

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK



CITY OF PORTLAND

BUILDING PERMIT

This is to certify that SPRINKLER SYSTEMS INC
of PO Box 1285, Lewiston, Maine 04243

For installation at 331 VERANDA ST, BLD 4
- Penobscot Bay Medical

Job ID: 2011-07-1791-FAFS

CBL: 434 - - C - 001 - 001 - - - - -

has permission to install a Supervised, NFPA 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 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

[Signature] (58)
Fire Prevention Officer

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.**

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 OCCUUPIED.



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: 2011-07-1791-FAFS
Installation of a supervised, NFPA 13
sprinkler system

For installation at:
331 VERANDA ST, BLD 4
Penobscot Bay Medical

CBL: 434 - - C - 001 - 001 - - - - -

Conditions of Approval:

Fire

Application requires State Fire Marshal approval.

The sprinkler system shall be installed in accordance with NFPA 13.

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 the Fire Department Connection(s).

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

Installation of a sprinkler or fire alarm system requires a Knox Box to be installed per city ordinance.

Private fire mains and fire hydrants shall be maintained, tested and painted in accordance with NFPA 25 and City Code Chapter 10, Art IV.



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: 331 Veranda St *Bld #4.Reno.* CBL: 43A-C-1-7

Exact location: (within structure) Entire Building

Type of occupancy(s) (NFPA & ICC): Medical Office Building *R-P*

Building owner: Martin's Point Health Care

Managing Supervisor (RMS): Marc Kannegieser License No: 087

Supervisor phone: (207)782-0104 E-mail: marc@sprinklersystemsinc.com

Installing contractor: Sprinkler Systems Inc. License No: 093

Contractor phone: (207)782-0104 E-mail: alan@sprinklersystemsinc.com

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: NFPA #13 Edition: 2007

*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: \$11,000 |
| PERMIT FEE: \$130.00 |
| (\$10 PER \$1,000 + \$30 FOR THE FIRST \$1,000) |

RECEIVED
JUL 26 2011
Dept of Building Inspections
City of Portland, Maine

11762

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: *Alan Smart* Date: 20 July 2011

City of Portland, Maine - Building or Use Permit Application

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

| | | | |
|---|---|--|------------------------------------|
| Job No: 2011-07-1791-FAFS | Date Applied: 7/26/2011 | CBL: 434 - - C - 001 - 001 - - - - - | |
| Location of Construction: 331 VERANDA ST - Building #4 | Owner Name: PENOBSCOT BAY MEDICAL | Owner Address: PO BOX 9746 PORTLAND, ME - MAINE 04104 | Phone: |
| Business Name: | Contractor Name: Sprinkler Systems Inc. - Alan Smith | Contractor Address: PO Box 1285, Lewiston, ME 04243-1285 | Phone: 782-0104 |
| Lessee/Buyer's Name: | Phone: | Permit Type: Sprinkler System | Zone: R-P |
| Past Use: Medical Offices | Proposed Use: Same: Medical Offices - to install a sprinkler system | Cost of Work: \$11,000.00 | CEO District: |
| | | Fire Dept: <input checked="" type="checkbox"/> Approved w/conditions <input type="checkbox"/> Denied <input type="checkbox"/> N/A | Inspection: Use Group: Type: |
| | | Signature: <i>[Signature]</i> (58) | Signature: |
| Proposed Project Description: | | Pedestrian Activities District (P.A.D.) | |
| Permit Taken By: Lannie | | Zoning Approval | |

| Special Zone or Reviews | Zoning Appeal | Historic Preservation |
|---|--|--|
| <input type="checkbox"/> Shoreland | <input type="checkbox"/> Variance | <input type="checkbox"/> Not in Dist or Landmark |
| <input type="checkbox"/> Wetlands | <input type="checkbox"/> Miscellaneous | <input type="checkbox"/> Does not Require Review |
| <input type="checkbox"/> Flood Zone | <input type="checkbox"/> Conditional Use | <input type="checkbox"/> Requires Review |
| <input type="checkbox"/> Subdivision | <input type="checkbox"/> Interpretation | <input type="checkbox"/> Approved |
| <input type="checkbox"/> Site Plan | <input type="checkbox"/> Approved | <input type="checkbox"/> Approved w/Conditions |
| <input type="checkbox"/> Maj <input type="checkbox"/> Min <input type="checkbox"/> MM | <input type="checkbox"/> Denied | <input type="checkbox"/> Denied |
| Date: <i>[Signature]</i> 7/29/11 | Date: | <i>[Signature]</i> Date: ↑ separate review Approval |

CERTIFICATION

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

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



State of Maine
Department of Public Safety
Fire Sprinkler System Permit



9575

Martin's Point Health Care Bldg #4

Located at: 331 Veranda St
 In the Town of: Portland
 Occupancy/Use: Future Medical Offices
 Type of System: NFPA 13

Permission is hereby given to:

Sprinkler Systems, Inc.

PO Box 1285
 Lewiston, ME 042431285
 Contractor License # **93**

to begin installation according to plans submittal approved by the Office of State Fire Marshal. The submittal is filed under log # **2111235**, 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 **7/13/2011** for a fee paid of **\$240.00**

*This permit will expire at midnight on **Monday, January 09, 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: Kannegieser, J. Marc

RMS Signature: _____



... Fire Protection by Computer Design

SPRINKLER SYSTEMS INC.
P O BOX 1285
4 AVON STREET
LEWISTON, ME 04243
207-782-0104

Job Name : Martin's Point Health Care Area 1
Building : EXISTING
Location : VERANDA STREET PORTLAND, MAINE
System : 1 WET
Contract : 11046
Data File : Martins Point Health 2011 Area 1A.WXF

Fittings Used Summary

SPRINKLER SYSTEMS INC.
Martin's Point Health Care Area 1

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Date

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 |
|---------|----------------------------|--|-----|---|-------|-------|----|-------|----|-------|----|----|----|----|----|----|----|----|----|-----|-----|
| B | NFPA 13 Butterfly Valve | 0 | 0 | 0 | 0 | 0 | 6 | 7 | 10 | 0 | 12 | 9 | 10 | 12 | 19 | 21 | 0 | 0 | 0 | 0 | 0 |
| E | NFPA 13 90° Standard Elbow | 1 | 2 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 10 | 12 | 14 | 18 | 22 | 27 | 35 | 40 | 45 | 50 | 61 |
| F | NFPA 13 45° Elbow | 1 | 1 | 1 | 1 | 2 | 2 | 3 | 3 | 3 | 4 | 5 | 7 | 9 | 11 | 13 | 17 | 19 | 21 | 24 | 28 |
| Fsp | Flow Switch Potter VSR | Fitting generates a Fixed Loss Based on Flow | | | | | | | | | | | | | | | | | | | |
| G | NFPA 13 Gate Valve | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 10 | 11 | 13 |
| T | NFPA 13 90° Flow thru Tee | 3 | 4 | 5 | 6 | 8 | 10 | 12 | 15 | 17 | 20 | 25 | 30 | 35 | 50 | 60 | 71 | 81 | 91 | 101 | 121 |
| Zac | Ames 2000SS | Fitting generates a Fixed Loss Based on Flow | | | | | | | | | | | | | | | | | | | |

Units Summary

Diameter Units Inches
 Length Units Feet
 Flow Units US Gallons per Minute
 Pressure Units Pounds per Square Inch

