

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK



CITY OF PORTLAND

BUILDING PERMIT

This is to certify that
HIGH TECH FIRE PROTECTION CO, INC.
PO BOX 156
MINOT, ME 04258

For installation at
148 STATE ST
MERCY HOSPITAL

Job ID: 2012-06-4366-FAFS

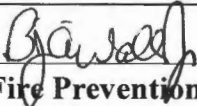
CBL: 045- C-006-001

has permission to renovate/realign existing 3rd flr springler system

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


Fire Prevention Officer

(50)


Code Enforcement Officer / Plan Reviewer

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

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.**

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.



PORTLAND MAINE

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

Director of Planning and Urban Development
Penny St. Louis

Job ID: 2012-06-4366-FAFS
renovate/realign existing 3rd flr springler
system

For installation at:
148 STATE ST
MERCY HOSPITAL

CBL: 045- C-006-001

Conditions of Approval:

Fire

Installation shall be in accordance with NFPA 13. A signed compliance letter will be required.

A separate sprinkler permit is required from the State Fire Marshal's Office.

Sprinkler supervision shall be provided in accordance with NFPA 101, *Life Safety Code*, and NFPA 72, *National Fire Alarm and Signaling Code*.

Sprinkler protection shall be maintained. Where the system is to be shut down for maintenance or repair, the system shall be checked at the end of each day to insure the system has been placed back in service.

The Fire Department will require Knox locking caps on all Fire Department Connections on the exterior of the building.

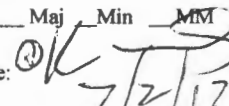
System acceptance and commissioning must be coordinated with alarm and suppression system contractors and the Fire Department. Call 874-8703 to schedule.

City ordinance requires a Knox Box for all structures with a sprinkler or fire alarm system.

City of Portland, Maine - Building or Use Permit Application

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

Job No: 2012-06-4366-FAFS	Date Applied: 6/29/2012	CBL: 045- C-006-001	
Location of Construction: 148 STATE ST	Owner Name: MERCY HOSPITAL	Owner Address: 144 STATE ST PORTLAND, ME 04101	Phone:
Business Name:	Contractor Name: High Tech Fire Protection	Contractor Address: PO Box 156 – Minot, ME 04258	Phone: 998-2551
Lessee/Buyer's Name:	Phone:	Permit Type: FIRE SUPPRESSION SYSTEM	Zone: R-6
Past Use: Mercy Hospital	Proposed Use: Same: Mercy Hospital – to install fire suppression system on 3 rd floor	Cost of Work: \$20,000.00	CEO District:
		Fire Dept: 7/11/12 <input checked="" type="checkbox"/> Approved w/ conditions <input type="checkbox"/> Denied <input type="checkbox"/> N/A	Inspection: Use Group: Type: Signature:
Proposed Project Description: water-based fire suppression system		Pedestrian Activities District (P.A.D.)	
Permit Taken By: Gayle		Zoning Approval	

<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 informatin may invalidate a building permit and stop all work.</p>	<p>Special Zone or Reviews</p> <p><input type="checkbox"/> Shoreland</p> <p><input type="checkbox"/> Wetlands</p> <p><input type="checkbox"/> Flood Zone</p> <p><input type="checkbox"/> Subdivision</p> <p><input type="checkbox"/> Site Plan</p> <p>___ Maj ___ Min ___ MM</p> <p>Date:  7/2/12</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 Dist 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 appication is issued, I certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provision of the code(s) applicable to such permit.

SIGNATURE OF APPLICANT	ADDRESS	DATE	PHONE
------------------------	---------	------	-------

RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE	DATE	PHONE
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Center P D J
2012 08 4366
60



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. R-6

Installation address: 144 State Street CBL: 045 C 006

Exact location: (within structure) 3rd floor

Type of occupancy(s) (NFPA & ICC): Light hazard NFPA

Building owner: Mercy Hospital

Managing Supervisor (RMS): Ed Paulin License No: MEAMS #515

Supervisor phone: 207-998-2551 E-mail: epaulin@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: State # 10044

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: \$ 20,000
 PERMIT FEE: \$ 220
 (\$10 PER \$1,000 + \$30 FOR THE FIRST \$1,000)

RECEIVED
 JUN 29 2012

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: Edward M Paulin Date: 6-11-12



State of Maine
Department of Public Safety
Fire Sprinkler System Permit



10044

Mercy Hospital State St. 3rd floor

Located at: 144 State Street
 In the Town of: Portland
 Occupancy/Use: Hospital/ patient rooms
 Type of System: NFPA 13

Permission is hereby given to:

High Tech Fire Protection Co., Inc.

PO Box 156
 Minot, ME 042580156
 Contractor License # 102

to begin installation according to plans submittal approved by the Office of State Fire Marshal. The submittal is filed under log # **2121236**, and no departure from the application submittal shall be made without prior approval in writing. This permit is issued under the provisions of Title 32, Chapter 20, Section 12004-I. Nothing herein shall excuse the holder of this permit from failure to comply with local ordinances, zoning laws, or other pertinent legal restrictions. This permit shall be displayed at the construction site or be made readily available.

This permit was issued on **6/7/2012** for a fee paid of **\$113.50**

*This permit will expire at midnight on **Tuesday, December 04, 2012***

The expiration date applies only if the installation has not begun by that date and no permission has been granted to extend the date. Once installation begins, then the permit is valid for however long it takes to complete the installation, assuming that the work is fairly continuous.

John E. Morris
 Commissioner

The type of Fire Department Connection and its location is to be according to the Local Fire Department

Within 30 days of the completion of a new fire sprinkler system or an addition to an existing fire sprinkler system, a fire sprinkler system contractor shall provide to the Office of State Fire Marshal a copy of this permit signed and dated by the certified Responsible Managing Supervisor representing that the fire sprinkler system has been installed according to specifications of the approved plan to the best of the supervisor's knowledge, information, and belief. This requirement is part of the sprinkler law, and neglect of this duty is grounds to not renew the contractor's license to do work in the State of Maine. All renewed sprinkler licenses are good for two years and expire on a June 30th.

