

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK



# CITY OF PORTLAND

# BUILDING PERMIT

This is to certify that  
GELINAS HVAC & PLUMBING  
2 WASHINGTON AVE  
SCARBOROUGH, ME 04074

For installation at  
47 LAFAYETTE ST

Job ID: 2012-06-4179-FAFS

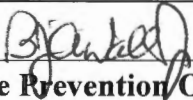
CBL: 014- C-007-001

has permission to install NFPA 13D 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

  
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

## BUILDING PERMIT INSPECTION PROCEDURES

Please call 874-8703 or 874-8693 (ONLY)

or email: [buildinginspections@portlandmaine.gov](mailto:buildinginspections@portlandmaine.gov)

With the issuance of this permit, the owner, builder or their designee is required to provide adequate notice to the city of Portland Inspections Services for the following inspections. Appointments must be requested 48 to 72 hours in advance of the required inspection. The inspection date will need to be confirmed by this office.

- **Please read the conditions of approval that is attached to this permit!! Contact this office if you have any questions.**
- **Permits expire in 6 months. If the project is not started or ceases for 6 months.**
- **If the inspection requirements are not followed as stated below additional fees may be incurred due to the issuance of a "Stop Work Order" and subsequent release to continue.**

### **Final Fire**

The project cannot move to the next phase prior to the required inspection and approval to continue, REGARDLESS OF THE NOTICE OF CIRCUMSTANCES.

IF THE PERMIT REQUIRES A CERTIFICATE OF OCCUPANCY, IT MUST BE PAID FOR AND ISSUED TO THE OWNER OR DESIGNEE BEFORE THE SPACE MAY BE OCCUPIED.



# PORTLAND MAINE

*Strengthening a Remarkable City, Building a Community for Life • [www.portlandmaine.gov](http://www.portlandmaine.gov)*

Director of Planning and Urban Development  
Jeff Levine

Job ID: 2012-06-4179-FAFS  
install NFPA 13D sprinkler system

For installation at:  
47 LAFAYETTE ST

CBL: 014- C-007-001

## Conditions of Approval:

### **Fire**

Installation shall be in accordance with the City of Portland Fire Department Regulations and NFPA 13D.

**A copy of the State Sprinkler permit with RMS date and signature shall be provided prior to scheduling of the final inspection.**

All control valves shall be supervised in accordance with NFPA 13D. Pad locks shall only be installed on valves designed to be secured in the open position by pad lock.

**City of Portland, Maine - Building or Use Permit Application**

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

Job No: 2012-06-4179-FAFS	Date Applied: 6/7/2012	CBL: 014-C-007-001	
Location of Construction: 47 LAFAYETTE ST	Owner Name: JOSH WOJCIK	Owner Address: 49 LAFAYETTE ST PORTLAND, ME 04101	Phone: 749-9656
Business Name:	Contractor Name: William W Gelinas	Contractor Address: 2 WASHINGTON AVE SCARBOROUGH MAINE 04074	Phone: (207) 885-0771
Lessee/Buyer's Name:	Phone:	Permit Type: SPRINKLER	Zone: R-6
Past Use: Two family dwelling	Proposed Use: Same: two family dwelling – to install a fire suppression system	Cost of Work: \$13,000.00	CEO District:
		Fire Dept: 10/22/12 <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: Fire Alarm Sprinkler; 2 family; no fee required.		Pedestrian Activities District (P.A.D.)	
Permit Taken By: Brad		<b>Zoning Approval</b>	

<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><b>Special Zone or Reviews</b></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><input type="checkbox"/> Maj <input type="checkbox"/> Min <input type="checkbox"/> MM</p> <p>Date: <i>06/08/12</i></p>	<p><b>Zoning Appeal</b></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><b>Historic Preservation</b></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>
	<b>CERTIFICATION</b>		

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

Entered 5/7/12 (81)

# One- or Two-family Fire Sprinkler 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: 47 49 LAFAYETTE 014 007

Building owner: JOSH WOJCIK Phone: (207) 749-9656

Installer: GELDNER PLUMBING Phone: 885/0771 749-7490

Total sq/ft of building floor space per unit: \_\_\_\_\_  Single-family home  
or  
Sq/ft of sprinklered floor space per unit: See Attached  Two-family home

Is this a multipurpose piping system?  Y / N Sprinkler piping uses Pex?  Y / N

Water supply:  Municipal Water  Well pump  Stored water  Other

Include electronic copy of approved State Sprinkler Permit plans:

Additional cost to the owner for the home fire sprinkler system for each dwelling unit minus costs necessary for domestic needs (See below): **A=** \_\_\_\_\_

Attach cost breakdown:  A City plumbing permit has been pulled:

COST OF WORK: <u>13,000.00</u> (A times number of units)
<b>NO FEE REQUIRED</b>

RECEIVED  
JUN 07 2012  
Dept. of Building Inspections  
City of Portland Maine

Additional information and Frequently asked questions about home fire sprinkler systems may be found at [www.portlandmaine.gov/fireprevention](http://www.portlandmaine.gov/fireprevention).

Sprinkler system cost must deduct costs that would have been incurred if the system did not provide sprinkler service. In a well pump system it would include the difference between the well pump to be installed and the one that would have been installed if there were no sprinkler demand on the system. Includes additional piping and valves that are required only because of NFPA Standard 13D, and not already required for domestic needs. Includes cost of sprinkler heads and additional installation costs.



... Fire Protection by Computer Design

FIRE PROTECTION DESIGNS  
PO BOX 472  
AUBURN, ME 04212-0472  
207-440-0676

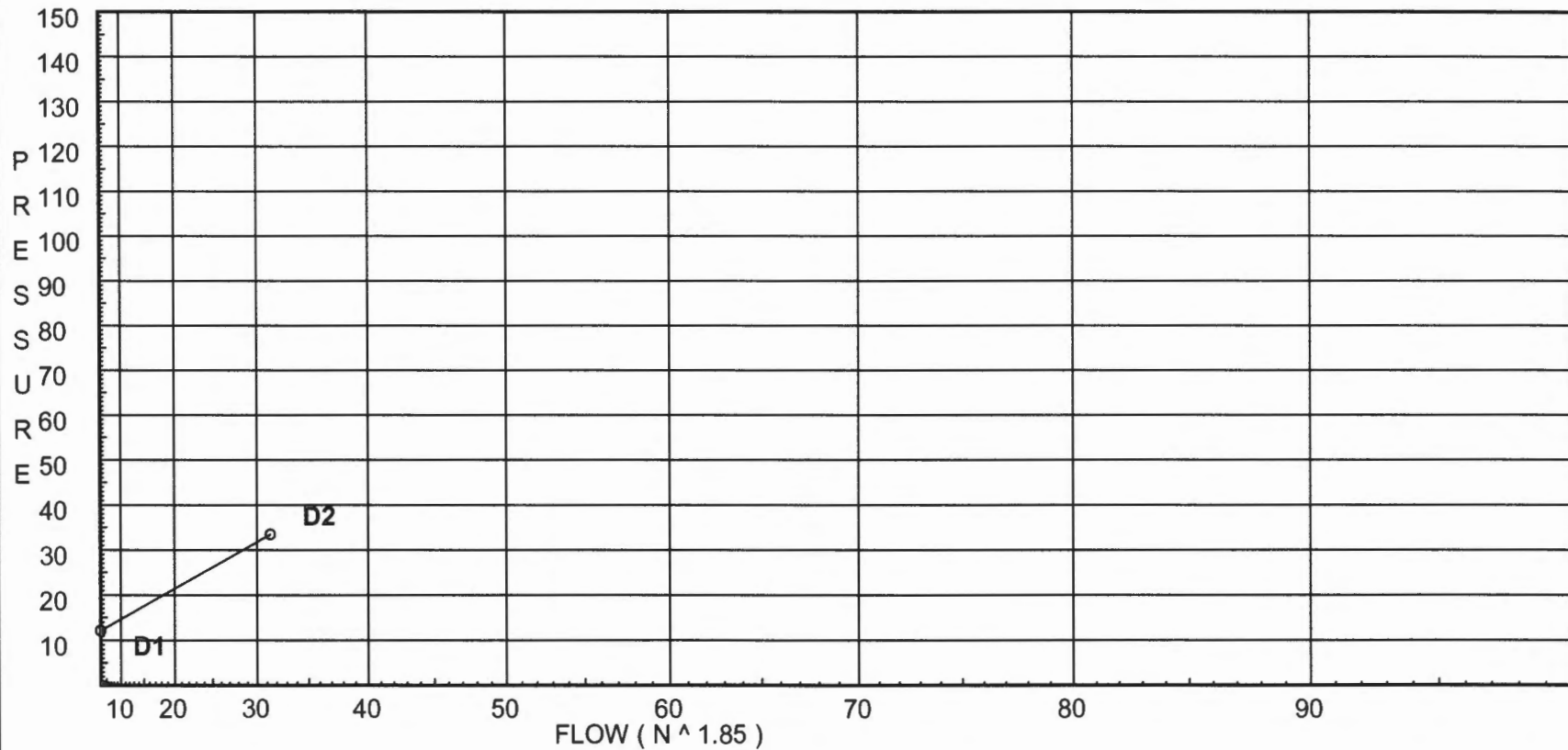
Job Name : Lafayette Street 2nd floor  
Building :  
Location :  
System :  
Contract :  
Data File : 2ND FLOOR.WXF

Water Supply Curve (C)

FIRE PROTECTION DESIGNS  
Lafayette Street 2nd floor

Page 1  
Date 5/31/12

Demand:  
D1 - Elevation : 12.127  
D2 - System Flow : 31.3461  
D2 - System Pressure : 33.432  
Hose ( Adj City ) : \_\_\_\_\_  
Hose ( Demand ) : \_\_\_\_\_  
D3 - System Demand : 31.3461  
Safety Margin : \_\_\_\_\_



## Fittings Used Summary

FIRE PROTECTION DESIGNS  
Lafayette Street 2nd floor

Page 2  
Date 5/31/12

### 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	
Bt	Ball Vic 728 Thrd	0	0	0.5	1	1.7	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0
Pe *	RF PEX 90' Ell	1	4	4	2	2.5	3.5	4	5	6	7	9	10	0	0	0	0	0	0	0
Pr *	RF PEX Tee-Run	0.5	3	1	1	1	1.5	1.5	2	2	2.5	3	0	0	0	0	0	0	0	0
Pt *	RF PEX Tee-Branch	1.5	13	4	3	3.5	5	6	7.5	9	10.5	13	15	0	0	0	0	0	0	0
S	Generic Swing Check Valve	4	5	5	7	9	11	14	16	19	22	27	32	45	55	65	76	87	98	109

### 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

FIRE PROTECTION DESIGNS  
Lafayette Street 2nd floor

Page 3  
Date 5/31/12

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
200	27.0	4	11.09	na	13.32	0.05	256	10.6
201	24.0		12.96	na				
202	24.0		13.37	na				
205	29.0	4	10.6	na	13.02	0.05	256	10.6
206	24.0		13.4	na				
210	24.0		16.97	na				
110	15.0		21.09	na				
111	15.0		21.32	na				
207	24.0		15.18	na				
105	15.0		20.07	na				
10	7.0		24.82	na				
15	7.0		25.0	na				
11	7.0		27.11	na				
TOR	7.0		28.74	na				
BOR	1.0		33.43	na	5.0			

