

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

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

Job No: 2011-04-766-SF 2012-14557 FAFS	Date Applied: 1/9/2012	CBL: 407- H-023-001	
Location of Construction: 25 DAKOTA STREET	Owner Name: PROPERTIES INC DIVERSIFIED	Owner Address: PO BOX 10127 PORTLAND, ME 04104	Phone:
Business Name:	Contractor Name: Tim Davis Plumbing & Heating	Contractor Address: P O BOX 255 LYMAN, MAINE 04002	Phone: (207) 324-5237
Lessee/Buyer's Name:	Phone:	Permit Type: FAFS	Zone: R-3
Past Use:  Single family dwelling under construction	Proposed Use:  Same: Single family dwelling – to install fire suppression system	Cost of Work:	CEO District:
		Fire Dept: <input checked="" type="checkbox"/> Approved w/conditions <input type="checkbox"/> Denied <input type="checkbox"/> N/A  Signature: <i>Björnsd</i> (58)	Inspection: Use Group: Type:  Signature:
Proposed Project Description: 25 Dakota – install fire suppression system		Pedestrian Activities District (P.A.D.)	
Permit Taken By: Gayle		<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>Maj ___ Min ___ MM ___ Date: <i>1/9/12</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

2012 14557

66



# Water-Based Fire Suppression System Permit

R-3

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.

# 2012 14557 attached to # 2011 04 266

Installation address: 25 Dakota St CBL: 407 Hoos

Exact location: (within structure) Basement, 1st Floor, 2nd Flr

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

Building owner: Diversification Properties

Managing Supervisor (RMS): Thomas Killen License No: \_\_\_\_\_

Supervisor phone: 207-752-4102 E-mail: \_\_\_\_\_

Installing contractor: Tin Davis Plumbing & Heating Inc License No: 831

Contractor phone: 207-324-5237 E-mail: TOPHINC@yahoo.com

The suppression work to be done will be: New:  Renovation:  Addition to existing system:

This is an amendment to an existing permit: Yes:  NO:  Permit no: \_\_\_\_\_

NFPA Standard this system is designed to: NFPA 13-D 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](http://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:** \_\_\_\_\_

**PERMIT FEE:** \_\_\_\_\_

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

**RECEIVED**

**JAN - 9 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: [Signature] Date: 1/20/11



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



# 9794

**25 Dakota St**

Located at: 25 Dakota Street  
 In the Town of: Portland  
 Occupancy/Use: Home  
 Type of System: NFPA 13D

Permission is hereby given to:

**Tim Davis Plumbing & Heating Inc.**  
 PO Box 255  
 Lyman, ME 04002  
 Contractor License # **831**

to begin installation according to plans submittal approved by the Office of State Fire Marshal. The submittal is filed under log # **2111439**, 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 **12/30/2011** for a fee paid of **\$75.00**

*This permit will expire at midnight on **Wednesday, June 27, 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 1/6/12

RMS for this job: Killeen Thomas J.

RMS Signature:



*Atlantic Design Resources, Ltd.*

*Fire Protection Design Services*

P.O. Box 496, Greenland, NH 03840  
Phone 603-418-0764  
Fax 603-418-6375  
asdrnh@gmail.com

**HYDRAULIC CALCULATION  
PRODUCT SPECIFICATIONS  
&  
INFORMATION**

For

**PROJECT LOCATION**

25 Dakota Road  
Portland Maine

**CONTRACTOR**

Tim Davis Plumbing and Heating Inc.  
P.O. Box 255  
Alfred Maine 04002

211067

Rev. --

THE ENCLOSED INFORMATION WAS USED IN PREPARING THE DRAWINGS FOR THE REFERENCED PROJECT, WHICH ARE A PART OF THIS SUBMITTAL. THE PRODUCT INFORMATION PRESENTED WAS USED AS THE BASIS FOR DESIGN. ALTERNATE PRODUCTS OR MATERIALS OF EQUAL OR BETTER QUALITY OR OPERATIONAL CHARACTERISTICS, WHICH ARE LISTED FOR USE UNDER THE DESIGN CONDITIONS, MAY BE SUBSTITUTED AT THE INSTALLER'S DISCRETION WITH THE APPROVAL OF THE AUTHORITY HAVING JURISDICTION.

H Y D R A U L I C C A L C U L A T I O N S

C O V E R S H E E T

25 Dakota St Portland ME Test # 1

W A T E R S U P P L Y

STATIC PRESSURE (psi) 75  
RESIDUAL PRESSURE (psi) 34  
RESIDUAL FLOW (gpm) 750

B O O S T E R P U M P S

NUMBER OF BOOSTER PUMPS 0

S P R I N K L E R S

MINIMUM FLOW PER SPRINKLER (gpm) 13  
MINIMUM PRESSURE PER SPRINKLER (psi) 7.04

THIS SYSTEM OPERATES AT A FLOW OF 26.41 gpm AT A PRESSURE OF 46.56 psi  
AT THE BASE OF THE RISER (REF. PT. 2)

PIPES USED FOR THIS SYSTEM

=====

016 POLYBUTYLENE  
001 SCHEDULE 40  
009 BLAZEMASTER CPVC

HYDRAULIC CALCULATIONS AT SPECIFIED FLOW

THE FOLLOWING SPRINKLERS ARE OPERATING IN:

- TEST AREA 1
- TEST AREA 2
- TEST AREA 3
- REMOTE AREA

Elevation of sprinklers = Elevation above water test.

REF. PT.	K	ELEV. ft	FLOW gpm	---- PRESSURE (psi)----		
				Total	Velocity	Normal
101	4.90	28.00	13.41	7.49	0.00	7.49
102	4.90	28.00	13.00	7.04	0.00	7.04

THE SPRINKLER SYSTEM FLOW IS 26.41 gpm

THE OUTSIDE HOSE FLOW AT REFERENCE POINT NO. 1 IS 0.00 gpm

THE INSIDE HOSE  RACK SPKLR'S.

YARD HYDT. FLOW IS 0.00 gpm

THE FOLLOWING PRESSURES & FLOWS OCCUR  
----> AT REF. PT. 1 <----

STATIC PRESSURE	75.00 psi		
RESIDUAL PRESSURE	34.00 psi	AT	750.00 gpm
TOTAL SYSTEM FLOW	26.41 gpm		
AVAILABLE PRESSURE	74.92 psi	AT	26.41 gpm
OPERATING PRESSURE	48.56 psi	AT	26.41 gpm
PRESSURE REMAINING	26.35 psi		

THE ABOVE RESULTS INCLUDE 9.00 psi FRICTION LOSS AT REF. PT. # 2 FOR A

- BACKFLOW PREVENTER
- DETECTOR CHECK VALVE
- METER
- OTHER DEVICE

FITTING Equivalent Length per NFPA 13 1994, 6-4.3

'-' Indicates Equivalent Length. 'T' Indicates Threaded Fitting

1=45 Elbow, 2=90 Elbow, 3='T'/Cross, 4=Butterfly Valve, 5=Gate Valve, 6=Swing Check Valve

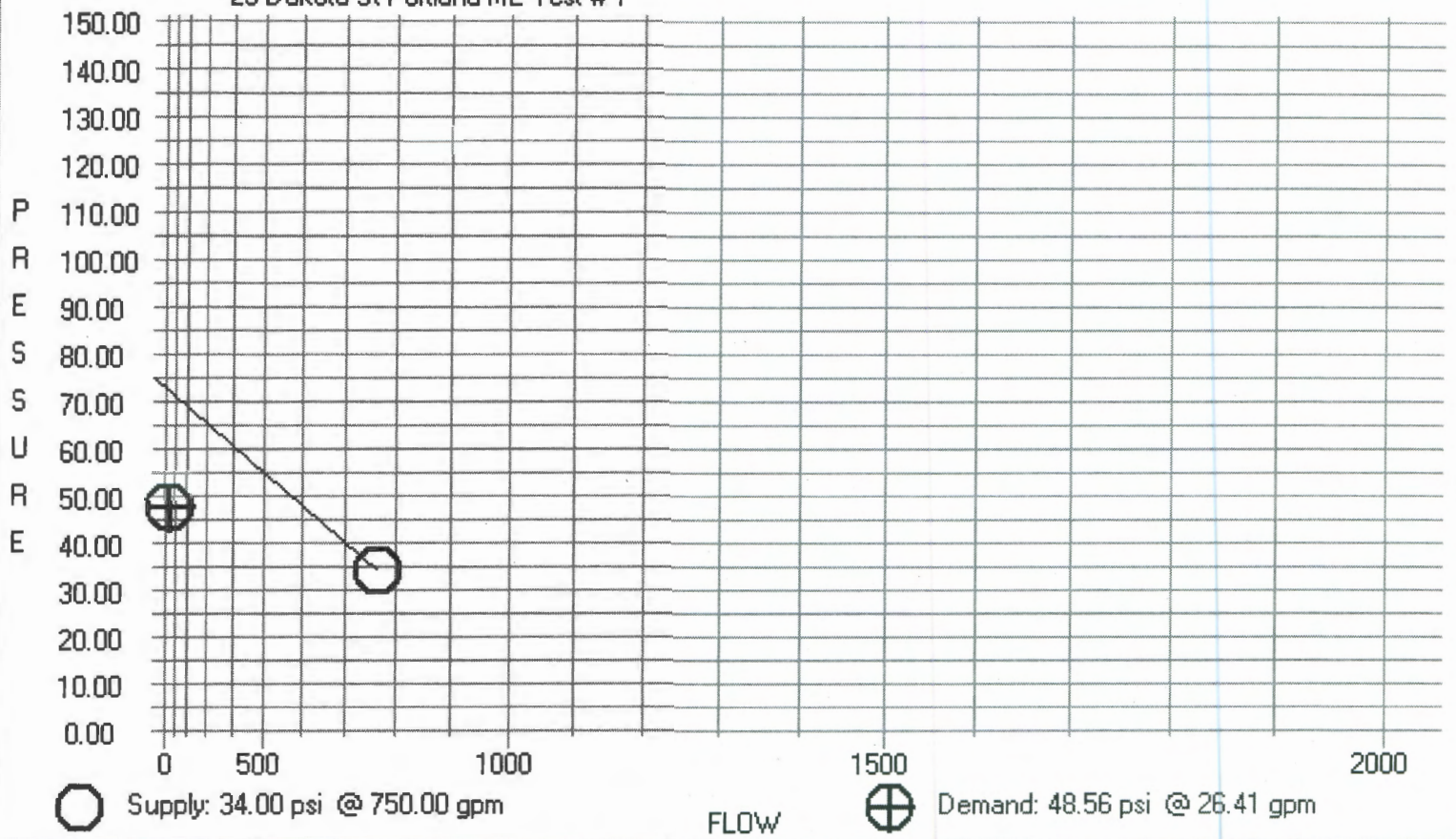
FROM	TO	FLOW (gpm)	PIPE (ft)	FITS	EQV. (ft)	H-W C	PIPE TYPE	DIA. (in)	FRIC. (psi)	ELEV. (psi)	Pt Pv Pn	PRESSURE (psi)	
											Pt	Pt	DIFF
1	2	26.41	75.00	23	12.02	150	16	1.528	0.023	0.000	48.56	46.56	2.00
2	3	26.41	12.00	22	23.56	150	1	1.049	0.144	3.467	46.56	29.26	13.83
3	4	26.41	4.00	33	10.01	150	9	1.109	0.110	0.000	29.26	27.73	1.54
4	5	26.41	19.00	332	17.03	150	9	1.109	0.110	0.000	27.73	23.78	3.95
5	6	26.41	6.00	356	13.43	150	9	1.109	0.110	0.000	23.78	21.64	2.14
6	7	26.41	20.00	33	10.01	150	9	1.109	0.110	8.667	21.64	9.69	3.29
7	8	26.41	4.00	3	5.01	150	9	1.109	0.110	0.000	9.69	8.70	0.99
8	9	26.41	4.00	3	5.01	150	9	1.109	0.110	0.000	8.70	7.71	0.99
9	101	13.41	2.00	3	5.01	150	9	1.109	0.031	0.000	7.71	7.49	0.22
9	10	13.00	11.00	3	5.01	150	9	1.109	0.029	0.000	7.71	7.24	0.47
10	102	13.00	2.00	3	5.01	150	9	1.109	0.029	0.000	7.24	7.04	0.21