Pressure / Flow Summary - STANDARD

SPRINKLER SYSTEMS INC.
 Martin's Point Health Care Area 1

Page 3
 Date

| Node No. | Elevation | K-Fact | Pt Actual | Pn | Flow Actual | Density | Area | Press Req. |
|----------|-----------|--------|-----------|----|-------------|---------|------|------------|
| 19 | 96.33 | 5.6 | 8.41 | na | 16.24 | 0.1 | 150 | 7.0 |
| 20 | 96.33 | 5.6 | 8.56 | na | 16.39 | 0.1 | 150 | 7.0 |
| 21 | 96.33 | 5.6 | 9.12 | na | 16.92 | 0.1 | 150 | 7.0 |
| 22 | 96.33 | 5.6 | 10.05 | na | 17.75 | 0.1 | 150 | 7.0 |
| 14 | 100.75 | 5.6 | 7.17 | na | 15.0 | 0.1 | 150 | 7.0 |
| 15 | 100.75 | 5.6 | 7.28 | na | 15.11 | 0.1 | 150 | 7.0 |
| 16 | 100.75 | 5.6 | 7.76 | na | 15.6 | 0.1 | 150 | 7.0 |
| 17 | 100.75 | 5.6 | 8.76 | na | 16.57 | 0.1 | 150 | 7.0 |
| 12 | 102.0 | 5.6 | 12.5 | na | 19.8 | 0.1 | 150 | 7.0 |
| 9 | 102.0 | 5.6 | 11.01 | na | 18.58 | 0.1 | 150 | 7.0 |
| 10 | 102.0 | 5.6 | 11.11 | na | 18.67 | 0.1 | 150 | 7.0 |
| 11 | 102.0 | 5.6 | 11.47 | na | 18.97 | 0.1 | 150 | 7.0 |
| 13T | 102.0 | | 12.7 | na | | | | |
| 7 | 102.0 | 5.6 | 12.17 | na | 19.53 | 0.1 | 150 | 7.0 |
| 4 | 102.0 | 5.6 | 10.72 | na | 18.33 | 0.1 | 150 | 7.0 |
| 5 | 102.0 | 5.6 | 10.81 | na | 18.42 | 0.1 | 150 | 7.0 |
| 6 | 102.0 | 5.6 | 11.17 | na | 18.71 | 0.1 | 150 | 7.0 |
| 8T | 102.0 | | 12.36 | na | | | | |
| 2 | 102.0 | 5.6 | 13.22 | na | 20.36 | 0.1 | 150 | 7.0 |
| 1 | 102.0 | 5.6 | 13.19 | na | 20.34 | 0.1 | 150 | 7.0 |
| 3T | 0.0 | | 57.58 | na | | | | |
| 3 | 101.0 | | 14.37 | na | | | | |
| 8 | 101.0 | | 14.44 | na | | | | |
| 13 | 101.0 | | 14.81 | na | | | | |
| 18 | 100.75 | | 18.23 | na | | | | |
| 23 | 96.33 | | 21.6 | na | | | | |
| 24 | 95.0 | | 25.11 | na | | | | |
| 25 | 92.5 | | 51.68 | na | | | | |
| B | 92.5 | | 54.78 | na | | | | |
| C | 82.0 | | 60.28 | na | | | | |
| D | 71.25 | | 66.65 | na | | | | |
| E | 71.25 | | 72.66 | na | | | | |
| TOR | 71.25 | | 73.12 | na | | | | |
| BKFL | 66.0 | | 79.34 | na | | | | |
| BASE | 64.75 | | 83.54 | na | | | | |
| HOSE | 97.0 | | 70.83 | na | 100.0 | | | |
| TEST | 97.0 | | 70.86 | na | | | | |

The maximum velocity is 18.9 and it occurs in the pipe between nodes 23 and 24

Final Calculations - Hazen-Williams

SPRINKLER SYSTEMS INC.
Martin's Point Health Care Area 1

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Date

| Hyd. Ref. Point | Qa Qt | Dia. "C" Pf/Ft | Fitting or Eqv. | Ln. | Pipe Ftng's Total | Pt Pe Pf | Pt Pv Pn | ***** | Notes | ***** |
|-----------------------|----------------|--------------------------|-----------------------|--------------------|----------------------------|-------------------------|----------------|-----------------|------------------|-------|
| 19 to 20 | 16.24 16.24 | 1.682 120.0 0.0089 | 1F | 2.475 0.0 | 15.000 2.475 | 8.406 0.0 | | | K Factor = 5.60 | |
| 20 to 21 | 16.38 32.62 | 1.682 120.0 0.0323 | 1F | 2.475 0.0 | 15.000 2.475 | 8.561 0.0 | | | K Factor = 5.60 | |
| 21 to 22 | 16.92 49.54 | 1.682 120.0 0.0699 | | 0.0 0.0 | 13.250 0.0 | 9.125 0.0 | | | K Factor = 5.60 | |
| 22 to 23 | 17.75 67.29 | 1.682 120.0 0.1232 | 4F 1E 1T | 9.9 4.95 9.9 | 69.000 24.750 93.750 | 10.051 0.0 11.550 | | | K Factor = 5.60 | |
| | 0.0 67.29 | | | | | | | 21.601 | K Factor = 14.48 | |
| 14 to 15 | 15.00 15.0 | 1.682 120.0 0.0077 | 1E | 4.95 0.0 | 8.500 4.950 | 7.175 0.0 | | | K Factor = 5.60 | |
| 15 to 16 | 15.11 30.11 | 1.682 120.0 0.0278 | 1F | 2.475 0.0 | 15.000 2.475 | 7.278 0.0 | | | K Factor = 5.60 | |
| 16 to 17 | 15.60 45.71 | 1.682 120.0 0.0603 | 1F | 2.475 0.0 | 14.000 2.475 | 7.764 0.0 | | | K Factor = 5.60 | |
| 17 to 18 | 16.57 62.28 | 1.682 120.0 0.1068 | 4F 1E 1T | 9.9 4.95 9.9 | 64.000 24.750 88.750 | 8.757 0.0 9.476 | | | K Factor = 5.60 | |
| | 0.0 62.28 | | | | | | | 18.233 | K Factor = 14.59 | |
| 12 to 13T | 19.80 19.8 | 1.682 120.0 0.0128 | 1T | 9.9 0.0 | 5.750 9.900 | 12.498 0.0 | | | K Factor = 5.60 | |
| | 0.0 19.80 | | | | | | | 15.650 0.201 | Vel = 2.86 | |
| | | | | | | | | 12.699 | K Factor = 5.56 | |
| 9 to 10 | 18.58 18.58 | 1.682 120.0 0.0113 | | 0.0 0.0 | 8.750 0.0 | 11.011 0.0 | | | K Factor = 5.60 | |
| 10 to 11 | 18.67 37.25 | 1.682 120.0 0.0413 | | 0.0 0.0 | 8.750 0.0 | 11.110 0.0 | | | K Factor = 5.60 | |
| 11 to 13T | 18.96 56.21 | 1.682 120.0 0.0883 | 1T | 9.9 0.0 | 4.000 9.900 | 11.471 0.0 | | | K Factor = 5.60 | |
| 13T to 13 | 19.80 76.01 | 1.682 120.0 0.1543 | 1T | 9.9 0.0 | 1.000 9.900 | 12.699 0.433 | | | Vel = 8.12 | |
| | 0.0 | | | | 10.900 | 1.682 | | | Vel = 10.98 | |

