DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK

CITY OF PORTLAND
BUILDING PERMIT

This is to certify that

UNIVERSITY OF NEW ENGLAND /High Tech Fire Protection

Located at

746 STEVENS AVE/ 1 COLLEGE AVE

PERMIT ID: 2013-00427

CBL: 145 B042001

has permission to **install NFPA 13 supervised sprinkler 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 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.

BJ Cunhall Jr. (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:
2013-00427		145 B042001

Location of Construction:	Owner Name:	Owner Address:	Phone:
746 STEVENS AVE/ 1 COLLEGE AVE	UNIVERSITY OF NEW ENGLAND	11 HILLS BEACH RD BIDDEFORD, ME 04005	
Business Name:	**Contractor Name:**	**Contractor Address:**	**Phone**
UNE	High Tech Fire Protection	P.O. Box 156 Minot ME 04258	(207) 998-2551
Lessee/Buyer's Name	**Phone:**	**Permit Type:**	**Zone:**
		Fire Suppression Water Based	R5
Past Use:	**Proposed Use:**	**Permit Fee:** / **Cost of Work:**	**CEO District:**
Patient Care / Dental Arts Facility for University Education	Same: Patient Care / Dental Arts Facility for University Education	$1,100.00 / $107,280.00	7

FIRE DEPT: ☑ Approved ☐ Denied ☐ N/A

3/20/13

Signature:

INSPECTION: Use Group: Type:

Signature:

Proposed Project Description:
install water based fire suppression system in new Patient Care Facility

PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.)

Action: ☐ Approved ☐ Approved w/Conditions ☐ Denied

Signature: Date:

Permit Taken By:	Date Applied For:
LDOBSON	03/04/2013

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
Date: OK 3/4/13	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

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:
2013-00427	03/04/2013	145 B042001

Location of Construction:	Owner Name:	Owner Address:	Phone:
746 STEVENS AVE/ 1 COLLEGE	UNIVERSITY OF NEW ENGLAN	11 HILLS BEACH RD	
Business Name:	**Contractor Name:**	**Contractor Address:**	**Phone**
UNE	High Tech Fire Protection	P.O. Box 156 Minot	(207) 998-2551
Lessee/Buyer's Name	**Phone:**	**Permit Type:**	
		Fire Suppression Water Based	

Proposed Use:	Proposed Project Description:
Same: Patient Care / Dental Arts Facility for University Education	install NFPA 13 supervised sprinkler system.

Dept: Zoning **Status:** Approved **Reviewer:** Marge Schmuckal **Approval Date:** 03/04/2013

Note: **Ok to Issue:** ☑

Dept: Fire **Status:** Approved w/Conditions **Reviewer:** Ben Wallace Jr **Approval Date:** 03/20/2013

Note: **Ok to Issue:** ☑

1) 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.
2) System acceptance and commissioning must be coordinated with alarm and suppression system contractors and the Fire Department. Call 874-8703 to schedule.
3) Fire department connection shall be two 2 ½" inlets.
4) A Knox Box is required.
5) Sprinkler supervision shall be provided in accordance with NFPA 101, Life Safety Code, and NFPA 72, National Fire Alarm and Signaling Code.
6) Notice: The first scheduled final inspection fee is at no charge. Additional inspections shall be billed at $75 for each inspector.
7) 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.

Patenti'n Care Ctr

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: One College Street CBL: 145-B-42

Exact location: (within structure) Entire Structure

Type of occupancy(s) (NFPA & ICC): Business / Educational

Building owner: University of New England

Managing Supervisor (RMS): Edward Poulin License No: 515

Supervisor phone: (207) 998-2551 E-mail: EPoulin@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: $107,280.00

PERMIT FEE: $1,100

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

RECEIVED
MAR 04 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: 02/26/2013

Jeremy Foss - JFoss@Fairpoint.net

. . . 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	:	First Floor Calc.
Drawing	:	FP-02
Location	:	1 College Street
Remote Area	:	
Contract	:	080212-1
Data File	:	First Floor Calc.wxf

Water Supply Curve (C)

