

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK



# CITY OF PORTLAND BUILDING PERMIT



**This is to certify that**

50 INDUSTRIAL WAY LLC /High Tech Fire Protection

**Located at**

50 INDUSTRIAL WAY

**PERMIT ID:** 2013-00045


**CBL:** 326 B009001

has permission to **extend existing sprinkler system into addition.**

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 closoed-in. 48 HOUR NOTICE IS REQUIRED.

A final inspection must be completed by owner before this building or part thereof is occupied. If a certificate of occupancy is required, it must be procured prior to occupancy.

  
Fire Prevention Officer

58

Code Enforcement Officer / Plan Reviewer

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

## BUILDING PERMIT INSPECTION PROCEDURES

Please call 874-8703 (ONLY)  
or email: [buildinginspections@portlandmaine.gov](mailto:buildinginspections@portlandmaine.gov)

With the issuance of this permit, the owner, builder or their designee is required to provide adequate notice to the city of Portland Inspections Services for the following inspections. Appointments must be requested 48 to 72 hours in advance of the required inspection. The inspection date will need to be confirmed by this office.

- **Please read the conditions of approval that is attached to this permit!! Contact this office if you have any questions.**
- **Permits expire in 6 months. If the project is not started or ceases for 6 months.**
- **If the inspection requirements are not followed as stated below additional fees may be incurred due to the issuance of a "Stop Work Order" and subsequent release to continue.**

### **REQUIRED INSPECTIONS:**

Final - Fire

The project cannot move to the next phase prior to the required inspection and approval to continue, REGARDLESS OF THE NOTICE OF CIRCUMSTANCES.

IF THE PERMIT REQUIRES A CERTIFICATE OF OCCUPANCY, IT MUST BE PAID FOR AND ISSUED TO THE OWNER OR DESIGNEE BEFORE THE SPACE MAY BE OCCUPIED.

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

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

<b>Permit No:</b> 2013-00045	<b>Date Applied For:</b> 01/08/2013	<b>CBL:</b> 326 B009001
---------------------------------	--	----------------------------

<b>Location of Construction:</b> 50 INDUSTRIAL WAY	<b>Owner Name:</b> 50 INDUSTRIAL WAY LLC	<b>Owner Address:</b> 50 INDUSTRIAL WAY	<b>Phone:</b>
<b>Business Name:</b> Allagash Brewery	<b>Contractor Name:</b> High Tech Fire Protection	<b>Contractor Address:</b> P.O. Box 156 Minot	<b>Phone</b> (207) 998-2551
<b>Lessee/Buyer's Name</b>	<b>Phone:</b>	<b>Permit Type:</b> Fire Suppression System	

<b>Proposed Use:</b> Same: Brewery	<b>Proposed Project Description:</b> extend existing sprinkler system into addition.
---------------------------------------	---

**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:** 01/17/2013  
**Note:**      **Ok to Issue:**

- 1) Sprinkler supervision shall be provided in accordance with NFPA 101, Life Safety Code, and NFPA 72, National Fire Alarm and Signaling Code.
- 2) Fire walls, fire barriers, fire partitions, smoke barriers and smoke partitions or any other wall required to have protected openings or penetrations shall be effectively and permanently identified with signs or stenciling in accessible concealed floor, floor-ceiling or attic spaces at intervals not exceeding 30 feet with lettering not less than 0.5 inches in height.
- 3) A Knox Box is required.
- 4) 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.
- 5) System acceptance and commissioning must be coordinated with alarm and suppression system contractors and the Fire Department. Call 874-8703 to schedule.
- 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) Sprinkler supervision shall be provided in accordance with NFPA 101, Life Safety Code, and NFPA 72, National Fire Alarm and Signaling Code.



# 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: 50 Industrial Way CBL: \_\_\_\_\_

Exact location: (within structure) Brewery and Bunker Expansion

Type of occupancy(s) (NFPA & ICC): Business - Ordinary Hazard Group II Throughout

Building owner: Allagash Brewing Company

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](http://www.portlandmaine.gov/fire) for every submittal. Attach all working documents and complete approved submittals as may be required by the State Fire Marshal's Office on electronic PDF's in addition to full sized plans.

Contractor shall verify location and type of all FDCs shall be approved in writing by the Fire Prevention Bureau.

