City of Portland, Maine - Building or Use Permit Application
389 Congress Street, 04101 Tel: (207) 874-8703, FAX: (207) 8716

Job No:	Date Applied:	CBL:	
2011-11-2633-ALTCOMM **2012-48513 FAFS**	**09/21/2011**	**044- F-001-001**	
Location of Construction: **66-68 HIGH ST**	Owner Name: **CHILDREN'S HOSPITAL HOUSING PARTNERS, LP**	Owner Address:	Phone:
Business Name:	Contractor Name: **Dean & Allyn, Inc.**	Contractor Address: **PO BOX 709, GRAY, MAINE 04039**	Phone: **(207) 657-5646**
Lessee/Buyer's Name:	Phone:	Permit Type: **FAFS**	Zone: **R-7 Overlay**
Past Use: **38 Residential dwelling units (under construction)**	Proposed Use: **Same: 38 residential dwelling units – to install fire suppression system**	Cost of Work: **$70,000.00**	CEO District:
		Fire Dept: __J__ Approved w/ conditions ___ Denied ___ N/A 10/15/12 Signature: (58)	Inspection: Use Group: Type: Signature:
Proposed Project Description: **Renovations 38 Unit Apartment Underground Parking**		Pedestrian Activities District (P.A.D.)	
Permit Taken By: Brad		**Zoning Approval**	

Special Zone or Reviews	Zoning Appeal	Historic Preservation
___ Shoreland	___ Variance	within
___ Wetlands	___ Miscellaneous	___ Not in Dist or Landmark
___ Flood Zone	___ Conditional Use	___ Does not Require Review
___ Subdivision	___ Interpretation	___ Requires Review
___ Site Plan	___ Approved	___ Approved
	___ Denied	___ Approved w/Conditions
___ Maj ___ Min ___ MM		___ Denied
Date: OK - 9/24/12	Date:	Date: Any exterior work requires a separate review & Approval

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 electrial work.
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.

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

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK

CITY OF PORTLAND

BUILDING PERMIT

This is to certify that
DEAN & ALLYN, INC.
PO BOX 709 - 116 LEWISTON RD
GRAY, ME 04039

For installation at
66 HIGH ST

CBL: 044- F-001-001

Job ID: 2011-11-2633-ALTCOMM

has permission to install NFPA 13 sprinklers and Class I standpipes
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

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.**

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

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Director of Planning and Urban Development
Jeff Levine

Job ID: 2011-11-2633-ALTCOMM install NFPA 13 sprinklers and Class I standpipes **For installation at:** 66 HIGH ST **CBL:** 044- F-001-001

Conditions of Approval:

Fire

The sprinkler system shall be installed in accordance with the City of Portland Fire Department Regulations and 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.
Sprinkler FDC shall be two 2 ½". The Fire department connection shall indicate auto sprinkler.
The Standpipe system shall be installed in accordance with the City of Portland Fire Department Regulations and NFPA 14. A signed compliance letter will be required.
This system is a manual wet standpipe. **Each hose connection shall be provided with a conspicuous sign that reads "MANUAL STANDPIPE FOR FIRE DEPARTMENT USE ONLY."**(14:5.4.2) Letters shall be red with a white background and shall be 2 ½" in height. (14:6.3.8.5.2)
Gauges for Class I and III standpipe hose connections. The Fire Department requires the installer to provide two Kochek 2 ½" NH 45 Degree Line Gauge [LG25-45] to the Fire Department for each new Class I and III standpipe.
Hose connections shall also be provided at the highest landing of a stairway with **access to a roof**, and on roofs with a roof with a slope of less than 3 in 12 where stairways do not access the roof per NFPA 14:7.3.2(5).
Standpipe FDC shall be three 2 ½". The Fire department connection shall indicate manual standpipe.
System acceptance and commissioning must be coordinated with alarm and suppression system contractors and the Fire Department. Call 874-8703 to schedule.
A Knox Box is required.

Historic

- This approval subject to conditions imposed by Historic Preservation Board as part of its 4/6/10 approval. These include:
  1) More detailed drawings of the proposed Danforth Street buildingentrance to be submitted to HP staff for review and approval
  2) Corrected/plans elevations illustrating proposed fencing types for each location on the property to be submitted to HP staff.

3) Any replacement fencing on north property line shall generally match other perimeter fencing on the property. The Board strongly recommends that the existing chain link fencing be replaced as part of the project.

Benjamin Wallace - Re: 66 High St - permit 2011-11-2633-ALTCOMM

From: Tammy Munson
To: Benjamin Wallace; Lannie Dobson
Date: 10/15/2012 1:38 PM
Subject: Re: 66 High St - permit 2011-11-2633-ALTCOMM

Send it over to Lannie and she will issue it. Sometimes with federally funded projects they need a permit in order to close and get financing so we accept the permit first and then they pay the fee after. I just want us to verify everything is released on it and you would not know how to check on that nor should you have to.

