DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK

CITY OF PORTLAND
BUILDING PERMIT

This is to certify that

PROPRIETORS OF CUSTOM HOUSE WHARF ATTN G E MACGOWA/High Tech Fire Protection

Located at

86 COMMERCIAL ST/ 6 Custom House Wharf

PERMIT ID: 2013-00044

CBL: 030 A001001

has permission to **Install NFPA 13 sprinkler system for new restaurant (Poppy's Fish Shack).**
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.

BJardell 58

Fire Prevention Officer

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

City of Portland, Maine - Building or Use Permit Application

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

Permit No:	Issue Date:	CBL:
2013-00044		030 A001001

Location of Construction:	Owner Name:	Owner Address:	Phone:
86 COMMERCIAL ST/ 6 Custom House Wharf	PROPRIETORS OF CUSTOM HOUSE WHARF ATTN G E MACCOWA	5 EASTERN PROMENADE PORTLAND, ME 04101	
Business Name:	**Contractor Name:**	**Contractor Address:**	**Phone**
Poppy's Fish Shack & Oyster Room	High Tech Fire Protection	P.O. Box 156 Minot ME 04258	(207) 998-2551
Lessee/Buyer's Name	**Phone:**	**Permit Type:**	**Zone:**
Harding Smith	(207) 319-4368	Fire Suppression System	~~B3~~ ~~C85~~ WCZ
Past Use:	**Proposed Use:**	**Permit Fee:** / **Cost of Work:**	**CEO District:**
Restaurant	Same: Restaurant (see permit #2013-00044)	$260.00 / $24,000.00	2

FIRE DEPT: ☑ Approved ☐ Denied ☐ N/A

2/19/13

Signature: BJ (58)

INSPECTION:

Use Group: Type:

Signature:

Proposed Project Description:

Install WB Fire Supression for the whole structure. 6 Custom House Wharf

PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.)

Action: ☐ Approved ☐ Approved w/Conditions ☐ Denied

Signature: Date:

Permit Taken By:	Date Applied For:
bjs	01/08/2013

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 information may invalidate a building permit and stop all work..

Zoning Approval

Special Zone or Reviews	Zoning Appeal	Historic Preservation
☐ Shoreland	☐ Variance	☑ Not in District or Landmark
☐ Wetland	☐ Miscellaneous	☐ Does Not Require Review
☐ Flood Zone	☐ Conditional Use	☐ Requires Review
☐ Subdivision	☐ Interpretation	☐ Approved
☐ Site Plan	☐ Approved	☐ Approved w/Conditions
Maj ☐ Minor ☐ MM ☐	☐ Denied	☐ Denied
OK - S		S
Date: 1/8/2013	Date:	Date:

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

City of Portland, Maine - Building or Use Permit

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

Permit No:	Date Applied For:	CBL:
10-1222	09/27/2010	030 A001001

Location of Construction:	Owner Name:	Owner Address:	Phone:
86 Commercial St	Proprietors Of Custom House	5 Eastern Promenade	
Business Name:	**Contractor Name:**	**Contractor Address:**	**Phone**
	AAA Fire Extinguisher Company	328 Rodman Rd PO Box1003 Auburn	(207) 784-8306
Lessee/Buyer's Name	**Phone:**	**Permit Type:**	
		Fire Suppression System	

Proposed Use:	Proposed Project Description:
Commercial / Install non-water based fire suppression system permit. Porthole restaurant	Install non-water based fire suppression system permit. Porthole restaurant

Dept: Zoning **Status:** Approved **Reviewer:** Marge Schmuckal **Approval Date:** 10/01/2010

Note: **Ok to Issue:** ☑

Dept: Building **Status:** Approved with Conditions **Reviewer:** Jeanine Bourke **Approval Date:** 10/18/2010

Note: **Ok to Issue:** ☑

1) Commercial cooking fire extinquishing systems shall comply with IBC 2003 Sec. 904.11

Dept: Fire **Status:** Approved with Conditions **Reviewer:** Capt Keith Gautreau **Approval Date:** 10/06/2010

Note: **Ok to Issue:** ☑

1) A letter of compliance will be required at the time of final inspection stating:
the date the system was tested for operation, fuel gas shut off, and fire alarm connection if applicable.

2) Hood suppression system shall comply with NFPA 17A, 96, and UL 300. Activation of the suppression system shall activate the fire alarm system if available. A puff test is required. The Class K fire extinguisher and proper signage should be located at the suppression system pull station.

PERMIT ISSUED

OCT 18

City of Portland

BUILDING PERMIT INSPECTION PROCEDURES
Please call 874-8703 (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.**

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

Permit No:	Date Applied For:	CBL:
2013-00044	01/08/2013	030 A001001

Location of Construction:	Owner Name:	Owner Address:	Phone:
86 COMMERCIAL ST/ 6 Custom H	PROPRIETORS OF CUSTOM HO	5 EASTERN PROMENADE	
Business Name:	**Contractor Name:**	**Contractor Address:**	**Phone**
Poppy's Fish Shack & Oyster Room	High Tech Fire Protection	P.O. Box 156 Minot	(207) 998-2551
Lessee/Buyer's Name	**Phone:**	**Permit Type:**	
Harding Smith	2073194368	Fire Suppression System	

Proposed Use:	Proposed Project Description:
Same: Restaurant (see permit #2013-00044)	Install NFPA 13 sprinkler system for new restaurant (Poppy's Fish Shack).