The maximum velocity is 10.76 and it occurs in the pipe between nodes 11 and TOR

Final Calculations - Hazen-Williams

FIRE PROTECTION DESIGNS  
Lafayette Street 2nd floor

Page 4  
Date 5/31/12

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	***** Notes *****
200 to 201	13.32	1.0 150.0	2Pe 8.0 0.0	3.000 8.000	11.094 1.299		K Factor = 4.00 Vel = 5.44
201 to 202	13.32	0.0513 1.0 150.0	0.0 1Pt 4.0 0.0	11.000 4.000 4.000	0.564 12.957 0.0		Vel = 5.44
202 to 206	13.32	0.0512 1.0 150.0	0.0 1Pr 1.0 0.0	8.000 2.200 1.000	0.410 13.367 0.0		Vel = 5.44
	5.97	0.0116 0.0 5.97	0.0	3.200	0.037		Vel = 2.44
					13.404		K Factor = 1.63
205 to 206	13.02	1.0 150.0	1Pe 4.0 1Pt 4.0	5.000 8.000	10.600 2.166		K Factor = 4.00
	13.02	0.0491	0.0	13.000	0.638		Vel = 5.32
206 to 207	5.97	1.0 150.0	2Pt 8.0 0.0	10.000 8.000	13.404 0.0		Vel = 7.76
	18.99	0.0988	0.0	18.000	1.779		Vel = 7.76
	0.0 18.99				15.183		K Factor = 4.87
202 to 210	7.35	0.75 150.0	4Pr 12.0 1Pe 4.0	36.000 16.000	13.367 0.0		Vel = 5.34
210 to 110	7.35	0.0693 1.0 150.0	0.0 1Pt 4.0 0.0	52.000 9.000 4.000	3.606 16.973 3.898		Vel = 3.00
110 to 111	7.35	0.0171 1.0 150.0	0.0 1Pt 4.0 1Pr 1.0	13.000 8.000 5.000	0.222 21.093 0.0		Vel = 3.00
111 to 15	7.35	0.0171 1.0 150.0	0.0 1Pt 4.0 0.0	13.000 9.000 4.000	0.222 21.315 3.465		Vel = 3.00
	0.0 7.35				25.002		K Factor = 1.47
207 to 105	18.99	1.0 150.0	1Pr 1.0 0.0	9.000 1.000	15.183 3.898		Vel = 7.76
105 to 10	18.99	0.0987 1.0 150.0	0.0 1Pt 4.0 0.0	10.000 9.000 4.000	0.987 20.068 3.465		Vel = 7.76
10 to 11	18.99	0.0988 1.0 150.0	0.0 1Pt 4.0 2Pr 2.0	13.000 30.000 6.000	1.284 24.817 0.0		Vel = 7.76
	14.97	0.0636	0.0	36.000	2.290		Vel = 6.12

Final Calculations - Hazen-Williams

FIRE PROTECTION DESIGNS  
Lafayette Street 2nd floor

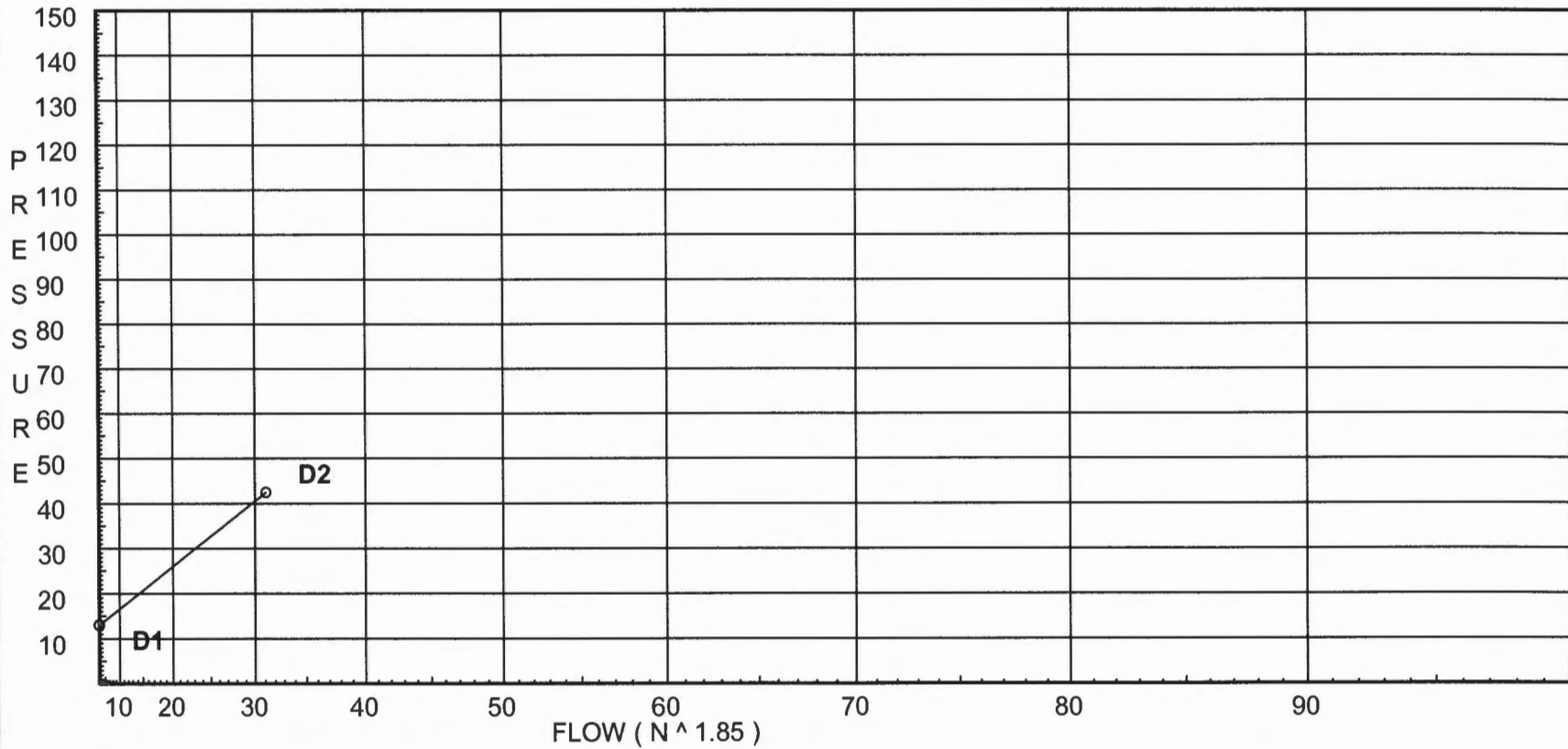
Page 5  
Date 5/31/12

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 14.97				27.107		K Factor = 2.88
10 to 15	4.02 4.02	1.0 150.0 0.0056	1Pr 1.0 0.0 0.0	32.000 1.000 33.000	24.817 0.0 0.185		Vel = 1.64
15 to 11	7.36 11.38	1.0 150.0 0.0383	1Pt 4.0 4Pr 4.0 0.0	47.000 8.000 55.000	25.002 0.0 2.105		Vel = 4.65
11 to TOR	14.97 26.35	1.0 150.0 0.1810	1Pe 4.0 0.0 0.0	5.000 4.000 9.000	27.107 0.0 1.629		Vel = 10.76
TOR to BOR	0.0 26.35	1.0 150.0 0.1810	1Bt 0.599 1S 5.985 0.0	5.000 6.584 11.584	28.736 2.599 2.097		Vel = 10.76
	5.00 31.35				33.432		Qa = 5.00 K Factor = 5.42

Water Supply Curve (C)

FIRE PROTECTION DESIGNS  
Lafayette Street 3rd floor

Demand:	
D1 - Elevation	: 12.993
D2 - System Flow	: 31.1211
D2 - System Pressure	: 42.409
Hose ( Adj City )	: _____
Hose ( Demand )	: _____
D3 - System Demand	: 31.1211
Safety Margin	: _____



# Fittings Used Summary

FIRE PROTECTION DESIGNS  
Lafayette Street 3rd floor

Page 2  
Date 5/31/12

Fitting Legend  
Abbrev. Name  
24

		½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8	10	12	14	16	18	20	
Bt	Ball Vic 728 Thrd	0	0	0.5	1	1.7	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pe *	RF PEX 90° Ell	1	4	4	2	2.5	3.5	4	5	6	7	9	10	0	0	0	0	0	0	0	0
Pr *	RF PEX Tee-Run	0.5	3	1	1	1	1.5	1.5	2	2	2.5	3	0	0	0	0	0	0	0	0	0
Pt *	RF PEX Tee-Branch	1.5	13	4	3	3.5	5	6	7.5	9	10.5	13	15	0	0	0	0	0	0	0	0
S	Generic Swing Check Valve	4	5	5	7	9	11	14	16	19	22	27	32	45	55	65	76	87	98	109	

## 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

FIRE PROTECTION DESIGNS  
Lafayette Street 3rd floor

Page 3  
Date 5/31/12

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
300	31.0	4.9	7.0	na	12.96	0.05	256	7.0
301	31.0	4.9	7.21	na	13.16	0.05	256	7.0
303	31.0		14.42	na				
302	31.0		17.23	na				
207	24.0		22.05	na				
105	15.0		27.73	na				
10	7.0		33.51	na				
15	7.0		34.5	na				
11	7.0		36.14	na				
TOR	7.0		37.75	na				
BOR	1.0		42.41	na	5.0			

The maximum velocity is 11.53 and it occurs in the pipe between nodes 301 and 302

Final Calculations - Hazen-Williams

FIRE PROTECTION DESIGNS  
Lafayette Street 3rd floor

Page 4  
Date 5/31/12

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	***** Notes *****
300 to 301	2.72	0.75 150.0	1Pr 3.0 0.0	16.000 3.000	7.000 0.0		K Factor = 4.90 Vel = 1.98
301 to 302	13.16	0.75 150.0	2Pr 6.0 1Pt 13.0	15.800 19.000	7.210 0.0		K Factor = 4.90 Vel = 11.53
	0.0 15.88	0.2880	0.0	34.800	10.023		K Factor = 3.83
300 to 303	10.24	0.75 150.0	2Pr 6.0 1Pt 13.0	39.000 19.000	7.000 0.0		Vel = 7.44
303 to 302	0.0	0.75 150.0	1Pr 3.0 1Pt 13.0	6.000 16.000	14.419 0.0		Vel = 7.44
302 to 207	15.88	1.0 150.0	1Pr 1.0 0.0	9.000 1.000	17.233 3.032		Vel = 10.67
207 to 105	0.0	1.0 150.0	1Pr 1.0 0.0	9.000 1.000	22.046 3.898		Vel = 10.67
105 to 10	0.0	1.0 150.0	1Pt 4.0 0.0	9.000 4.000	27.726 3.465		Vel = 10.67
10 to 11	-9.96	1.0 150.0	2Pr 2.0 1Pt 4.0	30.000 6.000	33.506 0.0		Vel = 6.60
	0.0 16.16	0.0732	0.0	36.000	2.637		K Factor = 2.69
10 to 15	9.97	1.0 150.0	1Pr 1.0 0.0	32.000 1.000	33.506 0.0		Vel = 4.07
15 to 11	0.0	1.0 150.0	4Pr 4.0 1Pt 4.0	47.000 8.000	34.495 0.0		Vel = 4.07
11 to TOR	16.15	1.0 150.0	1Pe 4.0 0.0	5.000 4.000	36.143 0.0		Vel = 10.67
TOR to BOR	0.0	1.0 150.0	1Bt 0.599 1S 5.985	5.000 6.584	37.746 2.599		Vel = 10.67
	26.12	0.1781	0.0	9.000	1.603		

Final Calculations - Hazen-Williams

FIRE PROTECTION DESIGNS  
Lafayette Street 3rd floor

Page 5  
Date 5/31/12

Hyd. Ref. Point	Qa  Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	***** Notes *****
	5.00 31.12				42.409		Qa = 5.00 K Factor = 4.78



**VIKING****TECHNICAL DATA****FREEDOM® RESIDENTIAL  
PENDENT SPRINKLER  
VK468 (K4.9)**

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

**1. DESCRIPTION**

Viking Freedom® Residential Pendent Sprinkler VK468 is a small, thermosensitive, glass-bulb residential sprinkler available in several different finishes and temperature ratings to meet varying design requirements. The orifice design, with a K-Factor of 4.9 (70.6 metric†), allows efficient use of available water supplies for the hydraulically designed fire-protection system. The glass bulb operating element and special deflector characteristics meet the challenges of residential sprinkler standards.

