

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK



CITY OF PORTLAND BUILDING PERMIT

This is to certify that DEAN & ALLYN, INC.
of 116 Lewiston Rd. Gray, ME 04039

For installation at 91 AUBURN ST
Little Caesar's Pizza

Job ID: 2011-10-2436-CH OF USE

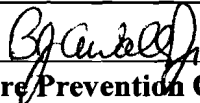
CBL: 375-C-001-001

has permission to renovate tenant sprinkler 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

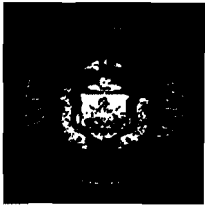

Fire Prevention Officer

(58)

Code Enforcement Officer / Plan Reviewer

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

SCANNED



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: 2011-10-2436-CH OF USE
Renovate tenant sprinkler system

For installation at:
91 AUBURN ST
Little Caesar's Pizza

CBL: 375- C-001-001

Conditions of Approval:

Fire

All work shall comply with NFPA 13.

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.

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

City of Portland, Maine - Building or Use Permit Application

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

Job No: 2011-10-2436-CH OF USE 2011-12908 FAFS	Date Applied: 11/07/2011	CBL: 375- C-001-001	
Location of Construction: 91 AUBURN ST	Owner Name: NORTHGATE SHOPPING CENTER	Owner Address: 5 MILITIA DR LEXINGTON, MA 02421	Phone:
Business Name: Little Caesar's Pizza	Contractor Name: Dean & Allyn, Inc.	Contractor Address: PO Box 709, Grau, ME 04039	Phone: (207) 657-5646
Lessee/Buyer's Name:	Phone:	Permit Type: FAFS	Zone: B-2
Past Use: Retail	Proposed Use: Same: Retail – to install fire suppression system	Cost of Work: \$7,000.00	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>B. G. [Signature]</i> (58)	Signature:
Proposed Project Description: Fire suppression system		Pedestrian Activities District (P.A.D.)	
Permit Taken By: Lannie		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: <i>08/19/11</i></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 checked="" 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: <i>[Signature]</i></p>
	CERTIFICATION		

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

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



Child
2408

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.

1011-1298

Installation address: 91 AUBURN ST. CBL: _____

Exact location: (within structure) LITTLE CAESARS PIZZA

Type of occupancy(s) (NFPA & ICC): RESTAURANT

Building owner: NORTHGATE SHOPPING CENTER

Managing Supervisor (RMS): DANA STEWART License No: 261

Supervisor phone: 207-657-5646 E-mail: DSTEWART@DEANANDALLEN.COM

Installing contractor: DEAN & ALLEN License No: 262

Contractor phone: 207-657-5646 E-mail: SAME AS ABOVE

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 7000

*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: <u>\$6,100</u>
PERMIT FEE: <u>\$700.90</u>
(\$10 PER \$1,000 + \$30 FOR THE FIRST \$1,000)
RECEIVED
NOV - 7 2011

11.5.11

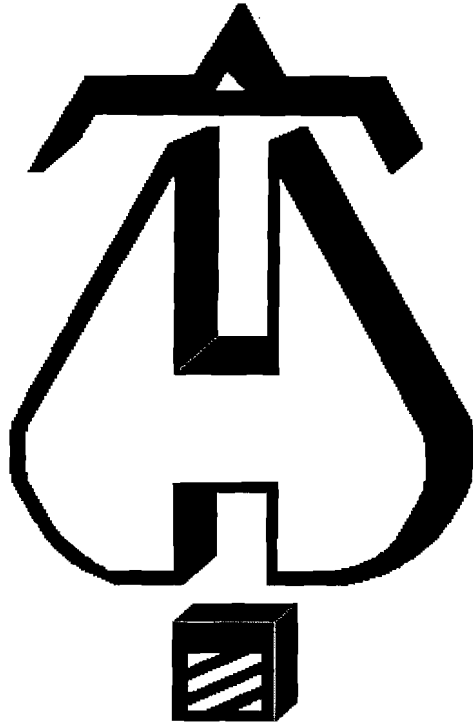
Submit all information to the Building Inspections Department, 389 Congress Street, Room 315, Portland, Maine 04101.

Prior to acceptance of any fire protection system, a complete commissioning and acceptance test must be coordinated with all fire system contractors and the Fire Department, and proper documentation of such test(s) provided.

All installation(s) must comply with NFPA and the Fire Department Technical Standard(s).

Applicant signature: [Signature] Date: 11/7/11

DEAN & ALLEN, INC.
PO BOX 709
GRAY ME. 04039



... Fire Protection by Computer Design

Dean & Allyn, Inc
116 Lewiston Road
Gray, ME 04039
207-657-5646

Job Name : Little Caesar Pizza
Drawing :
Location : 91 Auburn Street Portland Maine, 04103
Remote Area : 1
Contract : C111041
Data File : C111041.WX1

Hydraulic Design Information Sheet

Name - Little Caesars Pizza Date - 11/2/11
 Location - 91 Auburn Street Portland Maine, 04103
 Building - Contractor - Dean & Allyn, Inc. System No. - 1
 Calculated By - C. Stewart Contract No. - C111041
 Construction: () Combustible (X) Non-Combustible Drawing No. - 1 of 1
 Occupancy - Restaurant Ceiling Height - 10'-0"