Dept: Zoning **Status:** Approved **Reviewer:** Marge Schmuckal **Approval Date:** 01/08/2013

Note: **Ok to Issue:** ☑

Dept: Fire **Status:** Approved w/Conditions **Reviewer:** Ben Wallace Jr **Approval Date:** 02/19/2013

Note: **Ok to Issue:** ☑

1) Private fire mains and fire hydrants shall be maintained, tested and painted in accordance with Fire Department Regulations prior to issuance of any certificate of occupancy.
2) Notice: The first scheduled final inspection fee is at no charge. Additional inspections shall be billed at $75 for each inspector.
3) System acceptance and commissioning must be coordinated with alarm and suppression system contractors and the Fire Department. Call 874-8703 to schedule.
4) Sprinkler supervision shall be provided in accordance with NFPA 101, Life Safety Code, and NFPA 72, National Fire Alarm and Signaling Code.
5) 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.
6) Installation shall be in accordance with the City of Portland Fire Department Regulations and NFPA 13 as published. A copy of the State Sprinkler permit with RMS date and signature and the Contractor's Material and Test Certificate for Aboveground Piping (NFPA 13 figure 24.1) shall be provided prior to scheduling of the final inspection.
7) A Knox Box is required.

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: ~~6 Custom House Wharf~~ 86 Commercial CBL: 030 A001

Exact location: (within structure) Entire Structure

Type of occupancy(s) (NFPA & ICC): Business - Restaurant

Building owner: Proprioters of Custom House Wharf

Managing Supervisor (RMS): Jeremy A Foss License No: 808

Supervisor phone: (207) 998-2551 E-mail: JFoss@fairpoint.net

Installing contractor: High Tech Fire Protection License No: 102

Contractor phone: (207) 998-2551 E-mail: htfp@fairpoint.net

The suppression work to be done will be: New: (●) Renovation: ( ) Addition to existing system: ( )

This is an amendment to an existing permit: Yes: ( ) NO: (●) Permit no: _____

NFPA Standard this system is designed to: 13 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: $24,000

PERMIT FEE: $260

($10 PER $1,000 + $30 FOR THE FIRST $1,000)

RECEIVED

DEC 0 8 2013

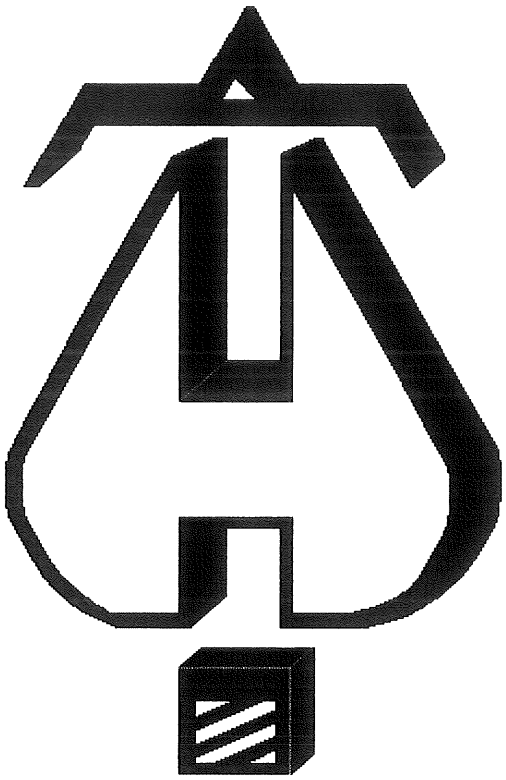
Dept. of Building Inspections
City of Portland Maine

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: _____ Date: 01/02/2013



. . . Fire Protection by Computer Design

High Tech Fire Protection
84 Hackett Mills Road
P.O. Box 156
Minot, Maine 04258-0156
998-2551

Job Name	:	Outdoor Bar / Seating Area Calc.
Building	:	Custom House Wharf
Location	:	Custom House Wharf
System	:	NFPA 13
Contract	:	061112-1
Data File	:	Outdoor Bar - Seating Area Calc.wxf

Hydraulic Design Information Sheet

Name - Outdoor Bar / Seating Area Calc. Date - 12/28/2012
Location - Custom House Wharf
Building - Custom House Wharf System No. - NFPA 13
Contractor - High Tech Fire Protection Contract No. - 061112-1
Calculated By - Jeremy A Foss Drawing No. - FP-1.1
Construction: (X) Combustible ( ) Non-Combustible Ceiling Height - 10'-0"
Occupancy - Bar / Seating

SYSTEM DESIGN

(X) NFPA 13 (X) Lt. Haz. Ord.Haz.Gp. ( ) 1 ( ) 2 ( ) 3 ( ) Ex.Haz.
( ) NFPA 231 ( ) NFPA 231C ( ) Figure Curve
Other
Specific Ruling Made By Date