Job completed, tested and verified by date of _____

RMS for this job: Poulin Edward M.

RMS Signature: _____



... Fire Protection by Computer Design

HIGH TECH FIRE PROTECTION
PO BOX 156
MINOT, ME 04258-156
207-998-2551

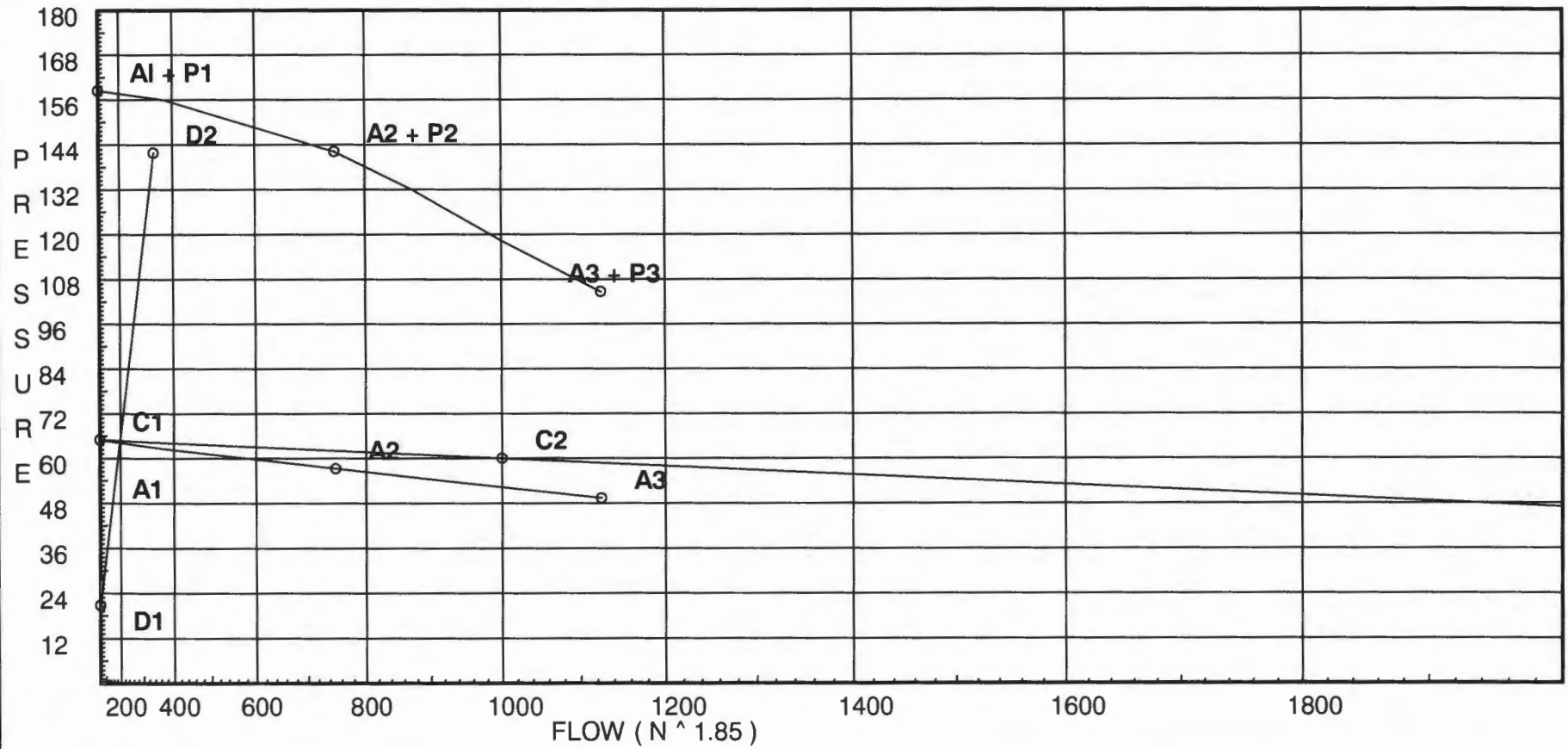
Job Name : Mercy Hospital 3rd floor new feed for design area.
Building :
Location :
System :
Contract :
Data File : 3rd FLOOR EX.WXF

Water Supply Curve (C)

HIGH TECH FIRE PROTECTION

Mercy Hospital 3rd floor new feed for design area.

City Water Supply:		Pump Data:		Demand:	
C1 - Static Pressure	: 65	P1 - Pump Churn Pressure	: 93.5	D1 - Elevation	: 20.789
C2 - Residual Pressure	: 60	P2 - Pump Rated Pressure	: 85	D2 - System Flow	: 341.244
C2 - Residual Flow	: 1000	P2 - Pump Rated Flow	: 750	D2 - System Pressure	: 141.771
City Water Adjusted to Pump Inlet for Pf - Elev - Hose Flow		P3 - Pump Pressure @ Max Flow	: 55.25	Hose (Adj City)	: 100
A1 - Adjusted Static	: 64.894	P3 - Pump Max Flow	: 1125	Hose (Demand)	: 100
A2 - Adj Resid	: 57.205 @ 750	City Residual Flow @ 0	= 4000.66	D3 - System Demand	: 341.244
A3 - Adj Resid	: 49.339 @ 1125	City Residual Flow @ 20	= 3279.49	Safety Margin	: 14.546
		City Water @ 150% of Pump	= 58.78		



Fittings Used Summary

HIGH TECH FIRE PROTECTION
 Mercy Hospital 3rd floor new feed for design area.