Final Calculations - Hazen-Williams

SPRINKLER SYSTEMS INC.
Martin's Point Health Care Area 1

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Date

| Hyd. Ref. Point | Qa Qt | Dia. "C" Pf/Ft | Fitting or Eqv | Ln. | Pipe Ftng's Total | Pt Pe Pf | Pt Pv Pn | ***** | Notes | ***** |
|-----------------------|--------------|----------------------|----------------------|---------------|-------------------------|-------------------|----------------|-------|------------------|-------|
| | 76.01 | | | | | 14.814 | | | K Factor = 19.75 | |
| 7 to 8T | 19.53 | 1.682 120.0 | 1T | 9.9 0.0 | 5.750 9.900 | 12.168 0.0 | | | K Factor = 5.60 | |
| | 19.53 | 0.0125 | | 0.0 | 15.650 | 0.195 | | | Vel = 2.82 | |
| | 0.0 19.53 | | | | | | 12.363 | | K Factor = 5.55 | |
| 4 to 5 | 18.33 | 1.682 120.0 | | 0.0 0.0 | 8.750 0.0 | 10.716 0.0 | | | K Factor = 5.60 | |
| | 18.33 | 0.0112 | | 0.0 | 8.750 | 0.098 | | | Vel = 2.65 | |
| 5 to 6 | 18.42 | 1.682 120.0 | | 0.0 0.0 | 8.750 0.0 | 10.814 0.0 | | | K Factor = 5.60 | |
| | 36.75 | 0.0402 | | 0.0 | 8.750 | 0.352 | | | Vel = 5.31 | |
| 6 to 8T | 18.71 | 1.682 120.0 | 1T | 9.9 0.0 | 4.000 9.900 | 11.166 0.0 | | | K Factor = 5.60 | |
| | 55.46 | 0.0861 | | 0.0 | 13.900 | 1.197 | | | Vel = 8.01 | |
| 8T to 8 | 19.53 | 1.682 120.0 | 1T | 9.9 0.0 | 1.000 9.900 | 12.363 0.433 | | | | |
| | 74.99 | 0.1506 | | 0.0 | 10.900 | 1.641 | | | Vel = 10.83 | |
| | 0.0 74.99 | | | | | | 14.437 | | K Factor = 19.74 | |
| 2 to 3T | 20.36 | 1.682 120.0 | 1T | 9.9 0.0 | 4.000 9.900 | 13.216 44.176 | | | K Factor = 5.60 | |
| | 20.36 | 0.0135 | | 0.0 | 13.900 | 0.188 | | | Vel = 2.94 | |
| | 0.0 20.36 | | | | | | 57.580 | | K Factor = 2.68 | |
| 1 to 3T | 20.34 | 1.682 120.0 | 1T | 9.9 0.0 | 5.750 9.900 | 13.193 44.176 | | | K Factor = 5.60 | |
| | 20.34 | 0.0135 | | 0.0 | 15.650 | 0.211 | | | Vel = 2.94 | |
| 3T to 3 | 20.36 | 1.682 120.0 | 1T | 9.9 0.0 | 1.000 9.900 | 57.580 -43.743 | | | | |
| | 40.7 | 0.0485 | | 0.0 | 10.900 | 0.529 | | | Vel = 5.88 | |
| 3 to 8 | 0.0 | 2.635 120.0 | | 0.0 0.0 | 13.000 0.0 | 14.366 0.0 | | | | |
| | 40.7 | 0.0055 | | 0.0 | 13.000 | 0.071 | | | Vel = 2.39 | |
| 8 to 13 | 74.99 | 2.635 120.0 | | 0.0 0.0 | 10.000 0.0 | 14.437 0.0 | | | | |
| | 115.69 | 0.0377 | | 0.0 | 10.000 | 0.377 | | | Vel = 6.81 | |
| 13 to 18 | 76.01 | 2.635 120.0 | 2E | 16.474 0.0 | 18.000 16.474 | 14.814 0.108 | | | | |
| | 191.7 | 0.0960 | | 0.0 | 34.474 | 3.311 | | | Vel = 11.28 | |
| 18 to 23 | 62.29 | 2.635 120.0 | | 0.0 0.0 | 9.000 0.0 | 18.233 1.914 | | | | |
| | 253.99 | 0.1616 | | 0.0 | 9.000 | 1.454 | | | Vel = 14.94 | |
| 23 to 24 | 67.29 | 2.635 120.0 | 1E | 8.237 0.0 | 3.500 8.237 | 21.601 0.576 | | | | |
| | 321.28 | 0.2496 | | 0.0 | 11.737 | 2.929 | | | Vel = 18.90 | |

Final Calculations - Hazen-Williams

SPRINKLER SYSTEMS INC.
Martin's Point Health Care Area 1

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Date

| Hyd. Ref. Point | Qa Qt | Dia. "C" Pf/Ft | Fitting or Eqv. | Ln. | Pipe Ftng's Total | Pt Pe Pf | Pt Pv Pn | ***** | Notes | ***** |
|-----------------|----------|-------------------|-----------------|--------|-------------------|-------------|-------------|----------------------|-------|-------|
| 24 | 0.0 | 2.635 | 7E | 57.66 | 28.000 | 25.106 | | | | |
| to | | 120.0 | 1T | 16.474 | 74.134 | 1.083 | | | | |
| 25 | 321.28 | 0.2496 | | 0.0 | 102.134 | 25.489 | | Vel = 18.90 | | |
| 25 | 0.0 | 3.26 | 1E | 9.408 | 5.500 | 51.678 | | | | |
| to | | 120.0 | 1T | 20.159 | 29.567 | 0.0 | | | | |
| B | 321.28 | 0.0885 | | 0.0 | 35.067 | 3.104 | | Vel = 12.35 | | |
| B | 0.0 | 3.26 | | 0.0 | 10.750 | 54.782 | | | | |
| to | | 120.0 | | 0.0 | 0.0 | 4.548 | | | | |
| C | 321.28 | 0.0885 | | 0.0 | 10.750 | 0.951 | | Vel = 12.35 | | |
| C | 0.0 | 3.26 | 1E | 9.408 | 10.000 | 60.281 | | | | |
| to | | 120.0 | | 0.0 | 9.408 | 4.656 | | | | |
| D | 321.28 | 0.0885 | | 0.0 | 19.408 | 1.718 | | Vel = 12.35 | | |
| D | 0.0 | 3.26 | 2E | 18.815 | 49.000 | 66.655 | | | | |
| to | | 120.0 | | 0.0 | 18.815 | 0.0 | | | | |
| E | 321.28 | 0.0885 | | 0.0 | 67.815 | 6.003 | | Vel = 12.35 | | |
| E | 0.0 | 4.26 | 1E | 13.167 | 6.250 | 72.658 | | | | |
| to | | 120.0 | | 0.0 | 13.167 | 0.0 | | | | |
| TOR | 321.28 | 0.0241 | | 0.0 | 19.417 | 0.467 | | Vel = 7.23 | | |
| TOR | 0.0 | 4.26 | 1B | 15.8 | 10.000 | 73.125 | | | | |
| to | | 120.0 | 1Fsp | 0.0 | 28.967 | 5.274 | | * Fixed loss = 3 | | |
| BKFL | 321.28 | 0.0240 | 1E | 13.167 | 38.967 | 0.937 | | Vel = 7.23 | | |
| BKFL | 0.0 | 4.026 | 1E | 10.0 | 0.500 | 79.336 | | | | |
| to | | 120.0 | 1Zac | 0.0 | 10.000 | 3.867 | | * Fixed loss = 3.326 | | |
| BASE | 321.28 | 0.0317 | | 0.0 | 10.500 | 0.333 | | Vel = 8.10 | | |
| BASE | 0.0 | 6.16 | 1G | 4.304 | 300.000 | 83.536 | | | | |
| to | | 140.0 | 1E | 20.084 | 120.505 | -13.968 | | | | |
| HOSE | 321.28 | 0.0030 | 2T | 86.075 | 420.505 | 1.262 | | Vel = 3.46 | | |
| | | | 1F | 10.042 | | | | | | |
| HOSE | 100.00 | 12.34 | 1F | 20.316 | 130.000 | 70.830 | | Qa = 100 | | |
| to | | 140.0 | | 0.0 | 20.316 | 0.0 | | | | |
| TEST | 421.28 | 0.0002 | | 0.0 | 150.316 | 0.025 | | Vel = 1.13 | | |
| | 0.0 | | | | | | | | | |
| | 421.28 | | | | | 70.855 | | K Factor = 50.05 | | |