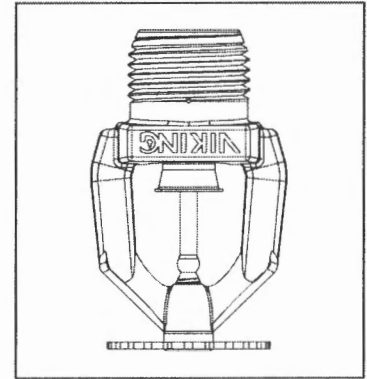
**2. LISTINGS AND APPROVALS**

cULus Listed: Category VKKW

NYC Approved: MEA 89-92-E, Volume 35

NSF Certified: NSF/ANSI Standard 61, Drinking Water System Components

Refer to the Approval Chart on page 149o and Design Criteria on page 149r for cULus Listing requirements that must be followed.

**3. TECHNICAL DATA****Specifications:**

Available since 2006.

Minimum Operating Pressure: Refer to the Approval Chart.

Maximum Working Pressure: 175 psi (12 bar). Factory tested hydrostatically to 500 psi (34.5 bar).

Thread size: 1/2" (15 mm) NPT

Nominal K-Factor: 4.9 U.S. (70.6 metric†)

†Metric K-factor measurement shown is in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.

Glass-bulb fluid temperature rated to -65 °F (-55 °C)

Overall Length: 2-1/4" (58 mm)

**Material Standards:**

Frame Casting: Brass UNS-C84400 or QM Brass

Deflector: Brass UNS-C23000, Phosphor Bronze UNS-C51000, or Brass UNS-C26000

Bulb: Glass, nominal 3 mm diameter

Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with Teflon Tape

Pip Cap and Insert Assembly: Copper UNS-C11000 and Stainless Steel UNS-S30400

Compression Screw: Brass UNS-C36000

**Ordering Information:** (Also refer to the current Viking price list.)**Sprinkler:** Base Part No. 13637

Order Sprinkler VK468 by first adding the appropriate suffix for the sprinkler finish and then the appropriate suffix for the temperature rating to the sprinkler base part number.

Finish Suffix: Brass = A, Chrome-Enloy® = F, and White Polyester = M-W

Temperature Suffix: 155 °F (68 °C) = B, 175 °F (79 °C) = D

For example, sprinkler VK468 with a Brass finish and a 155 °F (68 °C) temperature rating = Part No. 13637AB.

**Available Finishes And Temperature Ratings:**

Refer to Table 1.

**Accessories:** (Also refer to the "Sprinkler Accessories" section of the Viking data book.)**Sprinkler Wrenches:**

A. Standard Wrench: Part No. 10896W/B (available since 2000)

B. Wrench for recessed sprinklers: Part No. 13577W/B\* (available since 2006)

C. Optional Protective Sprinkler Cap Remover/Escutcheon Installer Tool\*\* Part No. 15915 (available since 2010.)

\*A 1/2" ratchet is required (not available from Viking).

\*\*Allows use from the floor by attaching a length of 1" diameter CPVC tubing to the tool. Ideal for sprinkler cabinets. Refer to Bulletin F\_051808.

Viking Technical Data may be found on  
The Viking Corporation's Web site at  
<http://www.vikinggroupinc.com>.  
The Web site may include a more recent  
edition of this Technical Data Page.

	<b>TECHNICAL DATA</b>	<b>FREEDOM® RESIDENTIAL PENDENT SPRINKLER VK468 (K4.9)</b>
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**The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058**  
**Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com**

**Sprinkler Cabinets:**

- A. Six-head capacity: Part No. 01724A (available since 1971)
- B. Twelve-head capacity: Part No. 01725A (available since 1971)

**4. INSTALLATION**

Refer to appropriate NFPA Installation Standards. For NFPA 13D horizontal ceiling criteria and slopes, refer to TIA 1028R for slope ceiling criteria exceptions.

**5. OPERATION**

During fire conditions, the heat-sensitive liquid in the glass bulb expands, causing the glass to shatter, releasing the pip cap and sealing spring assembly. Water flowing through the sprinkler orifice strikes the sprinkler deflector, forming a uniform spray pattern to extinguish or control the fire.

**6. INSPECTIONS, TESTS AND MAINTENANCE**

Refer to NFPA 25 for Inspection, Testing and Maintenance requirements.

**7. AVAILABILITY**

The Viking Model VK468 Sprinkler is available through a network of domestic and international distributors. See The Viking Corporation web site for the closest distributor or contact The Viking Corporation.

**8. GUARANTEE**

For details of warranty, refer to Viking's current list price schedule or contact Viking directly.

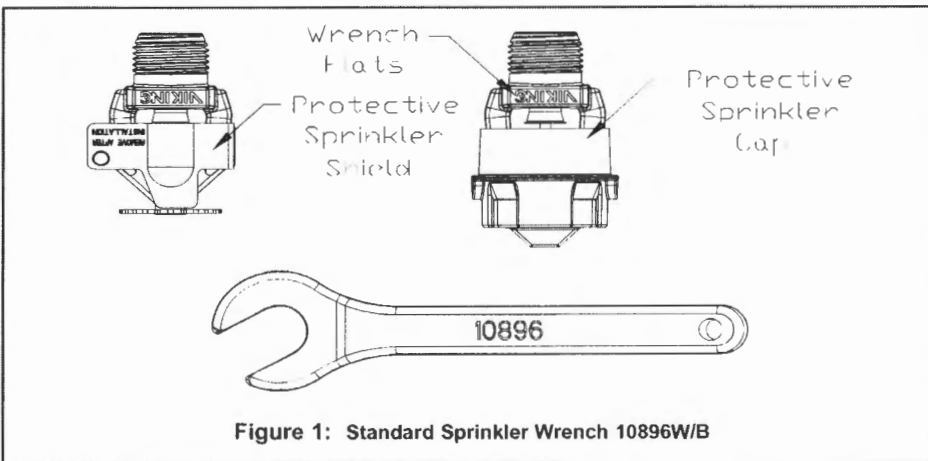
TABLE 1: AVAILABLE SPRINKLER TEMPERATURE RATINGS AND FINISHES			
Sprinkler Temperature Classification	Sprinkler Nominal Temperature Rating <sup>1</sup>	Maximum Ambient Ceiling Temperature <sup>2</sup>	Bulb Color
Ordinary	155 °F (68 °C)	100 °F (38 °C)	Red
Intermediate	175 °F (79 °C)	150 °F (65 °C)	Yellow

**Sprinkler Finishes:** Brass, Chrome-Enloy® (patents pending), and White Polyester

**Footnotes**

<sup>1</sup> The sprinkler temperature rating is stamped on the deflector.

<sup>2</sup> Based on NFPA-13. Other limits may apply, depending on fire loading, sprinkler location, and other requirements of the Authority Having Jurisdiction. Refer to specific installation standards.



	<b>TECHNICAL DATA</b>	<b>FREEDOM® RESIDENTIAL PENDENT SPRINKLER VK468 (K4.9)</b>
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The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058  
 Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

<b>Approval Chart</b> Residential Pendent Sprinkler VK468 For systems designed to NFPA 13D <sup>11</sup> or NFPA 13R. For systems designed to NFPA 13, refer to the design criteria on page 149r.	<table border="1" style="border-collapse: collapse;"> <tr> <td style="font-size: small;">Temperature</td> <td style="font-size: small;">KEY</td> </tr> <tr> <td style="font-size: small;">Finish</td> <td></td> </tr> <tr> <td style="font-size: small;">A1X ← Escutcheon (if applicable)</td> <td></td> </tr> </table>	Temperature	KEY	Finish		A1X ← Escutcheon (if applicable)	
Temperature	KEY						
Finish							
A1X ← Escutcheon (if applicable)							

Sprinkler Base Part Number <sup>1</sup>	SIN	NPT Thread Size		Nominal K-Factor		Maximum Water Working Pressure	Overall Length	
		Inches	mm	U.S.	metric <sup>2</sup>		Inches	mm
13637	VK468	1/2	15	4.9	70.6	175 psi (12 bar)	2-1/4	58

Maximum Areas of Coverage <sup>4</sup>	Minimum Water Supply Requirements <sup>4</sup>	Listings and Approvals <sup>3</sup> (Refer also to Design Criteria on page 149r.)		
		cULus <sup>5</sup>	NYC <sup>6</sup>	NSF <sup>6</sup>

<b>Installed below smooth, flat, horizontal ceilings, including ceilings with slopes up to and including 2/12 (9.5°).</b>				
12 ft. x 12 ft. (3.7 m x 3.7 m)	13 gpm @ 7.0 psi (49.2 L/min @ 0.48 bar)	A1X	A1X	A1X
14 ft. x 14 ft. (4.3 m x 4.3 m)	13 gpm @ 7.0 psi (49.2 L/min @ 0.48 bar)	A1X	A1X	A1X
16 ft. x 16 ft. (4.9 m x 4.9 m)	13 gpm @ 7.0 psi (49.2 L/min @ 0.48 bar)	A1X	A1X	A1X
18 ft. x 18 ft. (5.5 m x 5.5 m)	17 gpm @ 12.0 psi (64.4 L/min @ 0.83 bar)	A1X	A1X	A1X
20 ft. x 20 ft. (6.1 m x 6.1 m)	20 gpm @ 16.7 psi (75.7 L/min @ 1.15 bar)	A1X	A1X	A1X

<b>Installed below horizontal ceilings with beams<sup>9</sup>.</b>				
12 ft. x 12 ft. (3.7 m x 3.7 m)	13 gpm @ 7.0 psi (49.2 L/min @ 0.48 bar)	B1X	B1X	B1X
14 ft. x 14 ft. (4.3 m x 4.3 m)	13 gpm @ 7.0 psi (49.2 L/min @ 0.48 bar)	B1X	B1X	B1X
16 ft. x 16 ft. (4.9 m x 4.9 m)	13 gpm @ 7.0 psi (49.2 L/min @ 0.48 bar)	B1X	B1X	B1X
18 ft. x 18 ft. (5.5 m x 5.5 m)	17 gpm @ 12.0 psi (64.4 L/min @ 0.83 bar)	B1X	B1X	B1X
20 ft. x 20 ft. (6.1 m x 6.1 m)	20 gpm @ 16.7 psi (75.7 L/min @ 1.15 bar)	B1X	B1X	B1X

<b>Installed below ceilings with slopes<sup>11</sup> up to and including a 8/12 (33.7°) pitch. Refer to Figure 5 on page 149q.</b>				
		<b>UL</b>	<b>NYC</b>	<b>NSF<sup>6</sup></b>
20 ft. x 20 ft. (6.1 m x 6.1 m)	21 gpm @ 18.4 psi (79.5 L/min @ 1.27 bar)	B1X	See Footnote 7.	B1X
20 ft. x 20 ft. (6.1 m x 6.1 m)	23 gpm @ 22.0 psi (83.4 L/min @ 1.52 bar)	C1X	See Footnote 7.	C1X