>>> Benjamin Wallace 10/15/2012 12:57 PM >>>
Hi Tammy,
I'm trying to issue the sprinkler permit for 66 High Street but get this critical note:
"DO NOT ISSUE PERMIT No Payment made release date of payment on December 1, 2011 will require Letter of intent from Tammy Munson to have funds released"
There's also a BP "Hold Job" by PEZ on the system:
"There is a PEZ Project associated to this location that has flagged this property to alert BP Job or Permit processing. Please use the Global Activity Viewer to research the details if needed."
What should I do next?
Thanks,
Ben

Emailed 9/24/12

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.

#2011-01-2633 - Altcomm

Installation address: ~~68~~ High Street #2012-48513 CBL: 044 F001 R-7 overlay

Exact location: (within structure) Entire building

Type of occupancy(s) (NFPA & ICC): NFPA 38 Res. D.U.

Building owner: Children's Hospital Housing Partners, LP.

Managing Supervisor (RMS): Theodore E Clarke License No: 208

Supervisor phone: 207-657-5646 E-mail: tclarke@deanandallyn.com

Installing contractor: Dean & Allyn, Inc. License No: 262

Contractor phone: 207-657-5646 E-mail: tclarke@deanandallyn.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: 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.

70,000

COST OF WORK: ~~69515.00~~

PERMIT FEE: ~~730.00~~ 720.00

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

RECEIVED
SEP 21 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: Theodore E Clarke Date: 09/20/2012

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Receipts Details:

Tender Information: Check , Check Number: 13204
Tender Amount: 730.00

Receipt Header:

Cashier Id: bsaucier
Receipt Date: 9/24/2012
Receipt Number: 48515

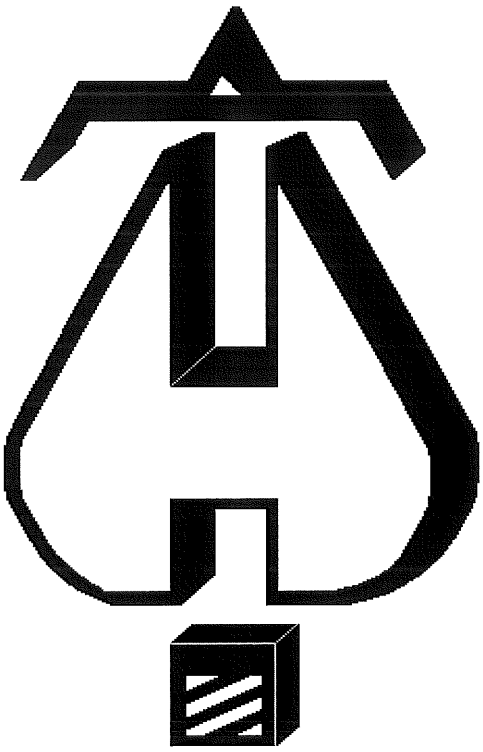
Receipt Details:

Referance ID:	8103	Fee Type:	BP-FIRE
Receipt Number:	0	Payment Date:	
Transaction Amount:	720.00	Charge Amount:	720.00
Job ID: Job ID: 2011-11-2633-ALTCOMM - Renovations 35 Unit Apartment Underground Parking			
Additional Comments: 66 High			

Referance ID:	505	Fee Type:	MISC-Over Payment
Receipt Number:	0	Payment Date:	
Transaction Amount:	10.00	Charge Amount:	10.00
Job ID: Miscellaneous charges			

Additional Comments:

Thank You for your Payment!



. . . Fire Protection by Computer Design

DEAN & ALLYN, INC.
PO BOX 709
116 LEWISTON ROAD
GRAY, MAINE 04039
207-657-5646

Job Name	:	ELM TERRACE 3RD FLOOR NEW
Building	:	
Location	:	68 HIGH STREET PORTLAND MAINE
System	:	ELM NEW.WX1
Contract	:	C121053
Data File	:	ELM NEW.WX1

Hydraulic Design Information Sheet

Name - ELM TERRACE
Location - 68 HIGH STREET PORTLAND MAINE
Building -
Contractor - DEAN AND ALLYN, INC.
Calculated By - H. KING
Construction: (X) Combustible ( ) Non-Combustible
Occupancy - APARTMENT BUILDING

Date - 6-7-12

System No. - ELM NEW.WX1
Contract No. - C121053
Drawing No. - 4 OF 5
Ceiling Height - VARIES

SYSTEM DESIGN

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

Area of Sprinkler Operation - LRGST RM	System Type	Sprinkler/Nozzle
Density - .10	(X) Wet	Make VIKING
Area Per Sprinkler - 144	( ) Dry	Model MICROFAST
Elevation at Highest Outlet - 111	( ) Deluge	Size 1/2"
Hose Allowance - Inside -	( ) Preaction	K-Factor 5.6
Rack Sprinkler Allowance -	( ) Other	Temp.Rat.155
Hose Allowance - Outside - 100		