S (X) NFPA 13 (X) 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	- 900	System Type	Sprinkler/Nozzle
	Density	- .10/.15	(X) Wet	Make Viking
D	Area Per Sprinkler	- 225/130	() Dry	Model Microfast
E	Elevation at Highest Outlet	- 10'-0"	() Deluge	Size 1/2"
S	Hose Allowance - Inside	-	() Preaction	K-Factor 5.6
I	Rack Sprinkler Allowance	-	() Other	Temp.Rat.155F
G	Hose Allowance - Outside	- 250		

Note *43.1 psi Safety Margin

Calculation Flow Required - 452.3 Press Required - 28.7
 Summary C-Factor Used: 120 Overhead 140 Underground

W	Water Flow Test:	Pump Data:	Tank or Reservoir:
A	Date of Test - 08/09/2003		Cap. -
T	Time of Test -	Rated Cap.-	Elev.-
E	Static Press - 72	@ Press -	
R	Residual Press - 71	Elev. -	Well
	Flow - 963		Proof Flow
S	Elevation - -6		

U Location - 91 Auburn Street
 P
 L Source of Information - Portland Water District
 Y

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

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

E Horizontal Barriers Provided:

Fittings Used Summary

Dean & Allyn, Inc
Little Caesar Pizza

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Date 11/2/11

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																					
Aty	Alarm Tyco AV-1							14			23			24	23							
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	1	1	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	

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

Dean & Allyn, Inc
Little Caesar Pizza

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Date 11/2/11

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Reg.
100A	10.0	5.6	7.17	na	15.0	0.1	150	7.0
100B	14.37		6.57	na				
101A	10.0	5.6	7.17	na	15.0	0.1	150	7.0
101B	14.37		6.48	na				
105A	10.0	5.6	7.17	na	15.0	0.1	150	7.0
105B	14.37		6.3	na				
106A	10.0	5.6	7.17	na	15.0	0.1	150	7.0
106B	14.37		6.55	na				
110A	9.0	5.6	7.0	na	14.82	0.15	80	7.0
110B	14.37		5.75	na				
114A	9.0	5.6	7.0	na	14.82	0.15	80	7.0
114B	14.37		5.75	na				
115A	9.0	5.6	7.91	na	15.75	0.15	105	7.0
115B	14.37		7.25	na				
119A	9.0	5.6	7.0	na	14.82	0.15	80	7.0
119B	12.83		6.49	na				
120A	9.0	5.6	7.0	na	14.82	0.15	80	7.0
120B	12.83		6.12	na				
121A	9.0	5.6	7.0	na	14.82	0.15	80	7.0
121B	12.83		5.89	na				
122A	9.0	5.6	7.0	na	14.82	0.15	80	7.0
122B	12.83		6.32	na				
100	14.37	K = K @ 100B	8.94	na	17.5			
101	14.37	K = K @ 101B	9.4	na	18.07			
102	14.37		15.56	na				
103	14.37		17.05	na				
104	14.37		18.45	na				
105	14.37	K = K @ 105B	8.41	na	17.32			
106	14.37	K = K @ 106B	9.49	na	18.06			
107	14.37		15.6	na				
108	14.37		17.07	na				
109	14.37		18.46	na				
110	14.37	K = K @ 110B	12.7	na	22.01			
111	14.37		17.54	na				
112	14.37		18.15	na				
113	14.37		18.44	na				
114	14.37	K = K @ 114B	9.48	na	19.03			
115	14.37	K = K @ 115B	10.38	na	18.84			
116	14.37		15.24	na				
117	14.37		16.91	na				
118	14.37		18.49	na				
119	12.83	K = K @ 119B	6.49	na	14.82			
120	12.83	K = K @ 120B	7.09	na	15.95			
121	12.83	K = K @ 121B	10.45	na	19.73			
15	12.83		11.19	na				
122	12.83	K = K @ 122B	12.71	na	21.0			
123	12.83		15.43	na				
16	12.83		19.57	na				
10	14.37		18.66	na				
11	14.37		18.67	na				
12	14.37		18.69	na				
13	14.37		18.72	na				
14	14.37		19.09	na				
TR	14.37		19.52	na				
BR	2.37		24.78	na				
1	-6.0		28.66	na				
TEST	-6.0		28.66	na	250.0			

The maximum velocity is 14.06 and it occurs in the pipe between nodes 115 and 116