Area of Sprinkler Operation - 900	System Type	Sprinkler/Nozzle
Density - .1	(X) Wet	Make Globe
Area Per Sprinkler - 196	( ) Dry	Model GL5615
Elevation at Highest Outlet - 10	( ) Deluge	Size 1/2"
Hose Allowance - Inside -	( ) Preaction	K-Factor 5.6
Rack Sprinkler Allowance -	( ) Other	Temp.Rat.155
Hose Allowance - Outside - 100		

Note

Calculation Summary: Flow Required - 336 Press Required - 89; C-Factor Used: 120 Overhead 140 Underground

WATER SUPPLY

Water Flow Test:	Pump Data:	Tank or Reservoir:
Date of Test - 06/09/2000		Cap. -
Time of Test -	Rated Cap.-	Elev.-
Static Press - 102	@ Press -	
Residual Press - 96	Elev. -	Well
Flow - 1162		Proof Flow
Elevation - 3		

Location - Test Hydrant Located at Corner of Commercial and Silver Streets
Test Hydrant #00052 and Flow Hydrant #00051
Source of Information - Portland Water District

COMMODITY STORAGE RACK

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)

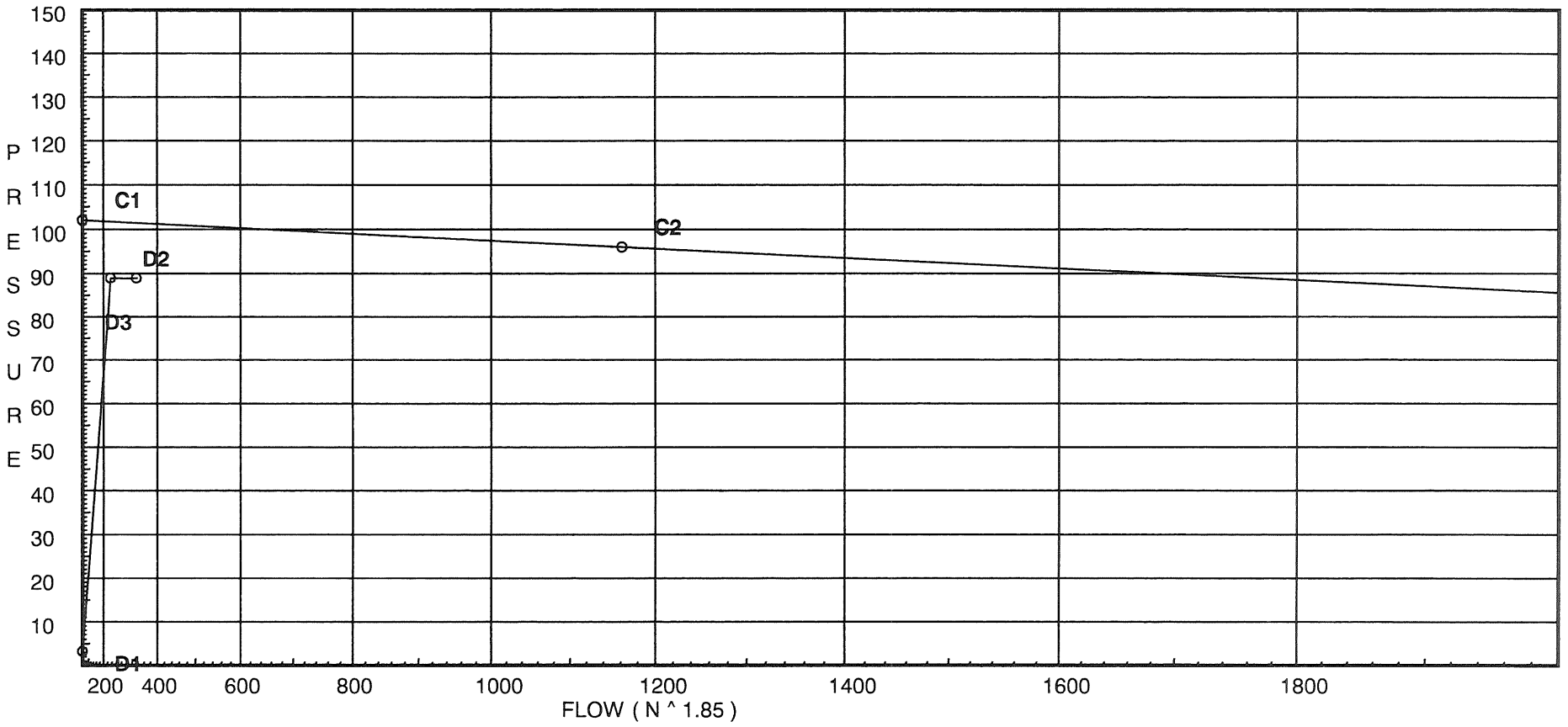
High Tech Fire Protection
Outdoor Bar / Seating Area Calc.