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	
Abbrev.	Name																				
24																					
A	Generic Alarm Valve	0	0	0	0	0	0	7.7	21.5	0	17	17	27	29	0	0	0	0	0	0	0
B	Generic Butterfly Valve	0	0	0	0	0	0	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	0
61																					
G	Generic Gate Valve	0	0	0	0	0	1	1	1	1	2	2	3	4	5	6	7	8	10	11	0
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	0
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	0
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
Z	Generic Flow Switch	2	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	0
61																					

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.

Pressure / Flow Summary - STANDARD

HIGH TECH FIRE PROTECTION

Mercy Hospital 3rd floor new feed for design area.

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
DP1	0.0	5.6	12.25	na	19.6	0.1	196	7.0
10	48.0	K = K @ EQ01	12.98	na	19.87			
11	48.0	K = K @ EQ01	12.63	na	19.6			
20	48.0	K = K @ EQ01	13.17	na	20.02			
21	48.0	K = K @ EQ01	12.82	na	19.75			
30	48.0	K = K @ EQ01	14.01	na	20.64			
31	48.0		15.1	na				
25	48.0	K = K @ EQ01	13.17	na	20.02			
35	48.0	K = K @ EQ01	14.97	na	21.34			
36	48.0	K = K @ EQ01	14.57	na	21.05			
50	48.0	K = K @ EQ01	12.73	na	19.68			
51	48.0	K = K @ EQ01	13.64	na	20.37			
52	48.0		14.38	na				
53	48.0	K = K @ EQ01	14.68	na	21.13			
54	48.0		15.61	na				
55	48.0	K = K @ EQ01	16.64	na	22.5			
40	48.0	K = K @ EQ01	16.48	na	22.39			
B1	48.0		17.3	na				
B2	48.0		17.45	na				
60	48.0	K = K @ EQ01	17.52	na	23.09			
B3	48.0		18.7	na				
65	48.0	K = K @ EQ01	19.22	na	24.18			
B4	48.0		20.51	na				
70	48.0	K = K @ EQ01	21.56	na	25.61			
B5	48.0		23.0	na				
B6	48.0		34.86	na				
B7	48.0		46.23	na				
B8	48.0		77.63	na				
B9	48.0		87.04	na				
A1	48.0		14.07	na				
A2	48.0		14.28	na				
A3	48.0		14.67	na				
A4	48.0		15.16	na				
A5	48.0		16.22	na				
A6	48.0		29.56	na				
B10	48.0		102.82	na				
A8	0.0		132.02	na				
A9	0.0		137.17	na				
A10	0.0		140.1	na				
A11	0.0		141.75	na				
PO	0.0		141.77	na				
PI	0.0		62.82	na				
BASE	0.0		63.34	na	100.0			
TEST	0.0		63.9	na				

The maximum velocity is 32.63 and it occurs in the pipe between nodes B6 and B7

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 to EQ01	19.60 19.6	1.049 120.0 0.1253	1E 2.0 0.0 0.0	1.000 2.000 3.000	12.250 0.0 0.376			K Factor = 5.60 Vel = 7.28	
	0.0 19.60					12.626		K Factor = 5.52	
10 to A1	19.87 19.87	1.049 120.0 0.1286	1T 5.0 0.0 0.0	3.500 5.000 8.500	12.975 0.0 1.093			K Factor @ node EQ01 Vel = 7.38	
	0.0 19.87					14.068		K Factor = 5.30	
11 to A1	19.60 19.6	1.049 120.0 0.1254	1T 5.0 0.0 0.0	6.500 5.000 11.500	12.626 0.0 1.442			K Factor @ node EQ01 Vel = 7.28	
	0.0 19.60					14.068		K Factor = 5.23	
20 to A2	20.02 20.02	1.049 120.0 0.1304	1T 5.0 0.0 0.0	3.500 5.000 8.500	13.168 0.0 1.108			K Factor @ node EQ01 Vel = 7.43	
	0.0 20.02					14.276		K Factor = 5.30	
21 to A2	19.75 19.75	1.049 120.0 0.1270	1T 5.0 0.0 0.0	6.500 5.000 11.500	12.815 0.0 1.461			K Factor @ node EQ01 Vel = 7.33	
	0.0 19.75					14.276		K Factor = 5.23	
30 to 31	20.64 20.64	1.049 120.0 0.1380	1T 5.0 0.0 0.0	2.900 5.000 7.900	14.006 0.0 1.090			K Factor @ node EQ01 Vel = 7.66	
31 to A4	0.0 20.64	2.067 120.0 0.0050	1T 10.0 0.0 0.0	3.500 10.000 13.500	15.096 0.0 0.068			Vel = 1.97	
	0.0 20.64					15.164		K Factor = 5.30	
25 to A3	20.02 20.02	1.049 120.0 0.1303	1T 5.0 0.0 0.0	6.500 5.000 11.500	13.174 0.0 1.499			K Factor @ node EQ01 Vel = 7.43	
	0.0 20.02					14.673		K Factor = 5.23	
35 to A5	21.34 21.34	1.049 120.0 0.1467	1T 5.0 0.0 0.0	3.500 5.000 8.500	14.969 0.0 1.247			K Factor @ node EQ01 Vel = 7.92	