Final Calculations - Hazen-Williams

Dean & Allyn, Inc
Little Caesar Pizza

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Date 11/2/11

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
100A	15.00	1.049	3E 6.0	10.830	7.175			K Factor = 5.60	
to		120.0	0.0	6.000	-1.893				
100B	15.0	0.0764	0.0	16.830	1.286			Vel = 5.57	
	0.0								
	15.00				6.568			K Factor = 5.85	
101A	15.00	1.049	2E 4.0	6.620	7.175			K Factor = 5.60	
to		120.0	1T 5.0	9.000	-1.893				
101B	15.0	0.0764	0.0	15.620	1.194			Vel = 5.57	
	0.0								
	15.00				6.476			K Factor = 5.89	
105A	15.00	1.049	3E 6.0	7.370	7.175			K Factor = 5.60	
to		120.0	0.0	6.000	-1.893				
105B	15.0	0.0764	0.0	13.370	1.022			Vel = 5.57	
	0.0								
	15.00				6.304			K Factor = 5.97	
106A	15.00	1.049	2E 4.0	7.580	7.175			K Factor = 5.60	
to		120.0	1T 5.0	9.000	-1.893				
106B	15.0	0.0764	0.0	16.580	1.267			Vel = 5.57	
	0.0								
	15.00				6.549			K Factor = 5.86	
110A	14.82	1.049	3E 6.0	8.460	7.000			K Factor = 5.60	
to		120.0	0.0	6.000	-2.326				
110B	14.82	0.0747	0.0	14.460	1.080			Vel = 5.50	
	0.0								
	14.82				5.754			K Factor = 6.18	
114A	14.82	1.049	3E 6.0	8.370	7.000			K Factor = 5.60	
to		120.0	0.0	6.000	-2.326				
114B	14.82	0.0747	0.0	14.370	1.074			Vel = 5.50	
	0.0								
	14.82				5.748			K Factor = 6.18	
115A	15.75	1.049	1E 2.0	7.960	7.910			K Factor = 5.60	
to		120.0	2T 10.0	12.000	-2.326				
115B	15.75	0.0837	0.0	19.960	1.670			Vel = 5.85	
	0.0								
	15.75				7.254			K Factor = 5.85	
119A	14.82	1.049	3E 6.0	9.370	7.000			K Factor = 5.60	
to		120.0	0.0	6.000	-1.659				
119B	14.82	0.0747	0.0	15.370	1.148			Vel = 5.50	
	0.0								
	14.82				6.489			K Factor = 5.82	
120A	14.82	1.049	1T 5.0	5.370	7.000			K Factor = 5.60	
to		120.0	0.0	5.000	-1.659				
120B	14.82	0.0747	0.0	10.370	0.775			Vel = 5.50	
	0.0								
	14.82				6.116			K Factor = 5.99	
121A	14.82	1.049	1E 2.0	5.370	7.000			K Factor = 5.60	
to		120.0	0.0	2.000	-1.659				
121B	14.82	0.0748	0.0	7.370	0.551			Vel = 5.50	

Final Calculations - Hazen-Williams

Dean & Allyn, Inc
Little Caesar Pizza

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Date 11/2/11

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 14.82					5.892			K Factor = 6.11	
122A to 122B	14.82	1.049 120.0	1E 1T	2.0 5.0	6.160 7.000	7.000 -1.659			K Factor = 5.60	
	14.82	0.0747		0.0	13.160	0.983			Vel = 5.50	
	0.0 14.82					6.324			K Factor = 5.89	
100 to 101	17.50 17.5	1.049 120.0		0.0 0.0	4.500 0.0	8.938 0.0			K Factor @ node 100B	
	17.5	0.1016		0.0	4.500	0.457			Vel = 6.50	
101 to 102	18.07 35.57	1.049 120.0		0.0 0.0	16.330 0.0	9.395 0.0			K Factor @ node 101B	
	35.57	0.3775		0.0	16.330	6.164			Vel = 13.20	
102 to 103	0.0 35.57	1.38 120.0		0.0 0.0	15.000 0.0	15.559 0.0				
	35.57	0.0993		0.0	15.000	1.489			Vel = 7.63	
103 to 104	0.0 35.57	1.61 120.0		0.0 0.0	30.000 0.0	17.048 0.0				
	35.57	0.0469		0.0	30.000	1.406			Vel = 5.61	
104 to 10	0.0 35.57	2.067 120.0	1T	10.0 0.0	5.160 10.000	18.454 0.0				
	35.57	0.0139		0.0	15.160	0.211			Vel = 3.40	
	0.0 35.57					18.665			K Factor = 8.23	
105 to 106	17.32 17.32	1.049 120.0		0.0 0.0	10.870 0.0	8.407 0.0			K Factor @ node 105B	
	17.32	0.0997		0.0	10.870	1.084			Vel = 6.43	
106 to 107	18.06 35.38	1.049 120.0		0.0 0.0	16.330 0.0	9.491 0.0			K Factor @ node 106B	
	35.38	0.3738		0.0	16.330	6.104			Vel = 13.13	
107 to 108	0.0 35.38	1.38 120.0		0.0 0.0	15.000 0.0	15.595 0.0				
	35.38	0.0983		0.0	15.000	1.475			Vel = 7.59	
108 to 109	0.0 35.38	1.61 120.0		0.0 0.0	30.000 0.0	17.070 0.0				
	35.38	0.0464		0.0	30.000	1.392			Vel = 5.58	
109 to 11	0.0 35.38	2.067 120.0	1T	10.0 0.0	5.160 10.000	18.462 0.0				
	35.38	0.0138		0.0	15.160	0.209			Vel = 3.38	
	0.0 35.38					18.671			K Factor = 8.19	
110 to 111	22.01 22.01	1.049 120.0		0.0 0.0	31.160 0.0	12.697 0.0			K Factor @ node 110B	
	22.01	0.1553		0.0	31.160	4.839			Vel = 8.17	
111 to 112	0.0 22.01	1.38 120.0		0.0 0.0	15.000 0.0	17.536 0.0				
	22.01	0.0409		0.0	15.000	0.613			Vel = 4.72	