Date 12/28/2012

City Water Supply:
- C1 - Static Pressure : 102
- C2 - Residual Pressure: 96
- C2 - Residual Flow : 1162

Demand:

D1 - Elevation	:	3.248
D2 - System Flow	:	235.602
D2 - System Pressure	:	88.911
Hose (Adj City)	:	
Hose (Demand)	:	100
D3 - System Demand	:	335.602
Safety Margin	:	12.486



Fittings Used Summary

Fitting Legend

Abbrev.	Name	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8	10	12	14	16	18	20	24
B	Generic Butterfly Valve	0	0	0	0	7	7	7	10	0	12	9	10	12	19	21	0	0	0	0	0
E	90' Standard Elbow	2	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	Generic Gate Valve	0	0	0	0	0	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
S	Generic Swing Check Valve	4	5	5	7	9	11	14	16	19	22	27	32	45	55	65	76	87	98	109	130
T	90' Flow thru Tee	3	4	5	6	8	10	12	15	17	20	25	30	35	50	60	71	81	91	101	121
V	90' Ell Firelock #001	0	0	0	0	0	3.5	4.3	5	0	6.8	8.5	10	13	0	0	0	0	0	0	0

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
401	10.5	5.6	12.25	na	19.6	0.1	196	7.0
B1	10.5		14.41	na				
402	10.5	5.6	13.52	na	20.59	0.1	196	7.0
B2	10.5		14.41	na				
403	10.5	5.6	13.33	na	20.45	0.1	196	7.0
B3	10.5		14.47	na				
404	10.5	5.6	12.83	na	20.06	0.1	196	7.0
405	10.5	5.6	13.65	na	20.69	0.1	196	7.0
B4	10.5		14.59	na				
406	10.5	5.6	13.6	na	20.65	0.1	196	7.0
407	10.5	5.6	14.46	na	21.29	0.1	196	7.0
B5	10.5		15.45	na				
408	10.5	5.6	15.18	na	21.82	0.1	196	7.0
409	10.5	5.6	16.13	na	22.49	0.1	196	7.0
B6	10.5		17.23	na				
410	10.5	5.6	17.79	na	23.62	0.1	196	7.0
411	10.5	5.6	18.89	na	24.34	0.1	196	7.0
B7	10.5		20.17	na				
B8	10.5		30.61	na				
B9	4.0		35.17	na				
B10	4.0		38.98	na				
B11	10.0		38.06	na				
B12	10.0		43.68	na				
B13	10.0		46.14	na				
B14	9.0		47.55	na				
B15	9.0		48.57	na				
B16	10.0		49.11	na				
B17	10.0		51.95	na				
B18	9.0		53.35	na				
B19	9.0		54.38	na				
B20	10.0		54.92	na				
TOR	10.0		60.47	na				
BOR	1.0		78.64	na				
H1	0.0		80.25	na	100.0			
H2	3.0		88.51	na				
H3	3.0		88.57	na				
TEST	3.0		88.91	na				

The maximum velocity is 20.69 and it occurs in the pipe between nodes B7 and B8

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
401	19.60	1.049	1E	2.0	10.200	12.250		K Factor = 5.60
to		120	1T	5.0	7.000	0.0		
B1	19.6	0.1253		0.0	17.200	2.156		Vel = 7.28
B1	0.0	2.157		0.0	1.000	14.406		
to		120		0.0	0.0	0.0		
B2	19.6	0.0040		0.0	1.000	0.004		Vel = 1.72
	0.0							
	19.60					14.410		K Factor = 5.16
402	20.59	1.049	1T	5.0	1.500	13.517		K Factor = 5.60
to		120		0.0	5.000	0.0		
B2	20.59	0.1374		0.0	6.500	0.893		Vel = 7.64
B2	19.60	2.157		0.0	4.200	14.410		
to		120		0.0	0.0	0.0		
B3	40.19	0.0140		0.0	4.200	0.059		Vel = 3.53
	0.0							
	40.19					14.469		K Factor = 10.57
403	20.45	1.049	1T	5.0	3.400	13.331		K Factor = 5.60
to		120		0.0	5.000	0.0		
B3	20.45	0.1355		0.0	8.400	1.138		Vel = 7.59
B3	40.19	2.157		0.0	3.900	14.469		
to		120		0.0	0.0	0.0		
B4	60.64	0.0303		0.0	3.900	0.118		Vel = 5.32
	0.0							
	60.64					14.587		K Factor = 15.88
404	20.06	1.049	1T	5.0	8.400	12.834		K Factor = 5.60
to		120		0.0	5.000	0.0		
B4	20.06	0.1308		0.0	13.400	1.753		Vel = 7.45
	0.0							
	20.06					14.587		K Factor = 5.25
405	20.69	1.049	1T	5.0	1.800	13.645		K Factor = 5.60
to		120		0.0	5.000	0.0		
B4	20.69	0.1385		0.0	6.800	0.942		Vel = 7.68
B4	80.69	2.157		0.0	11.000	14.587		
to		120		0.0	0.0	0.0		
B5	101.38	0.0784		0.0	11.000	0.862		Vel = 8.90
	0.0							
	101.38					15.449		K Factor = 25.79
406	20.65	1.049	1T	5.0	8.400	13.599		K Factor = 5.60
to		120		0.0	5.000	0.0		
B5	20.65	0.1381		0.0	13.400	1.850		Vel = 7.67
	0.0							
	20.65					15.449		K Factor = 5.25
407	21.29	1.049	1T	5.0	1.800	14.455		K Factor = 5.60
to		120		0.0	5.000	0.0		
B5	21.29	0.1462		0.0	6.800	0.994		Vel = 7.90
B5	122.03	2.157		0.0	12.000	15.449		
to		120		0.0	0.0	0.0		
B6	143.32	0.1486		0.0	12.000	1.783		Vel = 12.58