<b>Approved Temperature Ratings</b> A - 155 °F (68 °C) and 175 °F (79 °C) B - 155 °F (68 °C) C - 175 °F (79 °C)	<b>Approved Finishes</b> 1 - Brass, Chrome-Enloy®, White, and Black <sup>12</sup>	<b>Approved Escutcheons</b> X - Standard surface-mounted escutcheons or the Microfast <sup>®</sup> Model F-1 Adjustable Escutcheon, or recessed with the Micromatic <sup>®</sup> Model E-1 or E-2 Recessed Escutcheon
--	--	--

**Footnotes**

<sup>1</sup> Part number shown is the base part number. For complete part number, refer to current Viking price list schedule.  
<sup>2</sup> Metric K-factor measurement shown is when pressure is measured in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.  
<sup>3</sup> This chart shows the listings and approvals available at the time of printing. Other approvals may be in process. Check with the manufacturer for any additional approvals.  
<sup>4</sup> For areas of coverage smaller than shown, use the "Minimum Water Supply Requirement" for the next larger area listed. Flows and pressures listed are per sprinkler. The distance from sprinklers to walls shall not exceed one-half the sprinkler spacing indicated for the minimum Water Supply Requirement" used.  
<sup>5</sup> Listed by Underwriter's Laboratories for use in the U.S. and Canada.  
<sup>6</sup> Accepted for use, City of New York Department of Buildings, MEA Number 89-92-E, Vol. 35.  
<sup>7</sup> Meets New York City requirements, effective July 1, 2008.  
<sup>8</sup> Tested and Certified by NSF (National Sanitation Foundation) to NSF/ANSI Standard 61, Drinking Water System Components.  
<sup>9</sup> Listings are for residential occupancies with smooth, flat, horizontal ceilings or horizontal ceilings with beams. Includes ceilings with slopes up to and including a 2/12 (9.5°) pitch. (For beam ceiling design criteria, refer to Beam Ceiling Guidelines and Figures 6 through 7D on pages 149s-t).  
<sup>10</sup> Refer to TIA 1028R slope ceiling criteria exceptions.  
<sup>11</sup> Areas under sloped ceilings must be measured along the ceiling slope. Actual floor coverage in the horizontal plane under sloped ceilings will be less than the listed area of coverage.  
<sup>12</sup> Other paint colors are available on request with the same cULus Listings as the standard finish colors.



TECHNICAL DATA

FREEDOM® RESIDENTIAL  
PENDENT SPRINKLER  
VK468 (K4.9)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

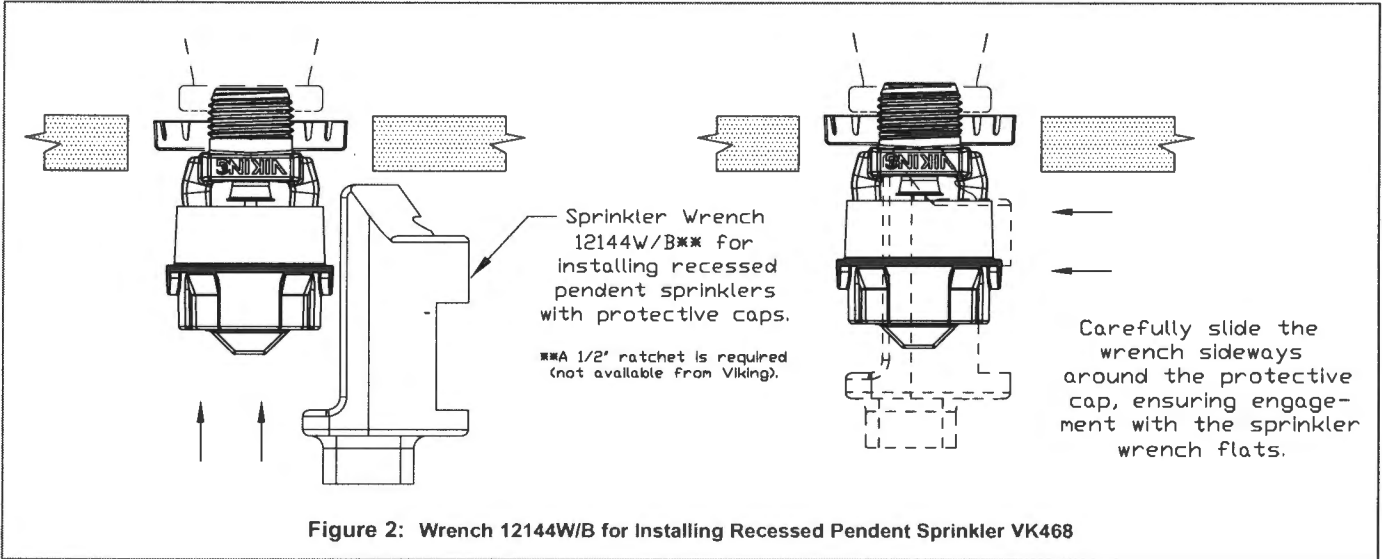


Figure 2: Wrench 12144W/B for Installing Recessed Pendant Sprinkler VK468

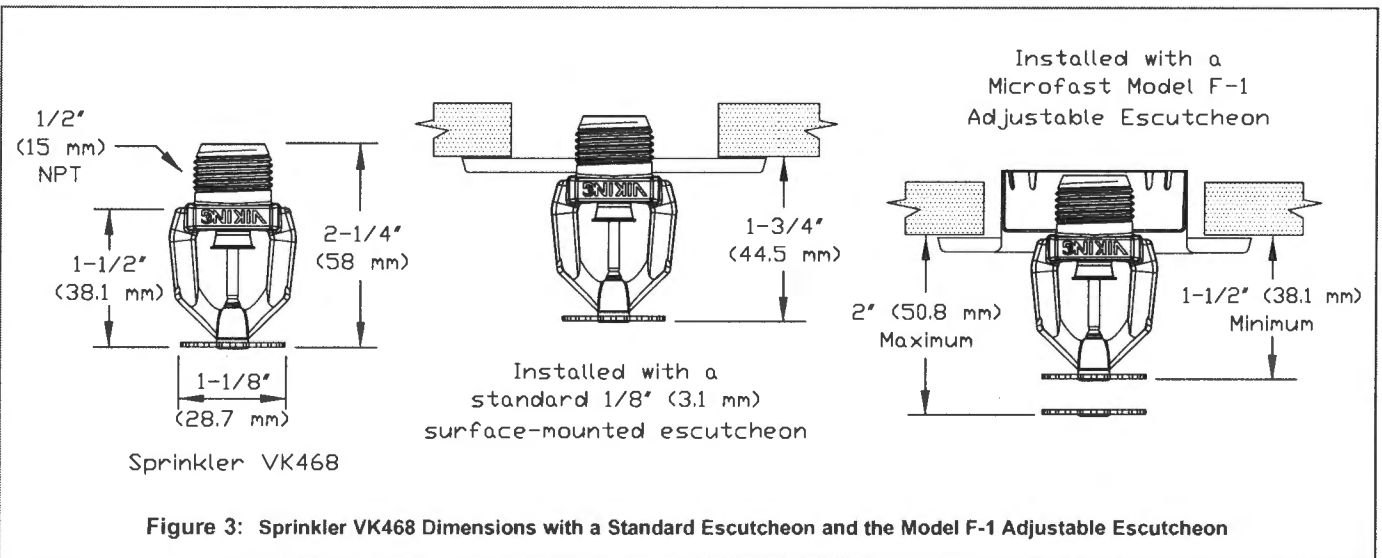


Figure 3: Sprinkler VK468 Dimensions with a Standard Escutcheon and the Model F-1 Adjustable Escutcheon

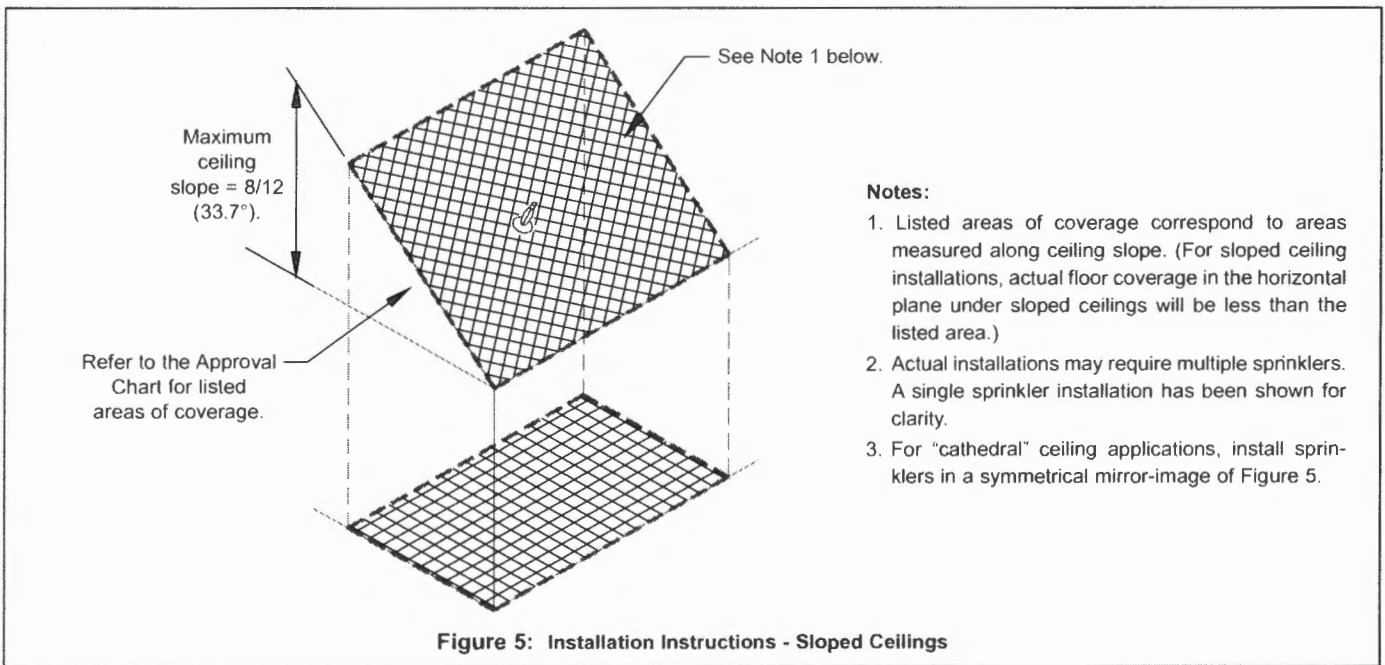
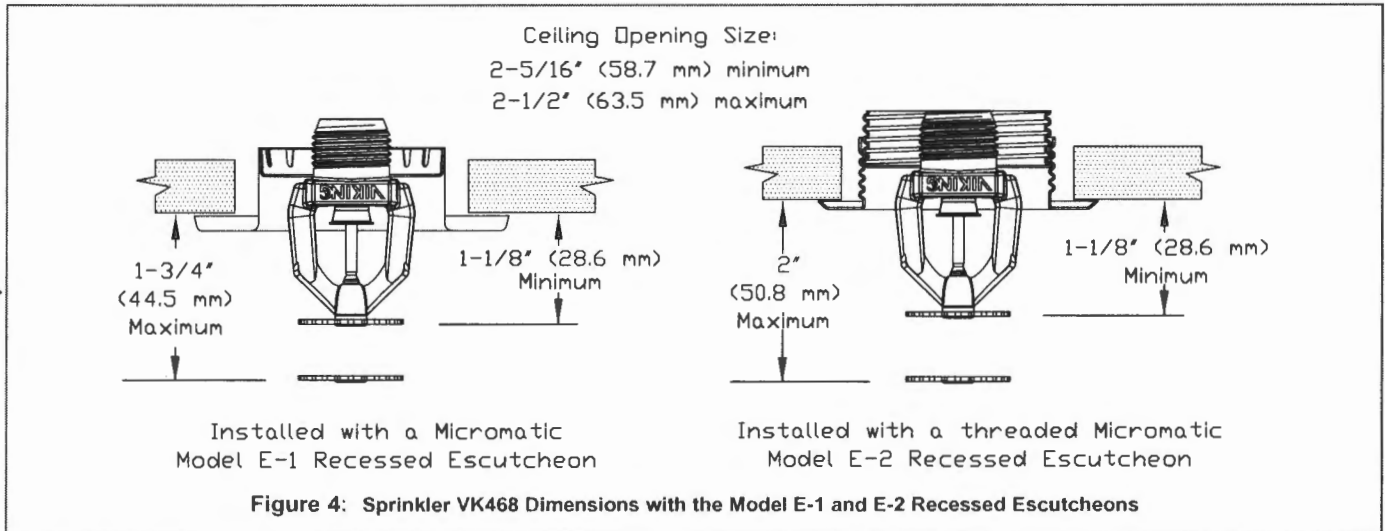