A MAX. VELOCITY OF 9.8 ft./sec. OCCURS BETWEEN REF. PT. 2 AND 3

Sprinkler-CALC Release 7.2 Win  
 By Walsh Engineering Inc.  
 North Kingstown R.I. U.S.A.

# WATER SUPPLY/DEMAND GRAPH

25 Dakota St Portland ME Test # 1



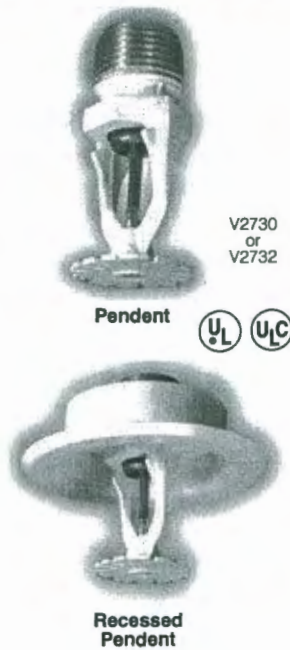
Sprinkler-CALC 7.2 Win



## V27, K4.9

### Models V2730 and V2732 Residential Pendant, Recessed Pendant and Specific Application (Flat, Sloped & Beamed Ceilings) Quick Response

#### PRODUCT DESCRIPTION



These Model V27 residential sprinklers are designed to meet the requirements of NFPA 13, 13D and 13R for residential use in a variety of room sizes, depending upon available operating pressure and room configuration. Models V2730 and V2732 are UL Listed for use under smooth flat horizontal ceilings, sloped ceilings up to and including 8/12 (33.7°) pitch, and beamed ceilings. The design incorporates state-of-the-art, heat responsive, frangible glass bulb design (quick response) for prompt, precise operation. The die cast frame is more streamlined and attractive

than traditional sand cast frames. It is cast with a hex-shaped wrench boss to allow easy tightening from many angles, reducing assembly effort. This sprinkler is available in various finishes to meet many design requirements.

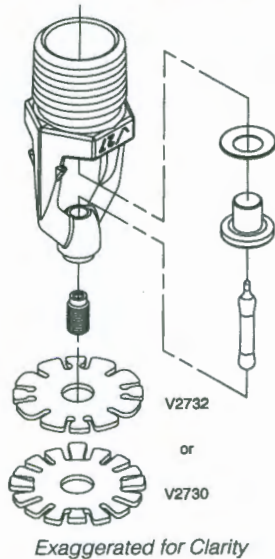
**Sprinkler Operation**  
The operating mechanism is a frangible glass bulb which contains a heat responsive liquid. During a fire, the ambient temperature rises causing the liquid in the bulb to expand. When the ambient temperature reaches the rated temperature of the sprinkler, the bulb shatters. As a result, the waterway is

cleared of all sealing parts and water is discharged towards the deflector. The deflector is designed to distribute the water in a pattern that is most effective in controlling the fire.

**Coverage**  
Residential spray coverage up to 20 feet X 20 feet (6,1 m X 6,1 m) room sizes per NFPA.

**These sprinklers meet the requirements of UL 1626 that become effective September 25, 2004.**

#### TECHNICAL SPECIFICATIONS



**Models:** V2730, V2732  
**Style:** Pendant and Recessed Pendant  
**Nominal Orifice Size:** 7/16" (12 mm)  
**K-Factor:**  
 V2730 - 4.9 Imp. (7,1 S.I.Δ) for room sizes up to 16' (4,9 m).  
 V2732 - 4.9 Imp. (7,1 S.I.Δ) for room sizes 18' to 20' (5,5 and 6,1 m).  
**Nominal Thread Size:** 1/2" NPT (15 mm)  
**Max. Working Pressure:** 175 psi (1200 kPa)  
**Factory Hydrostatic Test:** 100% @ 500 psi (3450 kPa)  
**Min. Operating Pressure:** 7 psi (48 kPa)  
**Temperature Rating:** See chart on page 2.

#### MATERIAL SPECIFICATIONS

**Pendant Deflector:** Bronze per UNS C51000  
**Bulb:** Glass with glycerin solution.  
**Bulb Nominal Diameter:** Quick Response: 3,0 mm  
**Load Screw:** Bronze per UNS C65100  
**Pip Cap:** Bronze per UNS C65100  
**Seal:** Teflon\* tape  
**Frame:** Die cast brass 65-30

#### ACCESSORIES

##### Installation Wrench:

- Open End: V27
- Recessed: V38-3

##### Sprinkler Finishes:

- Plain brass
- Chrome plated
- White painted\*\*
- Custom painted\*\*

For escutcheons, cabinets and other accessories refer to separate sheet.

Δ For K-Factor when pressure is measured in Bar, multiply S.I. units by 10.0.

\*Teflon is a registered trademark of Dupont Co.

\*\*UL Listed for corrosion resistance in all configurations.

NOTE: Weather resistant recessed escutcheon available upon request.

VICTAULIC® IS AN ISO 9001 CERTIFIED COMPANY

**Victaulic Company of America**  
Phone: 1-800-PICK-VIC (1-800-742-5842)  
Fax: 610-250-8817  
e-mail: pickvic@victaulic.com

**Victaulic Company of Canada**  
Phone: 905-884-7444  
Fax: 905-884-9774  
e-mail: viccanada@victaulic.com

**Victaulic Europe**  
Phone: 32-9-381-1500  
Fax: 32-9-380-4438  
e-mail: viceuro@victaulic.be

**Victaulic America Latina**  
Phone: 610-559-3300  
Fax: 610-559-3608  
e-mail: vical@victaulic.com

**Victaulic Asia Pacific**  
Phone: 65-6235-3035  
Fax: 65-6235-0535  
e-mail: vicap@victaulic.com

## APPROVALS/LISTINGS

Model	Nominal Orifice Size Inches/mm	Nominal K-Factor Imperial S.I. <sup>^</sup>	Response	Deflector Type	Approved Temperature Ratings °F/°C ‡			
					UL	ULC	NYC/MEA†	CSFM §
V2730	7/16 12	4.9 7.1	Quick	Pendent	155, 175 68,79	155, 175 68,79	155, 175 68,79	155, 175 68,79
V2730	7/16 12	4.9 7.1	Quick	Recessed Pendent Up to 1/2" Adjustment	155, 175 68,79	155, 175 68,79	155, 175 68,79	155, 175 68,79
V2732	7/16 12	4.9 7.1	Quick	Pendent	155, 175 68,79	155, 175 68,79	155, 175 68,79	155, 175 68,79
V2732	7/16 12	4.9 7.1	Quick	Recessed Pendent Up to 1/2" Adjustment	155, 175 68,79	155, 175 68,79	155, 175 68,79	155, 175 68,79

‡ Listings and approval as of printing.

<sup>^</sup> For K-Factor when pressure is measured in Bar, multiply S.I. units by 10.0.

† MEA #62-99-E.

§ CSFM #7690-0531:112

## RATINGS

All glass bulbs are rated for temperatures from -67°F (-55°C) up to those shown in adjacent table.

Sprinkler Temperature Classification	Victaulic Part Identification	Temperature - °F/°C		Glass Bulb Color
		Nominal Temperature Rating	Maximum Ambient Ceiling Temp.	
Ordinary	C	155 68	100 38	Red
Intermediate	E	175 79	150 68	Yellow

## ORDERING INFORMATION

Please specify the following when ordering:

Sprinkler Model Number

K-Factor

Sprinkler Finish

Style

Thread Size

Escutcheon Finish

Temperature Rating

Quantity

Wrench Model Number

## ⚠ WARNING



- Always read and understand installation, care, and maintenance instructions, supplied with each box of sprinklers, before proceeding with installation of any sprinklers.
  - Always wear safety glasses and foot protection.
  - Depressurize and drain the piping system before attempting to install, remove, or adjust any Victaulic piping products.
  - Installation rules, especially those governing obstruction, must be strictly followed.
  - Painting, plating, or any re-coating of sprinklers (other than that supplied by Victaulic) is not allowed.
- Failure to follow these instructions could result in serious personal injury and/or property damage.

The owner is responsible for maintaining the fire protection system and devices in proper operating condition. For minimum maintenance and inspection requirements, refer to the current National Fire Protection Association pamphlet that describes care and maintenance of sprinkler systems. In addition, the authority having jurisdiction may have additional maintenance, testing, and inspection requirements that must be followed.