Final Calculations - Hazen-Williams

Dean & Allyn, Inc
Little Caesar Pizza

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Date 11/2/11

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
112	0.0	1.61		15.000	18.149				
to		120.0		0.0	0.0				
113	22.01	0.0193		15.000	0.290		Vel = 3.47		
113	0.0	1.61	1T	8.0	5.160	18.439			
to		120.0		0.0	8.000	0.0			
12	22.01	0.0192		13.160	0.253		Vel = 3.47		
	0.0								
	22.01				18.692		K Factor = 5.09		
114	19.03	1.049		7.580	9.479		K Factor @ node 114B		
to		120.0		0.0	0.0				
115	19.03	0.1187		7.580	0.900		Vel = 7.06		
115	18.84	1.049		11.460	10.379		K Factor @ node 115B		
to		120.0		0.0	0.0				
116	37.87	0.4238		11.460	4.857		Vel = 14.06		
116	0.0	1.38		15.000	15.236				
to		120.0		0.0	0.0				
117	37.87	0.1115		15.000	1.673		Vel = 8.12		
117	0.0	1.61		30.000	16.909				
to		120.0		0.0	0.0				
118	37.87	0.0526		30.000	1.578		Vel = 5.97		
118	0.0	2.067	1T	10.0	5.160	18.487			
to		120.0		0.0	10.000	0.0			
13	37.87	0.0156		15.160	0.237		Vel = 3.62		
	0.0								
	37.87				18.724		K Factor = 8.75		
119	14.82	1.049		8.000	6.489		K Factor @ node 119B		
to		120.0		0.0	0.0				
120	14.82	0.0748		8.000	0.598		Vel = 5.50		
120	15.95	1.049	1T	5.0	9.200	7.087	K Factor @ node 120B		
to		120.0		0.0	5.000	0.0			
15	30.77	0.2887		14.200	4.099		Vel = 11.42		
	0.0								
	30.77				11.186		K Factor = 9.20		
121	19.73	1.049	1T	5.0	0.790	10.451	K Factor @ node 121B		
to		120.0		0.0	5.000	0.0			
15	19.73	0.1269		5.790	0.735		Vel = 7.32		
15	30.77	1.38		8.000	11.186				
to		120.0		0.0	0.0				
122	50.5	0.1899		8.000	1.519		Vel = 10.83		
122	21.00	1.61		16.000	12.705		K Factor @ node 122B		
to		120.0		0.0	0.0				
123	71.5	0.1706		16.000	2.729		Vel = 11.27		
123	0.0	2.067	2E	10.0	61.920	15.434			
to		120.0	1T	10.0	20.000	0.0			
16	71.5	0.0505		81.920	4.138		Vel = 6.84		
16	0.0	4.026	1T	20.0	71.670	19.572			
to		120.0		0.0	20.000	-0.667			
14	71.5	0.0020		91.670	0.180		Vel = 1.80		

Final Calculations - Hazen-Williams

Dean & Allyn, Inc
Little Caesar Pizza

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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 71.50					19.085			K Factor = 16.37	
10 to 11	35.57	4.026 120.0		0.0	11.160 0.0	18.665 0.0				
11 to 12	35.57	0.0005 4.026 120.0		0.0	11.160 0.0	0.006 0.0			Vel = 0.90	
11 to 12	35.37	4.026 120.0		0.0	11.160 0.0	18.671 0.0				
12 to 13	70.94	0.0019 4.026 120.0		0.0	11.160 0.0	0.021 0.0			Vel = 1.79	
12 to 13	22.01	4.026 120.0		0.0	9.830 0.0	18.692 0.0				
13 to 14	92.95	0.0033 4.026 120.0		0.0	9.830 0.0	0.032 0.0			Vel = 2.34	
13 to 14	37.87	4.026 120.0		0.0	60.160 0.0	18.724 0.0				
14 to TR	130.82	0.0060 4.026 120.0		0.0	60.160 0.0	0.361 0.0			Vel = 3.30	
14 to TR	71.50	4.026 120.0	1T	20.0	12.000 20.000	19.085 0.0				
TR to BR	202.32	0.0135 6.065 120.0		0.0	32.000 24.0 27.000	0.431 19.516 5.197			Vel = 5.10	
TR to BR	0.0	6.065 120.0	1Aty 1G	24.0 3.0	12.000 27.000	19.516 5.197				
BR to 1	202.32	0.0018 6.16 140.0		0.0	39.000 43.037 43.037	0.071 24.784 3.625			Vel = 2.25	
BR to 1	0.0	6.16 140.0	1T	43.037	150.000 43.037	24.784 3.625				
1 to TEST	202.32	0.0013 12.34 140.0		0.0	193.037 200.000 0.0	0.247 28.656 0.0			Vel = 2.18	
1 to TEST	0.0	12.34 140.0		0.0	200.000 0.0	28.656 0.0				
TEST	202.32	0.0		0.0	200.000	0.008			Vel = 0.54	
	250.00 452.32					28.664			Qa = 250.00 K Factor = 84.48	