**TECHNICAL DATA**

**FREEDOM® RESIDENTIAL  
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VK468 (K4.9)**

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

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## TECHNICAL DATA

## FREEDOM® RESIDENTIAL PENDENT SPRINKLER VK468 (K4.9)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

### DESIGN CRITERIA

(Also refer to the Approval Chart on page 149o.)

#### cULus Listing Requirements:

When using Viking Residential Pendent Sprinkler VK468 for systems designed to NFPA 13D or NFPA 13R, apply the listed areas of coverage and minimum water supply requirements shown in the Approval Chart on page 149o.

For systems designed to NFPA 13: The number of design sprinklers is to be the four contiguous most hydraulically demanding sprinklers. The minimum required discharge from each of the four sprinklers is to be the greater of the following:

- The flow rates given in the Approval Chart on data page 149o for NFPA 13D and NFPA13R applications for each listed area of coverage, **or**
- Calculated based on a minimum discharge of 0.1 gpm/sq. ft. over the "design area" in accordance with sections 8.5.2.1 or 8.6.2.1.2 of NFPA 13.
- Minimum distance between residential sprinklers: 8 ft. (2.4 m).

### BEAM CEILING GUIDELINES

cULus Listed for installation in residential occupancies with beam ceilings (with horizontal ceilings only).  
Refer to the Approval Chart for sprinkler areas of coverage and hydraulic design.

**Sprinkler Location:** Locate sprinklers on the underside of the beams (not in the bays or pockets formed by the beams). Refer to Figure 6. The vertical distance from the sprinkler deflector to the bottom of the primary beam must be between 1-1/8 and 1-3/4" (29 to 45 mm). The horizontal distance from the centerline of the sprinkler to the primary beam cannot be more than 2" (51 mm) (Figure 6).

**NOTE:** Consult with a structural engineer before drilling beams to allow the installation of sprinkler drops. Where drilling is not permitted, sprinkler position requirements allow for the sprinkler drop to be placed adjacent to the primary beam.

**Beam Position:** Directly attached to the underside of a combustible or non-combustible smooth ceiling of any height.

#### **Beam Size and Shape (Cross section):**

- Depth: Maximum 14" (356 mm) for primary beams. Secondary beam depth cannot be greater than the primary beam.
- Width: Unlimited.
- Beam Shape: Rectangular to circular.

**Beam Types:** Combustible or non-combustible, solid surface, solid or hollow core.

#### **Beam Spacing:**

- A. For primary beams, the distance from the wall to the center of the nearest primary beam must be at least 3'-4" (1.0 m), and not more than one-half the listed sprinkler spacing. Note: Sprinklers may not be required to be located in the first beam nearest the wall. Center-to-center distance between primary beams is to be a maximum of 20 ft (6.1 m). Refer to Figure 7A.
- B. When beam pockets created by the primary beams exceed 20 ft (6.1 m) in length, secondary beams are required as follows (also refer to Figure 7B):
  1. Secondary beam depth must be equal to primary beam depth.
  2. Secondary beams must be placed so that the bays formed by the primary beams do not exceed 20 ft (6.1 m) in length.
- C. When primary beam spans do not exceed 20 ft (6.1 m), secondary beams (not required) may have any distance from wall to nearest secondary beam and any distance center to center between secondary beams. Refer to Figure 7C.

**Lintels:** Must be present over doorways exiting the compartment. Lintel height must be at least 8" (203 mm), or at least the depth of the primary beams, whichever is greater.

**Beam and Soffit Arrangements:** If a soffit is installed, beams may be arranged within the soffit. The cross section of the soffit may be any size, provided it does not create an obstruction to water distribution per the obstruction rules of NFPA 13 for residential sprinklers. Where there is a soffit, beam spacing from the wall is to be measured from the face of the soffit rather than the wall. Refer to Figure 7D. **NOTE:** The sprinkler area of coverage is to be measured from the wall.

#### **Definitions:**

- Primary beams: The main beams that run primarily in one direction.
- Secondary beams: The beams that run perpendicular to the main beams.



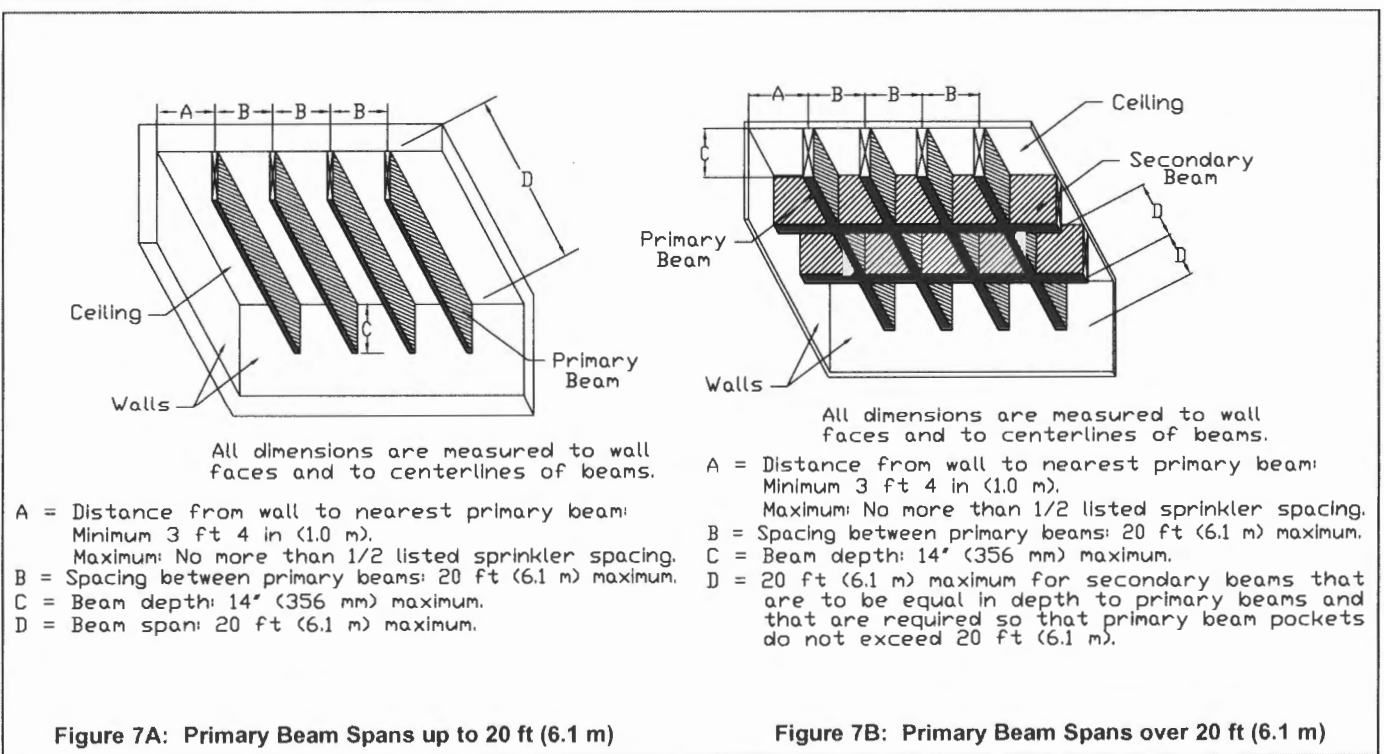
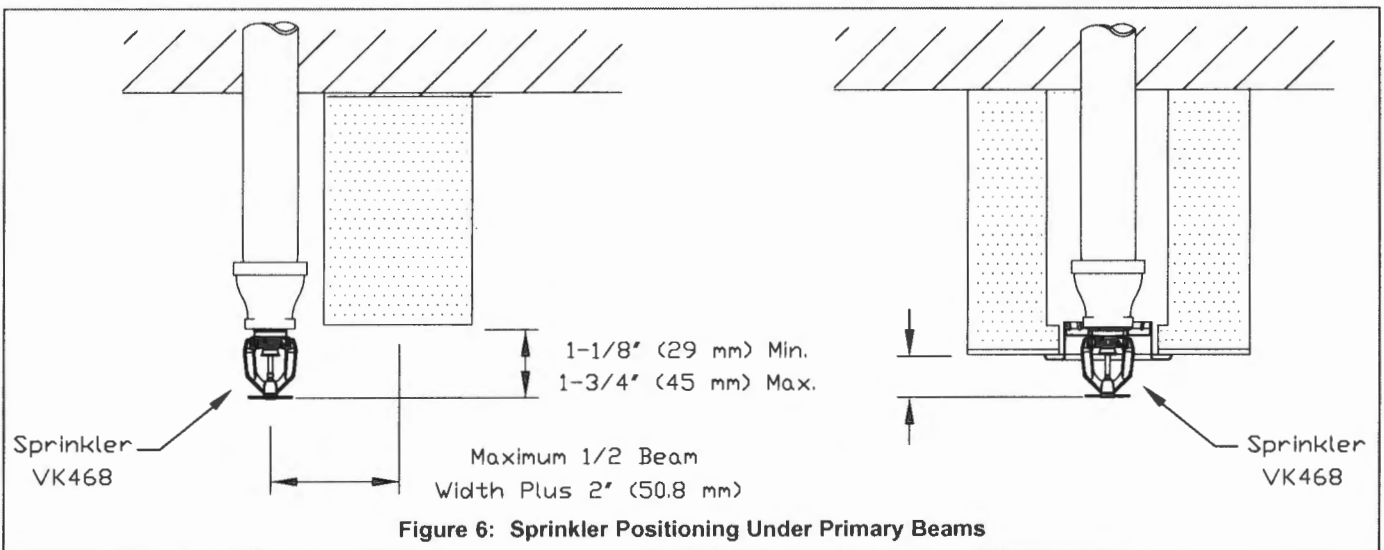
TECHNICAL DATA

FREEDOM® RESIDENTIAL  
PENDENT SPRINKLER  
VK468 (K4.9)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

**IMPORTANT:** Always refer to Bulletin Form No. F\_091699 - Care and Handling of Sprinklers. Also refer to pages RES1-17 for general care, installation, and maintenance information. Viking sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate standards of NFPA and any other similar Authorities Having Jurisdiction, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable. Final approval and acceptance of all residential sprinkler installations must be obtained from the Authorities Having Jurisdiction.