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 21.34					16.216		K Factor = 5.30	
36 to A5	21.06 21.06	1.049 120.0 0.1431	1T 0.0 0.0	5.0 5.000 11.500	6.500 0.0 1.646	14.570 0.0 1.646		K Factor @ node EQ01	Vel = 7.82
	0.0 21.06					16.216		K Factor = 5.23	
50 to 52	19.68 19.68	1.049 120.0 0.1264	1T 0.0 0.0	5.0 5.000 13.000	8.000 0.0 1.643	12.733 0.0 1.643		K Factor @ node EQ01	Vel = 7.31
	0.0 19.68					14.376		K Factor = 5.19	
51 to 52	20.37 20.37	1.049 120.0 0.1347	1E 0.0 0.0	2.0 2.000 5.500	3.500 0.0 0.741	13.635 0.0 0.741		K Factor @ node EQ01	Vel = 7.56
52 to 54	19.68 40.05	1.38 120.0 0.1236	0.0 0.0 0.0	10.000 0.0 10.000	14.376 0.0 1.236	14.376 0.0 1.236			Vel = 8.59
	0.0 40.05					15.612		K Factor = 10.14	
53 to 54	21.13 21.13	1.049 120.0 0.1440	1T 0.0 0.0	5.0 5.000 6.500	1.500 0.0 0.936	14.676 0.0 0.936		K Factor @ node EQ01	Vel = 7.84
54 to 55	40.05 61.18	1.61 120.0 0.1279	0.0 0.0 0.0	8.000 0.0 8.000	8.000 0.0 1.023	15.612 0.0 1.023			Vel = 9.64
55 to B2	22.50 83.68	2.067 120.0 0.0676	1T 0.0 0.0	10.0 10.000 12.000	2.000 0.0 0.811	16.635 0.0 0.811		K Factor @ node EQ01	Vel = 8.00
	0.0 83.68					17.446		K Factor = 20.03	
40 to B1	22.39 22.39	1.049 120.0 0.1604	1T 0.0 0.0	5.0 5.000 5.100	0.100 0.0 0.818	16.480 0.0 0.818		K Factor @ node EQ01	Vel = 8.31
B1 to B2	0.0 22.39	1.38 120.0 0.0423	0.0 0.0 0.0	3.500 0.0 3.500	3.500 0.0 0.148	17.298 0.0 0.148			Vel = 4.80
B2 to B3	83.68 106.07	2.067 120.0 0.1048	0.0 0.0 0.0	12.000 0.0 12.000	17.446 0.0 1.258	17.446 0.0 1.258			Vel = 10.14

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
	0.0 106.07					18.704		K Factor = 24.53	
60 to B3	23.08 23.08	1.049 120.0 0.1697	1T 5.0 0.0	2.000 5.000	17.516 0.0			K Factor @ node EQ01	
B3 to B4	106.08 129.16	2.067 120.0 0.1508	0.0 0.0	12.000 0.0	18.704 0.0			Vel = 8.57	
B4 to B5	129.16 153.34	0.1508 0.2072	0.0 0.0	12.000 12.000	1.810 2.486			Vel = 12.35	
	0.0 129.16					20.514		K Factor = 28.52	
65 to B4	24.18 24.18	1.049 120.0 0.1850	1T 5.0 0.0	2.000 5.000	19.219 0.0			K Factor @ node EQ01	
B4 to B5	129.16 153.34	2.067 120.0 0.2072	0.0 0.0	12.000 0.0	20.514 0.0			Vel = 8.98	
B5 to B6	153.34 178.95	0.2072 0.2757	0.0 0.0	12.000 43.000	2.486 11.857			Vel = 14.66	
	0.0 153.34					23.000		K Factor = 31.97	
70 to B5	25.61 25.61	1.049 120.0 0.2056	1T 5.0 0.0	2.000 5.000	21.561 0.0			K Factor @ node EQ01	
B5 to B6	153.34 178.95	2.067 120.0 0.2757	2E 10.0 0.0	33.000 10.000	23.000 0.0			Vel = 9.51	
B6 to B7	162.29 341.24	2.067 120.0 0.9102	1T 10.0 0.0	2.500 10.000	34.857 0.0			Vel = 17.11	
B7 to B8	0.0 341.24	2.635 120.0 0.2790	1X 14.827 3V 17.71 0.0	80.000 32.537	46.234 0.0			Vel = 32.63	
B8 to B9	341.24 341.24	0.2790 0.2790	0.0 0.0	112.537 33.730	31.400 9.411			Vel = 20.08	
B9 to B10	0.0 341.24	2.635 120.0 0.2790	1V 5.903 1X 14.827 1S 19.22 1Z 8.237 1B 9.61 1T 16.474	13.000 20.730	77.634 0.0			Vel = 20.08	
B10 to A1	341.24 39.47	0.2790 0.0168	0.0 0.0	56.541 12.400	15.775 14.068			Vel = 20.08	
A1 to A2	39.47 39.47	0.0168	0.0 0.0	12.400 12.400	14.068 0.208			Vel = 3.77	
	0.0 341.24					102.820		K Factor = 33.65	

Final Calculations - Hazen-Williams

HIGH TECH FIRE PROTECTION
 Mercy Hospital 3rd floor new feed for design area.