If you need additional copies of this publication, or if you have any questions about the safe installation of this product, contact Victaulic World Headquarters, P.O. Box 31, Easton, Pennsylvania 18044-0031, 610-559-3300.

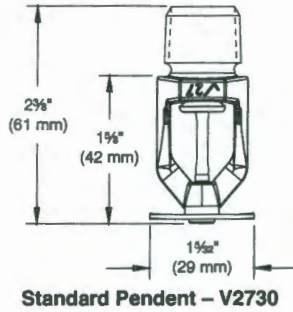
## WARRANTY

Refer to the Warranty section of the current Price List or contact Victaulic for details.

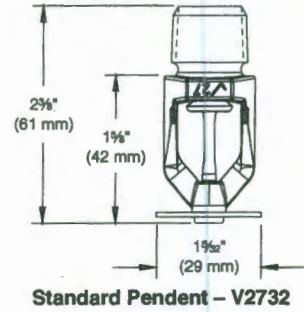
## AVAILABLE WRENCHES

	Open End	Recessed
V2730, V2732 - Pendent	V27	V38-3
V2730, V2732 - Recessed Pendent	-	V38-3

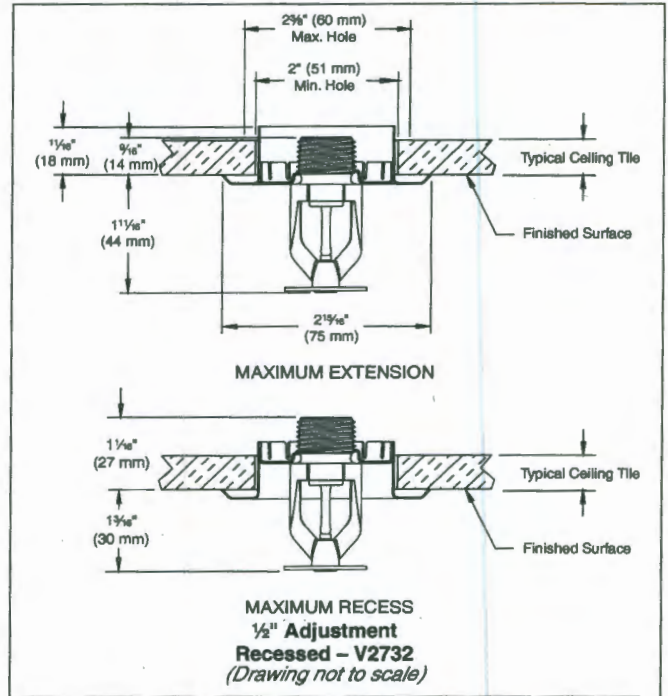
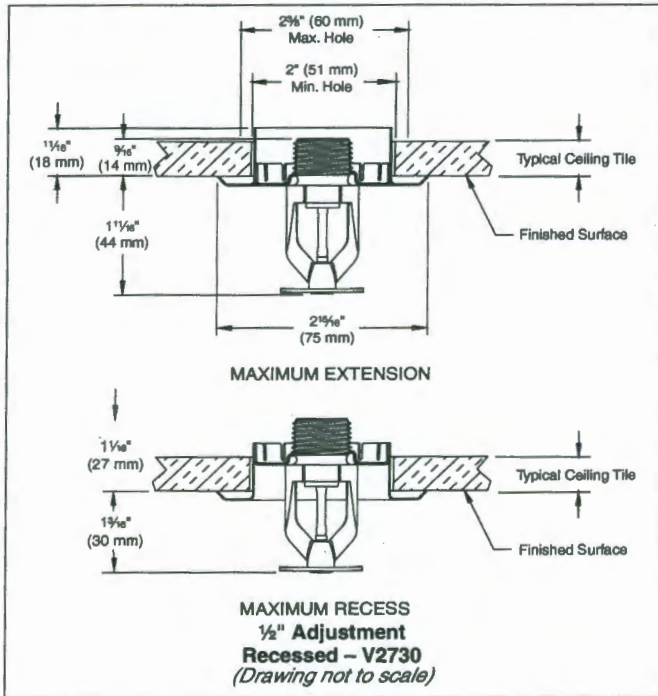
# DIMENSIONS



**Standard Pendant - V2730**



**Standard Pendant - V2732**



# ROOM SIZE

## Installed Under Smooth Flat Horizontal and Beamed Ceilings up to 2/12 (9.5°) Pitch

Model	Room Size Feet/meters	Min. Installation Spacing Feet/meters	Nominal K-Factor Imperial S.I. <sup>^</sup>	Minimum Flow per Sprinkler for Smooth Flat Horizontal and Beamed Ceilings Max. 2/12 (9.5°) Pitch for NFPA 13R or 13D* GPM/LPM @ PSI/kPa	
				155°F/68°C	175°F/70°C
V2730	12 X 12 3,7 X 3,7	8.0 2.4	4.9 7,1	13 GPM @ 7.0 PSI 49,2 LPM @ 48,5 kPa	13 GPM @ 7.0 PSI 49,2 LPM @ 48,5 kPa
V2730	14 X 14 4,3 X 4,3	8.0 2.4	4.9 7,1	13 GPM @ 7.0 PSI 49,2 LPM @ 48,5 kPa	15 GPM @ 9.4 PSI 56,8 LPM @ 64,6 kPa
V2730	16 X 16 4,9 X 4,9	8.0 2.4	4.9 7,1	13 GPM @ 7.0 PSI 49,2 LPM @ 48,5 kPa	15 GPM @ 9.4 PSI 56,8 LPM @ 64,6 kPa
V2732	12 X 12 3,7 X 3,7	8.0 2.4	4.9 7,1	13 GPM @ 7.0 PSI 49,2 LPM @ 48,5 kPa	13 GPM @ 7.0 PSI 49,2 LPM @ 48,5 kPa
V2732	14 X 14 4,3 X 4,3	8.0 2.4	4.9 7,1	17 GPM @ 12.0 PSI 64,3 LPM @ 83,0 kPa	17 GPM @ 12.0 PSI 64,3 LPM @ 83,0 kPa
V2732	16 X 16 4,9 X 4,9	8.0 2.4	4.9 7,1	17 GPM @ 12.0 PSI 64,3 LPM @ 83,0 kPa	17 GPM @ 12.0 PSI 64,3 LPM @ 83,0 kPa
V2732	18 X 18 5,5 X 5,5	8.0 2.4	4.9 7,1	17 GPM @ 12.0 PSI 64,3 LPM @ 83,0 kPa	17 GPM @ 12.0 PSI 64,3 LPM @ 83,0 kPa
V2732	20 X 20 6,1 X 6,1	8.0 2.4	4.9 7,1	20 GPM @ 16.7 PSI 75,7 LPM @ 114,9 kPa	20 GPM @ 16.7 PSI 75,7 LPM @ 114,9 kPa

## Installed Under Sloped Ceilings up to 4/12 (18.4°) Pitch

Model	Room Size Feet/meters	Min. Installation Spacing Feet/meters	Nominal K-Factor Imperial S.I. <sup>^</sup>	Minimum Flow per Sprinkler for Sloped Ceilings Max. 4/12 (18.4°) Pitch for NFPA 13R or 13D* GPM/LPM @ PSI/kPa	
				155°F/68°C	175°F/70°C
V2730	12 X 12 3,7 X 3,7	8.0 2.4	4.9 7,1	13 GPM @ 7.0 PSI 49,2 LPM @ 48,5 kPa	15 GPM @ 9.4 PSI 56,8 LPM @ 65,0 kPa
V2730	14 X 14 4,3 X 4,3	8.0 2.4	4.9 7,1	13 GPM @ 7.0 PSI 49,2 LPM @ 48,5 kPa	15 GPM @ 9.4 PSI 56,8 LPM @ 64,6 kPa
V2730	16 X 16 4,9 X 4,9	8.0 2.4	4.9 7,1	13 GPM @ 7.0 PSI 49,2 LPM @ 48,5 kPa	15 GPM @ 9.4 PSI 56,8 LPM @ 64,6 kPa
V2732	12 X 12 3,7 X 3,7	8.0 2.4	4.9 7,1	17 GPM @ 12.0 PSI 64,3 LPM @ 83,0 kPa	19 GPM @ 15.0 PSI 71,9 LPM @ 103,0 kPa
V2732	14 X 14 4,3 X 4,3	8.0 2.4	4.9 7,1	17 GPM @ 12.0 PSI 64,3 LPM @ 83,0 kPa	19 GPM @ 15.0 PSI 71,9 LPM @ 103,0 kPa
V2732	16 X 16 4,9 X 4,9	8.0 2.4	4.9 7,1	17 GPM @ 12.0 PSI 64,3 LPM @ 83,0 kPa	19 GPM @ 15.0 PSI 71,9 LPM @ 103,0 kPa
V2732	18 X 18 5,5 X 5,5	8.0 2.4	4.9 7,1	17 GPM @ 12.0 PSI 64,3 LPM @ 83,0 kPa	19 GPM @ 15.0 PSI 71,9 LPM @ 103,0 kPa
V2732	20 X 20 6,1 X 6,1	8.0 2.4	4.9 7,1	20 GPM @ 16.7 PSI 75,7 LPM @ 114,9 kPa	21 GPM @ 18.4 PSI 79,5 LPM @ 127,0 kPa