Note 7.8 PSI CUSHION

Calculation Summary

Flow Required - 334.0 Press Required - 83.1 AT TEST
C-Factor Used: 120 Overhead 140 Underground

WATER SUPPLY

Water Flow Test:	Pump Data:	Tank or Reservoir:
Date of Test - 4-4-09		Cap. -
Time of Test -	Rated Cap.-	Elev.-
Static Press - 91	@ Press -	
Residual Press - 88	Elev. -	Well
Flow - 1644		Proof Flow
Elevation - 35		

Location - HIGH STREET

Source of Information -
PWD

COMMODITY STORAGE

Commodity Class Location
Storage Ht. Area Aisle W.
Storage Method: Solid Piled % Palletized % Rack

( ) Single Row	( ) Conven. Pallet	( ) Auto. Storage	( ) Encap.
( ) Double Row	( ) Slave Pallet	( ) Solid Shelf	( ) Non
( ) Mult. Row		( ) Open Shelf	

RACK STORAGE

Flue Spacing Clearance:Storage to Ceiling
Longitudinal Transverse

Horizontal Barriers Provided:

Fitting Legend

Abbrev.	Name	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8	10	12	14	16	18	20	24
E	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
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
I	90' Grvd-Vic Elbow #10	0	0	2	3	4	3.5	6	5	8	7	8.5	10	13	17	20	23	25	33	36	40
S	NFPA 13 Swing Check	0	0	5	7	9	11	14	16	19	22	27	32	45	55	65					
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

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.

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
1A	0.0	5.6	7.0	na	14.82	0.1	144	7.0
1T	111.0	K = K @ 1	9.86	na	16.63			
2	111.0	K = K @ 1	10.87	na	17.47			
3	111.0	K = K @ 1	12.78	na	18.94			
4	111.0	K = K @ 1	15.57	na	20.9			
5	111.0	K = K @ 1	16.77	na	21.69			
6	111.0	K = K @ 1	7.82	na	14.82			
7	111.0	K = K @ 1	8.84	na	15.75			
8	111.0	K = K @ 1	21.41	na	24.51			
9	111.0	K = K @ 1	14.01	na	19.83			
10.1	111.0	K = K @ 1	17.24	na	21.99			
11	111.0	K = K @ 1	25.04	na	26.51			
12	111.0	K = K @ 1	7.95	na	14.94			
50	111.0		13.6	na				
51	111.0		26.25	na				
56	111.0		26.35	na				
57	111.0		26.47	na				
52	111.0		9.43	na				
53	111.0		26.81	na				
55	111.0		29.52	na				
58	111.0		33.65	na				
60	111.0		8.48	na				
300	110.417		45.05	na				
200	96.667		51.18	na				
100	84.667		56.54	na				
10	74.667		61.01	na				
TR1	74.667		62.17	na				
FF	68.667		67.83	na	100.0			
CITY	68.667		68.27	na				
TEST	35.0		83.05	na				

The maximum velocity is 27.85 and it occurs in the pipe between nodes 10.1 and 51