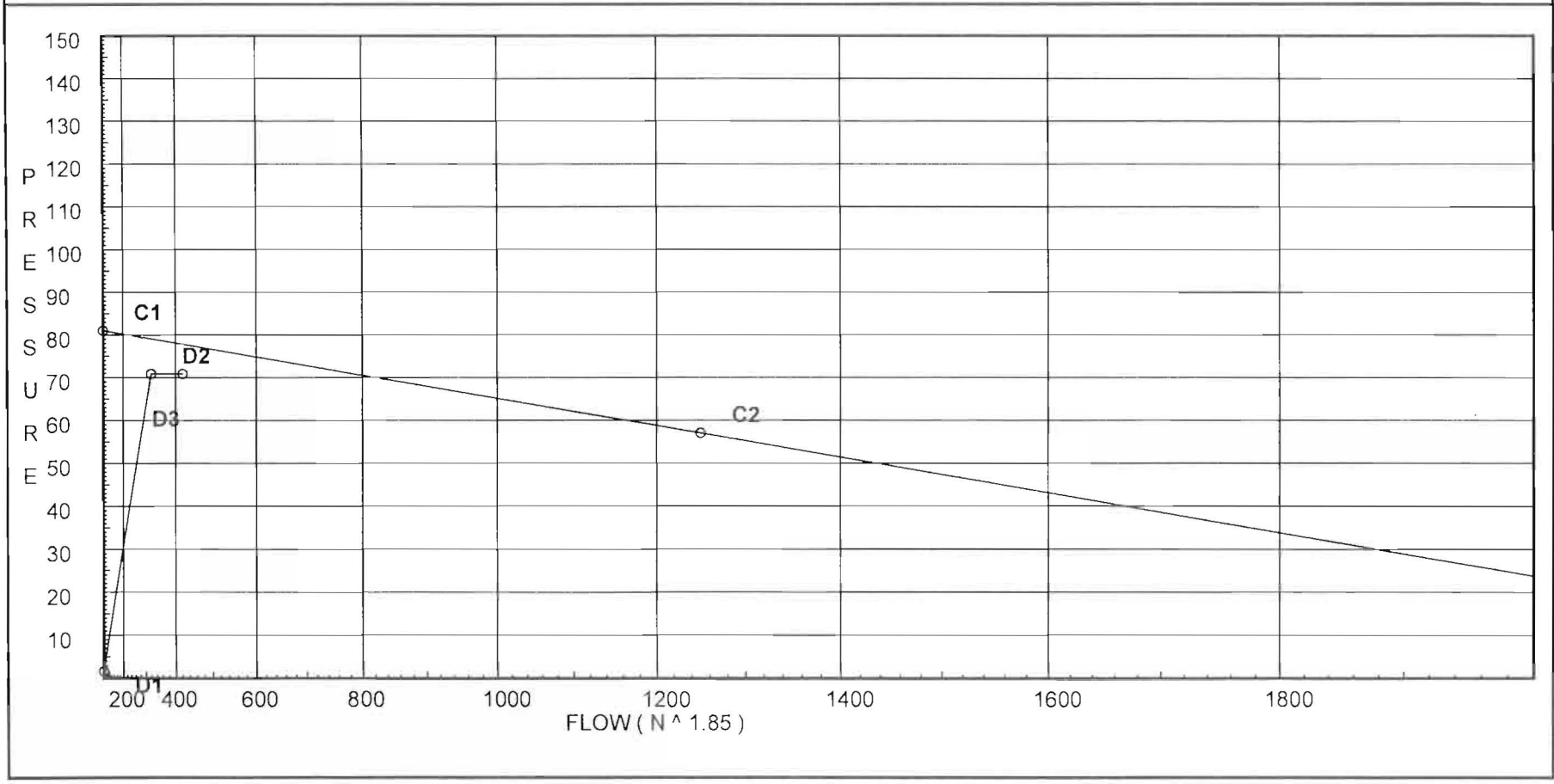
Water Supply Curve (C)

SPRINKLER SYSTEMS INC.
Martin's Point Health Care Area 1

Page 7
Date

City Water Supply:
C1 - Static Pressure : 81
C2 - Residual Pressure: 57
C2 - Residual Flow : 1250

Demand:
D1 - Elevation : 1.624
D2 - System Flow : 321.279
D2 - System Pressure : 70.855
Hose (Adj City) : _____
Hose (Demand) : 100
D3 - System Demand : 421.279
Safety Margin : 6.936



Hydraulic Design Information Sheet

Name - MARTIN'S POINT HEALTH CARE BUILDING 4 AREA 2 Date - 07/06/2011
 Location - VERANDA STREET PORTLAND, MAINE
 Building - EXISTING System No. - 1 WET
 Contractor - SPRINKLER SYSTEMS INC. Contract No. - 11046
 Calculated By - CDS Drawing No. - 1-2 OF 2
 Construction: (X) Combustible (X) Non-Combustible Ceiling Height - VARIES
 Occupancy - MECH ROOM

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

S Other
 T Specific Ruling Made By Date

| M | Area of Sprinkler Operation | - 1170 | System Type | Sprinkler/Nozzle |
|---|-----------------------------|--------|---------------|-------------------|
| | Density | - .15 | (X) Wet | Make RELIABLE |
| D | Area Per Sprinkler | - 130 | () Dry | Model F1FR |
| E | Elevation at Highest Outlet | - 102 | () Deluge | Size 1/2" X 1/2" |
| S | Hose Allowance - Inside | - 0 | () Preaction | K-Factor 5.6 |
| I | Rack Sprinkler Allowance | - 0 | () Other | Temp.Rat.200 DEG. |
| G | Hose Allowance - Outside | - 250 | | |

N Note

Calculation Flow Required - 362.45 Press Required - 80.049 AT BASE
 Summary C-Factor Used: 120 Overhead 140 Underground

W Water Flow Test: Pump Data: Tank or Reservoir:
 A Date of Test - 09/22/2010 Cap. -
 T Time of Test - AM Rated Cap.- Elev.-
 E Static Press - 81 @ Press -
 R Residual Press - 57 Elev. - Well
 Flow - 1250 Proof Flow
 S Elevation - 97.0'

P Location - VERANDA STREET

L Source of Information - OWNER AND WATER DISTRICT
 Y

| C | Commodity | Class | Location |
|---|-----------------|--------------------|------------------------------|
| O | Storage Ht. | Area | Aisle W. |
| M | Storage Method: | Solid Piled % | 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

G Horizontal Barriers Provided:
 E

Pressure / Flow Summary - STANDARD

SPRINKLER SYSTEMS INC.
 Martin's Point Health Care Area 2

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 Date

| Node No. | Elevation | K-Fact | Pt Actual | Pn | Flow Actual | Density | Area | Press Req. |
|----------|-----------|--------|-----------|----|-------------|---------|------|------------|
| ARM4 | 97.5 | 5.6 | 12.13 | na | 19.5 | 0.15 | 130 | 7.0 |
| 44 | 97.5 | | 13.37 | na | | | | |
| 45 | 97.5 | 5.6 | 13.44 | na | 20.53 | 0.15 | 130 | 7.0 |
| 46 | 97.5 | 5.6 | 13.91 | na | 20.89 | 0.15 | 130 | 7.0 |
| 47 | 97.5 | 5.6 | 14.94 | na | 21.64 | 0.15 | 130 | 7.0 |
| 48 | 97.5 | 5.6 | 17.99 | na | 23.75 | 0.15 | 130 | 7.0 |
| 49 | 97.5 | 5.6 | 21.72 | na | 26.1 | 0.15 | 130 | 7.0 |
| 49A | 97.5 | | 26.85 | na | | | | |
| 39 | 101.25 | 5.6 | 22.41 | na | 26.51 | 0.15 | 130 | 7.0 |
| 40 | 101.25 | 5.6 | 22.62 | na | 26.63 | 0.15 | 130 | 7.0 |
| 41 | 101.25 | 5.6 | 23.57 | na | 27.19 | 0.15 | 130 | 7.0 |
| 42 | 101.25 | 5.6 | 26.3 | na | 28.72 | 0.15 | 130 | 7.0 |
| 42A | 101.25 | | 27.38 | na | | | | |
| ARM2 | 102.0 | 5.6 | 20.24 | na | 25.19 | 0.15 | 130 | 7.0 |
| ARM3 | 102.0 | 5.6 | 21.79 | na | 26.14 | 0.15 | 130 | 7.0 |
| 32 | 102.0 | 5.6 | 15.73 | na | 22.21 | 0.15 | 130 | 7.0 |
| 33 | 102.0 | 5.6 | 16.21 | na | 22.54 | 0.15 | 130 | 7.0 |
| 34T | 102.0 | | 17.59 | na | | | | |
| 34 | 102.0 | | 21.49 | na | | | | |
| ARM1 | 102.0 | 5.6 | 19.76 | na | 24.89 | 0.15 | 130 | 7.0 |
| 31 | 102.0 | | 22.44 | na | | | | |
| 35 | 102.0 | | 22.52 | na | | | | |
| 36 | 102.0 | | 22.98 | na | | | | |
| 37 | 102.0 | | 24.73 | na | | | | |
| 38 | 102.0 | | 33.81 | na | | | | |
| 43 | 101.25 | | 35.01 | na | | | | |
| 50 | 97.5 | | 37.71 | na | | | | |
| A | 95.5 | | 46.21 | na | | | | |
| B | 92.5 | | 48.45 | na | | | | |
| C | 82.0 | | 54.18 | na | | | | |
| D | 71.25 | | 60.99 | na | | | | |
| E | 71.25 | | 68.49 | na | | | | |
| TOR | 71.25 | | 69.07 | na | | | | |
| BKFL | 66.0 | | 75.52 | na | | | | |
| BASE | 64.75 | | 80.05 | na | | | | |
| HOSE | 97.0 | | 67.66 | na | 250.0 | | | |
| TEST | 97.0 | | 67.71 | na | | | | |