## Installed Under Sloped Ceilings up to 8/12 (33.7°) Pitch

Model	Room Size Feet/meters	Min. Installation Spacing Feet/meters	Nominal K-Factor Imperial S.I. <sup>^</sup>	Minimum Flow per Sprinkler for Sloped Ceilings Max. 8/12 (33.7°) Pitch for NFPA 13R or 13D* GPM/LPM @ PSI/kPa	
				155°F/68°C	175°F/70°C
V2730	12 X 12 3,7 X 3,7	8.0 2.4	4.9 7,1	15 GPM @ 9.4 PSI 56,8 LPM @ 65,0 kPa	20 GPM @ 16.7 PSI 75,7 LPM @ 114,9 kPa
V2730	14 X 14 4,3 X 4,3	8.0 2.4	4.9 7,1	15 GPM @ 9.4 PSI 56,8 LPM @ 65,0 kPa	20 GPM @ 16.7 PSI 75,7 LPM @ 114,9 kPa
V2730	16 X 16 4,9 X 4,9	8.0 2.4	4.9 7,1	15 GPM @ 9.4 PSI 56,8 LPM @ 65,0 kPa	20 GPM @ 16.7 PSI 75,7 LPM @ 114,9 kPa
V2732	12 X 12 3,7 X 3,7	8.0 2.4	4.9 7,1	17 GPM @ 12.0 PSI 64,3 LPM @ 83,0 kPa	23 GPM @ 22.0 PSI 87,1 LPM @ 152,0 kPa
V2732	14 X 14 4,3 X 4,3	8.0 2.4	4.9 7,1	17 GPM @ 12.0 PSI 64,3 LPM @ 83,0 kPa	23 GPM @ 22.0 PSI 87,1 LPM @ 152,0 kPa
V2732	16 X 16 4,9 X 4,9	8.0 2.4	4.9 7,1	17 GPM @ 12.0 PSI 64,3 LPM @ 83,0 kPa	23 GPM @ 22.0 PSI 87,1 LPM @ 152,0 kPa
V2732	18 X 18 5,5 X 5,5	8.0 2.4	4.9 7,1	17 GPM @ 12.0 PSI 64,3 LPM @ 83,0 kPa	23 GPM @ 22.0 PSI 87,1 LPM @ 152,0 kPa
V2732	20 X 20 6,1 X 6,1	8.0 2.4	4.9 7,1	26 GPM @ 28.2 PSI 98,4 LPM @ 194,0 kPa	- -

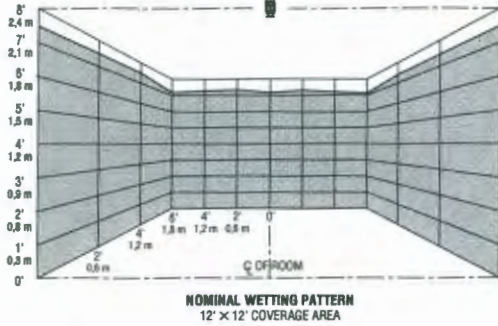
### NOTES:

<sup>^</sup> For K-Factor when pressure is measured in Bar, multiply S.I. units by 10.0.

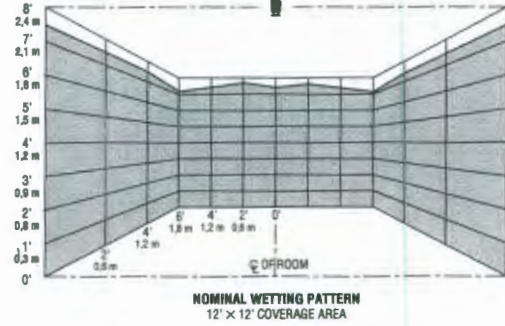
\* For systems designed to NFPA 13, the number of design sprinklers is to be the four most demanding sprinklers. The minimum required discharge from each of the four sprinklers is to be the greater of the flow rates provided in the table for NFPA 13D and 13R systems and the maximum allowable coverage area or a minimum discharge of 0.1 gpm/ft.<sup>2</sup> over the design area of the four most demanding sprinklers for the actual coverage areas being protected by four sprinklers.

# NOMINAL WETTING PATTERNS

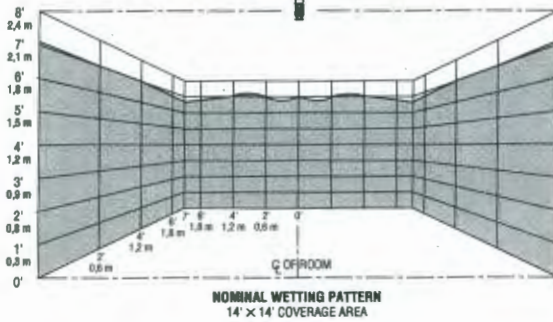
**MODEL V2730**  
**K4.9 RESIDENTIAL PENDENT AND RECESSED PENDENT**  
 13 GPM (49,2 LPM)



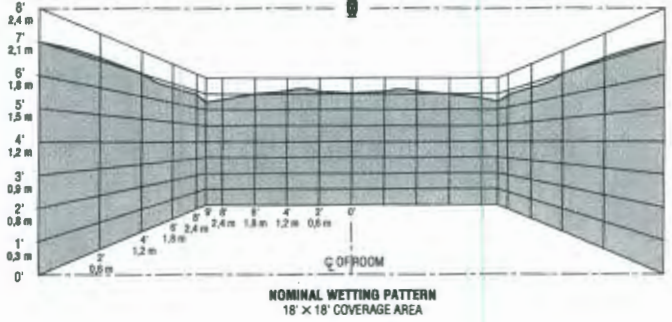
**MODEL V2732**  
**K4.9 RESIDENTIAL PENDENT AND RECESSED PENDENT**  
 13 GPM (49,2 LPM)



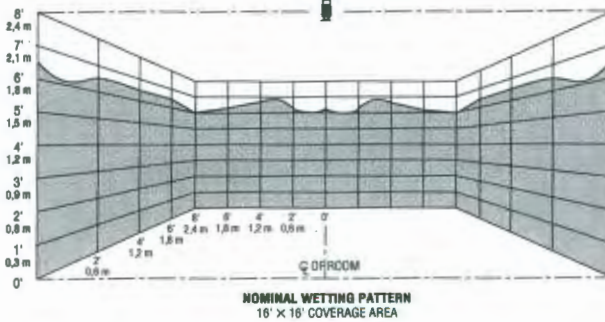
**MODEL V2730**  
**K4.9 RESIDENTIAL PENDENT AND RECESSED PENDENT**  
 13 GPM (49,2 LPM)



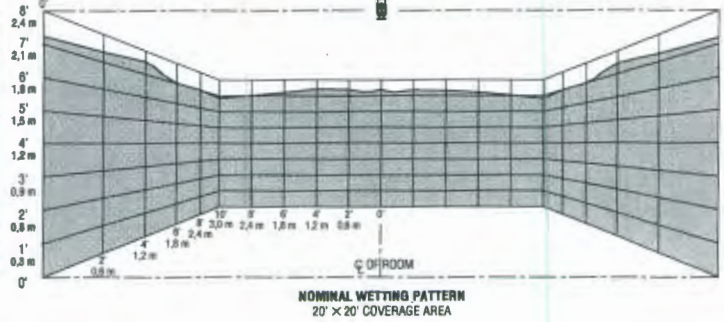
**MODEL V2732**  
**K4.9 RESIDENTIAL PENDENT AND RECESSED PENDENT**  
 17 GPM (64,3 LPM)



**MODEL V2730**  
**K4.9 RESIDENTIAL PENDENT AND RECESSED PENDENT**  
 13 GPM (49,2 LPM)



**MODEL V2732**  
**K4.9 RESIDENTIAL PENDENT AND RECESSED PENDENT**  
 20 GPM (75,7 LPM)



**NOTES:**

1. Data shown is approximate and can vary due to differences in installation.
2. These graphs illustrate approximate wall-wetting patterns for these specific Victaulic FireLock Automatic Sprinklers. They are provided as information for guidance and should not be used as minimum sprinkler spacing rules for installation. Sprinkler location shall be in accordance with the obstruction rules for residential sprinklers in NFPA 13 (2002 or later revision). Failure to follow these guidelines could adversely affect the performance of the sprinkler and will void all Listings, Approvals and Warranties.
3. All patterns are symmetric to waterway.

# BEAMED CEILINGS

## Installation Guidelines

The Victaulic Model V2730 and V2732 Residential Pendant Sprinklers are UL Listed for use in beamed ceilings in residential occupancies. These sprinklers can be installed in or adjacent to non-combustible, combustible, solid or hollow-core beams with solid surfaces per the following guidelines. See the Room Size section on page 4 for specific flow/pressure requirements for hydraulic design.

**Primary Beams:** The main longitudinal beams attached directly to a smooth flat horizontal ceiling of any height.

**Secondary Beams:** The beams running perpendicular to the primary beams, attached directly to a smooth flat horizontal ceiling of any height.

**Beam Cross Section:** The maximum allowable beam depth is 14". The secondary beam depth cannot be greater than the primary beam depth. The width is unlimited. The cross section can vary between rectangular and circular.

### Beam Spacing:

- **Primary Beams:** The distance from the wall to the center of the nearest primary beam must be at least 3'4" and not more than 1/2 the Listed sprinkler spacing.
- **Secondary Beams:** The beam pockets created by the primary beams cannot exceed 20 ft. in length. If the primary beams exceed 20 ft., then a secondary beam must be placed such that the pocket created does not exceed 20 ft. When a secondary beam is placed for this reason, then the secondary beam must be of a depth equal to the primary beams. When the primary beams are less than 20 ft., secondary beams are not required, but may be placed at any distance from the wall and at any center to center distance between beams.

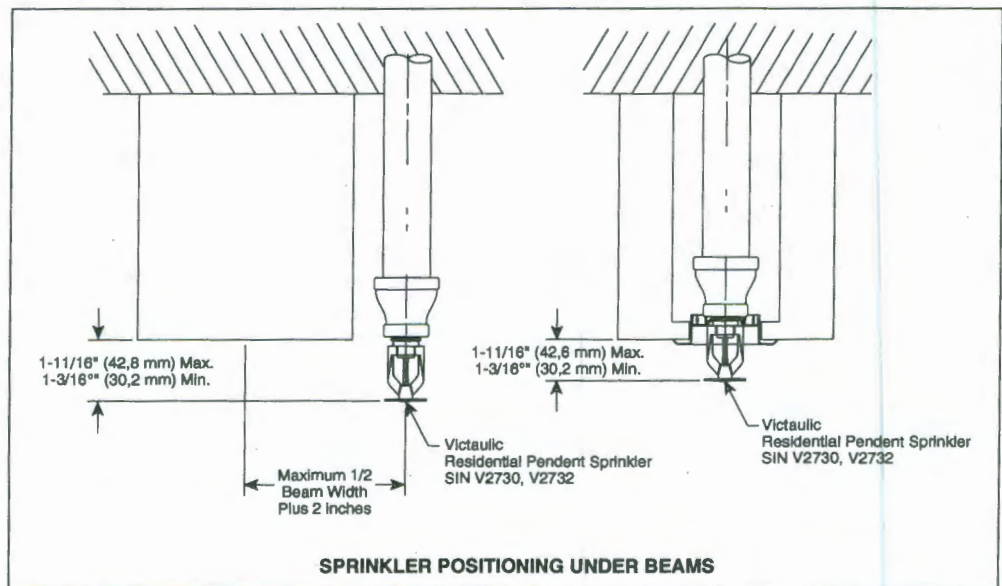
**Lintels:** Are required over doorways exiting the compartment. The minimum lintel height is 8 inches or at least the depth of the primary beams, whichever is greater.