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							
	143.32					17.232		K Factor = 34.53
408	21.82	1.049	1T	5.0	8.400	15.183		K Factor = 5.60
to		120		0.0	5.000	0.0		
B6	21.82	0.1529		0.0	13.400	2.049		Vel = 8.10
	0.0							
	21.82					17.232		K Factor = 5.26
409	22.49	1.049	1T	5.0	1.800	16.132		K Factor = 5.60
to		120		0.0	5.000	0.0		
B6	22.49	0.1618		0.0	6.800	1.100		Vel = 8.35
B6	165.15	2.157		0.0	12.000	17.232		
to		120		0.0	0.0	0.0		
B7	187.64	0.2446		0.0	12.000	2.935		Vel = 16.47
	0.0							
	187.64					20.167		K Factor = 41.78
410	23.62	1.049	1T	5.0	8.400	17.794		K Factor = 5.60
to		120		0.0	5.000	0.0		
B7	23.62	0.1771		0.0	13.400	2.373		Vel = 8.77
	0.0							
	23.62					20.167		K Factor = 5.26
411	24.34	1.049	1T	5.0	1.800	18.894		K Factor = 5.60
to		120		0.0	5.000	0.0		
B7	24.34	0.1872		0.0	6.800	1.273		Vel = 9.04
B7	211.26	2.157	2V	8.615	19.400	20.167		
to		120		0.0	8.615	0.0		
B8	235.6	0.3727		0.0	28.015	10.441		Vel = 20.69
B8	0.0	2.635	1V	5.903	6.500	30.608		
to		120		0.0	5.903	2.815		
B9	235.6	0.1406		0.0	12.403	1.744		Vel = 13.86
B9	0.0	2.635	1S	19.22	2.000	35.167		
to		120	1V	5.903	25.123	0.0		
B10	235.6	0.1406		0.0	27.123	3.813		Vel = 13.86
B10	0.0	2.635	1V	5.903	6.000	38.980		
to		120		0.0	5.903	-2.599		
B11	235.6	0.1406		0.0	11.903	1.674		Vel = 13.86
B11	0.0	2.635	2V	11.807	18.600	38.055		
to		120	1B	9.61	21.417	0.0		
B12	235.6	0.1406		0.0	40.017	5.626		Vel = 13.86
B12	0.0	2.635	1V	5.903	11.600	43.681		
to		120		0.0	5.903	0.0		
B13	235.6	0.1406		0.0	17.503	2.461		Vel = 13.86
B13	0.0	2.635	1V	5.903	1.000	46.142		
to		120		0.0	5.903	0.433		
B14	235.6	0.1407		0.0	6.903	0.971		Vel = 13.86
B14	0.0	2.635	1V	5.903	1.400	47.546		
to		120		0.0	5.903	0.0		
B15	235.6	0.1406		0.0	7.303	1.027		Vel = 13.86

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
B15	0.0	2.635	1V	5.903	1.000	48.573		
to		120		0.0	5.903	-0.433		
B16	235.6	0.1405		0.0	6.903	0.970		Vel = 13.86
B16	0.0	2.635	1V	5.903	14.300	49.110		
to		120		0.0	5.903	0.0		
B17	235.6	0.1406		0.0	20.203	2.841		Vel = 13.86
B17	0.0	2.635	1V	5.903	1.000	51.951		
to		120		0.0	5.903	0.433		
B18	235.6	0.1405		0.0	6.903	0.970		Vel = 13.86
B18	0.0	2.635	1V	5.903	1.400	53.354		
to		120		0.0	5.903	0.0		
B19	235.6	0.1406		0.0	7.303	1.027		Vel = 13.86
B19	0.0	2.635	1V	5.903	1.000	54.381		
to		120		0.0	5.903	-0.433		
B20	235.6	0.1407		0.0	6.903	0.971		Vel = 13.86
B20	0.0	2.635	2V	11.807	27.700	54.919		
to		120		0.0	11.807	0.0		
TOR	235.6	0.1406		0.0	39.507	5.554		Vel = 13.86
TOR	0.0	2.635	1Fsp	0.0	9.000	60.473		
to		120		0.0	0.0	16.898		* Fixed loss = 10
BOR	235.6	0.1407		0.0	9.000	1.266		Vel = 13.86
BOR	0.0	4.1	1E	14.534	50.000	78.637		
to		140	1G	2.907	46.508	0.433		
H1	235.6	0.0123	1T	29.067	96.508	1.184		Vel = 5.73
H1	100.00	4.1	1G	1.56	200.000	80.254		Qa = 100
to		100	1T	15.598	17.157	-1.299		
H2	335.6	0.0440		0.0	217.157	9.560		Vel = 8.16
H2	0.0	12.24		0.0	250.000	88.515		
to		100		0.0	0.0	0.0		
H3	335.6	0.0002		0.0	250.000	0.053		Vel = 0.92
H3	0.0	6.14	1E	10.608	20.000	88.568		
to		100	1G	2.273	35.613	0.0		
TEST	335.6	0.0062	1T	22.732	55.613	0.343		Vel = 3.64
	0.0							
	335.60					88.911		K Factor = 35.59