The maximum velocity is 21.32 and it occurs in the pipe between nodes 50 and A

Final Calculations - Hazen-Williams

SPRINKLER SYSTEMS INC.
Martin's Point Health Care Area 2

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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 | ***** |
|-----------------------|--------------|----------------------|----------------------|--------|-------------------------|----------------|----------------|-------|------------------|-------|
| ARM4 | 19.50 | 1.049 | 1E | 2.0 | 3.000 | 12.125 | | | K Factor = 5.60 | |
| to | | 120.0 | 1T | 5.0 | 7.000 | 0.0 | | | | |
| 44 | 19.5 | 0.1242 | | 0.0 | 10.000 | 1.242 | | | Vel = 7.24 | |
| 44 | 0.0 | 1.682 | | 0.0 | 6.000 | 13.367 | | | | |
| to | | 120.0 | | 0.0 | 0.0 | 0.0 | | | | |
| 45 | 19.5 | 0.0125 | | 0.0 | 6.000 | 0.075 | | | Vel = 2.82 | |
| 45 | 20.53 | 1.682 | | 0.0 | 10.000 | 13.442 | | | K Factor = 5.60 | |
| to | | 120.0 | | 0.0 | 0.0 | 0.0 | | | | |
| 46 | 40.03 | 0.0471 | | 0.0 | 10.000 | 0.471 | | | Vel = 5.78 | |
| 46 | 20.89 | 1.682 | | 0.0 | 10.000 | 13.913 | | | K Factor = 5.60 | |
| to | | 120.0 | | 0.0 | 0.0 | 0.0 | | | | |
| 47 | 60.92 | 0.1025 | | 0.0 | 10.000 | 1.025 | | | Vel = 8.80 | |
| 47 | 21.64 | 1.682 | 1E | 4.95 | 12.000 | 14.938 | | | K Factor = 5.60 | |
| to | | 120.0 | | 0.0 | 4.950 | 0.0 | | | | |
| 48 | 82.56 | 0.1799 | | 0.0 | 16.950 | 3.049 | | | Vel = 11.92 | |
| 48 | 23.75 | 1.682 | | 0.0 | 13.000 | 17.987 | | | K Factor = 5.60 | |
| to | | 120.0 | | 0.0 | 0.0 | 0.0 | | | | |
| 49 | 106.31 | 0.2871 | | 0.0 | 13.000 | 3.732 | | | Vel = 15.35 | |
| 49 | 26.10 | 2.157 | | 0.0 | 40.000 | 21.719 | | | K Factor = 5.60 | |
| to | | 120.0 | | 0.0 | 0.0 | 0.0 | | | | |
| 49A | 132.41 | 0.1284 | | 0.0 | 40.000 | 5.134 | | | Vel = 11.63 | |
| 49A | 0.0 | 2.157 | 2E | 12.307 | 60.000 | 26.853 | | | | |
| to | | 120.0 | 1T | 12.307 | 24.614 | 0.0 | | | | |
| 50 | 132.41 | 0.1283 | | 0.0 | 84.614 | 10.859 | | | Vel = 11.63 | |
| | 0.0 | | | | | | | | | |
| | 132.41 | | | | | 37.712 | | | K Factor = 21.56 | |
| 39 | 26.51 | 1.682 | | 0.0 | 9.750 | 22.406 | | | K Factor = 5.60 | |
| to | | 120.0 | | 0.0 | 0.0 | 0.0 | | | | |
| 40 | 26.51 | 0.0219 | | 0.0 | 9.750 | 0.214 | | | Vel = 3.83 | |
| 40 | 26.63 | 1.682 | 1F | 2.475 | 9.500 | 22.620 | | | K Factor = 5.60 | |
| to | | 120.0 | | 0.0 | 2.475 | 0.0 | | | | |
| 41 | 53.14 | 0.0797 | | 0.0 | 11.975 | 0.954 | | | Vel = 7.67 | |
| 41 | 27.19 | 1.682 | 1F | 2.475 | 13.500 | 23.574 | | | K Factor = 5.60 | |
| to | | 120.0 | | 0.0 | 2.475 | 0.0 | | | | |
| 42 | 80.33 | 0.1710 | | 0.0 | 15.975 | 2.731 | | | Vel = 11.60 | |
| 42 | 28.72 | 2.157 | | 0.0 | 12.000 | 26.305 | | | K Factor = 5.60 | |
| to | | 120.0 | | 0.0 | 0.0 | 0.0 | | | | |
| 42A | 109.05 | 0.0896 | | 0.0 | 12.000 | 1.075 | | | Vel = 9.57 | |
| 42A | 0.0 | 2.157 | 4F | 9.845 | 63.000 | 27.380 | | | | |
| to | | 120.0 | 1T | 12.307 | 22.152 | 0.0 | | | | |
| 43 | 109.05 | 0.0896 | | 0.0 | 85.152 | 7.632 | | | Vel = 9.57 | |
| | 0.0 | | | | | | | | | |
| | 109.05 | | | | | 35.012 | | | K Factor = 18.43 | |
| ARM2 | 25.19 | 1.049 | 1E | 2.0 | 6.750 | 20.240 | | | K Factor = 5.60 | |
| to | | 120.0 | 1T | 5.0 | 7.000 | 0.0 | | | | |
| 36 | 25.19 | 0.1995 | | 0.0 | 13.750 | 2.743 | | | Vel = 9.35 | |