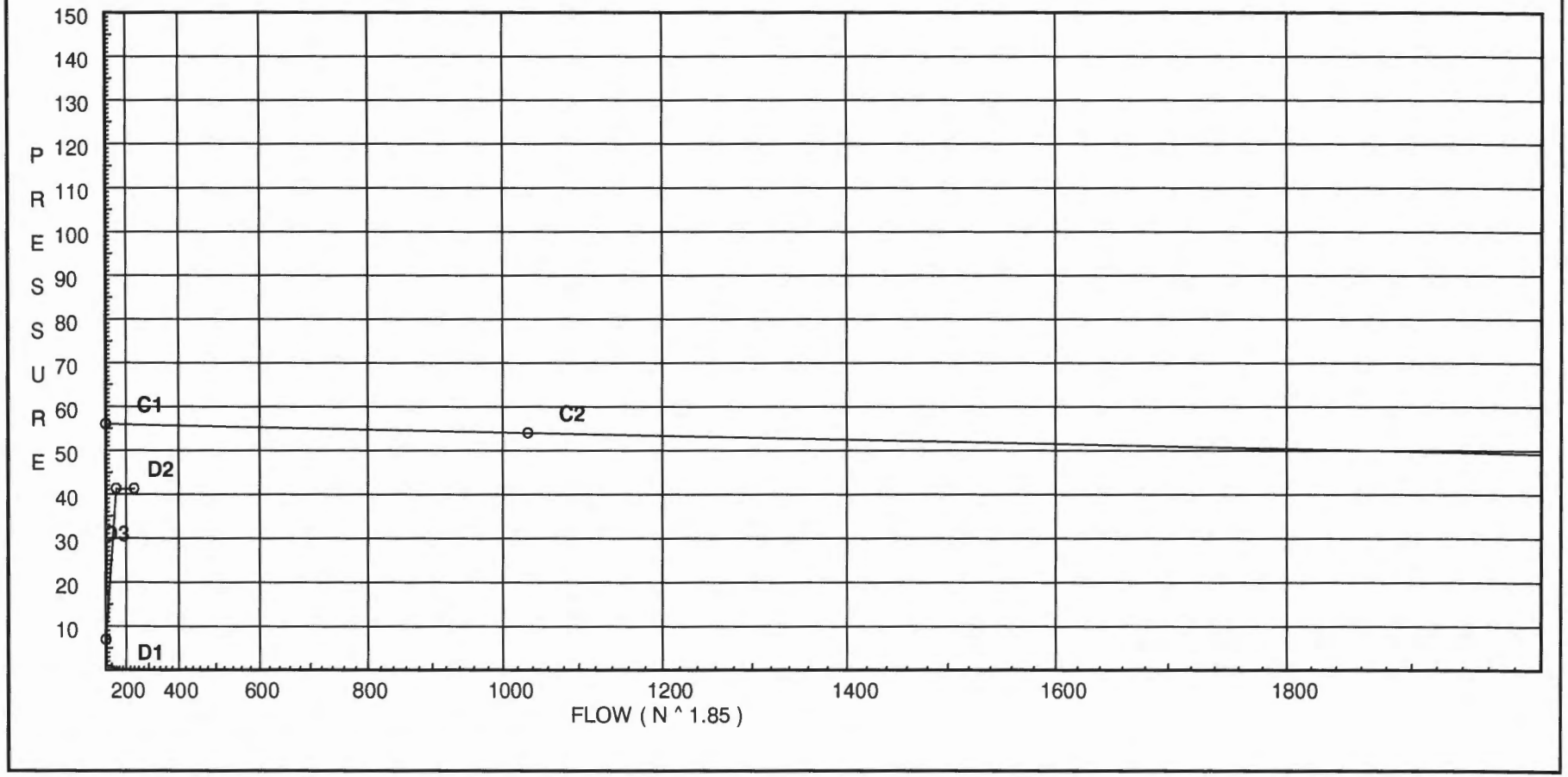
High Tech Fire Protection
First Floor Calc.