. . . Fire Protection by Computer Design

High Tech Fire Protection
84 Hackett Mills Road
P.O. Box 156
Minot, Maine 04258-0156
998-2551

Job Name	:	Second Floor Restaurant / Seating Area Calc.
Building	:	Custom House Wharf
Location	:	Custom House Wharf
System	:	NFPA 13
Contract	:	061112-1
Data File	:	Second Floor Restaurant - Seating Area Calc.wxf

Hydraulic Design Information Sheet

Name - Second Floor Restaurant / Seating Area Calc. Date - 12/28/2012
Location - Custom House Wharf
Building - Custom House Wharf System No. - NFPA 13
Contractor - High Tech Fire Protection Contract No. - 061112-1
Calculated By - Jeremy A Foss Drawing No. - FP-1.1
Construction: (X) Combustible ( ) Non-Combustible Ceiling Height - 15'-0"
Occupancy - Restaurant Seating / Kitchen

SYSTEM DESIGN

(X) NFPA 13 ( ) Lt. Haz. Ord.Haz.Gp. (X) 1 ( ) 2 ( ) 3 ( ) Ex.Haz.
( ) NFPA 231 ( ) NFPA 231C ( ) Figure Curve
Other
Specific Ruling Made By Date

Area of Sprinkler Operation	- 1000	System Type	Sprinkler/Nozzle
Density	- .15	(X) Wet	Make Globe
Area Per Sprinkler	- 130	( ) Dry	Model GL5615
Elevation at Highest Outlet	- 25	( ) Deluge	Size 1/2"
Hose Allowance - Inside	-	( ) Preaction	K-Factor 5.6
Rack Sprinkler Allowance	-	( ) Other	Temp.Rat.155 / 200
Hose Allowance - Outside	- 250		

Note

Calculation Summary: Flow Required - 497 Press Required - 84
C-Factor Used: 120 Overhead 140 Underground

WATER SUPPLY

Water Flow Test:		Pump Data:		Tank or Reservoir:
Date of Test	- 06/09/2000			Cap. -
Time of Test	-	Rated Cap.-		Elev.-
Static Press	- 102	@ Press	-	
Residual Press	- 96	Elev.	-	Well
Flow	- 1162			Proof Flow
Elevation	- 3			

Location - Test Hydrant Located at Corner of Commercial and Silver Streets
Test Hydrant #00052 and Flow Hydrant #00051
Source of Information - Portland Water District

COMMODITY STORAGE

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)

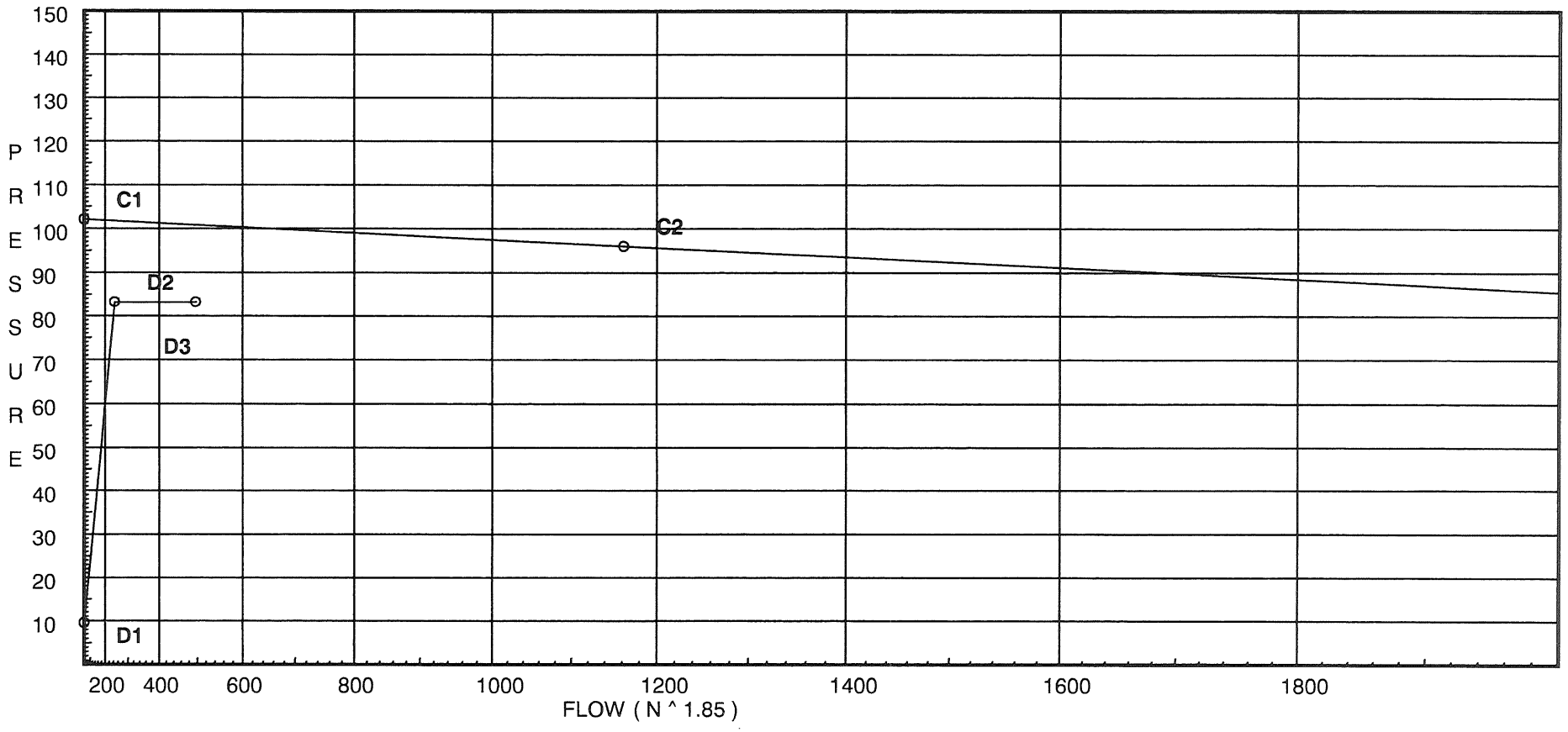
High Tech Fire Protection
Second Floor Restaurant / Seating Area Calc.