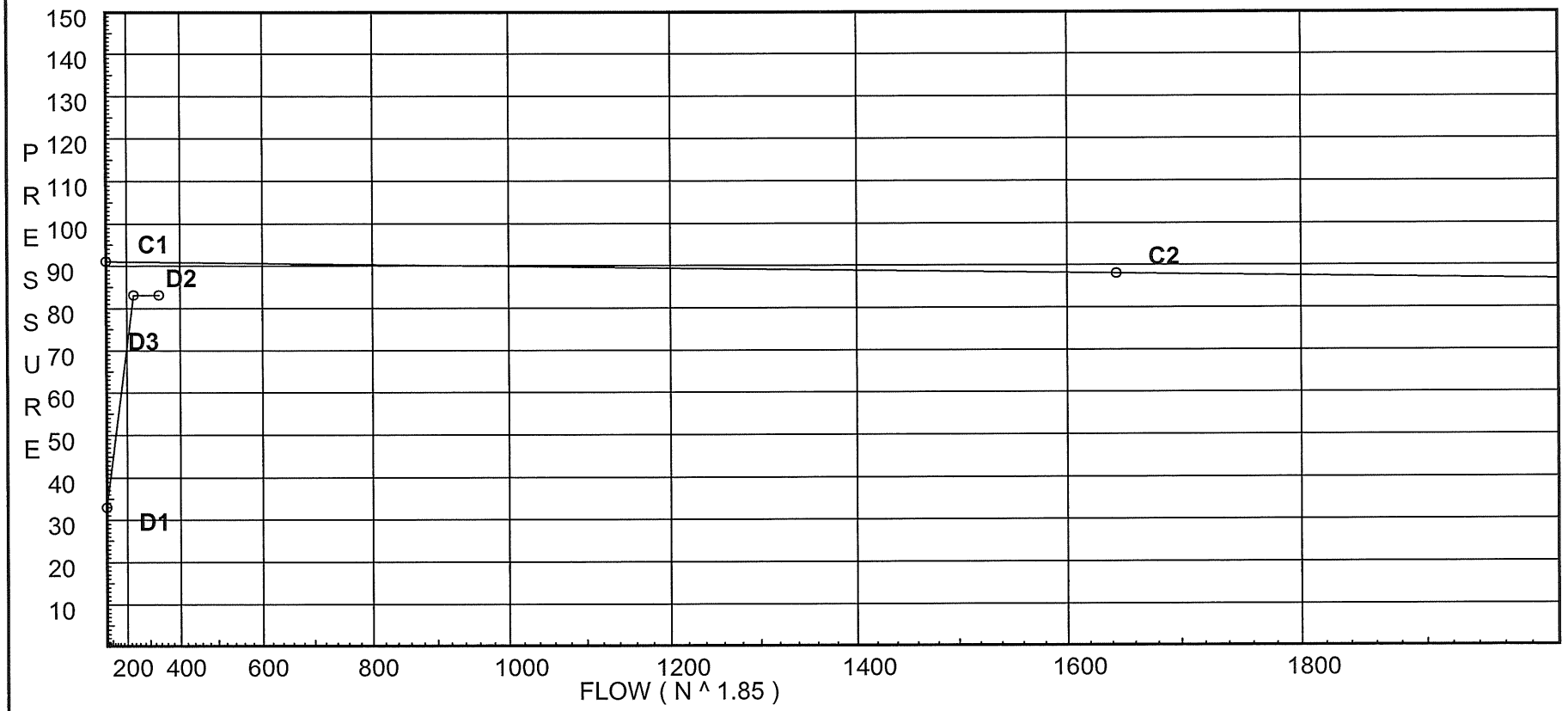
Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
1A	14.82	1.049	2T	10.0	1.000	7.000		K Factor = 5.60
to		120.0		0.0	10.000	0.0		
1	14.82	0.0747		0.0	11.000	0.822		Vel = 5.50
	0.0							
	14.82					7.822		K Factor = 5.30
1T	16.63	1.049		0.0	11.000	9.857		K Factor @ node 1
to		120.0		0.0	0.0	0.0		
2	16.63	0.0925		0.0	11.000	1.018		Vel = 6.17
2	17.47	1.049		0.0	7.800	10.875		K Factor @ node 1
to		120.0		0.0	0.0	0.0		
50	34.1	0.3492		0.0	7.800	2.724		Vel = 12.66
	0.0							
	34.10					13.599		K Factor = 9.25
3	18.94	1.049	1T	5.0	2.000	12.776		K Factor @ node 1
to		120.0		0.0	5.000	0.0		
50	18.94	0.1176		0.0	7.000	0.823		Vel = 7.03
	0.0							
	18.94					13.599		K Factor = 5.14
4	20.90	1.049		0.0	8.500	15.568		K Factor @ node 1
to		120.0		0.0	0.0	0.0		
5	20.9	0.1413		0.0	8.500	1.201		Vel = 7.76
5	21.70	1.049	1T	5.0	13.400	16.769		K Factor @ node 1
to		120.0		0.0	5.000	0.0		
57	42.6	0.5270		0.0	18.400	9.697		Vel = 15.81
	0.0							
	42.60					26.466		K Factor = 8.28
6	14.82	1.049	1E	2.0	6.800	7.822		K Factor @ node 1
to		120.0		0.0	2.000	0.0		
60	14.82	0.0747		0.0	8.800	0.657		Vel = 5.50
	0.0							
	14.82					8.479		K Factor = 5.09
7	15.75	1.049	1T	5.0	2.000	8.843		K Factor @ node 1
to		120.0		0.0	5.000	0.0		
52	15.75	0.0837		0.0	7.000	0.586		Vel = 5.85
	0.0							
	15.75					9.429		K Factor = 5.13
8	24.51	1.049	2E	4.0	33.800	21.407		K Factor @ node 1
to		120.0	1T	5.0	9.000	0.0		
55	24.51	0.1896		0.0	42.800	8.114		Vel = 9.10
	0.0							
	24.51					29.521		K Factor = 4.51