**Soffit and Beam combinations:** Soffits may be installed around the room perimeter. The beams would then be placed within the soffit area. There is no limitation for the size of the soffit as long as the water distribution is not impaired per the obstruction rules in NFPA 13 for Residential sprinklers. Beam pockets would then be measured from the face of the soffit. The sprinkler coverage area shall be spaced off the walls.

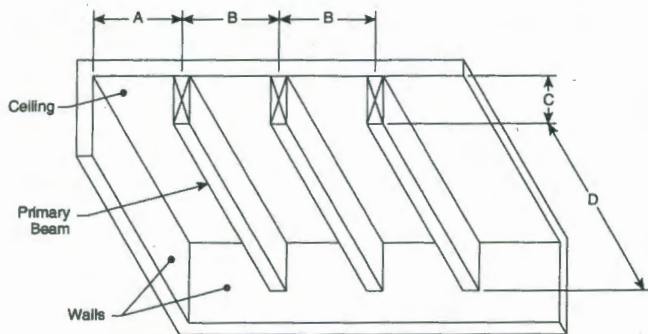
**Sprinkler Location:** The sprinklers must be located below the underside of the beams, not in the beam pockets. The deflector shall be within 1<sup>3</sup>/<sub>16</sub>" and 1<sup>11</sup>/<sub>16</sub>" off the bottom of the primary beam. The horizontal distance between the centerline of the sprinkler and the edge of the primary beam cannot be more than 2".

**⚠ CAUTION**

A structural engineer must be consulted before drilling into beams to install drops. If drilling into the beam is not allowed, then the drop may be installed adjacent to the primary beam per the dimensions above.



# BEAMED CEILING ARRANGEMENTS

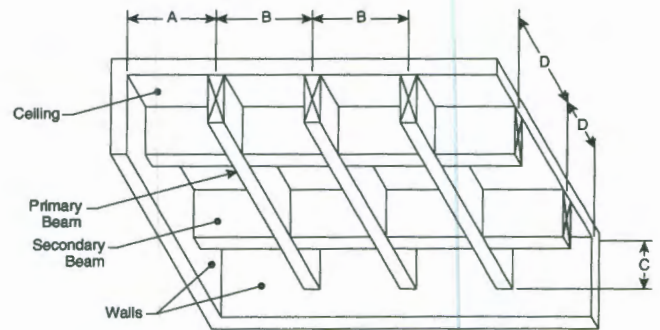


**PRIMARY BEAM SPANS UP TO 20'-0" (6,1 m)**

**Figure 3A**

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

- A = Distance from wall to nearest primary beam:** Minimum: 3'-4" (1,0 m); Maximum: No more than 1/2 listed sprinkler spacing.
- B = Spacing between primary beams:** 20'-0" (6,1 m) maximum
- C = Beam depth:** 14" (356 mm) maximum.
- D = Beam span:** 20'-0" (6,1 m) maximum.

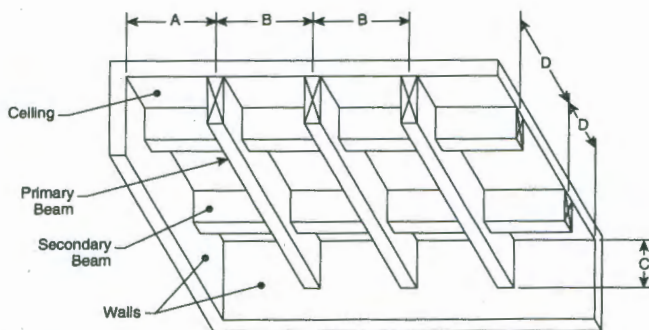


**PRIMARY BEAM SPANS GREATER THAN 20'-0" (6,1 m)**

**Figure 3B**

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

- A = Distance from wall to nearest primary beam:** Minimum: 3'-4" (1,0 m); Maximum: No more than 1/2 listed sprinkler spacing.
- B = Spacing between primary beams:** 20'-0" (6,1 m) maximum
- C = Beam depth:** 14" (356 mm) maximum.
- D = Secondary Beam Spacing:** 20'-0" (6,1 m) maximum spacing. Secondary beams are to be equal in depth to primary beams and are required so that the primary beam pockets do not exceed 20'-0" (6,1 m).

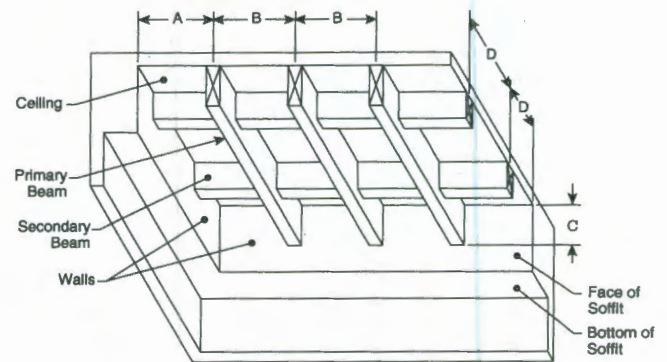


**COMBINATIONS OF PRIMARY AND SECONDARY BEAMS**

**Figure 3C**

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

- A = Distance from wall to nearest primary beam:** Minimum: 3'-4" (1,0 m); Maximum: No more than 1/2 listed sprinkler spacing.
- B = Spacing between primary beams:** 20'-0" (6,1 m) maximum
- C = Beam depth:** 14" (356 mm) maximum. Note: Secondary beam depth cannot be greater than the primary beam.
- D = Secondary Beam Spacing:** Secondary beams may be spaced at any distance, unless primary beam spans exceed 20'-0" (6,1 m).



**BEAM AND SOFFIT ARRANGEMENTS**

**Figure 3D**

**D =** Use the dimensions shown in Figures 3A, 3B, and 3C, except that 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.

This product shall be manufactured by Victaulic Company. All products to be installed in accordance with current Victaulic installation/assembly instructions. Victaulic reserves the right to change product specifications, designs and standard equipment without notice and without incurring obligations.



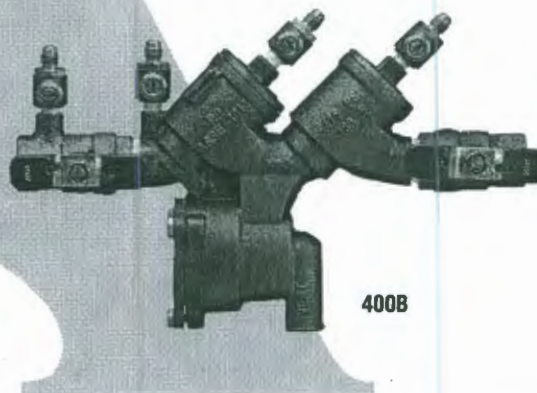
# Series 400B

## Reduced Pressure Zone Assemblies

Sizes: 3/4" – 2" (20 – 50mm)

### Features

- Separate access covers for the check valves and relief valve for ease of maintenance
- Top entry-all check internals easily accessible
- All rubber elastomers of chloramine resistant material
- Check valve poppet assemblies are fully guided by innovative plastic seat guide
- Replaceable push-in check valve and relief valve seat eliminates threads from the water way
- EZ twist relief valve cover-quarter turn locking joint captures the spring load during repair to facilitate disassembly
- Innovative check valve plastic cover bushing provides trouble free guiding of the check valve poppet
- Bottom mounted relief valve provides reduced installation clearances
- Compact, space saving design
- No special tools required for servicing
- Top mounted test cocks for ease in testing and reduced installation clearances
- Standardly furnished with NPT body connections



400B

Series 400B Reduced Pressure Zone Assemblies are designed to protect potable water supplies in accordance with national plumbing codes and water authority requirements. This series can be used in a variety of installations, including the prevention of health hazard cross-connections or for containment at the service line entrance.

This series features two poppet style check valves, replaceable check seats, with an intermediate relief valve. Its compact modular design facilitates easy maintenance and assembly access. Sizes 3/4" – 1" (20 – 25mm) shutoffs have tee handles.

### Specifications

A Reduced Pressure Zone Assembly shall be installed at each potential health hazard location to prevent backflow due to backsiphonage and/or backpressure. The assembly shall consist of a pressure differential relief valve located in a zone between two positive seating check valves. Seats and seat discs shall be replaceable in both check valves and the relief valve without the use of special tools. Service of all internal check valve components shall be through top mounted access covers threaded to the main valve body. The check valve poppet assembly shall be guided via the use of a corrosion resistant plastic guide. The check valve and relief valve seats shall be push-in type. The relief valve cover shall be secured with stainless steel bolts and shall utilize a quarter-turn locking joint to capture the spring load of the relief valve. The relief valve shall have an internal sensing line to sense the inlet water supply. All rubber elastomers shall be of chloramine resistant material. The assembly shall also include two resilient seated isolation valves, four top-mounted resilient seated test cocks and an air gap drain fitting. The assembly shall be an Ames Company Series 400B.

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Job Name \_\_\_\_\_ Contractor \_\_\_\_\_

Job Location \_\_\_\_\_ Approval \_\_\_\_\_

Engineer \_\_\_\_\_ Contractor's P.O. No. \_\_\_\_\_

Approval \_\_\_\_\_ Representative \_\_\_\_\_

Ames product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Ames Technical Service. Ames reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Ames products previously or subsequently sold.