Date 12/28/2012

City Water Supply:
- C1 - Static Pressure : 102
- C2 - Residual Pressure: 96
- C2 - Residual Flow : 1162

Demand:

D1 - Elevation	:	9.528
D2 - System Flow	:	246.452
D2 - System Pressure	:	83.230
Hose (Adj City)	:	
Hose (Demand)	:	250
D3 - System Demand	:	496.452
Safety Margin	:	17.526



Fittings Used Summary

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	90' Standard Elbow	2	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	Generic Gate Valve	0	0	0	0	0	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
T	90' Flow thru Tee	3	4	5	6	8	10	12	15	17	20	25	30	35	50	60	71	81	91	101	121
V	90' Ell Firelock #001	0	0	0	0	0	3.5	4.3	5	0	6.8	8.5	10	13	0	0	0	0	0	0	0
X	90'Tee-BranchFirelock002	0	0	0	0	0	8.5	10.8	13	0	16	21	25	33	0	0	0	0	0	0	0

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
201	25.0	5.6	12.91	na	20.12	0.15	130	7.0
202	25.0	5.6	13.08	na	20.25	0.15	130	7.0
203	25.0	5.6	13.7	na	20.73	0.15	130	7.0
204	25.0	5.6	15.04	na	21.72	0.15	130	7.0
205	25.0	5.6	12.13	na	19.5	0.15	130	7.0
206	25.0	5.6	12.25	na	19.6	0.15	130	7.0
207	25.0	5.6	12.7	na	19.96	0.15	130	7.0
208	25.0	5.6	13.38	na	20.48	0.15	130	7.0
209	25.0	5.6	13.51	na	20.59	0.15	130	7.0
210	25.0	5.6	13.61	na	20.66	0.15	130	7.0
211	25.0	5.6	14.11	na	21.03	0.15	130	7.0
212	25.0	5.6	15.17	na	21.81	0.15	130	7.0
A1	25.0		17.61	na				
A2	25.0		17.79	na				
A3	25.0		18.37	na				
A4	24.0		19.29	na				
A5	24.0		19.81	na				
A6	25.0		19.86	na				
A7	25.0		20.07	na				
A8	25.0		22.8	na				
A9	24.0		24.29	na				
A10	24.0		25.41	na				
A11	25.0		26.03	na				
A12	25.0		31.81	na				
A13	10.0		42.86	na				
TOR	10.0		43.99	na				
BOR	1.0		62.27	na				
H1	0.0		63.99	na	250.0			
H2	3.0		82.41	na				
H3	3.0		82.52	na				
TEST	3.0		83.23	na				