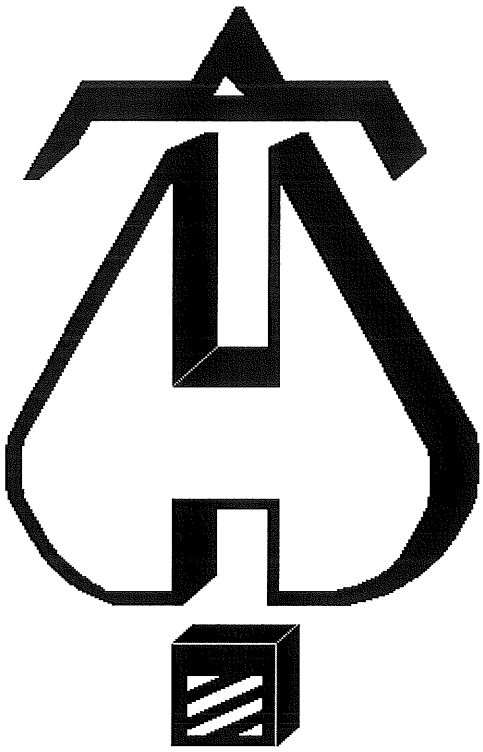
Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
9	65.34	1.049	1T	5.0	6.000	14.014		K Factor @ node 1
to		120.0		0.0	5.000	0.0		
53	65.34	1.1629		0.0	11.000	12.792		Vel = 24.26
	0.0							
	65.34					26.806		K Factor = 12.62
10.1	75.03	1.049	1T	5.0	1.000	17.236		K Factor @ node 1
to		120.0		0.0	5.000	0.0		
51	75.03	1.5020		0.0	6.000	9.012		Vel = 27.85
	0.0							
	75.03					26.248		K Factor = 14.64
11	26.51	1.049	1T	5.0	1.000	25.038		K Factor @ node 1
to		120.0		0.0	5.000	0.0		
56	26.51	0.2192		0.0	6.000	1.315		Vel = 9.84
	0.0							
	26.51					26.353		K Factor = 5.16
12	14.94	1.049	1T	5.0	2.000	7.948		K Factor @ node 1
to		120.0		0.0	5.000	0.0		
60	14.94	0.0759		0.0	7.000	0.531		Vel = 5.55
	0.0							
	14.94					8.479		K Factor = 5.13
50	53.04	1.049		0.0	4.600	13.599		
to		120.0		0.0	0.0	0.0		
10.1	53.04	0.7907		0.0	4.600	3.637		Vel = 19.69
	0.0							
	53.04					17.236		K Factor = 12.78
51	75.03	2.635		0.0	6.200	26.248		
to		120.0		0.0	0.0	0.0		
56	75.03	0.0169		0.0	6.200	0.105		Vel = 4.41
56	26.51	2.635		0.0	3.800	26.353		
to		120.0		0.0	0.0	0.0		
57	101.54	0.0297		0.0	3.800	0.113		Vel = 5.97
57	42.60	2.635		0.0	6.000	26.466		
to		120.0		0.0	0.0	0.0		
53	144.14	0.0567		0.0	6.000	0.340		Vel = 8.48
	0.0							
	144.14					26.806		K Factor = 27.84
52	45.51	1.049		0.0	7.700	9.429		
to		120.0		0.0	0.0	0.0		
9	45.51	0.5955		0.0	7.700	4.585		Vel = 16.89
	0.0							
	45.51					14.014		K Factor = 12.16

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
53	209.48	2.635		0.0	24.000	26.806		
to		120.0		0.0	0.0	0.0		
55	209.48	0.1131		0.0	24.000	2.715		Vel = 12.32
55	24.51	2.635	1E	8.237	21.500	29.521		
to		120.0		0.0	8.237	0.0		
58	233.99	0.1388		0.0	29.737	4.128		Vel = 13.77
58	0.0	2.635	1G	1.373	18.500	33.649		
to		120.0	1S	19.22	61.778	0.252		
300	233.99	0.1388	2T	32.948	80.278	11.145		Vel = 13.77
			1E	8.237				
	0.0							
	233.99					45.046		K Factor = 34.86
60	29.75	1.049		0.0	3.500	8.479		
to		120.0		0.0	0.0	0.0		
52	29.75	0.2714		0.0	3.500	0.950		Vel = 11.04
	0.0							
	29.75					9.429		K Factor = 9.69
300	233.99	4.26		0.0	13.750	45.046		
to		120.0		0.0	0.0	5.955		
200	233.99	0.0134		0.0	13.750	0.184		Vel = 5.27
200	0.0	4.26		0.0	12.000	51.185		
to		120.0		0.0	0.0	5.197		
100	233.99	0.0133		0.0	12.000	0.160		Vel = 5.27
100	0.0	4.26		0.0	10.000	56.542		
to		120.0		0.0	0.0	4.331		
10	233.99	0.0134		0.0	10.000	0.134		Vel = 5.27
10	0.0	4.26	4I	36.868	50.000	61.007		
to		120.0		0.0	36.868	0.0		
TR1	233.99	0.0134		0.0	86.868	1.163		Vel = 5.27
TR1	0.0	4.26	1Zac	0.0	6.000	62.170		
to		120.0	1E	13.167	13.167	5.403		* Fixed loss = 2.804
FF	233.99	0.0134		0.0	19.167	0.256		Vel = 5.27
FF	100.00	6.16	1E	20.084	70.000	67.829		Qa = 100
to		140.0	1T	43.037	67.425	0.0		
CITY	333.99	0.0032	1G	4.304	137.425	0.443		Vel = 3.60
CITY	0.0	8.27	1T	55.354	200.000	68.272		
to		140.0	1G	6.326	61.680	14.581		
TEST	333.99	0.0008		0.0	261.680	0.201		Vel = 1.99
	0.0							
	333.99					83.054		K Factor = 36.65