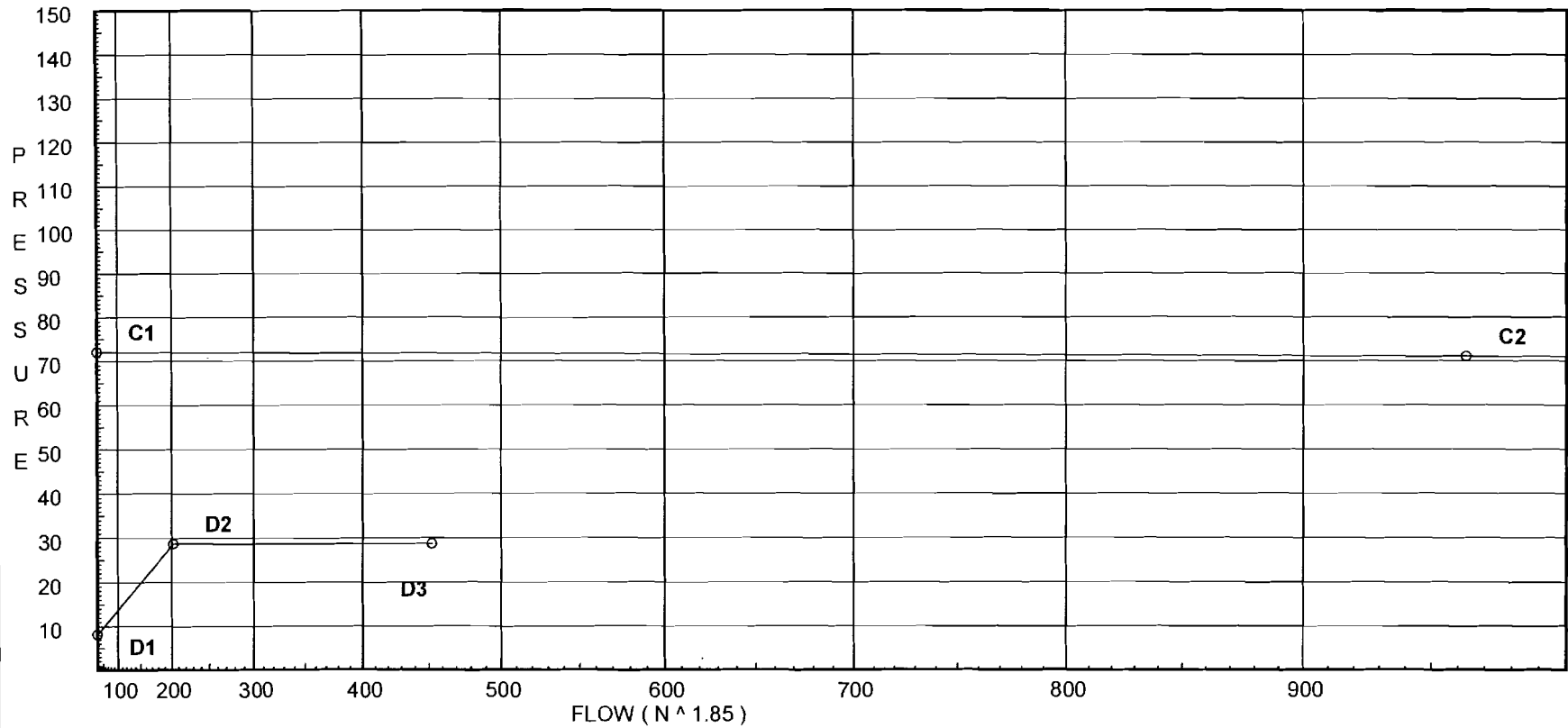
Water Supply Curve (C)

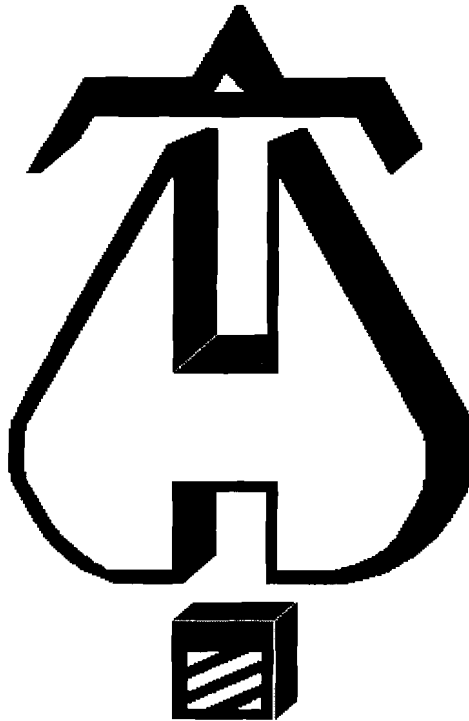
Dean & Allyn, Inc
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City Water Supply:
C1 - Static Pressure : 72
C2 - Residual Pressure: 71
C2 - Residual Flow : 963

Demand:
D1 - Elevation : 8.155
D2 - System Flow : 202.317
D2 - System Pressure : 28.664
Hose (Demand) : 250
D3 - System Demand : 452.317
Safety Margin : 43.088





... Fire Protection by Computer Design

Dean & Allyn, Inc
116 Lewiston Road
Gray, ME 04039
207-657-5646

Job Name : Little Caesar Pizza
Drawing :
Location : 91 Auburn Street Portland Maine, 04103
Remote Area : 1
Contract : C111041
Data File : C111041.WX1