The maximum velocity is 14.5 and it occurs in the pipe between nodes A7 and A8

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
201	20.12	1.682		0.0	13.000	12.908		K Factor = 5.60
to		120		0.0	0.0	0.0		
202	20.12	0.0132		0.0	13.000	0.172		Vel = 2.91
202	20.25	1.682		0.0	13.000	13.080		K Factor = 5.60
to		120		0.0	0.0	0.0		
203	40.37	0.0478		0.0	13.000	0.622		Vel = 5.83
203	20.73	1.682		0.0	13.000	13.702		K Factor = 5.60
to		120		0.0	0.0	0.0		
204	61.1	0.1031		0.0	13.000	1.340		Vel = 8.82
204	21.72	1.682	1T	9.9	4.300	15.042		K Factor = 5.60
to		120		0.0	9.900	0.0		
A1	82.82	0.1808		0.0	14.200	2.568		Vel = 11.96
	0.0							
	82.82					17.610		K Factor = 19.74
205	19.50	1.682		0.0	10.000	12.125		K Factor = 5.60
to		120		0.0	0.0	0.0		
206	19.5	0.0125		0.0	10.000	0.125		Vel = 2.82
206	19.60	1.682		0.0	10.000	12.250		K Factor = 5.60
to		120		0.0	0.0	0.0		
207	39.1	0.0451		0.0	10.000	0.451		Vel = 5.65
207	19.96	1.682		0.0	7.000	12.701		K Factor = 5.60
to		120		0.0	0.0	0.0		
208	59.06	0.0967		0.0	7.000	0.677		Vel = 8.53
208	20.48	1.682	1T	9.9	16.400	13.378		K Factor = 5.60
to		120		0.0	9.900	0.0		
A2	79.54	0.1679		0.0	26.300	4.416		Vel = 11.48
	0.0							
	79.54					17.794		K Factor = 18.86
209	20.59	1.682		0.0	7.000	13.512		K Factor = 5.60
to		120		0.0	0.0	0.0		
210	20.59	0.0139		0.0	7.000	0.097		Vel = 2.97
210	20.65	1.682		0.0	10.000	13.609		K Factor = 5.60
to		120		0.0	0.0	0.0		
211	41.24	0.0498		0.0	10.000	0.498		Vel = 5.95
211	21.04	1.682		0.0	10.000	14.107		K Factor = 5.60
to		120		0.0	0.0	0.0		
212	62.28	0.1067		0.0	10.000	1.067		Vel = 8.99
212	21.81	1.682	1T	9.9	16.400	15.174		K Factor = 5.60
to		120		0.0	9.900	0.0		
A7	84.09	0.1861		0.0	26.300	4.894		Vel = 12.14
	0.0							
	84.09					20.068		K Factor = 18.77
A1	82.82	2.635		0.0	9.000	17.610		
to		120		0.0	0.0	0.0		
A2	82.82	0.0204		0.0	9.000	0.184		Vel = 4.87
A2	79.54	2.635	1V	5.903	2.300	17.794		
to		120		0.0	5.903	0.0		
A3	162.36	0.0706		0.0	8.203	0.579		Vel = 9.55

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
A3	0.0	2.635	1V	5.903	1.000	18.373		
to		120		0.0	5.903	0.433		
A4	162.36	0.0705		0.0	6.903	0.487		Vel = 9.55
A4	0.0	2.635	1V	5.903	1.400	19.293		
to		120		0.0	5.903	0.0		
A5	162.36	0.0707		0.0	7.303	0.516		Vel = 9.55
A5	0.0	2.635	1V	5.903	1.000	19.809		
to		120		0.0	5.903	-0.433		
A6	162.36	0.0705		0.0	6.903	0.487		Vel = 9.55
A6	0.0	2.635		0.0	2.900	19.863		
to		120		0.0	0.0	0.0		
A7	162.36	0.0707		0.0	2.900	0.205		Vel = 9.55
A7	84.09	2.635	1V	5.903	12.000	20.068		
to		120		0.0	5.903	0.0		
A8	246.45	0.1528		0.0	17.903	2.736		Vel = 14.50
A8	0.0	2.635	1V	5.903	1.000	22.804		
to		120		0.0	5.903	0.433		
A9	246.45	0.1528		0.0	6.903	1.055		Vel = 14.50
A9	0.0	2.635	1V	5.903	1.400	24.292		
to		120		0.0	5.903	0.0		
A10	246.45	0.1528		0.0	7.303	1.116		Vel = 14.50
A10	0.0	2.635	1V	5.903	1.000	25.408		
to		120		0.0	5.903	-0.433		
A11	246.45	0.1527		0.0	6.903	1.054		Vel = 14.50
A11	0.0	2.635	2V	11.807	26.000	26.029		
to		120		0.0	11.807	0.0		
A12	246.45	0.1528		0.0	37.807	5.778		Vel = 14.50
A12	0.0	2.635	1X	14.827	15.000	31.807		
to		120		0.0	14.827	6.496		
A13	246.45	0.1528		0.0	29.827	4.558		Vel = 14.50
A13	0.0	2.635	1V	5.903	1.500	42.861		
to		120		0.0	5.903	0.0		
TOR	246.45	0.1528		0.0	7.403	1.131		Vel = 14.50
TOR	0.0	2.635	1Fsp	0.0	9.000	43.992		
to		120		0.0	0.0	16.898		* Fixed loss = 10
BOR	246.45	0.1529		0.0	9.000	1.376		Vel = 14.50
BOR	0.0	4.1	1E	14.534	50.000	62.266		
to		140	1G	2.907	46.508	0.433		
H1	246.45	0.0133	1T	29.067	96.508	1.287		Vel = 5.99
H1	250.00	4.1	1G	1.56	200.000	63.986		Qa = 250
to		100	1T	15.598	17.157	-1.299		
H2	496.45	0.0908		0.0	217.157	19.725		Vel = 12.06
H2	0.0	12.24		0.0	250.000	82.412		
to		100		0.0	0.0	0.0		
H3	496.45	0.0004		0.0	250.000	0.111		Vel = 1.35
H3	0.0	6.14	1E	10.608	20.000	82.523		
to		100	1G	2.273	35.613	0.0		
TEST	496.45	0.0127	1T	22.732	55.613	0.707		Vel = 5.38

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									
	496.45					83.230		K Factor = 54.42		