City Water Supply:
C1 - Static Pressure : 91
C2 - Residual Pressure: 88
C2 - Residual Flow : 1644

Demand:
D1 - Elevation : 32.916
D2 - System Flow : 233.987
D2 - System Pressure : 83.054
Hose (Demand) : 100
D3 - System Demand : 333.987
Safety Margin : 7.789





. . . Fire Protection by Computer Design

DEAN & ALLYN, INC.
PO BOX 709
116 LEWISTON ROAD
GRAY, MAINE 04039
207-657-5646

Job Name	:	ELM TERRACE PARKING GARAGE
Building	:	
Location	:	68 HIGH STREET PORTLAND MAINE
System	:	GAR.WX1
Contract	:	C121053
Data File	:	ELM PARKING GAR.WX1

Hydraulic Design Information Sheet

Name - ELM TERRACE-PARKING GARAGE
Location - 68 HIGH STREET PORTLAND MAINE
Building -
Contractor - DEAN AND ALLYN, INC.
Calculated By - H. KING
Construction: ( ) Combustible (X) Non-Combustible
Occupancy - PARKING GARAGE

Date - 6-7-12

System No. - GAR.WX1
Contract No. - C121053
Drawing No. - 1 OF 5
Ceiling Height - 8'

SYSTEM DESIGN

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

Specific Ruling	Made By	Date

Area of Sprinkler Operation	- 1950	System Type	Sprinkler/Nozzle
Density	- 0.15	( ) Wet	Make VIKING
Area Per Sprinkler	- 130	(X) Dry	Model MICROFAST
Elevation at Highest Outlet	- 75'	( ) Deluge	Size 1/2"
Hose Allowance - Inside	- 100	( ) Preaction	K-Factor 5.6
Rack Sprinkler Allowance	- 0	( ) Other	Temp.Rat.155
Hose Allowance - Outside	- 150		

Note 10.4 PSI CUSHION

Calculation Summary

Flow Required - 700.7 Press Required - 79.9 AT TEST
C-Factor Used: 100 Overhead 140 Underground

WATER SUPPLY

Water Flow Test:	Pump Data:	Tank or Reservoir:
Date of Test - 4-4-09		Cap. -
Time of Test -	Rated Cap.-	Elev.-
Static Press - 91	@ Press -	
Residual Press - 88	Elev. -	Well
Flow - 1644		Proof Flow
Elevation - 35		

Location - HIGH STREET

Source of Information -
PWD

COMMODITY STORAGE RACKAGE

Commodity Class Location
Storage Ht. Area Aisle W.
Storage Method: Solid Piled % Palletized % Rack

( ) Single Row	( ) Conven. Pallet	( ) Auto. Storage	( ) Encap.
( ) Double Row	( ) Slave Pallet	( ) Solid Shelf	( ) Non
( ) Mult. Row		( ) Open Shelf	

Flue Spacing Clearance:Storage to Ceiling
Longitudinal Transverse

Horizontal Barriers Provided:

Fitting Legend

Abbrev.	Name	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8	10	12	14	16	18	20	24
E	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
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

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.

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
1	75.0	5.6	14.81	na	21.55	0.15	130	7.0
2	75.0	5.6	16.21	na	22.55	0.15	130	7.0
3	75.0	5.6	14.9	na	21.62	0.15	130	7.0
4	75.0	5.6	16.31	na	22.62	0.15	130	7.0
5	75.0	5.6	12.62	na	19.9	0.15	130	7.0
6	75.0	5.6	14.25	na	21.14	0.15	130	7.0
7	75.0	5.6	15.55	na	22.08	0.15	130	7.0
8	75.0	5.6	13.54	na	20.6	0.15	130	7.0
9	75.0	5.6	15.27	na	21.88	0.15	130	7.0
10	75.0	5.6	16.66	na	22.86	0.15	130	7.0
11	75.0	5.6	12.13	na	19.5	0.15	130	7.0
12	75.0	5.6	14.21	na	21.11	0.15	130	7.0
13	75.0	5.6	15.09	na	21.75	0.15	130	7.0
14	75.0	5.6	12.27	na	19.61	0.15	130	7.0
15	75.0	5.6	14.38	na	21.23	0.15	130	7.0
17	75.0	5.6	16.18	na	22.53	0.15	130	7.0
18	75.0	5.6	12.93	na	20.14	0.15	130	7.0
19	75.0	5.6	14.63	na	21.42	0.15	130	7.0
20	75.0	5.6	17.52	na	23.44	0.15	130	7.0
21	75.0	5.6	14.01	na	20.96	0.15	130	7.0
22	75.0	5.6	15.84	na	22.29	0.15	130	7.0
75	75.0		17.54	na				
76	75.0		17.65	na				
77	75.0		18.08	na				
78	75.0		19.36	na				
79	75.0		17.98	na				
80	75.0		18.18	na				
81	75.0		18.76	na				
82	75.0		20.3	na				
83	75.0		30.73	na				
84	75.0		47.01	na				
TR1	74.667		55.24	na				
FF	68.667		62.81	na	250.0			
CITY	68.667		64.55	na				
TEST	35.0		79.92	na				