Page 7
 Date 7/16/09

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
A2	39.76	2.067		6.500	14.276				
to		120.0		0.0	0.0				
A3	79.23	0.0611		6.500	0.397		Vel =	7.58	
A3	20.02	2.067		5.300	14.673				
to		120.0		0.0	0.0				
A4	99.25	0.0926		5.300	0.491		Vel =	9.49	
A4	20.65	2.067		8.000	15.164				
to		120.0		0.0	0.0				
A5	119.9	0.1315		8.000	1.052		Vel =	11.46	
A5	42.39	2.067	2E 10.0	38.000	16.216				
to		120.0	1T 10.0	20.000	0.0				
A6	162.29	0.2301		58.000	13.348		Vel =	15.52	
A6	0.0	2.067	1E 5.0	8.000	29.564				
to		120.0	1T 10.0	15.000	0.0				
B6	162.29	0.2301		23.000	5.293		Vel =	15.52	
	0.0								
	162.29				34.857		K Factor =	27.49	
B10	341.24	4.26	1T 26.334	260.000	102.820				
to		120.0	2E 26.334	52.668	20.789				
A8	341.24	0.0269		312.668	8.408		Vel =	7.68	
A8	0.0	4.26	2T 52.668	60.000	132.017				
to		120.0	6E 79.002	131.670	0.0				
A9	341.24	0.0269		191.670	5.154		Vel =	7.68	
A9	0.0	4.26	4E 52.668	30.000	137.171				
to		120.0	1T 26.334	79.002	0.0				
A10	341.24	0.0269		109.002	2.931		Vel =	7.68	
A10	0.0	4.26	1A 22.384	10.000	140.102				
to		120.0	1G 2.633	51.351	0.0				
A11	341.24	0.0269	1T 26.334	61.351	1.650		Vel =	7.68	
A11	0.0	6.357		5.000	141.752				
to		120.0		0.0	0.0				
PO	341.24	0.0038		5.000	0.019		Vel =	3.45	
	0.0								
	341.24				141.771		K Factor =	28.66	
System Demand Pressure					141.771				
Safety Margin					14.546				
Continuation Pressure					156.317				
Pressure @ Pump Outlet					156.317				
Pressure From Pump Curve					-93.492				
Pressure @ Pump Inlet					62.825				

Final Calculations - Hazen-Williams

HIGH TECH FIRE PROTECTION
 Mercy Hospital 3rd floor new feed for design area.

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Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
PI	0.0	6.357	6E 105.616	22.000	62.825				
to		120.0	2G 7.544	113.160	0.0				
BASE	341.24	0.0038	0.0	135.160	0.518		Vel = 3.45		
BASE	100.00	6.16	1E 20.084	40.000	63.343		Qa = 100		
to		140.0	1T 43.037	63.121	0.0				
TEST	441.24	0.0054	0.0	103.121	0.556		Vel = 4.75		
	0.0								
	441.24				63.899		K Factor = 55.20		



... Fire Protection by Computer Design

HIGH TECH FIRE PROTECTION
PO BOX 156
MINOT, ME 04258-156
207-998-2551

Job Name : Mercy Hospital 3rd floor new feed for design area.
Building :
Location :
System :
Contract :
Data File : 3rd FLOOR EX.WXF

Water Supply Curve (C)

HIGH TECH FIRE PROTECTION

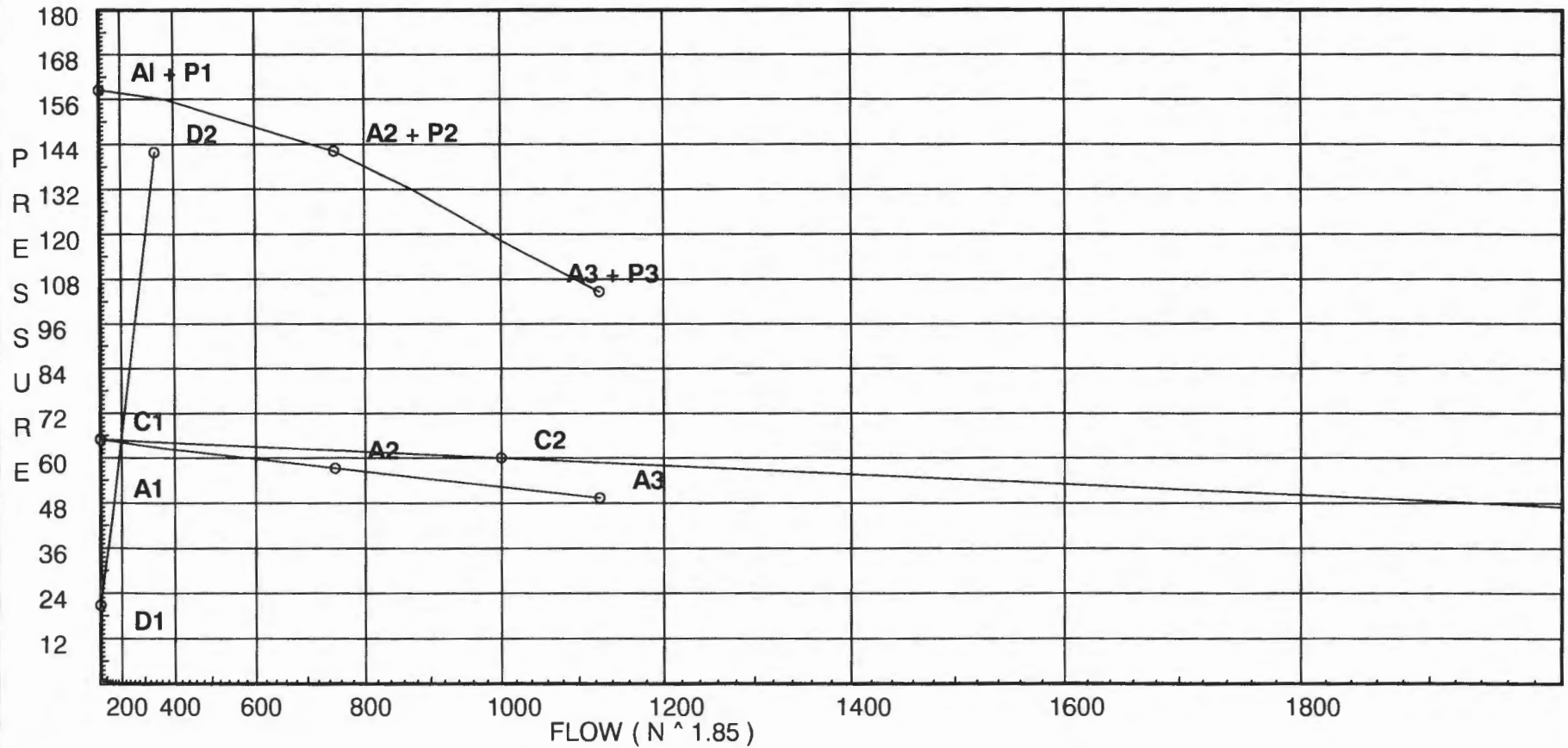
Mercy Hospital 3rd floor new feed for design area.