## Available Models

Suffix:

- B – quarter-turn ball valves
- S – bronze strainer
- LBV – less ball valve
- A – elbow fitting for 360° rotation
- Z – inlet & outlet flow up
- PC – polymer coated
- LH – locking handle ball valves (open position)
- C&T – cap & tether test cocks
- FP – slow close ball valves

Prefix:

- U – union connections

## Materials

Body: Bronze

Discs: Silicone rubber

Check Seats: Replaceable polymer

Cover Bolts: Stainless steel

**IMPORTANT: Inquire with governing authorities for local installation requirements.**

## Pressure — Temperature

Temperature Range: 33°F – 180°F (3°C – 82°C)

Maximum Working Pressure: 175psi (12.06 bar)

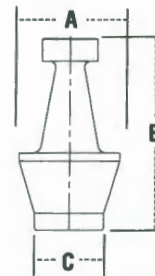
## Approvals



¼"-2" LF and FP models only

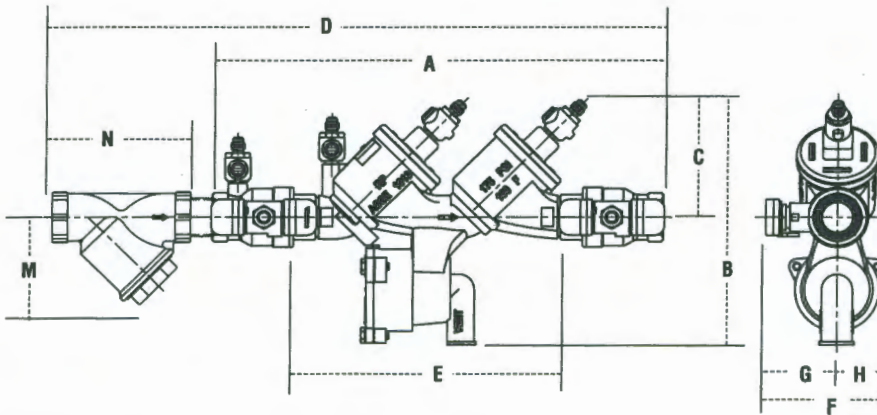
Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.  
(for sizes ¾" – 2")

## Air Gaps



AIR GAP MODEL	SIZES	DIMENSIONS			WEIGHT	
		A in. mm	B in. mm	C in. mm	lbs.	kg.
400B-AGC	¾" & 1"	2¾ 60	3⅞ 79	½ 13	.63	.28
400B-AGF	1¼" – 2"	4¾ 111	8⅞ 214	3 76	4.26	1.93

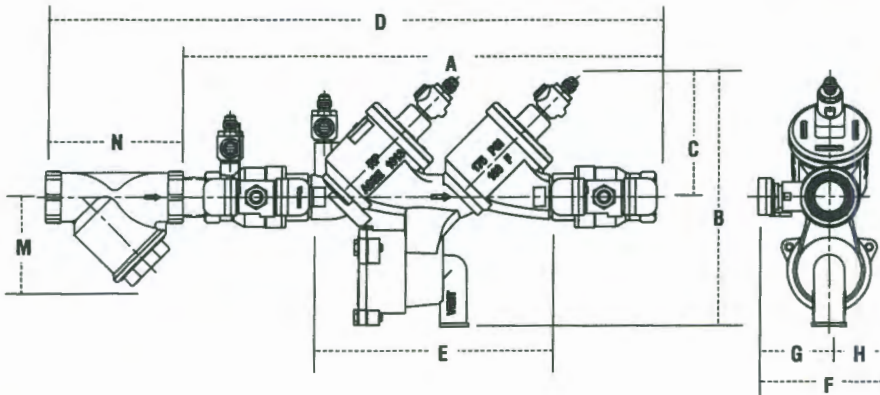
## Dimensions and Weights



### 400B, 400B-S

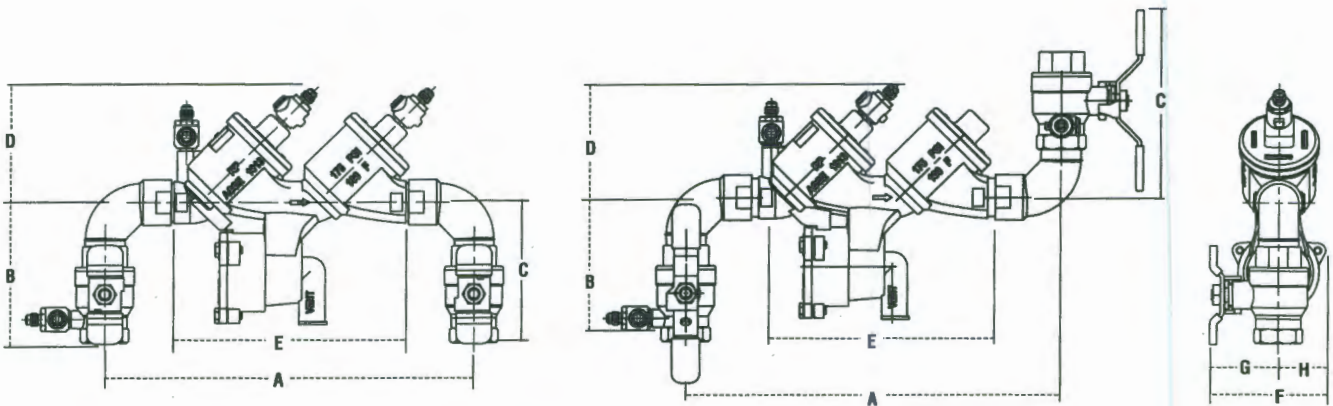
SIZE (DN)		DIMENSIONS								STRAINER DIMENSIONS				WEIGHT	
in.	mm	A in. mm	B in. mm	C in. mm	D in. mm	E (LF) in. mm	F in. mm	G in. mm	H in. mm	M in. mm	N in. mm	400B lbs. kg.	400B-S lbs. kg.		
¾	20	12⅞ 307	7⅞ 188	3½ 88	15½ 393	7⅞ 195	3⅞ 92	2⅞ 52	1⅞ 40	1⅞ 41	3⅞ 81	8.3	3.7	10.0	4.5
1	25	14½ 368	8 202	3⅞ 98	19⅞ 487	9⅞ 233	4 102	2⅞ 62	1⅞ 40	2⅞ 54	3⅞ 95	11.8	5.4	13.8	6.3
1¼	32	18⅞ 461	11⅞ 290	5⅞ 129	23¼ 591	11⅞ 297	5⅞ 130	2⅞ 67	2½ 64	2½ 64	4⅞ 113	22.3	10.1	26.3	11.9
1½	40	18¾ 476	11⅞ 290	5⅞ 129	25⅞ 637	11⅞ 297	5⅞ 143	3⅞ 79	2½ 64	3 76	4⅞ 124	28.3	12.8	32.0	14.5
2	50	21⅞ 535	12⅞ 307	5⅞ 142	28⅞ 732	13⅞ 340	5⅞ 151	3⅞ 87	2½ 64	3⅞ 90	5⅞ 151	37.3	16.9	45.0	20.4

## Dimensions and Weights



### U400B, U400B-S

SIZE (DN)		DIMENSIONS						STRAINER DIMENSIONS				WEIGHT													
in.	mm	A		B		C		D		E (LF)		F		G		H		M		N		U400B		U400B-S	
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.	lbs.	kgs.
3/4	20	16 <sup>15</sup> / <sub>16</sub>	430	8 <sup>1</sup> / <sub>16</sub>	204	3 <sup>7</sup> / <sub>8</sub>	98	20 <sup>5</sup> / <sub>16</sub>	515	11 <sup>1</sup> / <sub>2</sub>	292	3 <sup>5</sup> / <sub>8</sub>	92	2 <sup>1</sup> / <sub>16</sub>	52	1 <sup>9</sup> / <sub>16</sub>	40	1 <sup>5</sup> / <sub>8</sub>	41	3 <sup>3</sup> / <sub>16</sub>	81	13.4	6.1	15.1	6.9
1	25	17 <sup>1</sup> / <sub>8</sub>	435	8 <sup>1</sup> / <sub>16</sub>	204	3 <sup>7</sup> / <sub>8</sub>	98	21 <sup>13</sup> / <sub>16</sub>	554	11 <sup>3</sup> / <sub>4</sub>	297	4	102	2 <sup>7</sup> / <sub>16</sub>	62	1 <sup>9</sup> / <sub>16</sub>	40	2 <sup>1</sup> / <sub>8</sub>	54	3 <sup>3</sup> / <sub>4</sub>	95	13.3	6.0	15.3	6.9
1 <sup>1</sup> / <sub>4</sub>	32	20 <sup>15</sup> / <sub>16</sub>	532	11 <sup>7</sup> / <sub>16</sub>	290	5 <sup>1</sup> / <sub>8</sub>	129	26 <sup>1</sup> / <sub>16</sub>	662	15 <sup>3</sup> / <sub>8</sub>	390	5 <sup>1</sup> / <sub>8</sub>	130	2 <sup>5</sup> / <sub>8</sub>	67	2 <sup>1</sup> / <sub>2</sub>	64	2 <sup>1</sup> / <sub>2</sub>	64	4 <sup>7</sup> / <sub>16</sub>	113	25.9	11.8	29.9	13.6
1 <sup>1</sup> / <sub>2</sub>	40	21 <sup>9</sup> / <sub>16</sub>	547	11 <sup>7</sup> / <sub>16</sub>	290	5 <sup>1</sup> / <sub>8</sub>	129	27 <sup>7</sup> / <sub>8</sub>	708	15 <sup>3</sup> / <sub>8</sub>	390	5 <sup>5</sup> / <sub>8</sub>	143	3 <sup>1</sup> / <sub>8</sub>	79	2 <sup>1</sup> / <sub>2</sub>	64	3	76	4 <sup>7</sup> / <sub>8</sub>	124	31.9	14.5	35.6	16.2
2	50	24 <sup>15</sup> / <sub>16</sub>	633	12 <sup>1</sup> / <sub>16</sub>	307	5 <sup>5</sup> / <sub>8</sub>	142	32 <sup>11</sup> / <sub>16</sub>	830	16 <sup>3</sup> / <sub>4</sub>	425	5 <sup>15</sup> / <sub>16</sub>	151	3 <sup>7</sup> / <sub>16</sub>	87	2 <sup>1</sup> / <sub>2</sub>	64	3 <sup>9</sup> / <sub>16</sub>	90	5 <sup>15</sup> / <sub>16</sub>	151	41.6	18.9	49.3	22.4