**COST OF WORK:** \$14,000  
**PERMIT FEE:** \$160.00  
 (\$10 PER \$1,000 + \$30 FOR THE FIRST \$1,000)

**RECEIVED**  
**DEC 08 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: [Signature] Date: November 19, 2012

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

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

Permit No: 2013-00045	Issue Date:	CBL: 326 B009001
--------------------------	-------------	---------------------

Location of Construction: 50 INDUSTRIAL WAY	Owner Name: 50 INDUSTRIAL WAY LLC	Owner Address: 50 INDUSTRIAL WAY PORTLAND, ME 04103	Phone:
Business Name: Allagash Brewery	Contractor Name: High Tech Fire Protection	Contractor Address: P.O. Box 156 Minot ME 04258	Phone (207) 998-2551
Lessee/Buyer's Name	Phone:	Permit Type: Fire Suppression System	Zone: IM
Past Use: Brewery	Proposed Use: Same: Brewery	Permit Fee: \$160.00	Cost of Work: \$14,000.00
		FIRE DEPT: <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Denied <input type="checkbox"/> N/A <i>1/17/13</i>	INSPECTION: Use Group: Type:
Proposed Project Description: Install WB Fire Suppression system		Signature: <i>[Signature]</i> (58)	Signature:
		PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.) Action: <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied Signature: Date:	

Permit Taken By: bjs	Date Applied For: 01/08/2013	<b>Zoning Approval</b>
-------------------------	---------------------------------	------------------------

<p>1. This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.</p> <p>2. Building permits do not include plumbing, septic or electrical work.</p> <p>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..</p>	<p>Special Zone or Review</p> <p><input type="checkbox"/> Shoreland</p> <p><input type="checkbox"/> Wetland</p> <p><input type="checkbox"/> Flood Zone</p> <p><input type="checkbox"/> Subdivision</p> <p><input type="checkbox"/> Site Plan</p> <p>Maj <input type="checkbox"/> Minor <input type="checkbox"/> MM <input type="checkbox"/></p> <p>Date:</p>	<p>Zoning Appeal</p> <p><input type="checkbox"/> Variance</p> <p><input type="checkbox"/> Miscellaneous</p> <p><input type="checkbox"/> Conditional Use</p> <p><input type="checkbox"/> Interpretation</p> <p><input type="checkbox"/> Approved</p> <p><input type="checkbox"/> Denied</p> <p>Date:</p>	<p>Historic Preservation</p> <p><input type="checkbox"/> Not in District or Landmark</p> <p><input type="checkbox"/> Does Not Require Review</p> <p><input type="checkbox"/> Requires Review</p> <p><input type="checkbox"/> Approved</p> <p><input type="checkbox"/> Approved w/Conditions</p> <p><input type="checkbox"/> Denied</p> <p>Date:</p>
---	--	---	---

### 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



... 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 : Brew House Calc.  
Building : Allagash Brewery Addition  
Location : 50 Industrial Way  
System : NFPA 13  
Contract : 100312-1  
Data File : Brew House Calc.wxf

Hydraulic Design Information Sheet

Name - Brew House Calc. Date - 11/15/2012  
 Location - 50 Industrial Way  
 Building - Allagash Brewery Addition System No. - NFPA 13  
 Contractor - High Tech Fire Protection Contract No. - 100312-1  
 Calculated By - Jeremy A. Foss Drawing No. - FP-1.1  
 Construction: ( ) Combustible (X) Non-Combustible Ceiling Height - Varies  
 Occupancy - Brewery

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

S Other

T Specific Ruling Made By Date

E	Specific Ruling	Made By	Date
M	Area of Sprinkler Operation - 1500	System Type	Sprinkler/Nozzle
	Density - .2	(X) Wet	Make Globe
D	Area Per Sprinkler - 130	( ) Dry	Model GL5615
E	Elevation at Highest Outlet - 28.500	( ) Deluge	Size 1/2"
S	Hose Allowance - Inside -	( ) Preaction	K-Factor 5.6
I	Rack Sprinkler Allowance -	( ) Other	Temp.Rat.200
G	Hose Allowance - Outside - 250		

N Note

Calculation Flow Required - 626 Press Required - 57  
 Summary C-Factor Used: 120 Overhead 120 Underground

W	Water Flow Test:	Pump Data:	Tank or Reservoir:
A	Date of Test - 8/30/2012	Rated Cap.-	Cap. -
T	Time of Test -	@ Press -	Elev.-
E	Static Press - 75	Elev. -	Well
R	Residual Press - 73		Proof Flow
S	Flow - 440		
U	Elevation - 3		

P Location - 2" Main Drain Test Performed During Quarterly Inspection

P Source of Information - Existing Riser Test Tag

Y

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

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

E Horizontal Barriers Provided:

# Water Supply Curve (C)

High Tech Fire Protection  
Brew House Calc.