Hydraulic Design Information Sheet

Name - Little Caesars Pizza Date - 11/2/11
 Location - 91 Auburn Street Portland Maine, 04103
 Building - System No. - 1
 Contractor - Dean & Allyn, Inc. Contract No. - C111041
 Calculated By - C. Stewart Drawing No. - 1 of 1
 Construction: () Combustible (X) Non-Combustible Ceiling Height - 10'-0"
 Occupancy - Restaurant

S (X) NFPA 13 (X) 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

E
 M Area of Sprinkler Operation - 900 System Type Sprinkler/Nozzle
 Density - .10/.15 (X) Wet Make Viking
 D Area Per Sprinkler - 225/130 () Dry Model Microfast
 E Elevation at Highest Outlet - 10'-0" () Deluge Size 1/2"
 S Hose Allowance - Inside - () Preaction K-Factor 5.6
 I Rack Sprinkler Allowance - () Other Temp.Rat.155F
 G Hose Allowance - Outside - 250

N Note *43.1 psi Safety Margin

Calculation Flow Required - 452.3 Press Required - 28.7
 Summary C-Factor Used: 120 Overhead 140 Underground

W Water Flow Test: Pump Data: Tank or Reservoir:
 A Date of Test - 08/09/2003 Cap. -
 T Time of Test - Rated Cap.- Elev.-
 E Static Press - 72 @ Press -
 R Residual Press - 71 Elev. - Well
 Flow - 963 Proof Flow
 S Elevation - -6

U
 P Location - 91 Auburn Street

P
 L Source of Information - Portland Water District

Y

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

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

G
 E Horizontal Barriers Provided:

Fittings Used Summary

Dean & Allyn, Inc
Little Caesar Pizza

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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																					
Aty	Alarm Tyco AV-1							14			23			24	23							
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	1	1	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	

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

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Little Caesar Pizza

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Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
100A	10.0	5.6	7.17	na	15.0	0.1	150	7.0
100B	14.37		6.57	na				
101A	10.0	5.6	7.17	na	15.0	0.1	150	7.0
101B	14.37		6.48	na				
105A	10.0	5.6	7.17	na	15.0	0.1	150	7.0
105B	14.37		6.3	na				
106A	10.0	5.6	7.17	na	15.0	0.1	150	7.0
106B	14.37		6.55	na				
110A	9.0	5.6	7.0	na	14.82	0.15	80	7.0
110B	14.37		5.75	na				
114A	9.0	5.6	7.0	na	14.82	0.15	80	7.0
114B	14.37		5.75	na				
115A	9.0	5.6	7.91	na	15.75	0.15	105	7.0
115B	14.37		7.25	na				
119A	9.0	5.6	7.0	na	14.82	0.15	80	7.0
119B	12.83		6.49	na				
120A	9.0	5.6	7.0	na	14.82	0.15	80	7.0
120B	12.83		6.12	na				
121A	9.0	5.6	7.0	na	14.82	0.15	80	7.0
121B	12.83		5.89	na				
122A	9.0	5.6	7.0	na	14.82	0.15	80	7.0
122B	12.83		6.32	na				
100	14.37	K = K @ 100B	8.94	na	17.5			
101	14.37	K = K @ 101B	9.4	na	18.07			
102	14.37		15.56	na				
103	14.37		17.05	na				
104	14.37		18.45	na				
105	14.37	K = K @ 105B	8.41	na	17.32			
106	14.37	K = K @ 106B	9.49	na	18.06			
107	14.37		15.6	na				
108	14.37		17.07	na				
109	14.37		18.46	na				
110	14.37	K = K @ 110B	12.7	na	22.01			
111	14.37		17.54	na				
112	14.37		18.15	na				
113	14.37		18.44	na				
114	14.37	K = K @ 114B	9.48	na	19.03			
115	14.37	K = K @ 115B	10.38	na	18.84			
116	14.37		15.24	na				
117	14.37		16.91	na				
118	14.37		18.49	na				
119	12.83	K = K @ 119B	6.49	na	14.82			
120	12.83	K = K @ 120B	7.09	na	15.95			
121	12.83	K = K @ 121B	10.45	na	19.73			
15	12.83		11.19	na				
122	12.83	K = K @ 122B	12.71	na	21.0			
123	12.83		15.43	na				
16	12.83		19.57	na				
10	14.37		18.66	na				
11	14.37		18.67	na				
12	14.37		18.69	na				
13	14.37		18.72	na				
14	14.37		19.09	na				
TR	14.37		19.52	na				
BR	2.37		24.78	na				
1	-6.0		28.66	na				
TEST	-6.0		28.66	na	250.0			

The maximum velocity is 14.06 and it occurs in the pipe between nodes 115 and 116