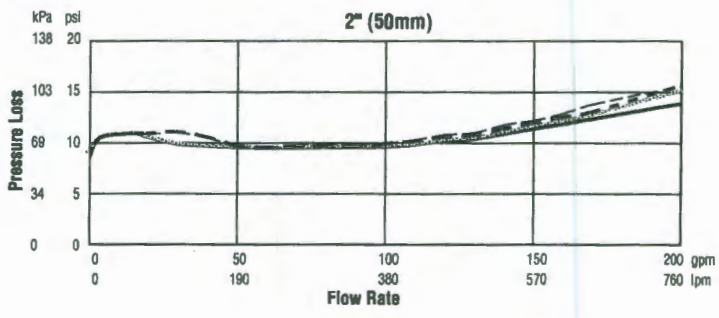
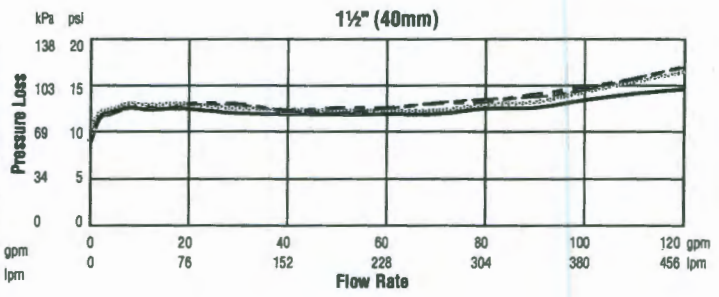
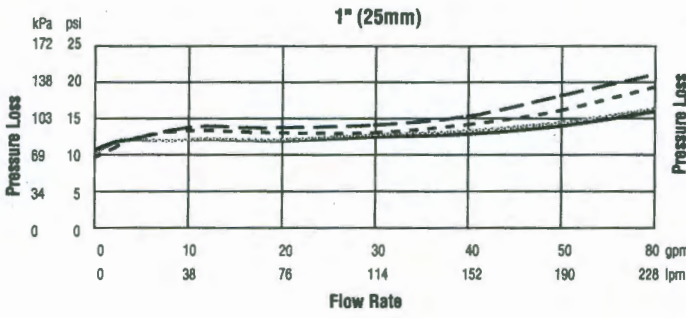
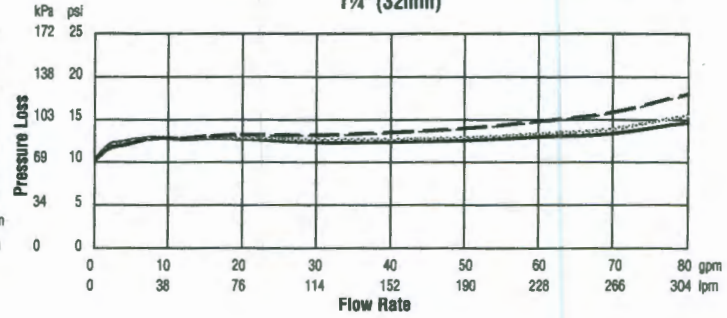
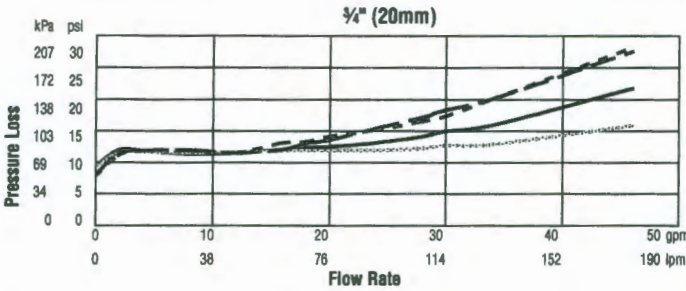


### 400B-A, 400B-Z

SIZE (DN)		DIMENSIONS						STRAINER DIMENSIONS				WEIGHT					
in.	mm	A		B		C		D		E (LF)		F		G		H	
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
3/4	20	10 <sup>3</sup> / <sub>8</sub>	263	3 <sup>15</sup> / <sub>16</sub>	100	3 <sup>15</sup> / <sub>16</sub>	100	3 <sup>1</sup> / <sub>2</sub>	88	7 <sup>11</sup> / <sub>16</sub>	195	3 <sup>5</sup> / <sub>8</sub>	92	2 <sup>1</sup> / <sub>16</sub>	52	1 <sup>9</sup> / <sub>16</sub>	40
1	25	12 <sup>1</sup> / <sub>4</sub>	311	4 <sup>13</sup> / <sub>16</sub>	122	4 <sup>13</sup> / <sub>16</sub>	122	3 <sup>7</sup> / <sub>8</sub>	98	9 <sup>9</sup> / <sub>16</sub>	233	4	102	2 <sup>7</sup> / <sub>16</sub>	62	1 <sup>9</sup> / <sub>16</sub>	40
1 <sup>1</sup> / <sub>4</sub>	32	16 <sup>1</sup> / <sub>16</sub>	407	5 <sup>7</sup> / <sub>8</sub>	149	5 <sup>7</sup> / <sub>8</sub>	149	5 <sup>1</sup> / <sub>8</sub>	129	11 <sup>11</sup> / <sub>16</sub>	297	5 <sup>1</sup> / <sub>8</sub>	130	2 <sup>5</sup> / <sub>8</sub>	67	2 <sup>1</sup> / <sub>2</sub>	64
1 <sup>1</sup> / <sub>2</sub>	40	16 <sup>5</sup> / <sub>8</sub>	421	6 <sup>1</sup> / <sub>2</sub>	164	6 <sup>1</sup> / <sub>2</sub>	164	5 <sup>1</sup> / <sub>8</sub>	129	11 <sup>11</sup> / <sub>16</sub>	297	5 <sup>5</sup> / <sub>8</sub>	143	3 <sup>1</sup> / <sub>8</sub>	79	2 <sup>1</sup> / <sub>2</sub>	64
2	50	17 <sup>9</sup> / <sub>16</sub>	440	6 <sup>9</sup> / <sub>8</sub>	168	6 <sup>9</sup> / <sub>16</sub>	166	5 <sup>5</sup> / <sub>8</sub>	142	13 <sup>3</sup> / <sub>8</sub>	340	5 <sup>15</sup> / <sub>16</sub>	151	3 <sup>7</sup> / <sub>16</sub>	87	2 <sup>1</sup> / <sub>2</sub>	64

# Capacities

— 400B    — U400B    - - - 400B-A    - - - 400B-Z



[www.amesfirewater.com](http://www.amesfirewater.com)



**ISO 9001-2000  
CERTIFIED**

A Watts Water Technologies Company

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Control Valves- 18550 Hansen Road • Houston, TX 77075 • T: 713-943-0688 • F: 713-944-9445

Canada: 5435 North Service Rd. • Burlington, ONT. L7L 5H7 • T: 905-332-4090 • F: 905-332-7068

ES-A-400B 0948

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## **BlazeMaster® CPVC Fire Sprinkler Pipe & Fittings Submittal Sheet**

### **General Description**

Tyco® CPVC Pipe and Fittings produced by Tyco Fire & Building Products (TFBP) are designed exclusively for use in wet pipe automatic fire sprinkler systems. The Tyco CPVC Pipe and Fittings are produced from BlazeMaster® CPVC compound that is a specially developed thermoplastic compound composed of post chlorinated polyvinyl chloride (CPVC) resin and state of the art additives. Tyco CPVC Pipe and Fittings are easier to install than traditional steel pipe systems, and at the same time, provide superior heat resistance and strength as compared to traditional CPVC and PVC piping materials used in the plumbing trade. Various adapters are available to connect CPVC pipe to metallic piping. All female pipe thread adapters have brass inserts for durability. Grooved adapters connect directly to grooved end valves and metallic pipe, with flexible grooved end couplings.

#### **NOTICE**

*Tyco® CPVC Pipe and Fittings produced with BlazeMaster® CPVC compound described herein must be installed and maintained in compliance with this document and with the applicable standards of the National Fire Protection Association, in addition to the standards of any authorities having jurisdiction. Failure to do so may impair the performance of these devices.*

*The owner is responsible for maintaining their fire protection system and devices in proper operating condition. The installing contractor or sprinkler manufacturer should be contacted with any questions.*

### **Technical Data**

**Sizes**  
3/4" to 3"

**Maximum Working Pressure**  
175 psi

**Approvals**  
UL, FM, C-UL, NSF, LPCB, MEA, and the City of Los Angeles. (Refer to Installation Handbook IH-1900 dated June 2008 for exact listing/approval information.)

**Manufacture Source**  
U.S.A.

#### **Material**

- Pipe: ASTM F442, SDR 13.5
- Fittings: ASTM F438 (Sch. 40) and ASTM F439 (Sch. 80), ASTM F1970

**Color**  
Orange



*BlazeMaster® is a registered trademark of The Lubrizol Corporation*

## Installation

Tyco® CPVC Pipe and Fittings produced by Tyco Fire & Building Products (TFBP) are to be installed in accordance with Installation Handbook IH-1900 dated June 2008.

## Care and Maintenance

The owner is responsible for the inspection, testing, and maintenance of their fire protection system and devices in compliance with this document, as well as with the applicable standards of the National Fire Protection Association (e.g., NFPA 25), in addition to the standards of any authority having jurisdiction. The installing contractor or product manufacturer should be contacted relative to any questions.

Automatic sprinkler systems should be inspected, tested, and maintained by a qualified Inspection Service in accordance with local requirements and/or national codes.

### NOTICE

*Before closing a fire protection system control valve for inspection or maintenance work on the fire protection system that it controls, permission to shut down the affected fire protection system must first be obtained from the proper authorities and all personnel who may be affected by this action must be notified.*

*After placing a fire protection system in service, notify the proper authorities and advise those responsible for monitoring proprietary and/or central station alarms.*

## Limited Warranty

Products manufactured by Tyco Fire & Building Products (TFBP) are warranted solely to the original Buyer for ten (10) years against defects in material and workmanship when paid for and properly installed and maintained under normal use and service. This warranty will expire ten (10) years from date of shipment by TFBP. No warranty is given for products or components manufactured by companies not affiliated by ownership with TFBP or for products and components which have been subject to misuse, improper installation, corrosion, or which have not been installed, maintained, modified or repaired in accordance with applicable Standards of the National Fire Protection Association, and/or the standards of any other Authorities Having Jurisdiction. Materials found by TFBP to be defective shall be either repaired or replaced, at TFBP's sole option. TFBP neither assumes, nor authorizes any person to assume for it, any other obligation in connection with the sale of products or parts of products. TFBP shall not be responsible for sprinkler system design errors or inaccurate or incomplete information supplied by Buyer or Buyer's representatives.

In no event shall TFBP be liable, in contract, tort, strict liability or under any other legal theory, for incidental, indirect, special or consequential damages, including but not limited to labor charges, regardless of whether TFBP was informed about the possibility of such damages, and in no event shall TFBP's liability exceed an amount equal to the sales price.