Date 02/26/2013

City Water Supply:
- C1 - Static Pressure : 56
- C2 - Residual Pressure: 54
- C2 - Residual Flow : 1034

Demand:

D1 - Elevation	:	6.930
D2 - System Flow	:	139.943
D2 - System Pressure	:	41.232
Hose (Adj City)	:	
Hose (Demand)	:	100
D3 - System Demand	:	239.943
Safety Margin	:	14.634



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
Al	Alarm Viking J1								10		13		20	23							
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
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
Zia	Wilkins 350	Fitting generates a Fixed Loss Based on Flow																			

Pressure / Flow Summary - STANDARD

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
DP1	-1.5	5.6	16.14	na	22.5	0.1	225	7.0
DP2	-1.5	5.6	16.14	na	22.5	0.1	225	7.0
401	24.0	K = K @ EQ01	21.38	na	24.08			
A1	24.0		23.0	na				
402	24.0	K = K @ EQ01	21.41	na	24.1			
A2	24.0		23.02	na				
A3	24.0		23.64	na				
A4	23.0		24.2	na				
403	24.0	K = K @ EQ01	18.67	na	22.5			
404	24.0	K = K @ EQ02	20.61	na	23.34			
406	24.0	K = K @ EQ01	18.74	na	22.54			
407	24.0	K = K @ EQ02	20.69	na	23.38			
A6	24.0		21.86	na				
A7	24.0		21.94	na				
A8	24.0		23.64	na				
A9	23.0		24.24	na				
A5	23.0		24.33	na				
A10	23.0		24.79	na				
A11	8.0		31.41	na				
Z3	8.0		34.79	na				
TOR	8.0		34.8	na				
BOR	3.0		38.0	na				
BASE	3.0		43.29	na				
H1	3.0		43.38	na				
TEST	8.0		41.23	na	100.0			

The maximum velocity is 9.85 and it occurs in the pipe between nodes 407 and A7

Final Calculations - Hazen-Williams

High Tech Fire Protection
First Floor Calc.

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
DP1	22.50	1.049	1E	2.0	0.500	16.143		K Factor = 5.60
to		120	1Eql	18.0	20.000	-0.794		
EQ01	22.5	0.1618		0.0	20.500	3.317		Vel = 8.35
	0.0							
	22.50					18.666		K Factor = 5.21
DP2	22.50	1.049	1T	5.0	0.500	16.143		K Factor = 5.60
to		120	1Eql	18.0	23.000	-0.794		
EQ02	22.5	0.1618		0.0	23.500	3.803		Vel = 8.35
	0.0							
	22.50					19.152		K Factor = 5.14
401	24.08	1.049	1T	5.0	3.800	21.384		K Factor @ node EQ01
to		120		0.0	5.000	0.0		
A1	24.08	0.1834		0.0	8.800	1.614		Vel = 8.94
A1	0.0	2.635		0.0	12.000	22.998		
to		120		0.0	0.0	0.0		
A2	24.08	0.0021		0.0	12.000	0.025		Vel = 1.42
	0.0							
	24.08					23.023		K Factor = 5.02
402	24.10	1.049	1T	5.0	3.800	21.407		K Factor @ node EQ01
to		120		0.0	5.000	0.0		
A2	24.1	0.1836		0.0	8.800	1.616		Vel = 8.95
A2	24.08	2.635	1X	14.827	67.900	23.023		
to		120		0.0	14.827	0.0		
A3	48.18	0.0075		0.0	82.727	0.617		Vel = 2.83
A3	0.0	2.635	1T	16.474	1.000	23.640		
to		120		0.0	16.474	0.433		
A4	48.18	0.0075		0.0	17.474	0.131		Vel = 2.83
A4	0.0	3.26	1X	17.471	29.600	24.204		
to		120		0.0	17.471	0.0		
A5	48.18	0.0026		0.0	47.071	0.124		Vel = 1.85
	0.0							
	48.18					24.328		K Factor = 9.77
*P								
403	22.50	1.049		0.0	12.000	18.666		K Factor @ node EQ01
to		120		0.0	0.0	0.0		
404	22.5	0.1618		0.0	12.000	1.942		Vel = 8.35
404	23.34	1.38	1T	6.0	1.900	20.608		K Factor @ node EQ02
to		120		0.0	6.000	0.0		
A6	45.84	0.1587		0.0	7.900	1.254		Vel = 9.83
	0.0							
	45.84					21.862		K Factor = 9.80
*P								
406	22.54	1.049		0.0	12.000	18.737		K Factor @ node EQ01
to		120		0.0	0.0	0.0		
407	22.54	0.1623		0.0	12.000	1.948		Vel = 8.37
407	23.39	1.38	1T	6.0	1.900	20.685		K Factor @ node EQ02
to		120		0.0	6.000	0.0		
A7	45.93	0.1594		0.0	7.900	1.259		Vel = 9.85

Final Calculations - Standard

High Tech Fire Protection
First Floor Calc.