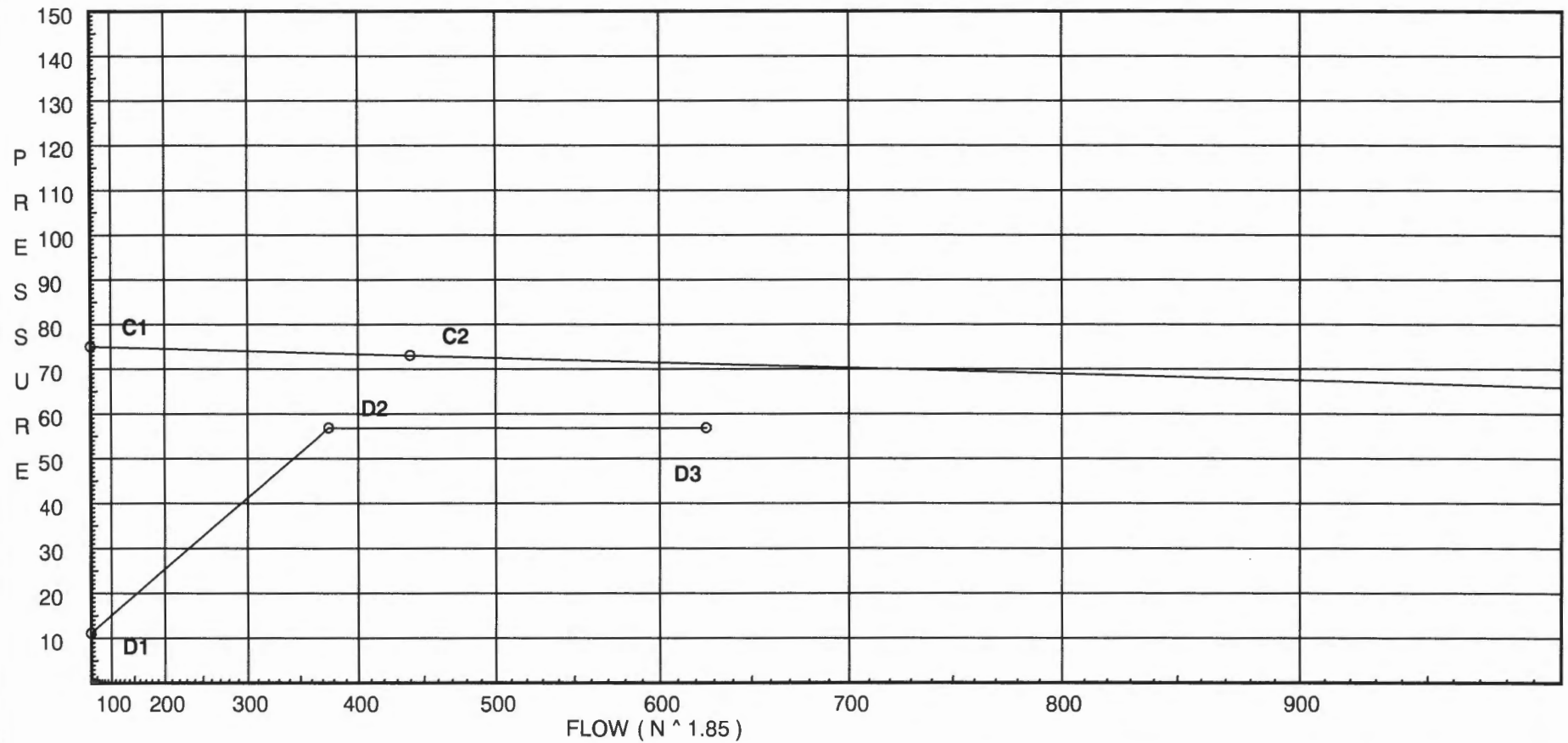
Page 2  
Date 11/15/2012

### City Water Supply:

C1 - Static Pressure : 75  
C2 - Residual Pressure: 73  
C2 - Residual Flow : 440

### Demand:

D1 - Elevation : 11.044  
D2 - System Flow : 375.88  
D2 - System Pressure : 56.841  
Hose ( Adj City ) : \_\_\_\_\_  
Hose ( Demand ) : 250  
D3 - System Demand : 625.88  
Safety Margin : 14.321





# Fittings Used Summary

High Tech Fire Protection  
Brew House Calc.

Page 3  
Date 11/15/2012

## 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
F	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																			
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

# Pressure / Flow Summary - STANDARD

High Tech Fire Protection  
Brew House Calc.

Page 4  
Date 11/15/2012

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
401	28.5	5.6	21.56	na	26.0	0.2	130	7.0
402	28.5	5.6	21.62	na	26.04	0.2	130	7.0
403	28.5	5.6	21.85	na	26.18	0.2	130	7.0
404	28.5	5.6	22.33	na	26.46	0.2	130	7.0
405	28.5	5.6	23.16	na	26.95	0.2	130	7.0
B1	28.5		27.77	na				
406	27.5	5.6	22.03	na	26.28	0.2	130	7.0
407	27.5	5.6	22.1	na	26.32	0.2	130	7.0
408	27.5	5.6	22.33	na	26.46	0.2	130	7.0
409	27.5	5.6	22.82	na	26.75	0.2	130	7.0
410	27.5	5.6	23.67	na	27.25	0.2	130	7.0
B3	27.5		28.37	na				
411	27.5	5.6	24.32	na	27.62	0.2	130	7.0
412	27.5	5.6	24.39	na	27.66	0.2	130	7.0
413	27.5	5.6	24.65	na	27.8	0.2	130	7.0
414	27.5	5.6	25.19	na	28.11	0.2	130	7.0
B5	27.5		29.49	na				
B2	27.0		30.17	na				
B4	26.0		30.81	na				
B6	26.0		31.42	na				
B7	20.5		43.97	na				
B8	10.5		49.3	na				
TOR	10.5		50.01	na				
BOR	3.0		56.84	na	250.0			

The maximum velocity is 14.45 and it occurs in the pipe between nodes B6 and B7

# Final Calculations - Hazen-Williams

High Tech Fire Protection  
Brew House Calc.