City Water Supply:
 C1 - Static Pressure : 65
 C2 - Residual Pressure: 60
 C2 - Residual Flow : 1000

City Water Adjusted to Pump Inlet
 for Pf - Elev - Hose Flow
 A1 - Adjusted Static: 64.894
 A2 - Adj Resid : 57.205 @ 750
 A3 - Adj Resid : 49.339 @ 1125

Pump Data:
 P1 - Pump Churn Pressure : 93.5
 P2 - Pump Rated Pressure : 85
 P2 - Pump Rated Flow : 750
 P3 - Pump Pressure @ Max Flow : 55.25
 P3 - Pump Max Flow : 1125
 City Residual Flow @ 0 = 4000.66
 City Residual Flow @ 20 = 3279.49
 City Water @ 150% of Pump = 58.78

Demand:
 D1 - Elevation : 20.789
 D2 - System Flow : 341.244
 D2 - System Pressure : 141.771
 Hose (Adj City) : 100
 Hose (Demand) :
 D3 - System Demand : 341.244
 Safety Margin : 14.546



Fittings Used Summary

HIGH TECH FIRE PROTECTION
 Mercy Hospital 3rd floor new feed for design area.

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																				
A	Generic Alarm Valve	0	0	0	0	0	0	7.7	21.5	0	17	17	27	29	0	0	0	0	0	0	0
B	Generic Butterfly Valve	0	0	0	0	0	0	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	0
61																					
G	Generic Gate Valve	0	0	0	0	0	1	1	1	1	2	2	3	4	5	6	7	8	10	11	0
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	0
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	0
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
Z	Generic Flow Switch	2	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	0
61																					

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.

Pressure / Flow Summary - STANDARD

HIGH TECH FIRE PROTECTION
 Mercy Hospital 3rd floor new feed for design area.

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 Date 7/16/09

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
DP1	0.0	5.6	12.25	na	19.6	0.1	196	7.0
10	48.0	K = K @ EQ01	12.98	na	19.87			
11	48.0	K = K @ EQ01	12.63	na	19.6			
20	48.0	K = K @ EQ01	13.17	na	20.02			
21	48.0	K = K @ EQ01	12.82	na	19.75			
30	48.0	K = K @ EQ01	14.01	na	20.64			
31	48.0		15.1	na				
25	48.0	K = K @ EQ01	13.17	na	20.02			
35	48.0	K = K @ EQ01	14.97	na	21.34			
36	48.0	K = K @ EQ01	14.57	na	21.05			
50	48.0	K = K @ EQ01	12.73	na	19.68			
51	48.0	K = K @ EQ01	13.64	na	20.37			
52	48.0		14.38	na				
53	48.0	K = K @ EQ01	14.68	na	21.13			
54	48.0		15.61	na				
55	48.0	K = K @ EQ01	16.64	na	22.5			
40	48.0	K = K @ EQ01	16.48	na	22.39			
B1	48.0		17.3	na				
B2	48.0		17.45	na				
60	48.0	K = K @ EQ01	17.52	na	23.09			
B3	48.0		18.7	na				
65	48.0	K = K @ EQ01	19.22	na	24.18			
B4	48.0		20.51	na				
70	48.0	K = K @ EQ01	21.56	na	25.61			
B5	48.0		23.0	na				
B6	48.0		34.86	na				
B7	48.0		46.23	na				
B8	48.0		77.63	na				
B9	48.0		87.04	na				
A1	48.0		14.07	na				
A2	48.0		14.28	na				
A3	48.0		14.67	na				
A4	48.0		15.16	na				
A5	48.0		16.22	na				
A6	48.0		29.56	na				
B10	48.0		102.82	na				
A8	0.0		132.02	na				
A9	0.0		137.17	na				
A10	0.0		140.1	na				
A11	0.0		141.75	na				
PO	0.0		141.77	na				
PI	0.0		62.82	na				
BASE	0.0		63.34	na	100.0			
TEST	0.0		63.9	na				

The maximum velocity is 32.63 and it occurs in the pipe between nodes B6 and B7

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 to EQ01	19.60 19.6	1.049 120.0 0.1253	1E 2.0 0.0 0.0	1.000 2.000 3.000	12.250 0.0 0.376		K Factor = 5.60 Vel = 7.28
	0.0 19.60				12.626		K Factor = 5.52
10 to A1	19.87 19.87	1.049 120.0 0.1286	1T 5.0 0.0 0.0	3.500 5.000 8.500	12.975 0.0 1.093		K Factor @ node EQ01 Vel = 7.38
	0.0 19.87				14.068		K Factor = 5.30
11 to A1	19.60 19.6	1.049 120.0 0.1254	1T 5.0 0.0 0.0	6.500 5.000 11.500	12.626 0.0 1.442		K Factor @ node EQ01 Vel = 7.28
	0.0 19.60				14.068		K Factor = 5.23
20 to A2	20.02 20.02	1.049 120.0 0.1304	1T 5.0 0.0 0.0	3.500 5.000 8.500	13.168 0.0 1.108		K Factor @ node EQ01 Vel = 7.43
	0.0 20.02				14.276		K Factor = 5.30
21 to A2	19.75 19.75	1.049 120.0 0.1270	1T 5.0 0.0 0.0	6.500 5.000 11.500	12.815 0.0 1.461		K Factor @ node EQ01 Vel = 7.33
	0.0 19.75				14.276		K Factor = 5.23
30 to 31	20.64 20.64	1.049 120.0 0.1380	1T 5.0 0.0 0.0	2.900 5.000 7.900	14.006 0.0 1.090		K Factor @ node EQ01 Vel = 7.66
31 to A4	0.0 20.64	2.067 120.0 0.0050	1T 10.0 0.0 0.0	3.500 10.000 13.500	15.096 0.0 0.068		Vel = 1.97
	0.0 20.64				15.164		K Factor = 5.30
25 to A3	20.02 20.02	1.049 120.0 0.1303	1T 5.0 0.0 0.0	6.500 5.000 11.500	13.174 0.0 1.499		K Factor @ node EQ01 Vel = 7.43
	0.0 20.02				14.673		K Factor = 5.23
35 to A5	21.34 21.34	1.049 120.0 0.1467	1T 5.0 0.0 0.0	3.500 5.000 8.500	14.969 0.0 1.247		K Factor @ node EQ01 Vel = 7.92