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							
	45.93					21.944		K Factor = 9.80
*P								
A6	45.84	2.635		0.0	12.000	21.862		
to		120		0.0	0.0	0.0		
A7	45.84	0.0068		0.0	12.000	0.082		Vel = 2.70
A7	45.93	2.635	1V	5.903	63.200	21.944		
to		120		0.0	5.903	0.0		
A8	91.77	0.0246		0.0	69.103	1.698		Vel = 5.40
A8	0.0	2.635	1V	5.903	1.000	23.642		
to		120		0.0	5.903	0.433		
A9	91.77	0.0245		0.0	6.903	0.169		Vel = 5.40
A9	0.0	2.635		0.0	3.400	24.244		
to		120		0.0	0.0	0.0		
A5	91.77	0.0247		0.0	3.400	0.084		Vel = 5.40
A5	48.17	4.26	1X	21.067	60.000	24.328		
to		120	1V	8.954	30.021	0.0		
A10	139.94	0.0052		0.0	90.021	0.465		Vel = 3.15
A10	0.0	4.26	1V	8.954	15.000	24.793		
to		120		0.0	8.954	6.496		
A11	139.94	0.0052		0.0	23.954	0.125		Vel = 3.15
A11	0.0	4.26	2V	17.907	13.100	31.414		
to		120	1Fsp	0.0	60.041	3.000		* Fixed loss = 3
Z3	139.94	0.0052	1B	15.8	73.141	0.378		Vel = 3.15
			1T	26.334				
Z3	0.0	6.357	1V	12.573	3.500	34.792		
to		120		0.0	12.573	0.0		
TOR	139.94	0.0007		0.0	16.073	0.012		Vel = 1.41
TOR	0.0	6.357	1Fsp	0.0	5.000	34.804		
to		120	1Al	25.147	37.720	3.166		* Fixed loss = 1
BOR	139.94	0.0007	1V	12.573	42.720	0.031		Vel = 1.41
BOR	0.0	6.357	1E	17.603	4.900	38.001		
to		120	1Zia	0.0	17.603	5.269		* Fixed loss = 5.269
BASE	139.94	0.0008		0.0	22.503	0.017		Vel = 1.41
BASE	0.0	6.16	1G	3.236	70.000	43.287		
to		120	1T	32.359	35.595	0.0		
H1	139.94	0.0009		0.0	105.595	0.090		Vel = 1.51
H1	0.0	8.27	1E	21.405	30.000	43.377		
to		120	1G	4.757	67.782	-2.166		
TEST	139.94	0.0002	1T	41.62	97.782	0.021		Vel = 0.84
	100.00							Qa = 100.00
	239.94					41.232		K Factor = 37.37

. . . 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 Calc. (Revised)
Drawing	:	FP-03
Location	:	1 College Street
Remote Area	:	#2
Contract	:	080212-1
Data File	:	Second Floor Calc.wxf

Computer Programs by Hydratec Inc. Route 111 Windham N.H. USA 03087

Water Supply Curve (C)