The maximum velocity is 17.33 and it occurs in the pipe between nodes 83 and 84

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
1	21.55	1.049	1T	3.568	9.500	14.809		K Factor = 5.60
to		100.0		0.0	3.568	0.0		
75	21.55	0.2094		0.0	13.068	2.736		Vel = 8.00
	0.0							
	21.55					17.545		K Factor = 5.14
2	22.55	1.049	1T	3.568	2.300	16.209		K Factor = 5.60
to		100.0		0.0	3.568	0.0		
75	22.55	0.2277		0.0	5.868	1.336		Vel = 8.37
	0.0							
	22.55					17.545		K Factor = 5.38
3	21.62	1.049	1T	3.568	9.500	14.901		K Factor = 5.60
to		100.0		0.0	3.568	0.0		
76	21.62	0.2105		0.0	13.068	2.751		Vel = 8.03
	0.0							
	21.62					17.652		K Factor = 5.15
4	22.62	1.049	1T	3.568	2.300	16.309		K Factor = 5.60
to		100.0		0.0	3.568	0.0		
76	22.62	0.2289		0.0	5.868	1.343		Vel = 8.40
	0.0							
	22.62					17.652		K Factor = 5.38
5	19.90	1.049		0.0	9.000	12.622		K Factor = 5.60
to		100.0		0.0	0.0	0.0		
6	19.9	0.1806		0.0	9.000	1.625		Vel = 7.39
6	21.13	1.049	1T	3.568	2.000	14.247		K Factor = 5.60
to		100.0		0.0	3.568	0.0		
77	41.03	0.6891		0.0	5.568	3.837		Vel = 15.23
	0.0							
	41.03					18.084		K Factor = 9.65
7	22.08	1.049	1T	3.568	8.000	15.550		K Factor = 5.60
to		100.0		0.0	3.568	0.0		
77	22.08	0.2191		0.0	11.568	2.534		Vel = 8.20
	0.0							
	22.08					18.084		K Factor = 5.19
8	20.60	1.049		0.0	9.000	13.536		K Factor = 5.60
to		100.0		0.0	0.0	0.0		
9	20.6	0.1926		0.0	9.000	1.733		Vel = 7.65
9	21.89	1.049	1T	3.568	2.000	15.269		K Factor = 5.60
to		100.0		0.0	3.568	0.0		
78	42.49	0.7349		0.0	5.568	4.092		Vel = 15.77
	0.0							
	42.49					19.361		K Factor = 9.66

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
10	22.86	1.049	1T	3.568	8.000	16.661		K Factor = 5.60
to		100.0		0.0	3.568	0.0		
78	22.86	0.2334		0.0	11.568	2.700		Vel = 8.49
	0.0							
	22.86					19.361		K Factor = 5.20
11	19.50	1.049		0.0	12.000	12.125		K Factor = 5.60
to		100.0		0.0	0.0	0.0		
12	19.5	0.1740		0.0	12.000	2.088		Vel = 7.24
12	21.11	1.049	1T	3.568	2.000	14.213		K Factor = 5.60
to		100.0		0.0	3.568	0.0		
79	40.61	0.6760		0.0	5.568	3.764		Vel = 15.08
	0.0							
	40.61					17.977		K Factor = 9.58
13	21.75	1.049	1T	3.568	10.000	15.088		K Factor = 5.60
to		100.0		0.0	3.568	0.0		
79	21.75	0.2129		0.0	13.568	2.889		Vel = 8.07
	0.0							
	21.75					17.977		K Factor = 5.13
14	19.61	1.049		0.0	12.000	12.268		K Factor = 5.60
to		100.0		0.0	0.0	0.0		
15	19.61	0.1758		0.0	12.000	2.110		Vel = 7.28
15	21.24	1.049	1T	3.568	2.000	14.378		K Factor = 5.60
to		100.0		0.0	3.568	0.0		
80	40.85	0.6834		0.0	5.568	3.805		Vel = 15.16
	0.0							
	40.85					18.183		K Factor = 9.58
17	22.53	1.049	1T	3.568	7.800	16.182		K Factor = 5.60
to		100.0		0.0	3.568	0.0		
81	22.53	0.2272		0.0	11.368	2.583		Vel = 8.36
	0.0							
	22.53					18.765		K Factor = 5.20
18	20.14	1.049		0.0	9.200	12.928		K Factor = 5.60
to		100.0		0.0	0.0	0.0		
19	20.14	0.1846		0.0	9.200	1.698		Vel = 7.48
19	21.41	1.049	1T	3.568	2.300	14.626		K Factor = 5.60
to		100.0		0.0	3.568	0.0		
81	41.55	0.7054		0.0	5.868	4.139		Vel = 15.42
	0.0							
	41.55					18.765		K Factor = 9.59
20	23.44	1.049	1T	3.568	7.800	17.521		K Factor = 5.60
to		100.0		0.0	3.568	0.0		
82	23.44	0.2445		0.0	11.368	2.780		Vel = 8.70