All dimensions are measured to wall faces and to centerlines of beams.

- A = Distance from wall to nearest primary beam: Minimum 3 ft 4 in (1.0 m). Maximum: No more than 1/2 listed sprinkler spacing.
- B = Spacing between primary beams: 20 ft (6.1 m) maximum.
- C = Beam depth: 14" (356 mm) maximum.
- D = Beam span: 20 ft (6.1 m) maximum.

- All dimensions are measured to wall faces and to centerlines of beams.
- A = Distance from wall to nearest primary beam: Minimum 3 ft 4 in (1.0 m). Maximum: No more than 1/2 listed sprinkler spacing.
  - B = Spacing between primary beams: 20 ft (6.1 m) maximum.
  - C = Beam depth: 14" (356 mm) maximum.
  - D = 20 ft (6.1 m) maximum for secondary beams that are to be equal in depth to primary beams and that are required so that primary beam pockets do not exceed 20 ft (6.1 m).

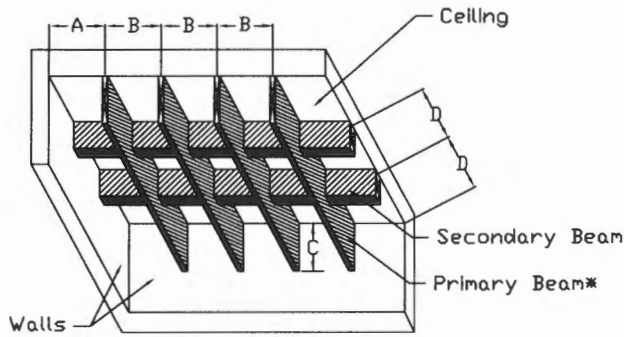


TECHNICAL DATA

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VK468 (K4.9)

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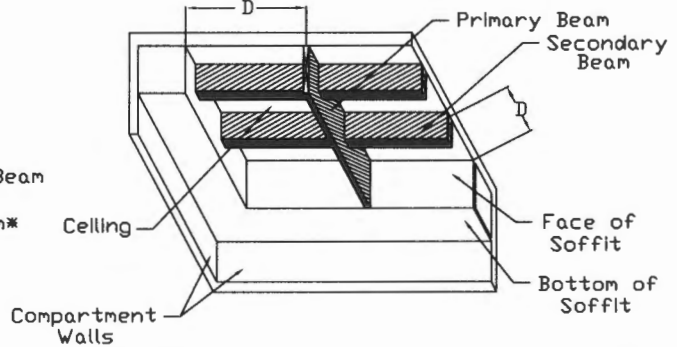


All dimensions are measured to wall faces and to centerlines of beams.

- A = Distance from wall to nearest primary beam:  
Minimum 3 ft 4 in (1.0 m).  
Maximum: No more than 1/2 listed sprinkler spacing.
- B = Spacing between primary beams: 20 ft (6.1 m) maximum.
- C = Beam depth: 14" (356 mm) maximum. Note: Secondary beam depth cannot be greater than the primary beam.
- D = Any distance for secondary beams, unless primary beam spans exceed 20 ft (6.1 m).

\* Refer to Figure 7B for primary beam spans exceeding 20 ft (6.1 m).

Figure 7C: Combination of Primary and Secondary Beams



D = Dimensions shown in Figures 7A, 7B, and 7C, except measurements are taken from the face of the soffit instead of from the wall surface.

NOTE: The sprinkler area of coverage is to be measured from the wall.

Figure 7D: Beam and Soffit Arrangements





## TECHNICAL DATA

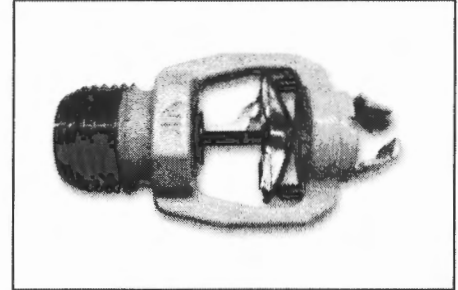
### FREEDOM® RESIDENTIAL HORIZONTAL SIDEWALL SPRINKLER VK486 (K4.0)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

#### 1. DESCRIPTION

Viking Freedom® Residential Horizontal Sidewall Sprinkler VK486 is a small, thermosensitive, glass-bulb residential sprinkler available in several different finishes and temperature ratings to meet varying design requirements. The sprinkler orifice design, with a K-Factor of 4.0 (57.7 metric†), allows efficient use of available water supplies for the hydraulically designed fire-protection system. The glass bulb operating element and special deflector characteristics meet the challenges of residential sprinkler standards.



#### 2. LISTINGS AND APPROVALS

 **cULus Listed:** Category VKKW

Refer to the Approval Chart on pages 156w and Design Criteria on page 156x for cULus Listing requirements that must be followed.

#### 3. TECHNICAL DATA

##### Specifications:

Available since 2011.

Minimum Operating Pressure: Refer to the Approval Chart.

Maximum Working Pressure: 175 psi (12 bar). Factory tested hydrostatically to 500 psi (34.5 bar).

Thread size: 1/2" (15 mm) NPT

Nominal K-Factor: 4.0 U.S. (57.7 metric†)

† Metric K-factor measurement shown is in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.

Glass-bulb fluid temperature rated to -65 °F (-55 °C)

Overall Length: 2-7/16" (62 mm)

##### Material Standards:

Frame Casting: QM Brass and Brass UNS-C84400

Deflector: Phosphor Bronze UNS-C51000

Bulb: Glass, nominal 3 mm diameter

Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with Teflon Tape

Pip Cap and Insert Assembly: Copper UNS-C11000 and Stainless Steel UNS-S30400

Compression Screws: 18-8 Stainless Steel

Yoke: Phosphor Bronze UNS-C51000

**Ordering Information:** (Also refer to the current Viking price list.)

**Sprinkler:** Base Part No. 17315

Order Sprinkler VK486 by first adding the appropriate suffix for the sprinkler finish and then the appropriate suffix for the temperature rating to the sprinkler base part number.

Finish Suffix: Brass = A, Chrome-Enloy® = F, and White Polyester = M-/W

Temperature Suffix: 155 °F (68 °C) = B, 175 °F (79 °C) = D

For example, sprinkler VK486 with a Brass finish and a 155 °F (68 °C) temperature rating = Part No. 17315AB.

##### Available Finishes And Temperature Ratings:

Refer to Table 1.

**Accessories:** (Also refer to the "Sprinkler Accessories" section of the Viking data book.)

##### Sprinkler Wrenches:

A. Standard Wrench: Part No. 10896W/B (available since 2000)

B. Wrench for recessed sprinklers: Part No. 13655W/B\* (available since 2006)

\*A 1/2" ratchet is required (not available from Viking).

##### Sprinkler Cabinets:

A. Six-head capacity: Part No. 01724A (available since 1971)

B. Twelve-head capacity: Part No. 01725A (available since 1971)

Viking Technical Data may be found on  
The Viking Corporation's Web site at  
<http://www.vikinggroupinc.com>.  
The Web site may include a more recent  
edition of this Technical Data Page.

	<b>TECHNICAL DATA</b>	<b>FREEDOM® RESIDENTIAL HORIZONTAL SIDEWALL SPRINKLER VK486 (K4.0)</b>
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The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

**4. INSTALLATION**

Refer to appropriate NFPA Installation Standards. For NFPA 13D horizontal ceiling criteria and slopes, refer to TIA 1028R for slope ceiling criteria exceptions.

**5. OPERATION**

During fire conditions, the heat-sensitive liquid in the glass bulb expands, causing the glass to shatter, releasing the yoke, pip cap, and sealing spring assembly. Water flowing through the sprinkler orifice strikes the sprinkler deflector, forming a uniform spray pattern to extinguish or control the fire.

**6. INSPECTIONS, TESTS AND MAINTENANCE**

Refer to NFPA 25 for Inspection, Testing and Maintenance requirements.

**7. AVAILABILITY**

Viking Sprinkler VK486 is available through a network of domestic and international distributors. See The Viking Corporation web site for the closest distributor or contact The Viking Corporation.

**8. GUARANTEE**

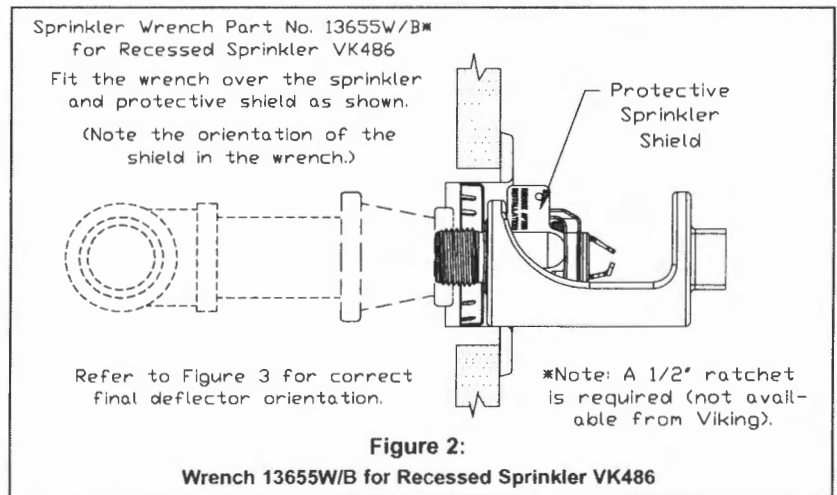
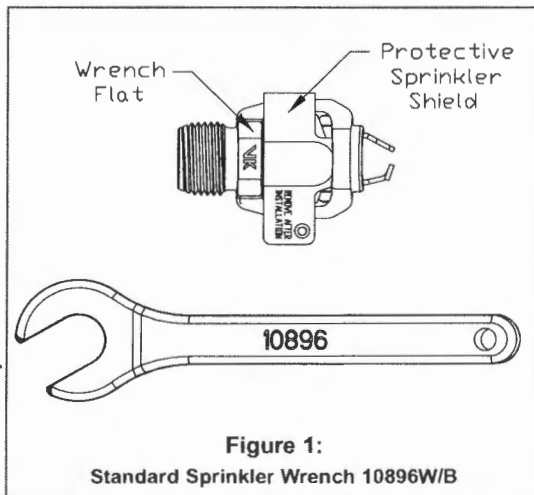
For details of warranty, refer to Viking's current list price schedule or contact Viking directly.

TABLE 1: AVAILABLE SPRINKLER TEMPERATURE RATINGS AND FINISHES			
Sprinkler Temperature Classification	Sprinkler Nominal Temperature Rating <sup>1</sup>	Maximum Ambient Ceiling Temperature <sup>2</sup>	Bulb Color
Ordinary	155 °F (68 °C)	100 °F (38 °C)	Red
Intermediate	175 °F (79 °C)	150 °F (65 °C)	Yellow

**Sprinkler Finishes:** Brass, Chrome-Enloy® (patents pending), White Polyester, and Black Polyester.

**Footnotes**

<sup>1</sup> The sprinkler temperature rating is stamped on the deflector.  
<sup>2</sup> Based on NFPA-13. Other limits may apply, depending on fire loading, sprinkler location, and other requirements of the Authority Having Jurisdiction. Refer to specific installation standards.