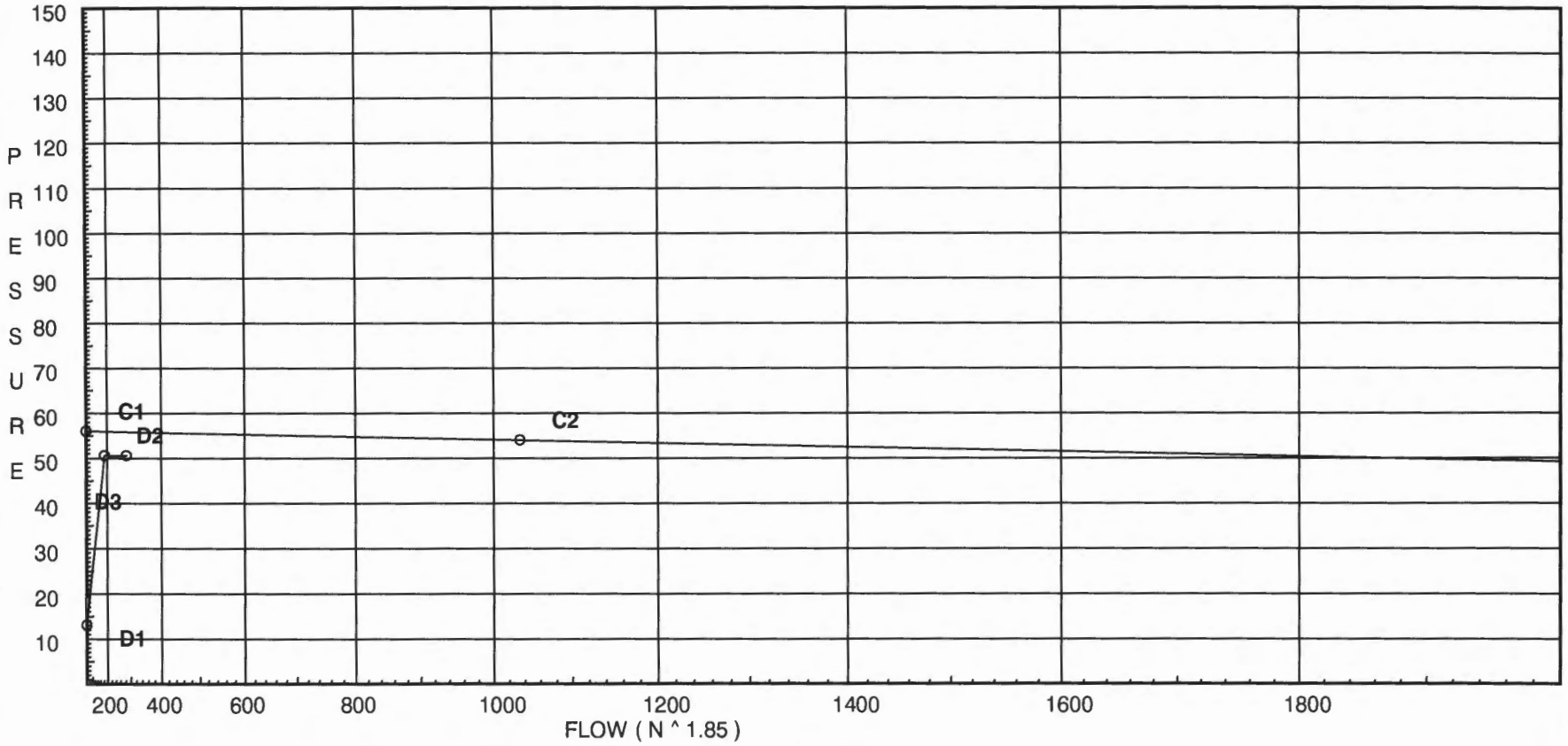
High Tech Fire Protection
Second Floor Calc. (Revised)

Date 02/26/2013

City Water Supply:
- C1 - Static Pressure : 56
- C2 - Residual Pressure: 54
- C2 - Residual Flow : 1034

Demand:

D1 - Elevation	:	12.993
D2 - System Flow	:	185.601
D2 - System Pressure	:	50.602
Hose (Adj City)	:	
Hose (Demand)	:	100
D3 - System Demand	:	285.601
Safety Margin	:	5.213



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
Al	Alarm Viking J1								10		13		20	23							
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
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
Zia	Wilkins 350	Fitting generates a Fixed Loss Based on Flow																			

Final Calculations - Hazen-Williams

High Tech Fire Protection
Second Floor Calc. (Revised)