Page 5  
Date 11/15/2012

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	26.00	2.157		0.0	10.000	21.556			K Factor = 5.60	
to		120		0.0	0.0	0.0				
402	26.0	0.0063		0.0	10.000	0.063			Vel = 2.28	
402	26.04	2.157		0.0	10.000	21.619			K Factor = 5.60	
to		120		0.0	0.0	0.0				
403	52.04	0.0228		0.0	10.000	0.228			Vel = 4.57	
403	26.17	2.157		0.0	10.000	21.847			K Factor = 5.60	
to		120		0.0	0.0	0.0				
404	78.21	0.0485		0.0	10.000	0.485			Vel = 6.87	
404	26.47	2.157		0.0	10.000	22.332			K Factor = 5.60	
to		120		0.0	0.0	0.0				
405	104.68	0.0831		0.0	10.000	0.831			Vel = 9.19	
405	26.95	2.157	1V	4.307	32.000	23.163			K Factor = 5.60	
to		120		0.0	4.307	0.0				
B1	131.63	0.1269		0.0	36.307	4.609			Vel = 11.56	
B1	0.0	2.157	1T	12.307	1.500	27.772				
to		120		0.0	12.307	0.650				
B2	131.63	0.1269		0.0	13.807	1.752			Vel = 11.56	
	0.0									
	131.63					30.174			K Factor = 23.96	
406	26.28	2.157		0.0	10.000	22.031			K Factor = 5.60	
to		120		0.0	0.0	0.0				
407	26.28	0.0065		0.0	10.000	0.065			Vel = 2.31	
407	26.33	2.157		0.0	10.000	22.096			K Factor = 5.60	
to		120		0.0	0.0	0.0				
408	52.61	0.0232		0.0	10.000	0.232			Vel = 4.62	
408	26.46	2.157		0.0	10.000	22.328			K Factor = 5.60	
to		120		0.0	0.0	0.0				
409	79.07	0.0495		0.0	10.000	0.495			Vel = 6.94	
409	26.75	2.157		0.0	10.000	22.823			K Factor = 5.60	
to		120		0.0	0.0	0.0				
410	105.82	0.0847		0.0	10.000	0.847			Vel = 9.29	
410	27.25	2.157	1V	4.307	32.000	23.670			K Factor = 5.60	
to		120		0.0	4.307	0.0				
B3	133.07	0.1295		0.0	36.307	4.703			Vel = 11.68	
B3	0.0	2.157	1T	12.307	1.500	28.373				
to		120		0.0	12.307	0.650				
B4	133.07	0.1295		0.0	13.807	1.788			Vel = 11.68	
	0.0									
	133.07					30.811			K Factor = 23.97	
411	27.62	2.157		0.0	10.000	24.322			K Factor = 5.60	
to		120		0.0	0.0	0.0				
412	27.62	0.0071		0.0	10.000	0.071			Vel = 2.43	
412	27.66	2.157		0.0	10.000	24.393			K Factor = 5.60	
to		120		0.0	0.0	0.0				
413	55.28	0.0255		0.0	10.000	0.255			Vel = 4.85	
413	27.80	2.157		0.0	10.000	24.648			K Factor = 5.60	
to		120		0.0	0.0	0.0				
414	83.08	0.0541		0.0	10.000	0.541			Vel = 7.29	

# Final Calculations - Standard

High Tech Fire Protection  
Brew House Calc.