	<b>TECHNICAL DATA</b>	<b>FREEDOM® RESIDENTIAL HORIZONTAL SIDEWALL SPRINKLER VK486 (K4.0)</b>
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The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058  
 Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

Sprinkler Base Part Number <sup>1</sup>	NPT Thread Size		Nominal K-Factor		Maximum Water Working Pressure	Overall Length	
	Inches	mm	U.S.	metric <sup>2</sup>		Inches	mm
17315	1/2	15	4.0	57.7	175 psi (12 Bar)	2-7/16	62

**Approval Chart**

Residential Horizontal Sidewall Sprinkler VK486  
 For systems designed to NFPA 13D<sup>3</sup> or NFPA 13R.  
 For systems designed to NFPA 13, refer to the design criteria on page 156x.

Temperature	<b>KEY</b>
Finish	
Escutcheon (if applicable)	

**Installed below smooth, flat, horizontal ceilings, including ceilings with slopes up to and including 2/12 (9.5°).  
 With the deflector located between 4" and 6" (102 mm and 152 mm) below the ceiling.**

Maximum Areas of Coverage <sup>3</sup> (Width x Length)	Minimum Water Supply Requirements <sup>3</sup>	Listings and Approvals <sup>4</sup> (Refer also to Design Criteria on page 156x.)		
		cULus <sup>5,6</sup>	NYC	NSF
12' x 12' (3.7 m x 3.7 m)	11 gpm @ 7.6 psi (41.7 L/min @ 0.52 Bar)	A1X	See Footnote 8.	--
14' x 14' (4.3 m x 4.3 m)	12 gpm @ 9 psi (45.5 L/min @ 0.62 Bar)	A1X	See Footnote 8.	--
16' x 16' (4.9 m x 4.9 m)	13 gpm @ 10.6 psi (49.3 L/min @ 0.73 Bar)	A1X	See Footnote 8.	--
16' x 18' (4.9 m x 5.5 m)	16 gpm @ 16 psi (60.6 L/min @ 1.1 Bar)	A1X	See Footnote 8.	--
16' x 20' (4.9 m x 6.1 m)	22 gpm @ 30.3 psi (83.3 L/min @ 2.09 Bar)	A1X	See Footnote 8.	--
16' x 22' (4.9 m x 6.7 m)	24 gpm @ 36 psi (90.8 L/min @ 2.48 Bar)	A1X	See Footnote 8.	--
18' x 18' (5.5 m x 5.5 m)	18 gpm @ 20.3 psi (68.1 L/min @ 1.4 Bar)	B1X	See Footnote 8.	--
18' x 18' (5.5 m x 5.5 m)	19 gpm @ 22.6 psi (71.9 L/min @ 1.6 Bar)	C1X	See Footnote 8.	--
18' x 20' (5.5 m x 6.1 m)	22 gpm @ 30.3 psi (83.3 L/min @ 2.09 Bar)	A1X	See Footnote 8.	--
20' x 20' (6.1 m x 6.1 m)	22 gpm @ 30.3 psi (83.3 L/min @ 2.09 Bar)	A1X	See Footnote 8.	--

**Installed below smooth, flat, horizontal ceilings, including ceilings with slopes up to and including 2/12 (9.5°).  
 With the deflector located between 6" and 12" (152 mm and 305 mm) below the ceiling.**

12' x 12' (3.7 m x 3.7 m)	12 gpm @ 9 psi (45.5 L/min @ 0.62 Bar)	A1X	See Footnote 8.	--
14' x 14' (4.3 m x 4.3 m)	12 gpm @ 9 psi (45.5 L/min @ 0.62 Bar)	B1X	See Footnote 8.	--
14' x 14' (4.3 m x 4.3 m)	13 gpm @ 10.6 psi (49.3 L/min @ 0.73 Bar)	C1X	See Footnote 8.	--
16' x 16' (4.9 m x 4.9 m)	14 gpm @ 12.3 psi (53 L/min @ 0.84 Bar)	A1X	See Footnote 8.	--
16' x 18' (4.9 m x 5.5 m)	16 gpm @ 16 psi (60.6 L/min @ 1.1 Bar)	A1X	See Footnote 8.	--
16' x 20' (4.9 m x 6.1 m)	23 gpm @ 33.1 psi (87.1 L/min @ 2.28 Bar)	A1X	See Footnote 8.	--
16' x 22' (4.9 m x 6.7 m)	26 gpm @ 42.3 psi (98.4 L/min @ 2.91 Bar)	A1X	See Footnote 8.	--
18' x 18' (5.5 m x 5.5 m)	18 gpm @ 20.3 psi (68.1 L/min @ 1.4 Bar)	B1X	See Footnote 8.	--
18' x 18' (5.5 m x 5.5 m)	19 gpm @ 22.6 psi (71.9 L/min @ 1.6 Bar)	C1X	See Footnote 8.	--
18' x 20' (5.5 m x 6.1 m)	23 gpm @ 33.1 psi (87.1 L/min @ 2.28 Bar)	A1X	See Footnote 8.	--
20' x 20' (6.1 m x 6.1 m)	24 gpm @ 36 psi (90.8 L/min @ 2.48 Bar)	A1X	See Footnote 8.	--

<p><b>Approved Temperature Ratings</b></p> <p>A - 155 °F (68 °C) and 175 °F (79 °C)                  B - 155 °F (68 °C)                  C - 175 °F (79 °C)</p>	<p><b>Approved Finishes</b></p> <p>1 - Brass, Chrome-Enloy<sup>®</sup>, White Polyester, and Black Polyester<sup>9</sup></p>	<p><b>Approved Escutcheons</b></p> <p>X - Standard surface-mounted escutcheons or the Viking Microfast<sup>®</sup> Model F-1 Adjustable Escutcheon or recessed with the Viking Micromatic<sup>®</sup> Model E-1 or E-2 Recessed Escutcheon, or the Model G-1 Adjustable Escutcheon.</p>
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**Footnotes**

<sup>1</sup> Base part number shown. For complete part number, refer to Viking's current price list.  
<sup>2</sup> Metric K-Factor measurement shown is when pressure is measured in Bar. When pressure is measured in kPa, divide the metric K-Factor shown by 10.0.  
<sup>3</sup> For areas of coverage smaller than shown, use the "Minimum Water Supply Requirement" for the next larger area listed. Flows and pressures listed are per sprinkler. The distance from sprinklers to walls shall not exceed one-half the sprinkler spacing indicated for the minimum Water Supply Requirement" used.  
<sup>4</sup> This chart shows the listings and approvals available at the time of printing. Other approvals may be in process. Check with the manufacturer for any additional approvals.  
<sup>5</sup> Listed by Underwriter's Laboratories, Inc. for use in the U.S. and Canada.  
<sup>6</sup> Listing is for residential occupancies with smooth, flat, horizontal ceilings, including ceilings with slopes up to and including 2/12 (9.5°).  
<sup>7</sup> Refer to TIA 1028R slope ceiling criteria exceptions.  
<sup>8</sup> Meets New York City requirements, effective July 1, 2008.  
<sup>9</sup> Other paint colors are available on request with the same cULus Listings as the standard finish colors.



TECHNICAL DATA

FREEDOM® RESIDENTIAL HORIZONTAL SIDEWALL SPRINKLER VK486 (K4.0)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

**DESIGN CRITERIA**

(Also refer to the Approval Chart on page 156w.)

**cULus Listing Requirements:**

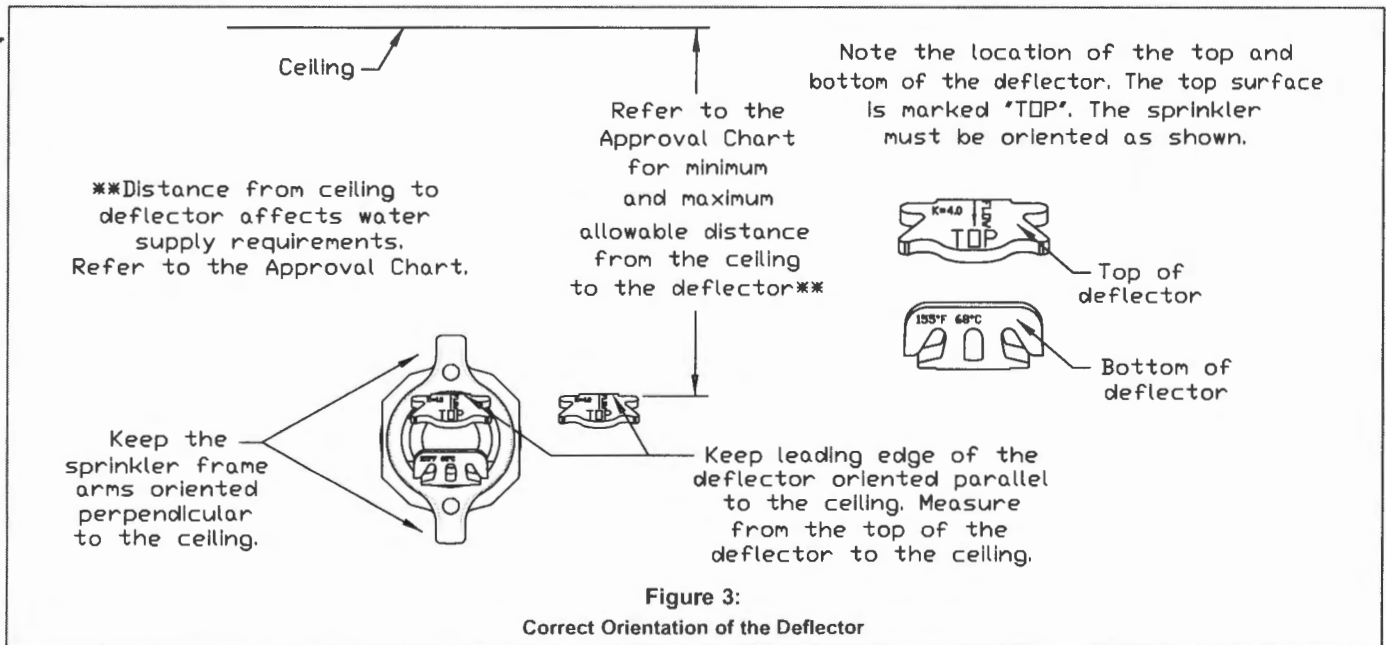
When using Viking Residential Horizontal Sidewall Sprinkler VK486 for systems designed to NFPA 13D or NFPA 13R, apply the listed areas of coverage and minimum water supply requirements shown in the Approval Chart on page 156w.

For systems designed to NFPA 13: The number of design sprinklers is to be the four contiguous most hydraulically demanding sprinklers. The minimum required discharge from each of the four sprinklers is to be the greater of the following:

- The flow rates given in the Approval Chart on data page 156w for NFPA 13D and NFPA 13R applications for each listed area of coverage, or
- Calculated based on a minimum discharge of 0.1 gpm/sq. ft. over the "design area" in accordance with sections 8.5.2.1 or 8.6.2.1.2 of NFPA 13.
- Minimum distance between residential sprinklers: 8 ft. (2.4 m).
- The VK486 horizontal sidewall sprinkler deflector shall be located a minimum of 1-1/4" (31.8 mm) and a maximum of 6" (152 mm) from the wall on which it is installed.