Final Calculations - Hazen-Williams

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Little Caesar Pizza

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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	*****
100A	15.00	1.049	3E	6.0	10.830	7.175			K Factor = 5.60	
to		120.0		0.0	6.000	-1.893				
100B	15.0	0.0764		0.0	16.830	1.286			Vel = 5.57	
	0.0									
	15.00					6.568			K Factor = 5.85	
101A	15.00	1.049	2E	4.0	6.620	7.175			K Factor = 5.60	
to		120.0	1T	5.0	9.000	-1.893				
101B	15.0	0.0764		0.0	15.620	1.194			Vel = 5.57	
	0.0									
	15.00					6.476			K Factor = 5.89	
105A	15.00	1.049	3E	6.0	7.370	7.175			K Factor = 5.60	
to		120.0		0.0	6.000	-1.893				
105B	15.0	0.0764		0.0	13.370	1.022			Vel = 5.57	
	0.0									
	15.00					6.304			K Factor = 5.97	
106A	15.00	1.049	2E	4.0	7.580	7.175			K Factor = 5.60	
to		120.0	1T	5.0	9.000	-1.893				
106B	15.0	0.0764		0.0	16.580	1.267			Vel = 5.57	
	0.0									
	15.00					6.549			K Factor = 5.86	
110A	14.82	1.049	3E	6.0	8.460	7.000			K Factor = 5.60	
to		120.0		0.0	6.000	-2.326				
110B	14.82	0.0747		0.0	14.460	1.080			Vel = 5.50	
	0.0									
	14.82					5.754			K Factor = 6.18	
114A	14.82	1.049	3E	6.0	8.370	7.000			K Factor = 5.60	
to		120.0		0.0	6.000	-2.326				
114B	14.82	0.0747		0.0	14.370	1.074			Vel = 5.50	
	0.0									
	14.82					5.748			K Factor = 6.18	
115A	15.75	1.049	1E	2.0	7.960	7.910			K Factor = 5.60	
to		120.0	2T	10.0	12.000	-2.326				
115B	15.75	0.0837		0.0	19.960	1.670			Vel = 5.85	
	0.0									
	15.75					7.254			K Factor = 5.85	
119A	14.82	1.049	3E	6.0	9.370	7.000			K Factor = 5.60	
to		120.0		0.0	6.000	-1.659				
119B	14.82	0.0747		0.0	15.370	1.148			Vel = 5.50	
	0.0									
	14.82					6.489			K Factor = 5.82	
120A	14.82	1.049	1T	5.0	5.370	7.000			K Factor = 5.60	
to		120.0		0.0	5.000	-1.659				
120B	14.82	0.0747		0.0	10.370	0.775			Vel = 5.50	
	0.0									
	14.82					6.116			K Factor = 5.99	
121A	14.82	1.049	1E	2.0	5.370	7.000			K Factor = 5.60	
to		120.0		0.0	2.000	-1.659				
121B	14.82	0.0748		0.0	7.370	0.551			Vel = 5.50	

Final Calculations - Hazen-Williams

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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 14.82								
122A to 122B	14.82	1.049 120.0	1E 2.0 1T 5.0	6.160 7.000	7.000 -1.659			K Factor = 6.11 K Factor = 5.60	
	14.82	0.0747	0.0	13.160	0.983			Vel = 5.50	
	0.0 14.82								
100 to 101	17.50 17.5	1.049 120.0	0.0 0.0	4.500 0.0	8.938 0.0			K Factor @ node 100B	
	17.5	0.1016	0.0	4.500	0.457			Vel = 6.50	
101 to 102	18.07 35.57	1.049 120.0	0.0 0.0	16.330 0.0	9.395 0.0			K Factor @ node 101B	
	35.57	0.3775	0.0	16.330	6.164			Vel = 13.20	
102 to 103	0.0 35.57	1.38 120.0	0.0 0.0	15.000 0.0	15.559 0.0				
	35.57	0.0993	0.0	15.000	1.489			Vel = 7.63	
103 to 104	0.0 35.57	1.61 120.0	0.0 0.0	30.000 0.0	17.048 0.0				
	35.57	0.0469	0.0	30.000	1.406			Vel = 5.61	
104 to 10	0.0 35.57	2.067 120.0	1T 10.0 0.0	5.160 10.000	18.454 0.0				
	35.57	0.0139	0.0	15.160	0.211			Vel = 3.40	
	0.0 35.57								
105 to 106	17.32 17.32	1.049 120.0	0.0 0.0	10.870 0.0	8.407 0.0			K Factor = 8.23	
	17.32	0.0997	0.0	10.870	1.084			Vel = 6.43	
106 to 107	18.06 35.38	1.049 120.0	0.0 0.0	16.330 0.0	9.491 0.0			K Factor @ node 106B	
	35.38	0.3738	0.0	16.330	6.104			Vel = 13.13	
107 to 108	0.0 35.38	1.38 120.0	0.0 0.0	15.000 0.0	15.595 0.0				
	35.38	0.0983	0.0	15.000	1.475			Vel = 7.59	
108 to 109	0.0 35.38	1.61 120.0	0.0 0.0	30.000 0.0	17.070 0.0				
	35.38	0.0464	0.0	30.000	1.392			Vel = 5.58	
109 to 11	0.0 35.38	2.067 120.0	1T 10.0 0.0	5.160 10.000	18.462 0.0				
	35.38	0.0138	0.0	15.160	0.209			Vel = 3.38	
	0.0 35.38								
110 to 111	22.01 22.01	1.049 120.0	0.0 0.0	31.160 0.0	12.697 0.0			K Factor = 8.19	
	22.01	0.1553	0.0	31.160	4.839			Vel = 8.17	
111 to 112	0.0 22.01	1.38 120.0	0.0 0.0	15.000 0.0	17.536 0.0				
	22.01	0.0409	0.0	15.000	0.613			Vel = 4.72	