Page 6  
Date 11/15/2012

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
414 to B5	28.10 111.18	2.157 120 0.0929	1V 0.0 0.0	4.307 4.307 46.307	42.000 0.0 4.302	25.189 0.0 4.302		K Factor = 5.60 Vel = 9.76	
B5 to B6	0.0 111.18	2.157 120 0.0929	1T 0.0 0.0	12.307 12.307 13.807	1.500 12.307 13.807	29.491 0.650 1.282		Vel = 9.76	
	0.0 111.18					31.423		K Factor = 19.83	
B2 to B4	131.63 131.63	3.26 120 0.0170	0.0 0.0 0.0	12.000 0.0 12.000	12.000 0.0 12.000	30.174 0.433 0.204		Vel = 5.06	
B4 to B6	133.07 264.7	3.26 120 0.0618	0.0 0.0 0.0	9.900 0.0 9.900	9.900 0.0 9.900	30.811 0.0 0.612		Vel = 10.17	
B6 to B7	111.18 375.88	3.26 120 0.1183	1V 0.0 0.0	6.72 6.72 85.920	79.200 6.720 85.920	31.423 2.382 10.168		Vel = 14.45	
B7 to B8	0.0 375.88	4.26 120 0.0322	1X 0.0 0.0	21.067 21.067 31.067	10.000 21.067 31.067	43.973 4.331 0.999		Vel = 8.46	
B8 to TOR	0.0 375.88	4.26 120 0.0321	1X 0.0 0.0	21.067 21.067 22.067	1.000 21.067 22.067	49.303 0.0 0.709		Vel = 8.46	
TOR to BOR	0.0 375.88	4.26 120 0.0322	2F 1Fsp 0.0	10.534 0.0 18.034	7.500 10.534 18.034	50.012 6.248 0.581		* Fixed loss = 3 Vel = 8.46	
	250.00 625.88					56.841		Qa = 250.00 K Factor = 83.02	



**. . . 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 : Retail Area Calc.  
Building : Allagash Brewery Addition  
Location : 50 Industrial Way  
System : NFPA 13  
Contract : 100312-1  
Data File : Retail Area Calc.wxf

Hydraulic Design Information Sheet

Name - Retail Area Calc. Date - 11/15/2012  
 Location - 50 Industrial Way  
 Building - Allagash Brewery Addition System No. - NFPA 13  
 Contractor - High Tech Fire Protection Contract No. - 100312-1  
 Calculated By - Jeremy A. Foss Drawing No. - FP-1.1  
 Construction: ( ) Combustible (X) Non-Combustible Ceiling Height - 12'-0"  
 Occupancy - Retail

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

T Specific Ruling Made By Date

M	Area of Sprinkler Operation - 900	System Type	Sprinkler/Nozzle
	Density - .2	(X) Wet	Make Globe
D	Area Per Sprinkler - 130	( ) Dry	Model GL5615
E	Elevation at Highest Outlet - 11.500	( ) Deluge	Size 1/2"
S	Hose Allowance - Inside -	( ) Preaction	K-Factor 5.6
I	Rack Sprinkler Allowance -	( ) Other	Temp.Rat.155
G	Hose Allowance - Outside - 250		

N Note

Calculation Flow Required - 488 Press Required - 57  
 Summary C-Factor Used: 120 Overhead 120 Underground

W	Water Flow Test:	Pump Data:	Tank or Reservoir:
A	Date of Test - 8/30/2012		Cap. -
T	Time of Test -	Rated Cap.-	Elev.-
E	Static Press - 75	@ Press -	
R	Residual Press - 73	Elev. -	Well
S	Flow - 440		Proof Flow
U	Elevation - 3		

P Location - 2" Main Drain Test Performed During Quarterly Inspection

L Source of Information - Existing Riser Test Tag

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

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

E Horizontal Barriers Provided:

# Water Supply Curve (C)

High Tech Fire Protection  
Retail Area Calc.