Final Calculations - Hazen-Williams

SPRINKLER SYSTEMS INC.
Martin's Point Health Care Area 2

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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 | ***** |
|-----------------|--------------|-------------------|-----------------|--------|-------------------|-------------|-------------|-------|-----------------|-------|
| | 0.0 25.19 | | | | | | | | | |
| ARM3 | 26.14 | 1.049 | 1E | 2.0 | 6.750 | 21.790 | | | K Factor = 5.25 | |
| to | | 120.0 | 1T | 5.0 | 7.000 | 0.0 | | | K Factor = 5.60 | |
| 37 | 26.14 | 0.2135 | | 0.0 | 13.750 | 2.936 | | | Vel = 9.70 | |
| | 0.0 26.14 | | | | | | | | | |
| 32 | 22.21 | 1.049 | 1T | 5.0 | 6.750 | 15.732 | | | K Factor = 5.26 | |
| to | | 120.0 | | 0.0 | 5.000 | 0.0 | | | K Factor = 5.60 | |
| 34T | 22.21 | 0.1580 | | 0.0 | 11.750 | 1.856 | | | Vel = 8.24 | |
| | 0.0 22.21 | | | | | | | | | |
| 33 | 22.54 | 1.049 | 1T | 5.0 | 3.500 | 16.208 | | | K Factor = 5.30 | |
| to | | 120.0 | | 0.0 | 5.000 | 0.0 | | | K Factor = 5.60 | |
| 34T | 22.54 | 0.1624 | | 0.0 | 8.500 | 1.380 | | | Vel = 8.37 | |
| 34T | 22.22 | 1.049 | 1T | 5.0 | 1.750 | 17.588 | | | | |
| to | | 120.0 | | 0.0 | 5.000 | 0.0 | | | | |
| 34 | 44.76 | 0.5775 | | 0.0 | 6.750 | 3.898 | | | Vel = 16.62 | |
| 34 | 0.0 | 1.682 | 1T | 9.9 | 8.000 | 21.486 | | | | |
| to | | 120.0 | | 0.0 | 9.900 | 0.0 | | | | |
| 35 | 44.76 | 0.0579 | | 0.0 | 17.900 | 1.037 | | | Vel = 6.46 | |
| | 0.0 44.76 | | | | | | | | | |
| ARM1 | 24.89 | 1.049 | 1E | 2.0 | 6.750 | 19.762 | | | K Factor = 9.43 | |
| to | | 120.0 | 1T | 5.0 | 7.000 | 0.0 | | | K Factor = 5.60 | |
| 31 | 24.89 | 0.1951 | | 0.0 | 13.750 | 2.683 | | | Vel = 9.24 | |
| 31 | 0.0 | 1.682 | | 0.0 | 4.000 | 22.445 | | | | |
| to | | 120.0 | | 0.0 | 0.0 | 0.0 | | | | |
| 35 | 24.89 | 0.0195 | | 0.0 | 4.000 | 0.078 | | | Vel = 3.59 | |
| 35 | 44.76 | 1.682 | | 0.0 | 3.500 | 22.523 | | | | |
| to | | 120.0 | | 0.0 | 0.0 | 0.0 | | | | |
| 36 | 69.65 | 0.1314 | | 0.0 | 3.500 | 0.460 | | | Vel = 10.06 | |
| 36 | 25.19 | 1.682 | | 0.0 | 7.500 | 22.983 | | | | |
| to | | 120.0 | | 0.0 | 0.0 | 0.0 | | | | |
| 37 | 94.84 | 0.2324 | | 0.0 | 7.500 | 1.743 | | | Vel = 13.69 | |
| 37 | 26.15 | 1.682 | 1T | 9.9 | 15.000 | 24.726 | | | | |
| to | | 120.0 | | 0.0 | 9.900 | 0.0 | | | | |
| 38 | 120.99 | 0.3647 | | 0.0 | 24.900 | 9.082 | | | Vel = 17.47 | |
| 38 | 0.0 | 2.635 | 2E | 16.474 | 5.000 | 33.808 | | | | |
| to | | 120.0 | | 0.0 | 16.474 | 0.325 | | | | |
| 43 | 120.99 | 0.0409 | | 0.0 | 21.474 | 0.879 | | | Vel = 7.12 | |
| 43 | 109.05 | 2.635 | | 0.0 | 8.000 | 35.012 | | | | |
| to | | 120.0 | | 0.0 | 0.0 | 1.624 | | | | |
| 50 | 230.04 | 0.1345 | | 0.0 | 8.000 | 1.076 | | | Vel = 13.53 | |
| 50 | 132.41 | 2.635 | 2E | 16.474 | 8.000 | 37.712 | | | | |
| to | | 120.0 | | 0.0 | 16.474 | 0.866 | | | | |
| A | 362.45 | 0.3120 | | 0.0 | 24.474 | 7.635 | | | Vel = 21.32 | |

Final Calculations - Hazen-Williams

SPRINKLER SYSTEMS INC.
Martin's Point Health Care Area 2

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Date

| Hyd. Ref. Point | Qa Qt | Dia. "C" Pf/Ft | Fitting or Eqv. Ln. | Pipe Ftng's Total | Pt Pe Pf | Pt Pv Pn | ***** | Notes | ***** |
|-----------------------|--------------|----------------------|---------------------------|-------------------------|----------------|----------------|----------------------|-------|-------|
| A | 0.0 | 2.635 | | 3.000 | 46.213 | | | | |
| to | | 120.0 | | 0.0 | 1.299 | | | | |
| B | 362.45 | 0.3120 | | 3.000 | 0.936 | | Vel = 21.32 | | |
| B | 0.0 | 3.26 | | 10.750 | 48.448 | | | | |
| to | | 120.0 | | 0.0 | 4.548 | | | | |
| C | 362.45 | 0.1106 | | 10.750 | 1.189 | | Vel = 13.93 | | |
| C | 0.0 | 3.26 | 1E | 9.408 | 10.000 | 54.185 | | | |
| to | | 120.0 | | 0.0 | 9.408 | 4.656 | | | |
| D | 362.45 | 0.1106 | | 19.408 | 2.147 | | Vel = 13.93 | | |
| D | 0.0 | 3.26 | 2E | 18.815 | 49.000 | 60.988 | | | |
| to | | 120.0 | | 0.0 | 18.815 | 0.0 | | | |
| E | 362.45 | 0.1106 | | 67.815 | 7.503 | | Vel = 13.93 | | |
| E | 0.0 | 4.26 | 1E | 13.167 | 6.250 | 68.491 | | | |
| to | | 120.0 | | 0.0 | 13.167 | 0.0 | | | |
| TOR | 362.45 | 0.0300 | | 19.417 | 0.583 | | Vel = 8.16 | | |
| TOR | 0.0 | 4.26 | 1B | 15.8 | 10.000 | 69.074 | | | |
| to | | 120.0 | 1Fsp | 0.0 | 28.967 | 5.274 | * Fixed loss = 3 | | |
| BKFL | 362.45 | 0.0301 | 1E | 13.167 | 38.967 | 1.172 | Vel = 8.16 | | |
| BKFL | 0.0 | 4.026 | 1E | 10.0 | 0.500 | 75.520 | | | |
| to | | 120.0 | 1Zac | 0.0 | 10.000 | 4.113 | * Fixed loss = 3.572 | | |
| BASE | 362.45 | 0.0396 | | 10.500 | 0.416 | | Vel = 9.13 | | |
| BASE | 0.0 | 6.16 | 1G | 4.304 | 300.000 | 80.049 | | | |
| to | | 140.0 | 1E | 20.084 | 120.505 | -13.968 | | | |
| HOSE | 362.45 | 0.0038 | 2T | 86.075 | 420.505 | 1.577 | Vel = 3.90 | | |
| | | | 1F | 10.042 | | | | | |
| HOSE | 250.00 | 12.34 | 1F | 20.316 | 130.000 | 67.658 | Qa = 250 | | |
| to | | 140.0 | | 0.0 | 20.316 | 0.0 | | | |
| TEST | 612.45 | 0.0003 | | 0.0 | 150.316 | 0.051 | Vel = 1.64 | | |
| | 0.0 | | | | | | | | |
| | 612.45 | | | | | 67.709 | K Factor = 74.43 | | |

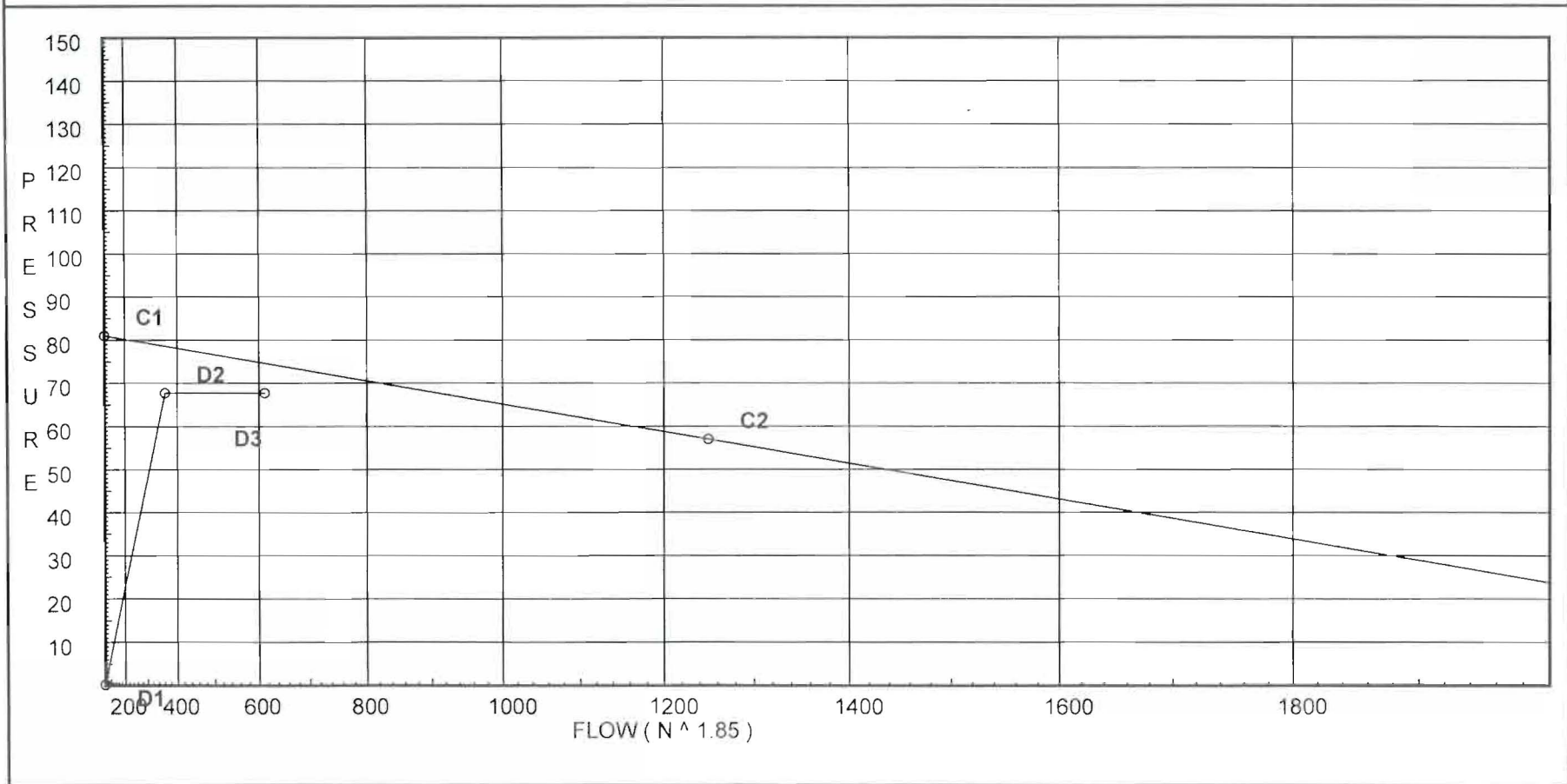
Water Supply Curve (C)