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 21.34					16.216		K Factor = 5.30	
36 to A5	21.06 21.06	1.049 120.0 0.1431	1T 0.0 0.0	5.0 5.000 11.500	6.500 0.0 1.646	14.570 0.0 1.646		K Factor @ node EQ01 Vel = 7.82	
	0.0 21.06					16.216		K Factor = 5.23	
50 to 52	19.68 19.68	1.049 120.0 0.1264	1T 0.0 0.0	5.0 5.000 13.000	8.000 0.0 1.643	12.733 0.0 1.643		K Factor @ node EQ01 Vel = 7.31	
	0.0 19.68					14.376		K Factor = 5.19	
51 to 52	20.37 20.37	1.049 120.0 0.1347	1E 0.0 0.0	2.0 2.000 5.500	3.500 0.0 0.741	13.635 0.0 0.741		K Factor @ node EQ01 Vel = 7.56	
52 to 54	19.68 40.05	1.38 120.0 0.1236	0.0 0.0 0.0	10.000 0.0 10.000	14.376 0.0 1.236	14.376 0.0 1.236		Vel = 8.59	
	0.0 40.05					15.612		K Factor = 10.14	
53 to 54	21.13 21.13	1.049 120.0 0.1440	1T 0.0 0.0	5.0 5.000 6.500	1.500 0.0 0.936	14.676 0.0 0.936		K Factor @ node EQ01 Vel = 7.84	
54 to 55	40.05 61.18	1.61 120.0 0.1279	0.0 0.0 0.0	8.000 0.0 8.000	8.000 0.0 1.023	15.612 0.0 1.023		Vel = 9.64	
55 to B2	22.50 83.68	2.067 120.0 0.0676	1T 0.0 0.0	10.0 10.000 12.000	2.000 0.0 0.811	16.635 0.0 0.811		K Factor @ node EQ01 Vel = 8.00	
	0.0 83.68					17.446		K Factor = 20.03	
40 to B1	22.39 22.39	1.049 120.0 0.1604	1T 0.0 0.0	5.0 5.000 5.100	0.100 0.0 0.818	16.480 0.0 0.818		K Factor @ node EQ01 Vel = 8.31	
B1 to B2	0.0 22.39	1.38 120.0 0.0423	0.0 0.0 0.0	3.500 0.0 3.500	3.500 0.0 0.148	17.298 0.0 0.148		Vel = 4.80	
B2 to B3	83.68 106.07	2.067 120.0 0.1048	0.0 0.0 0.0	12.000 0.0 12.000	17.446 0.0 1.258	17.446 0.0 1.258		Vel = 10.14	

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
	0.0 106.07					18.704		K Factor = 24.53	
60 to B3	23.08	1.049 120.0	1T 0.0	5.0 0.0	2.000 5.000	17.516 0.0		K Factor @ node EQ01	
B3 to B4	23.08 106.08	0.1697 2.067 120.0	0.0	0.0	7.000 12.000	1.188 18.704 0.0		Vel = 8.57	
B3 to B4	106.08 129.16	0.1508	0.0	0.0	12.000	1.810		Vel = 12.35	
	0.0 129.16					20.514		K Factor = 28.52	
65 to B4	24.18	1.049 120.0	1T 0.0	5.0 0.0	2.000 5.000	19.219 0.0		K Factor @ node EQ01	
B4 to B5	24.18 129.16	0.1850 2.067 120.0	0.0	0.0	7.000 12.000	1.295 20.514 0.0		Vel = 8.98	
B4 to B5	129.16 153.34	0.2072	0.0	0.0	12.000	2.486		Vel = 14.66	
	0.0 153.34					23.000		K Factor = 31.97	
70 to B5	25.61	1.049 120.0	1T 0.0	5.0 0.0	2.000 5.000	21.561 0.0		K Factor @ node EQ01	
B5 to B6	25.61 153.34	0.2056 2.067 120.0	0.0	0.0	7.000 33.000	1.439 23.000 0.0		Vel = 9.51	
B5 to B6	153.34 178.95	0.2757	2E 0.0	10.0 0.0	33.000 10.000	23.000 11.857 0.0		Vel = 17.11	
B6 to B7	162.29	2.067 120.0	1T 0.0	10.0 0.0	2.500 10.000	34.857 0.0		Vel = 32.63	
B6 to B7	341.24	0.9102	0.0	0.0	12.500	11.377		Vel = 32.63	
B7 to B8	0.0	2.635 120.0	1X 3V	14.827 17.71	80.000 32.537	46.234 0.0		Vel = 20.08	
B7 to B8	341.24	0.2790	0.0	0.0	112.537	31.400		Vel = 20.08	
B8 to B9	0.0	2.635 120.0	1V 1X	5.903 14.827	13.000 20.730	77.634 0.0		Vel = 20.08	
B8 to B9	341.24	0.2790	0.0	0.0	33.730	9.411		Vel = 20.08	
B9 to B10	0.0	2.635 120.0	1S 1Z	19.22 8.237	3.000 53.541	87.045 0.0		Vel = 20.08	
B9 to B10	341.24	0.2790	1B 1T	9.61 16.474	56.541	15.775		Vel = 20.08	
	0.0 341.24					102.820		K Factor = 33.65	
A1 to A2	39.47	2.067 120.0	0.0	0.0	12.400 0.0	14.068 0.0		Vel = 3.77	
A1 to A2	39.47	0.0168	0.0	0.0	12.400	0.208		Vel = 3.77	