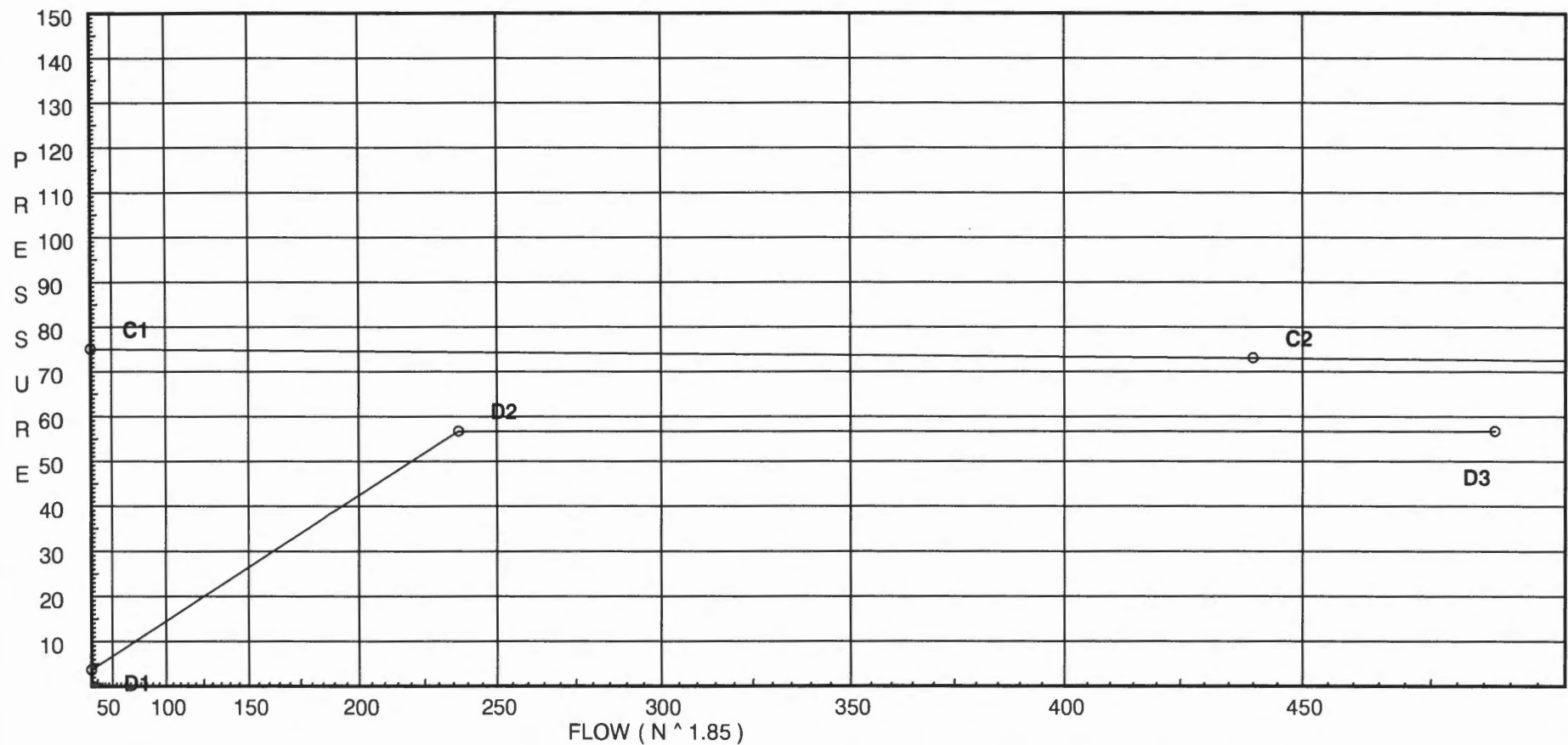
Page 2  
Date 11/15/2012

### City Water Supply:

C1 - Static Pressure : 75  
C2 - Residual Pressure: 73  
C2 - Residual Flow : 440

### Demand:

D1 - Elevation : 3.681  
D2 - System Flow : 237.057  
D2 - System Pressure : 56.710  
Hose ( Adj City ) : \_\_\_\_\_  
Hose ( Demand ) : 250  
D3 - System Demand : 487.057  
Safety Margin : 15.877



# Fittings Used Summary

High Tech Fire Protection  
Retail Area Calc.

Page 3  
Date 11/15/2012

Fitting Legend		1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	8	10	12	14	16	18	20	24
Abbrev.	Name																				
E	90' Standard Elbow	2	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61
F	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																			
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
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



# Pressure / Flow Summary - STANDARD

High Tech Fire Protection  
Retail Area Calc.

Page 4  
Date 11/15/2012

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
601	11.5	5.6	21.56	na	26.0	0.2	130	7.0
602	11.5	5.6	23.67	na	27.25	0.2	130	7.0
603	11.5	5.6	31.63	na	31.5	0.2	130	7.0
C1	11.5		34.06	na				
604	11.5	5.6	21.99	na	26.26	0.2	130	7.0
605	11.5	5.6	24.14	na	27.52	0.2	130	7.0
606	11.5	5.6	32.26	na	31.8	0.2	130	7.0
C3	11.5		34.73	na				
607	11.5	5.6	33.91	na	32.61	0.2	130	7.0
608	11.5	5.6	37.13	na	34.12	0.2	130	7.0
C5	11.5		38.68	na				
C2	10.5		37.96	na				
C4	10.5		38.69	na				
C6	10.5		41.34	na				
C7	10.5		49.45	na				
TOR	10.5		50.21	na				
BOR	3.0		56.71	na	250.0			

The maximum velocity is 20.81 and it occurs in the pipe between nodes C6 and C7

# Final Calculations - Hazen-Williams

High Tech Fire Protection  
Retail Area Calc.