SPRINKLER SYSTEMS INC.
Martin's Point Health Care Area 2

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Date

City Water Supply:
 C1 - Static Pressure : 81
 C2 - Residual Pressure: 57
 C2 - Residual Flow : 1250

Demand:
 D1 - Elevation : 0.217
 D2 - System Flow : 362.45
 D2 - System Pressure : 67.709
 Hose (Adj City) :
 Hose (Demand) : 250
 D3 - System Demand : 612.45
 Safety Margin : 6.879



Pressure / Flow Summary - STANDARD

SPRINKLER SYSTEMS INC.
 Martin's Point Health Care Area 3

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 Date

| Node No. | Elevation | K-Fact | Pt Actual | Pn | Flow Actual | Density | Area | Press Req. |
|----------|-----------|--------|-----------|----|-------------|---------|------|------------|
| 57 | 82.5 | 5.6 | 12.28 | na | 19.63 | 0.1 | 150 | 7.0 |
| 58 | 82.5 | 5.6 | 12.5 | na | 19.8 | 0.1 | 150 | 7.0 |
| 59 | 82.5 | 5.6 | 13.27 | na | 20.4 | 0.1 | 150 | 7.0 |
| 51 | 82.5 | 5.6 | 7.17 | na | 15.0 | 0.1 | 150 | 7.0 |
| 52 | 82.5 | 5.6 | 7.3 | na | 15.13 | 0.1 | 150 | 7.0 |
| 53 | 82.5 | 5.6 | 7.81 | na | 15.65 | 0.1 | 150 | 7.0 |
| 54 | 82.5 | 5.6 | 8.84 | na | 16.65 | 0.1 | 150 | 7.0 |
| 55 | 82.5 | 5.6 | 10.65 | na | 18.28 | 0.1 | 150 | 7.0 |
| 56 | 82.5 | | 15.0 | na | | | | |
| 60 | 82.5 | | 15.78 | na | | | | |
| 60T | 82.0 | | 33.58 | na | | | | |
| C | 82.0 | | 37.66 | na | | | | |
| D | 71.25 | | 42.69 | na | | | | |
| E | 71.25 | | 43.99 | na | | | | |
| TOR | 71.25 | | 44.09 | na | | | | |
| BKFL | 66.0 | | 49.56 | na | | | | |
| BASE | 64.75 | | 52.42 | na | | | | |
| HOSE | 97.0 | | 38.73 | na | 100.0 | | | |
| TEST | 97.0 | | 38.74 | na | | | | |

The maximum velocity is 15.85 and it occurs in the pipe between nodes 55 and 56

Final Calculations - Hazen-Williams

SPRINKLER SYSTEMS INC.
Martin's Point Health Care Area 3

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Date

| Hyd. Ref Point | Qa Qt | Dia. "C" Pf/Ft | Fitting or Eqv. | Ln. | Pipe Ftng's Total | Pt Pe Pf | Pt Pv Pn | ***** | Notes | ***** |
|----------------------|--------------|----------------------|-----------------------|-----------------|-------------------------|-----------------|----------------|-------|------------------|-------|
| 57 to 58 | 19.63 | 1.442 120.0 | | 0.0 | 8.000 | 12.283 0.0 | | | K Factor = 5.60 | |
| 58 to 59 | 19.63 | 0.0268 | | 0.0 | 8.000 | 0.214 | | | Vel = 3.86 | |
| 58 to 59 | 19.79 | 1.442 120.0 | | 0.0 | 8.000 | 12.497 0.0 | | | K Factor = 5.60 | |
| 59 to 60 | 39.42 | 0.0969 | | 0.0 | 8.000 | 0.775 | | | Vel = 7.74 | |
| 59 to 60 | 20.40 | 1.442 120.0 | 1T | 7.432 | 4.500 7.432 | 13.272 0.0 | | | K Factor = 5.60 | |
| 60 | 59.82 | 0.2098 | | 0.0 | 11.932 | 2.503 | | | Vel = 11.75 | |
| | 0.0 59.82 | | | | | 15.775 | | | K Factor = 15.06 | |
| 51 to 52 | 15.00 | 1.442 120.0 | | 0.0 | 7.500 | 7.175 0.0 | | | K Factor = 5.60 | |
| 52 to 53 | 15.0 | 0.0161 | | 0.0 | 7.500 | 0.121 | | | Vel = 2.95 | |
| 52 to 53 | 15.13 | 1.442 120.0 | | 0.0 | 8.750 | 7.296 0.0 | | | K Factor = 5.60 | |
| 53 to 54 | 30.13 | 0.0590 | | 0.0 | 8.750 | 0.516 | | | Vel = 5.92 | |
| 53 to 54 | 15.65 | 1.442 120.0 | | 0.0 | 8.000 | 7.812 0.0 | | | K Factor = 5.60 | |
| 54 to 55 | 45.78 | 0.1279 | | 0.0 | 8.000 | 1.023 | | | Vel = 8.99 | |
| 54 to 55 | 16.64 | 1.442 120.0 | | 0.0 | 8.000 | 8.835 0.0 | | | K Factor = 5.60 | |
| 55 to 56 | 62.42 | 0.2270 | | 0.0 | 8.000 | 1.816 | | | Vel = 12.26 | |
| 55 to 56 | 18.28 | 1.442 120.0 | 1T | 7.432 | 4.500 7.432 | 10.651 0.0 | | | K Factor = 5.60 | |
| 56 to 60 | 80.7 | 0.3649 | | 0.0 | 11.932 | 4.354 | | | Vel = 15.85 | |
| 56 to 60 | 0.0 | 2.157 120.0 | | 0.0 | 15.000 | 15.005 0.0 | | | | |
| 60 to 60T | 80.7 | 0.0513 | | 0.0 | 15.000 | 0.770 | | | Vel = 7.09 | |
| 60 to 60T | 59.82 | 2.157 120.0 | 3E 1T | 18.46 12.307 | 92.000 30.767 | 15.775 0.217 | | | | |
| 60T to C | 140.52 | 0.1433 | | 0.0 | 122.767 | 17.588 | | | Vel = 12.34 | |
| 60T to C | 0.0 | 2.157 120.0 | 1E 1T | 6.153 12.307 | 10.000 18.460 | 33.580 0.0 | | | | |
| C to D | 140.52 | 0.1433 | | 0.0 | 28.460 | 4.078 | | | Vel = 12.34 | |
| C to D | 0.0 | 3.26 120.0 | 1E | 9.408 | 10.000 | 37.658 | | | | |
| D to E | 140.52 | 0.0192 | | 0.0 | 19.408 | 0.372 | | | Vel = 5.40 | |
| D to E | 0.0 | 3.26 120.0 | 2E | 18.815 | 49.000 | 42.686 | | | | |
| E to TOR | 140.52 | 0.0192 | | 0.0 | 67.815 | 1.300 | | | Vel = 5.40 | |
| E to TOR | 0.0 | 4.26 120.0 | 1E | 13.167 | 6.250 | 43.986 | | | | |
| TOR to BKFL | 140.52 | 0.0052 | | 0.0 | 19.417 | 0.101 | | | Vel = 3.16 | |
| TOR to BKFL | 0.0 | 4.26 120.0 | 1B 1Fsp | 15.8 0.0 | 10.000 28.967 | 44.087 5.274 | | | * Fixed loss = 3 | |
| BKFL | 140.52 | 0.0052 | 1E | 13.167 | 38.967 | 0.202 | | | Vel = 3.16 | |