Date 02/26/2013

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
DP1	22.50	1.049	2E	4.0	2.000	16.143		K Factor = 5.60
to		120	1T	5.0	9.000	-0.433		
EQ01	22.5	0.1618		0.0	11.000	1.780		Vel = 8.35
	0.0							
	22.50					17.490		K Factor = 5.38
10	22.50	1.61		0.0	12.000	17.490		K Factor @ node EQ01
to		120		0.0	0.0	0.0		
11	22.5	0.0201		0.0	12.000	0.241		Vel = 3.55
11	22.65	1.61		0.0	12.000	17.731		K Factor @ node EQ01
to		120		0.0	0.0	0.0		
12	45.15	0.0729		0.0	12.000	0.875		Vel = 7.12
12	23.21	1.61		0.0	12.000	18.606		K Factor @ node EQ01
to		120		0.0	0.0	0.0		
13	68.36	0.1569		0.0	12.000	1.883		Vel = 10.77
13	24.35	1.61	1T	8.0	5.600	20.489		K Factor @ node EQ01
to		120		0.0	8.000	0.0		
B1	92.71	0.2758		0.0	13.600	3.751		Vel = 14.61
	0.0							
	92.71					24.240		K Factor = 18.83
*P								
20	22.54	1.61		0.0	12.000	17.556		K Factor @ node EQ01
to		120		0.0	0.0	0.0		
21	22.54	0.0201		0.0	12.000	0.241		Vel = 3.55
21	22.70	1.61		0.0	12.000	17.797		K Factor @ node EQ01
to		120		0.0	0.0	0.0		
22	45.24	0.0732		0.0	12.000	0.878		Vel = 7.13
22	23.25	1.61		0.0	12.000	18.675		K Factor @ node EQ01
to		120		0.0	0.0	0.0		
23	68.49	0.1575		0.0	12.000	1.890		Vel = 10.79
23	24.40	1.61	1T	8.0	5.600	20.565		K Factor @ node EQ01
to		120		0.0	8.000	0.0		
B2	92.89	0.2768		0.0	13.600	3.764		Vel = 14.64
	0.0							
	92.89					24.329		K Factor = 18.83
*P								
B1	92.71	3.26		0.0	10.000	24.240		
to		120		0.0	0.0	0.0		
B2	92.71	0.0089		0.0	10.000	0.089		Vel = 3.56
B2	92.89	3.26	1X	17.471	31.900	24.329		
to		120		0.0	17.471	0.0		
B3	185.6	0.0321		0.0	49.371	1.584		Vel = 7.13
B3	0.0	3.26	1X	17.471	72.400	25.913		
to		120		0.0	17.471	0.0		
B4	185.6	0.0321		0.0	89.871	2.882		Vel = 7.13
B4	0.0	4.26	2V	17.907	49.100	28.795		
to		120		0.0	17.907	0.0		
B5	185.6	0.0087		0.0	67.007	0.584		Vel = 4.18

Final Calculations - Standard

High Tech Fire Protection
Second Floor Calc. (Revised)

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
B5	0.0	4.26	1V	8.954	30.000	29.379		
to		120		0.0	8.954	12.993		
B6	185.6	0.0087		0.0	38.954	0.340		Vel = 4.18
B6	0.0	4.26	1B	15.8	33.900	42.712		
to		120	1Fsp	0.0	45.821	3.000		* Fixed loss = 3
Z2	185.6	0.0087	1V	8.954	79.721	0.695		Vel = 4.18
			1X	21.067				
Z2	0.0	6.357	1V	12.573	5.600	46.407		
to		120		0.0	12.573	0.0		
TOR	185.6	0.0012		0.0	18.173	0.022		Vel = 1.88
TOR	0.0	6.357	1Fsp	0.0	5.000	46.429		
to		120	1Al	25.147	37.720	3.166		* Fixed loss = 1
BOR	185.6	0.0012	1V	12.573	42.720	0.053		Vel = 1.88
BOR	0.0	6.357	1E	17.603	4.900	49.648		
to		120	1Zia	0.0	17.603	2.906		* Fixed loss = 2.906
BASE	185.6	0.0012		0.0	22.503	0.027		Vel = 1.88
BASE	0.0	6.16	1G	3.236	70.000	52.581		
to		120	1T	32.359	35.595	0.0		
H1	185.6	0.0014		0.0	105.595	0.153		Vel = 2.00
H1	0.0	8.27	1E	21.405	30.000	52.734		
to		120	1G	4.757	67.782	-2.166		
TEST	185.6	0.0003	1T	41.62	97.782	0.034		Vel = 1.11
	100.00							Qa = 100.00
	285.60					50.602		K Factor = 40.15