**DEFLECTOR POSITION:** Install sprinkler VK486 with the leading edge of the deflector oriented parallel to the ceiling and the sprinkler frame arms oriented perpendicular to the ceiling (see Figure 4). **THE TOP SURFACE OF THE DEFLECTOR IS MARKED "TOP"**. The sprinkler must be oriented as shown in Figure 3 below.

**IMPORTANT:** Always refer to Bulletin Form No. F\_091699 - Care and Handling of Sprinklers. Also refer to pages RES1-17 for general care, installation, and maintenance information. Viking sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate standards of NFPA and any other similar Authorities Having Jurisdiction, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable. Final approval and acceptance of all residential sprinkler installations must be obtained from the Authorities Having Jurisdiction.



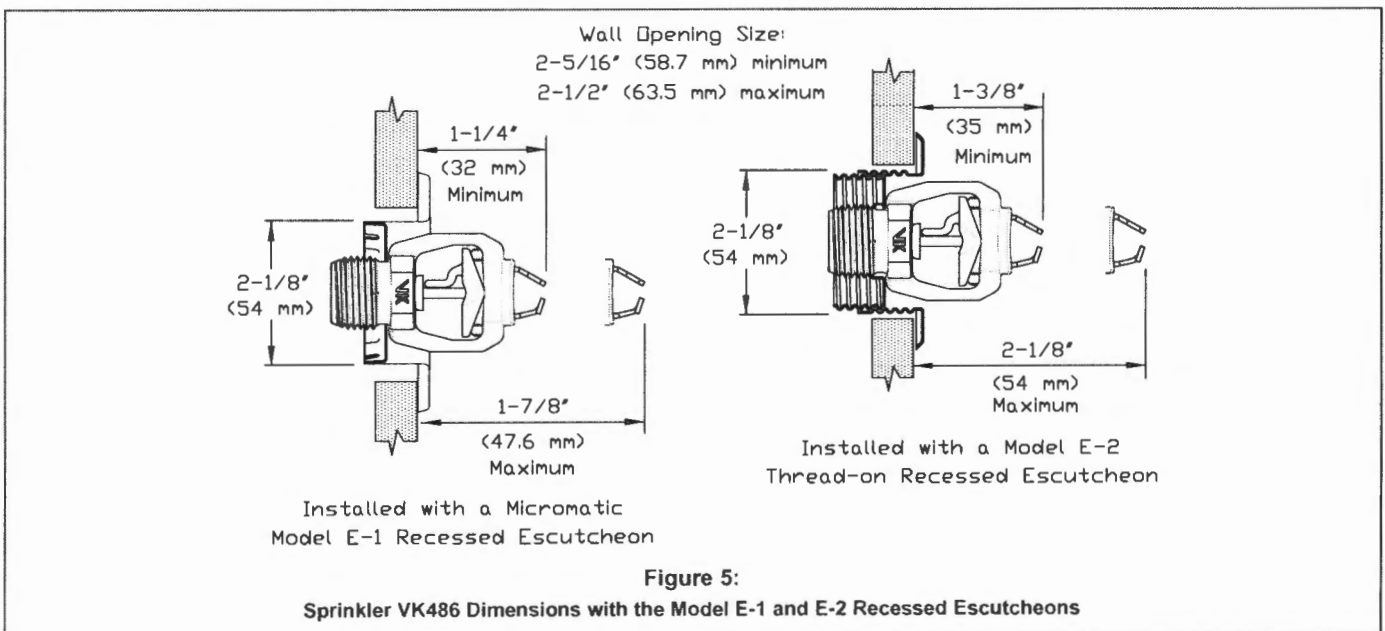
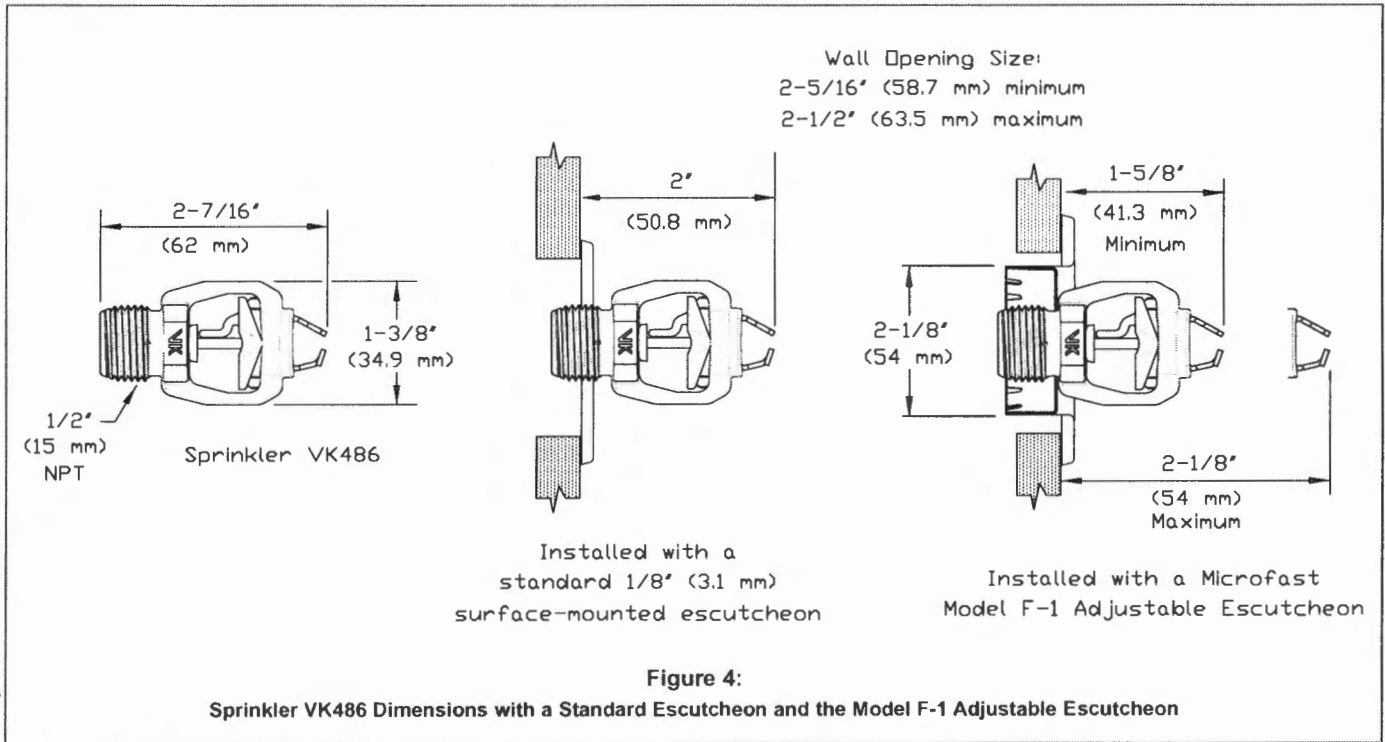


TECHNICAL DATA

FREEDOM® RESIDENTIAL  
HORIZONTAL SIDEWALL  
SPRINKLER VK486 (K4.0)

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Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com



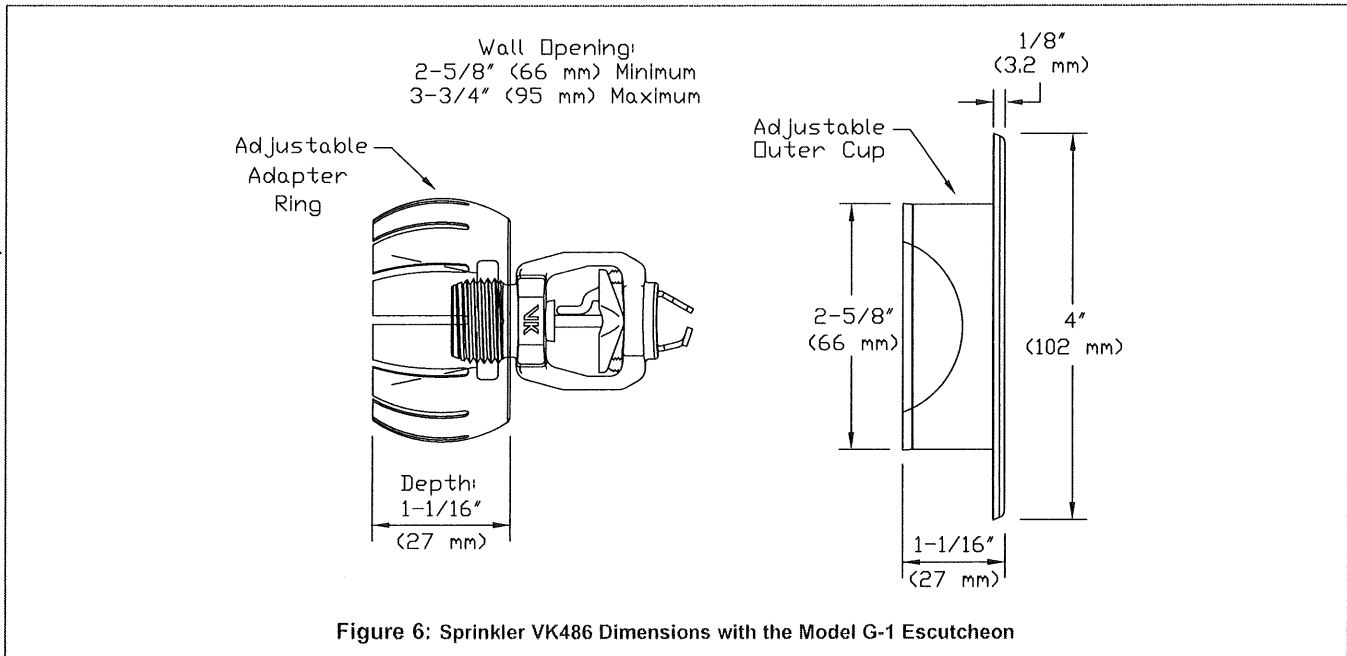


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**State of Maine**  
**Department of Public Safety**  
**Fire Sprinkler System Permit**



# **10045**

49 Lafayette St

Located at: 49 Lafayette st  
 In the Town of: Portland  
 Occupancy/Use: Residential Units  
 Type of System: NFPA 13D

Permission is hereby given to:

Charles P. McClellan/Gelinas HVAC + Plumbing  
 2 Washington Avenue  
 Scarborough, ME 04074  
 Contractor License # 176

to begin installation according to plans submittal approved by the Office of State Fire Marshal.  
 The submittal is filed under log # **2121242**, and no departure from the application submittal shall be made without prior approval in writing. This permit is issued under the provisions of Title 32, Chapter 20, Section 12004-I. Nothing herein shall excuse the holder of this permit from failure to comply with local ordinances, zoning laws, or other pertinent legal restrictions. This permit shall be displayed at the construction site or be made readily available.

This permit was issued on **6/7/2012** for a fee paid of **\$25.00**

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

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

John E. Morris  
 Commissioner

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

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

Job completed, tested and verified by date of \_\_\_\_\_

RMS for this job: Fortin Timothy M

RMS Signature: \_\_\_\_\_



2 Washington Avenue Scarborough, Maine 04074

TO: LANNIE DOBSON,

HELLO LANNIE, HERE ARE THE PLANS  
 FOR THE 130 RESIDENTIAL FINE SPREADER  
 SYSTEM @ 49 LAFAYETTE ST. PORTLAND, ME.  
 A PERMIT W/ STATE HAS BEEN APPLIED  
 FOR. IF YOU HAVE ANY QUESTIONS  
 MY CELL # IS ON BACK OF ATTACHED  
 BUSINESS CARD. THANK YOU,  
 CHRIS MCGOWAN