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
A2	39.76	2.067	0.0	6.500	14.276				
to		120.0	0.0	0.0	0.0				
A3	79.23	0.0611	0.0	6.500	0.397		Vel =	7.58	
A3	20.02	2.067	0.0	5.300	14.673				
to		120.0	0.0	0.0	0.0				
A4	99.25	0.0926	0.0	5.300	0.491		Vel =	9.49	
A4	20.65	2.067	0.0	8.000	15.164				
to		120.0	0.0	0.0	0.0				
A5	119.9	0.1315	0.0	8.000	1.052		Vel =	11.46	
A5	42.39	2.067	2E 10.0	38.000	16.216				
to		120.0	1T 10.0	20.000	0.0				
A6	162.29	0.2301	0.0	58.000	13.348		Vel =	15.52	
A6	0.0	2.067	1E 5.0	8.000	29.564				
to		120.0	1T 10.0	15.000	0.0				
B6	162.29	0.2301	0.0	23.000	5.293		Vel =	15.52	
	0.0								
	162.29				34.857		K Factor =	27.49	
B10	341.24	4.26	1T 26.334	260.000	102.820				
to		120.0	2E 26.334	52.668	20.789				
A8	341.24	0.0269	0.0	312.668	8.408		Vel =	7.68	
A8	0.0	4.26	2T 52.668	60.000	132.017				
to		120.0	6E 79.002	131.670	0.0				
A9	341.24	0.0269	0.0	191.670	5.154		Vel =	7.68	
A9	0.0	4.26	4E 52.668	30.000	137.171				
to		120.0	1T 26.334	79.002	0.0				
A10	341.24	0.0269	0.0	109.002	2.931		Vel =	7.68	
A10	0.0	4.26	1A 22.384	10.000	140.102				
to		120.0	1G 2.633	51.351	0.0				
A11	341.24	0.0269	1T 26.334	61.351	1.650		Vel =	7.68	
A11	0.0	6.357	0.0	5.000	141.752				
to		120.0	0.0	0.0	0.0				
PO	341.24	0.0038	0.0	5.000	0.019		Vel =	3.45	
	0.0								
	341.24				141.771		K Factor =	28.66	
System Demand Pressure					141.771				
Safety Margin					14.546				
Continuation Pressure					156.317				
Pressure @ Pump Outlet					156.317				
Pressure From Pump Curve					-93.492				
Pressure @ Pump Inlet					62.825				

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
PI	0.0	6.357	6E 105.616	22.000	62.825				
to		120.0	2G 7.544	113.160	0.0				
BASE	341.24	0.0038	0.0	135.160	0.518		Vel =	3.45	
BASE	100.00	6.16	1E 20.084	40.000	63.343		Qa =	100	
to		140.0	1T 43.037	63.121	0.0				
TEST	441.24	0.0054	0.0	103.121	0.556		Vel =	4.75	
	0.0								
	441.24				63.899		K Factor =	55.20	

High Tech Fire Protection

Po Box 156 Minot, Maine 04258

Tel: 207-998-2551

Fax: 207-998-4187

To: Building Inspection Department
389 Congress Street Room 315
Portland, ME
04101

Letter of Transmittal

Date: 6-11-12

Job No.

Attention: Building Inspection Department

Re: Mercy Hospital @ 144 State Street 3rd floor

We are sending you

Owners Manuals Preliminary Plans Asbuilt Plans Hydraulic Calculations

Product Data Permit Check _____

Copies	Date	No.	Description
2	6-11-12		Preliminary Plans for Mercy Hospital 3rd floor new main
1	6-11-12		Preliminary Plans on cd (pdf)
1	6-11-12		Permit Application
1	6-11-12		Copy of State Permit
1	6-11-12		Check \$ 220 -


These are Transmitted as checked below:

For Approval For your use Return _____ corrected copy

As requested For review and comment _____

Comments: We are running a new sprinkler feed from the stair riser to the existing mains in order to zone the sprinkler system on that floor. We are also replacing all the existing pendent sprinkler heads.

Signed: Ed Poulin





PORTLAND MAINE

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

Receipts Details:

Tender Information: Check , BusinessName: Jerric Corp., Check Number: 18164
Tender Amount: 220.00

Receipt Header:

Cashier Id: gguertin
Receipt Date: 6/29/2012
Receipt Number: 45510

Receipt Details:

Referance ID:	7094	Fee Type:	BP-Constr
Receipt Number:	0	Payment Date:	
Transaction Amount:	220.00	Charge Amount:	220.00
Job ID: Job ID: 2012-06-4366-FAFS - water-based fire suppression system			
Additional Comments: 144 State street, Jerric Corp			

Thank You for your Payment!



PORTLAND MAINE

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

Receipts Details:

Tender Information: Check , BusinessName: Jerric Corp., Check Number: 18164

Tender Amount: 220.00

Receipt Header:

Cashier Id: gguertin

Receipt Date: 6/29/2012

Receipt Number: 45510

Receipt Details:

Referance ID:	7094	Fee Type:	BP-Constr
Receipt Number:	0	Payment Date:	
Transaction Amount:	220.00	Charge Amount:	220.00
Job ID: Job ID: 2012-06-4366-FAFS - water-based fire suppression system			
Additional Comments: 144 State street, Jerric Corp			

Thank You for your Payment!