Page 5  
Date 11/15/2012

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
601	26.00	1.049		0.0	10.000	21.556			K Factor = 5.60	
to		120		0.0	0.0	0.0				
602	26.0	0.2114		0.0	10.000	2.114			Vel = 9.65	
602	27.25	1.049		0.0	10.000	23.670			K Factor = 5.60	
to		120		0.0	0.0	0.0				
603	53.25	0.7964		0.0	10.000	7.964			Vel = 19.77	
603	31.49	1.38	1E	3.0	1.900	31.634			K Factor = 5.60	
to		120		0.0	3.000	0.0				
C1	84.74	0.4947		0.0	4.900	2.424			Vel = 18.18	
C1	0.0	1.38	1T	6.0	1.000	34.058				
to		120		0.0	6.000	0.433				
C2	84.74	0.4949		0.0	7.000	3.464			Vel = 18.18	
	0.0									
	84.74					37.955			K Factor = 13.75	
604	26.26	1.049		0.0	10.000	21.991			K Factor = 5.60	
to		120		0.0	0.0	0.0				
605	26.26	0.2154		0.0	10.000	2.154			Vel = 9.75	
605	27.52	1.049		0.0	10.000	24.145			K Factor = 5.60	
to		120		0.0	0.0	0.0				
606	53.78	0.8111		0.0	10.000	8.111			Vel = 19.96	
606	31.80	1.38	1E	3.0	1.900	32.256			K Factor = 5.60	
to		120		0.0	3.000	0.0				
C3	85.58	0.5039		0.0	4.900	2.469			Vel = 18.36	
C3	0.0	1.38	1T	6.0	1.000	34.725				
to		120		0.0	6.000	0.433				
C4	85.58	0.5040		0.0	7.000	3.528			Vel = 18.36	
	0.0									
	85.58					38.686			K Factor = 13.76	
607	32.61	1.049		0.0	10.000	33.911			K Factor = 5.60	
to		120		0.0	0.0	0.0				
608	32.61	0.3215		0.0	10.000	3.215			Vel = 12.11	
608	34.12	1.38	1E	3.0	1.900	37.126			K Factor = 5.60	
to		120		0.0	3.000	0.0				
C5	66.73	0.3182		0.0	4.900	1.559			Vel = 14.31	
C5	0.0	1.38	1T	6.0	1.000	38.685				
to		120		0.0	6.000	0.433				
C6	66.73	0.3180		0.0	7.000	2.226			Vel = 14.31	
	0.0									
	66.73					41.344			K Factor = 10.38	
C2	84.74	2.157		0.0	13.000	37.955				
to		120		0.0	0.0	0.0				
C4	84.74	0.0562		0.0	13.000	0.731			Vel = 7.44	
C4	85.58	2.157		0.0	13.000	38.686				
to		120		0.0	0.0	0.0				
C6	170.32	0.2045		0.0	13.000	2.658			Vel = 14.95	
C6	66.74	2.157		0.0	21.500	41.344				
to		120		0.0	0.0	0.0				
C7	237.06	0.3769		0.0	21.500	8.104			Vel = 20.81	

# Final Calculations - Standard

High Tech Fire Protection  
Retail Area Calc.

Page 6  
Date 11/15/2012

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
C7 to TOR	0.0 237.06	4.26 120 0.0137	1X 21.067 0.0	34.800 21.067 55.867	49.448 0.0 0.766		Vel = 5.34		
TOR to BOR	0.0 237.06	4.26 120 0.0138	2F 10.534 1Fsp 0.0	7.500 10.534 18.034	50.214 6.248 0.248		* Fixed loss = 3 Vel = 5.34		
	250.00 487.06				56.710		Qa = 250.00 K Factor = 64.68		



**... 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 : Fermentation Bunker Calc.  
Building : Allagash Brewery Addition  
Location : 50 Industrial Way  
System : NFPA 13  
Contract : 100312-1  
Data File : Fermentation Bunker Calc.wxf

# Fittings Used Summary

High Tech Fire Protection  
Fermentation Bunker Calc.

Page 3  
Date 11/15/2012

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																					
F	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																				
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	

# Pressure / Flow Summary - STANDARD

High Tech Fire Protection  
 Fermentation Bunker Calc.

Page 4  
 Date 11/15/2012

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
201	4.5	5.6	21.56	na	26.0	0.2	130	7.0
202	4.5	5.6	21.75	na	26.11	0.2	130	7.0
203	4.5	5.6	22.44	na	26.53	0.2	130	7.0
204	4.5	5.6	23.69	na	27.25	0.2	130	7.0
205	4.5	5.6	26.25	na	28.69	0.2	130	7.0
206	4.5	5.6	21.73	na	26.1	0.2	130	7.0
207	4.5	5.6	21.92	na	26.22	0.2	130	7.0
208	4.5	5.6	22.62	na	26.63	0.2	130	7.0
209	4.5	5.6	23.88	na	27.36	0.2	130	7.0
210	4.5	5.6	26.46	na	28.81	0.2	130	7.0
211	4.5	5.6	22.36	na	26.48	0.2	130	7.0
212	4.5	5.6	22.55	na	26.59	0.2	130	7.0
213	4.5	5.6	23.27	na	27.01	0.2	130	7.0
214	4.5	5.6	24.56	na	27.75	0.2	130	7.0
215	4.5	5.6	27.21	na	29.21	0.2	130	7.0
A1	4.5		31.63	na				
A2	4.5		31.88	na				
A3	4.5		32.77	na				
A4	4.5		39.02	na				
A5	10.5		39.64	na				
B8	10.5		44.17	na				
TOR	10.5		44.99	na				
BOR	3.0		51.91	na	250.0			

The maximum velocity is 19.79 and it occurs in the pipe between nodes 215 and A3

# Final Calculations - Hazen-Williams

High Tech Fire Protection  
 Fermentation Bunker Calc.