Final Calculations - Hazen-Williams

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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	*****
112	0.0	1.61		0.0	15.000	18.149				
to		120.0		0.0	0.0	0.0				
113	22.01	0.0193		0.0	15.000	0.290		Vel =	3.47	
113	0.0	1.61	1T	8.0	5.160	18.439				
to		120.0		0.0	8.000	0.0				
12	22.01	0.0192		0.0	13.160	0.253		Vel =	3.47	
	0.0									
	22.01					18.692		K Factor =	5.09	
114	19.03	1.049		0.0	7.580	9.479		K Factor @	node 114B	
to		120.0		0.0	0.0	0.0				
115	19.03	0.1187		0.0	7.580	0.900		Vel =	7.06	
115	18.84	1.049		0.0	11.460	10.379		K Factor @	node 115B	
to		120.0		0.0	0.0	0.0				
116	37.87	0.4238		0.0	11.460	4.857		Vel =	14.06	
116	0.0	1.38		0.0	15.000	15.236				
to		120.0		0.0	0.0	0.0				
117	37.87	0.1115		0.0	15.000	1.673		Vel =	8.12	
117	0.0	1.61		0.0	30.000	16.909				
to		120.0		0.0	0.0	0.0				
118	37.87	0.0526		0.0	30.000	1.578		Vel =	5.97	
118	0.0	2.067	1T	10.0	5.160	18.487				
to		120.0		0.0	10.000	0.0				
13	37.87	0.0156		0.0	15.160	0.237		Vel =	3.62	
	0.0									
	37.87					18.724		K Factor =	8.75	
119	14.82	1.049		0.0	8.000	6.489		K Factor @	node 119B	
to		120.0		0.0	0.0	0.0				
120	14.82	0.0748		0.0	8.000	0.598		Vel =	5.50	
120	15.95	1.049	1T	5.0	9.200	7.087		K Factor @	node 120B	
to		120.0		0.0	5.000	0.0				
15	30.77	0.2887		0.0	14.200	4.099		Vel =	11.42	
	0.0									
	30.77					11.186		K Factor =	9.20	
121	19.73	1.049	1T	5.0	0.790	10.451		K Factor @	node 121B	
to		120.0		0.0	5.000	0.0				
15	19.73	0.1269		0.0	5.790	0.735		Vel =	7.32	
15	30.77	1.38		0.0	8.000	11.186				
to		120.0		0.0	0.0	0.0				
122	50.5	0.1899		0.0	8.000	1.519		Vel =	10.83	
122	21.00	1.61		0.0	16.000	12.705		K Factor @	node 122B	
to		120.0		0.0	0.0	0.0				
123	71.5	0.1706		0.0	16.000	2.729		Vel =	11.27	
123	0.0	2.067	2E	10.0	61.920	15.434				
to		120.0	1T	10.0	20.000	0.0				
16	71.5	0.0505		0.0	81.920	4.138		Vel =	6.84	
16	0.0	4.026	1T	20.0	71.670	19.572				
to		120.0		0.0	20.000	-0.667				
14	71.5	0.0020		0.0	91.670	0.180		Vel =	1.80	

Final Calculations - Hazen-Williams

Dean & Allyn, Inc
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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 71.50					19.085			K Factor = 16.37	
10 to 11	35.57	4.026 120.0		0.0	11.160 0.0	18.665 0.0			Vel = 0.90	
11 to 12	35.37	4.026 120.0		0.0	11.160 0.0	18.671 0.0			Vel = 1.79	
12 to 13	70.94	0.0019		0.0	11.160	0.021			Vel = 2.34	
12 to 13	22.01	4.026 120.0		0.0	9.830 0.0	18.692 0.0			Vel = 2.34	
13 to 14	92.95	0.0033		0.0	9.830	0.032			Vel = 3.30	
13 to 14	37.87	4.026 120.0		0.0	60.160 0.0	18.724 0.0			Vel = 3.30	
14 to TR	130.82	0.0060		0.0	60.160	0.361			Vel = 5.10	
14 to TR	71.50	4.026 120.0	1T	20.0	12.000 20.000	19.085 0.0			Vel = 5.10	
TR to BR	202.32	0.0135		0.0	32.000	0.431			Vel = 2.25	
TR to BR	0.0	6.065 120.0	1Aty 1G	24.0 3.0	12.000 27.000	19.516 5.197			Vel = 2.25	
BR to 1	202.32	0.0018		0.0	39.000	0.071			Vel = 2.18	
BR to 1	0.0	6.16 140.0	1T	43.037	150.000 43.037	24.784 3.625			Vel = 2.18	
1 to TEST	202.32	0.0013		0.0	193.037	0.247			Vel = 2.18	
1 to TEST	0.0	12.34 140.0		0.0	200.000 0.0	28.656 0.0			Vel = 0.54	
TEST	202.32	0.0		0.0	200.000	0.008			Vel = 0.54	
	250.00 452.32					28.664			Qa = 250.00 K Factor = 84.48	

Water Supply Curve (C)

Dean & Allyn, Inc
Little Caesar Pizza

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