Final Calculations - Hazen-Williams

SPRINKLER SYSTEMS INC.
Martin's Point Health Care Area 3

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Date

| Hyd. Ref. Point | Qa Qt | Dia. "C" Pf/Ft | Fitting or Eqv. Ln. | Pipe Ftng's Total | Pt Pe Pf | Pt Pv Pn | ***** | Notes | ***** |
|-----------------------|------------------|--------------------------|---------------------------|-------------------------------------|-------------------------------|----------------------------|-------|------------------------------------|-------|
| BKFL to BASE | 0.0 140.52 | 4.026 120.0 0.0070 | 1E 1Zac | 10.0 0.0 0.0 | 0.500 10.000 10.500 | 49.563 2.787 0.073 | | * Fixed loss = 2.246 Vel = 3.54 | |
| BASE to HOSE | 0.0 140.52 | 6.16 140.0 0.0007 | 1G 1E 2T 1F | 4.304 20.084 86.075 10.042 | 300.000 120.505 420.505 | 52.423 -13.968 0.274 | | Vel = 1.51 | |
| HOSE to TEST | 100.00 240.52 | 12.34 140.0 0.0001 | 1F | 20.316 0.0 0.0 | 130.000 20.316 150.316 | 38.729 0.0 0.009 | | Qa = 100 Vel = 0.65 | |
| | 0.0 240.52 | | | | | 38.738 | | K Factor = 38.64 | |

Water Supply Curve (C)

SPRINKLER SYSTEMS INC.
Martin's Point Health Care Area 3

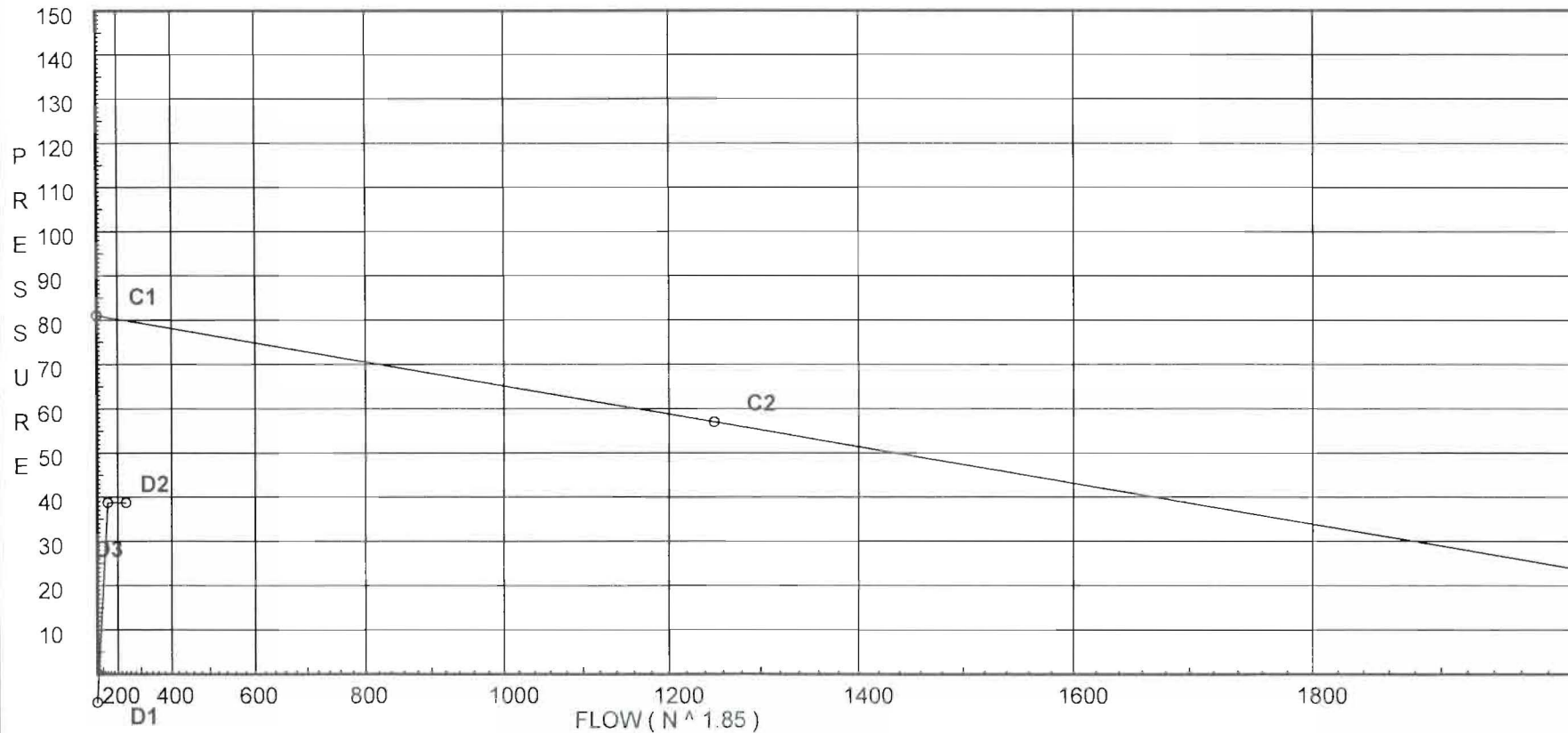
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Date

City Water Supply:

C1 - Static Pressure : 81
C2 - Residual Pressure: 57
C2 - Residual Flow : 1250

Demand:

D1 - Elevation : -6.280
D2 - System Flow : 140.525
D2 - System Pressure : 38.738
Hose (Adj City) : _____
Hose (Demand) : 100
D3 - System Demand : 240.525
Safety Margin : 41.125





Bid Addendum No. 1
April 11, 2011

TO: All Sprinkler Bidders
RE: Martin's Point Building #4 Renovation
Portland, Maine
Project No. 13273

Please incorporate the following into your bid documents:

1. **Bid Package 15.1**

- Core & shell sprinkler design shall include 5 separate zones. Three of the zones shall be for the three occupied levels, one for the attic, and one for the elevator. Zone valves shall be placed above an accessible ceiling.
- Core & shell sprinkler design shall assume head coverage of 130 square feet / head.
- Include 1" x 1/2" bushings at all outlets.
- Include a fire department connection with locking knox caps in accordance with the city of Portland.
- Hydrant flow information: Date of test 9/22/2010

Hydrant #2 (Existing hydrant at north side of marine hospital)

Static Pressure – 81psi

Residual Pressure – 57psi

Pitot – 56psi

Flow – 1250gpm

All other terms and conditions of original Bid Packages remain the same.

Sincerely,

Jared Ballard
Senior Project Engineer

cc: Garret Bertolini - Pizzagalli
Tim Street – Pizzagalli
File



CITY OF PORTLAND, MAINE

Department of Building Inspections

Original Receipt

11-26 20 11

Received from _____

Location of Work 1331 Urethane

Cost of Construction \$ _____ Building Fee: _____

Permit Fee \$ _____ Site Fee: _____

Certificate of Occupancy Fee: _____

Total: 130

Building (IL) _____ Plumbing (I5) _____ Electrical (I2) _____ Site Plan (U2) _____

Other _____

CBL: 484-C-10

Check #: 2311 Total Collected \$ 130

**No work is to be started until permit issued.
Please keep original receipt for your records.**

Taken by: [Signature]

WHITE - Applicant's Copy
YELLOW - Office Copy
PINK - Permit Copy