Page 5  
 Date 11/15/2012

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	26.00	1.682		0.0	9.000	21.556			K Factor = 5.60	
to		120		0.0	0.0	0.0				
202	26.0	0.0212		0.0	9.000	0.191			Vel = 3.75	
202	26.11	1.682		0.0	9.000	21.747			K Factor = 5.60	
to		120		0.0	0.0	0.0				
203	52.11	0.0768		0.0	9.000	0.691			Vel = 7.52	
203	26.53	1.682		0.0	7.600	22.438			K Factor = 5.60	
to		120		0.0	0.0	0.0				
204	78.64	0.1643		0.0	7.600	1.249			Vel = 11.35	
204	27.26	1.682		0.0	9.000	23.687			K Factor = 5.60	
to		120		0.0	0.0	0.0				
205	105.9	0.2851		0.0	9.000	2.566			Vel = 15.29	
205	28.69	1.682	1T	9.9	2.200	26.253			K Factor = 5.60	
to		120		0.0	9.900	0.0				
A1	134.59	0.4441		0.0	12.100	5.374			Vel = 19.43	
	0.0									
	134.59					31.627			K Factor = 23.93	
206	26.10	1.682		0.0	9.000	21.729			K Factor = 5.60	
to		120		0.0	0.0	0.0				
207	26.1	0.0214		0.0	9.000	0.193			Vel = 3.77	
207	26.22	1.682		0.0	9.000	21.922			K Factor = 5.60	
to		120		0.0	0.0	0.0				
208	52.32	0.0773		0.0	9.000	0.696			Vel = 7.55	
208	26.64	1.682		0.0	7.600	22.618			K Factor = 5.60	
to		120		0.0	0.0	0.0				
209	78.96	0.1655		0.0	7.600	1.258			Vel = 11.40	
209	27.36	1.682		0.0	9.000	23.876			K Factor = 5.60	
to		120		0.0	0.0	0.0				
210	106.32	0.2872		0.0	9.000	2.585			Vel = 15.35	
210	28.81	1.682	1T	9.9	2.200	26.461			K Factor = 5.60	
to		120		0.0	9.900	0.0				
A2	135.13	0.4474		0.0	12.100	5.414			Vel = 19.51	
	0.0									
	135.13					31.875			K Factor = 23.93	
211	26.48	1.682		0.0	9.000	22.356			K Factor = 5.60	
to		120		0.0	0.0	0.0				
212	26.48	0.0220		0.0	9.000	0.198			Vel = 3.82	
212	26.59	1.682		0.0	9.000	22.554			K Factor = 5.60	
to		120		0.0	0.0	0.0				
213	53.07	0.0793		0.0	9.000	0.714			Vel = 7.66	
213	27.02	1.682		0.0	7.600	23.268			K Factor = 5.60	
to		120		0.0	0.0	0.0				
214	80.09	0.1701		0.0	7.600	1.293			Vel = 11.56	
214	27.75	1.682		0.0	9.000	24.561			K Factor = 5.60	
to		120		0.0	0.0	0.0				
215	107.84	0.2948		0.0	9.000	2.653			Vel = 15.57	
215	29.21	1.682	1T	9.9	2.200	27.214			K Factor = 5.60	
to		120		0.0	9.900	0.0				
A3	137.05	0.4593		0.0	12.100	5.558			Vel = 19.79	

# Final Calculations - Standard

High Tech Fire Protection  
Fermentation Bunker Calc.

Page 6  
Date 11/15/2012

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
	0.0 137.05					32.772			K Factor = 23.94	
A1 to A2	134.59	3.26 120		0.0	14.000 0.0	31.627 0.0			Vel = 5.17	
A2 to A3	135.13	3.26 120		0.0	14.000 0.0	31.875 0.0			Vel = 10.37	
A3 to A4	269.72	0.0641		0.0	14.000	0.897				
A3 to A4	137.05	3.26 120	1V	6.72 0.0	38.900 6.720	32.772 0.0			Vel = 15.64	
A4 to A5	406.77	0.1369		0.0	45.620	6.247				
A4 to A5	0.0	3.26 120	1X	17.471 0.0	6.000 17.471	39.019 -2.599			Vel = 15.64	
A5 to B8	406.77	0.1370		0.0	23.471	3.215				
A5 to B8	0.0	3.26 120		0.0	33.100 0.0	39.635 0.0			Vel = 15.64	
B8 to TOR	406.77	0.1369		0.0	33.100	4.533				
B8 to TOR	0.0	4.26 120	1X	21.067 0.0	1.000 21.067	44.168 0.0			Vel = 9.16	
TOR to BOR	406.77	0.0373		0.0	22.067	0.822				
TOR to BOR	0.0	4.26 120	2F 1Fsp	10.534 0.0	7.500 10.534	44.990 6.248			* Fixed loss = 3 Vel = 9.16	
	250.00 656.77					51.909			Qa = 250.00 K Factor = 91.16	