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							
	23.44					20.301		K Factor = 5.20
21	20.96	1.049		0.0	9.200	14.013		K Factor = 5.60
to		100.0		0.0	0.0	0.0		
22	20.96	0.1989		0.0	9.200	1.830		Vel = 7.78
22	22.29	1.049	1T	3.568	2.300	15.843		K Factor = 5.60
to		100.0		0.0	3.568	0.0		
82	43.25	0.7597		0.0	5.868	4.458		Vel = 16.06
	0.0							
	43.25					20.301		K Factor = 9.60
75	44.10	2.469		0.0	8.800	17.545		
to		100.0		0.0	0.0	0.0		
76	44.1	0.0122		0.0	8.800	0.107		Vel = 2.96
76	44.23	2.469		0.0	9.800	17.652		
to		100.0		0.0	0.0	0.0		
77	88.33	0.0441		0.0	9.800	0.432		Vel = 5.92
77	63.11	2.469		0.0	10.700	18.084		
to		100.0		0.0	0.0	0.0		
78	151.44	0.1193		0.0	10.700	1.277		Vel = 10.15
78	65.35	2.635	1E	5.879	49.700	19.361		
to		100.0	1T	11.758	17.636	0.0		
83	216.79	0.1689		0.0	67.336	11.372		Vel = 12.75
	0.0							
	216.79					30.733		K Factor = 39.11
79	62.36	2.469		0.0	8.900	17.977		
to		100.0		0.0	0.0	0.0		
80	62.36	0.0231		0.0	8.900	0.206		Vel = 4.18
80	40.85	2.469		0.0	9.900	18.183		
to		100.0		0.0	0.0	0.0		
81	103.21	0.0588		0.0	9.900	0.582		Vel = 6.92
81	64.08	2.469		0.0	10.700	18.765		
to		100.0		0.0	0.0	0.0		
82	167.29	0.1436		0.0	10.700	1.536		Vel = 11.21
82	66.69	2.635	1E	5.879	36.000	20.301		
to		100.0	1T	11.758	17.636	0.0		
83	233.98	0.1945		0.0	53.636	10.432		Vel = 13.77
83	216.79	3.26	3E	20.143	50.000	30.733		
to		100.0		0.0	20.143	0.0		
84	450.77	0.2321		0.0	70.143	16.277		Vel = 17.33
84	0.0	4.26	3E	28.192	100.000	47.010		
to		100.0		0.0	28.192	0.144		
TR1	450.77	0.0631		0.0	128.192	8.084		Vel = 10.15

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	******* Notes ******
TR1	0.0	4.26	1Zac	0.0	6.000	55.238		
to		120.0	1E	13.167	13.167	6.705		* Fixed loss = 4.106
FF	450.77	0.0450		0.0	19.167	0.862		Vel = 10.15
FF	250.00	6.16	1E	20.084	70.000	62.805		Qa = 250
to		140.0	1T	43.037	67.425	0.0		
CITY	700.77	0.0127	1G	4.304	137.425	1.746		Vel = 7.54
CITY	0.0	8.27	1T	55.354	200.000	64.551		
to		140.0	1G	6.326	61.680	14.581		
TEST	700.77	0.0030		0.0	261.680	0.792		Vel = 4.19
	0.0							
	700.77					79.924		K Factor = 78.39

Water Supply Curve (C)

DEAN & ALLYN, INC.
ELM TERRACE PARKING GARAGE

City Water Supply:
C1 - Static Pressure : 91
C2 - Residual Pressure: 88
C2 - Residual Flow : 1644

Demand:
D1 - Elevation : 17.324
D2 - System Flow : 450.772
D2 - System Pressure : 79.924
Hose (Demand) : 250
D3 - System Demand : 700.772
Safety Margin : 10.457