flow - 2174		Proof Flow
S	Elevation - 10'-0"		

U Location - 12" MAIN IN COMMERCIAL STREET

P Source of Information -
 Y PORTLAND WATER DISTRICT

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

Water Supply Curve (C)

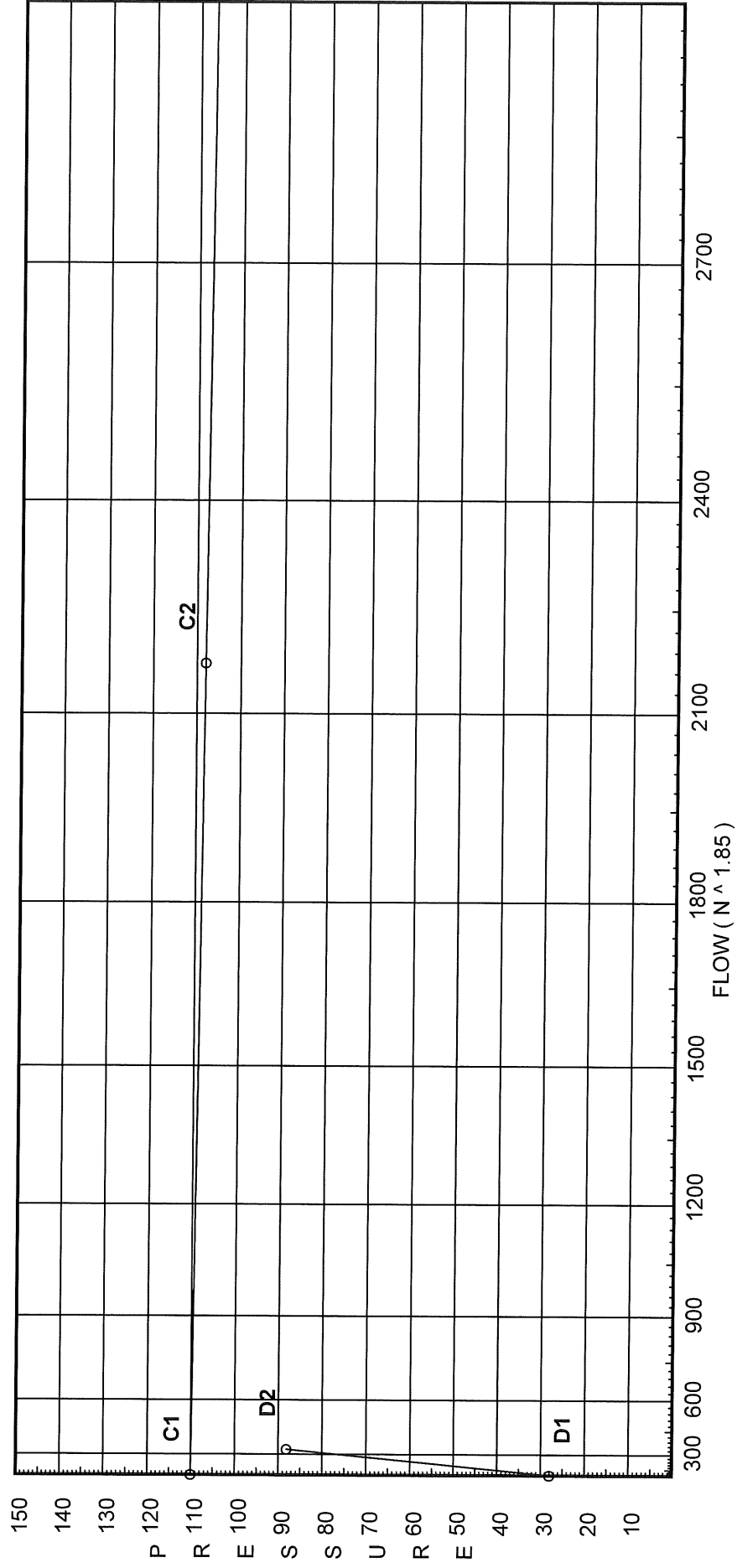
EASTERN FIRE PROTECTION
MERRILL'S WHARF 5TH FLOOR SPRIGS

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) : 335.872
D3 - System Demand : 21.797
Safety Margin : 21.797



Fittings Used Summary

EASTERN FIRE PROTECTION
MERRILL'S WHARF 5TH FLOOR SPRIGS

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	
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

<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>
TEST	110.0	108	2174.0	109.937	335.87	88.139

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>
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		

Final Calculations - Hazen-Williams - 2007

EASTERN FIRE PROTECTION
MERRILL'S WHARF 5TH FLOOR SPRIGS

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

Final Calculations - Hazen-Williams - 2007

EASTERN FIRE PROTECTION
MERRILL'S WHARF 5TH FLOOR SPRIGS

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