The foregoing warranty is made in lieu of any and all other warranties, express or implied, including warranties of merchantability and fitness for a particular purpose.

This limited warranty sets forth the exclusive remedy for claims based on failure of or defect in products, materials or components, whether the claim is made in contract, tort, strict liability or any other legal theory.

This warranty will apply to the full extent permitted by law. The invalidity, in whole or part, of any portion of this warranty will not affect the remainder.

## NOTICE

**This building contains a CPVC fire sprinkler system. This CPVC fire sprinkler system is a Life Safety Assembly and must be treated carefully. Please read the following before any activity which could contact this system:**

**CPVC piping components may be damaged by certain substances and construction practices.**

- DO NOT stack, support, hang equipment, or hang flexible wire/cable, especially communications cable, or other material on the fire sprinkler system.
- ONLY system compatible materials including, but not limited to solvent cements, caulks, sealants, cutting oils and thread pastes as noted by the CPVC fire sprinkler piping system manufacturer's installation instructions should be used in contact with this system.
- DO NOT expose CPVC products to incompatible substances, such as cutting oils, non-water based paints, packing oils, traditional pipe thread paste and dope, fungicides, termiticides, insecticides, detergents, building caulks, adhesive tape, solder flux, flexible wire/cable (with special consideration for communications cabling), and non-approved spray foam insulation materials.
- DO NOT expose CPVC products to edible oils, solvents, or glycol-based anti-freeze fluids.
- DO NOT expose CPVC products to open flame, solder, and soldering flux.
- DO NOT drop, distort, or impact CPVC products or allow objects to be dropped on them.
- DO NOT handle CPVC products with gloves contaminated with oils (hydrocarbons) or other incompatible materials.

**Failure to follow this notice may cause cracks or fractures to develop in CPVC products resulting in property damage due to leaks or flooding. The presence of any visible cracks may require partial or full system replacement. For additional information contact the general contractor or the fire sprinkler system installer.**



**FOR ADDITIONAL INFORMATION CONTACT  
SPEARS® MANUFACTURING COMPANY AT 1-800-862-1499**

## Fig. 22 - Hanger for CPVC Plastic Pipe Single Fastener Strap Type



**Size Range** — 3/4" thru 2" CPVC pipe

**Material** — Pre-Galvanized Steel

**Function** — Intended to perform as a hanger to support CPVC piping used in automatic fire sprinkler systems. The product acts as a hanger when tab is upward and the fastener screw is in the horizontal position. Figure 22 can be installed on the top of a beam, but in this situation acts as a guide to the piping which is supported by the beam itself. It is not intended to support CPVC pipe from under a flat horizontal surface, such as a ceiling. For this type of installation, use the TOLCO® Fig. 23, Double Fastener Strap for CPVC Piping. Fig. 22, when inverted, with the hanger tab downward, can function as a restrainer to prevent the upward movement of the sprinkler head during activation.

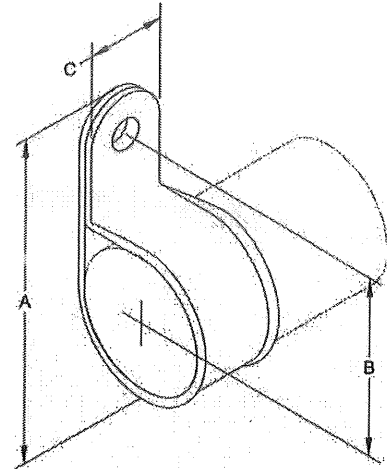
**Approvals** — Underwriters' Laboratories Listed in the USA (UL) and Canada (cUL) to support fire sprinkler piping. May be installed in wood using fasteners supplied with product, or into minimum 20 gauge steel using (1) 1/4" x 1" tek type screw. Meets and exceeds the requirements of NFPA 13, 13R and 13D.

**Features** — Fig. 22 incorporates features which protect the pipe and ease installation. The flared edge design protects CPVC pipe from any rough surface. It is easily attached to the building structure using the special UL Listed hex head self threading screw\* furnished with the product. It is recommended that rechargeable electric drills fitted with a hex socket attachment to be used as installation tools. No impact tools (such as a hammer) are allowed. Damage has been known to result from installations using impact type tools. No pre-drilling of a pilot hole in wood is required.

**Finish** — Pre-Galvanized

**Order By** — Figure number and CPVC pipe size.

\* Hardened hex head self threading screw is furnished with the product and is the minimum fastener size acceptable.



### Dimensions • Weights

CPVC Pipe Size	A	B	C	Max. Hanger Spacing (Ft.)	Fastener Hex Head Size	Approx. Wt./100
3/4	27/16	15/16	13/16	5 1/2	5/16	9
1	2 1/16	1 7/16	1 3/16	6	5/16	9
1 1/4	3 1/16	1 5/8	1 3/16	6 1/2	5/16	11
1 1/2	3 5/16	1 3/4	1 3/16	7	5/16	12
2	3 3/4	2 1/8	1 3/16	8	5/16	15



## Fig. 24 - Hanger for CPVC Plastic Pipe Double Fastener Strap Type - Side Mount



**Size Range** — 3/4" thru 2" CPVC pipe

**Material** — Pre-Galvanized Steel

**Function** — Intended to perform as a hanger/restrainer to support CPVC piping used in automatic fire sprinkler systems. Can be installed on the top or on the bottom of a beam. The Fig. 24 can also function as a restrainer to prevent the upward movement of the sprinkler head during activation.

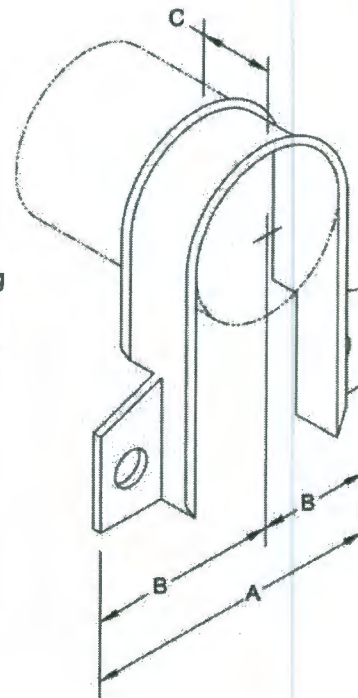
**Approvals** — Underwriters' Laboratories Listed in the USA (UL) and Canada (cUL) to support fire sprinkler piping. May be installed in wood using fasteners supplied with product, or into minimum 20 gauge steel using (2) 1/4" x 1" tek type screws. Meets and exceeds the requirements of NFPA 13, 13R and 13D.

**Features** — Fig. 24 incorporates features which protect the pipe and ease installation. The flared edge design protects the CPVC pipe from any rough surface. Easily attaches to the building structure using the two UL Listed hex head self threading screws\* furnished with the product. It is recommended that rechargeable electric drills fitted with a hex socket attachment be used as installation tools. No impact tools (such as a hammer) are allowed. Damage has been known to result from installations using impact type tools. No pre-drilling of a pilot hole in wood is required.

**Finish** — Pre-Galvanized

**Order By** — Figure number and pipe size

\* Hardened hex head self threading screw is furnished with the product and is the minimum fastener size acceptable.



### Dimensions • Weights

CPVC Pipe Size	A	B	C	Max. Hanger Spacing (Ft.)	Fastener Hex Head Size	Approx. Wt./100
3/4	2 <sup>5</sup> / <sub>16</sub>	1 <sup>5</sup> / <sub>32</sub>	1 <sup>3</sup> / <sub>16</sub>	5 <sup>1</sup> / <sub>2</sub>	5/16	9
1	2 <sup>5</sup> / <sub>8</sub>	1 <sup>5</sup> / <sub>16</sub>	1 <sup>3</sup> / <sub>16</sub>	6	5/16	9
1 <sup>1</sup> / <sub>4</sub>	3	1 <sup>1</sup> / <sub>2</sub>	1 <sup>3</sup> / <sub>16</sub>	6 <sup>1</sup> / <sub>2</sub>	5/16	11
1 <sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>4</sub>	1 <sup>5</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>16</sub>	7	5/16	12
2	3 <sup>1</sup> / <sub>16</sub>	1 <sup>27</sup> / <sub>32</sub>	1 <sup>3</sup> / <sub>16</sub>	8	5/16	15

## CPVC Hangers Head Set™ Model SHB1

### General Description

The Tyco® Model SHB1 Head Set™ Hanger offers a time saving installation method for proper placement of an automatic sprinkler before the ceiling is installed.

The Tyco Fire Products Model SHB1 Head Set Hanger is a redesignation for the Central Model SHB1 Head Set Hanger.

The Head Set Hanger in a side-mount position (Ref. Figure 2) provides accurate vertical positioning of the sprinkler thereby assuring a desirable uniform sprinkler deflector to ceiling positioning of the sprinklers. Due to the unique design of the Head Set Hanger, "blocking" is not required to offset the centerline of piping to accommodate the sprinkler escutcheon from the side of the joist. With the fasteners provided, the Head Set Hanger is intended to be attached directly to the side of a solid wood framing member or the side of a structural composite wood joist of minimum 3/8 inch thickness OSB (Oriented Strand Board) web member or equivalent.

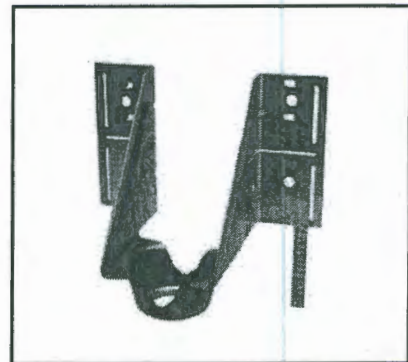
**Note:** The Head Set Hanger is designed for use with TFP "West Coast" style Sprinkler Head Adapters:

- P/N 80175W (3/4" x 1/2" NPT)
- P/N 80176W (1" x 1/2" NPT)

### NOTICE

*The Head Set Hanger described herein must be installed and maintained in compliance with this document and the applicable standards of the National Fire Protection Association, in addition to the standards of any authorities having jurisdiction. Failure to do so may impair the performance of these devices.*

*The owner is responsible for maintaining their fire protection system and devices in proper operating condition. The installing contractor or sprinkler manufacturer should be contacted with any questions.*



### Technical Data

#### Approvals

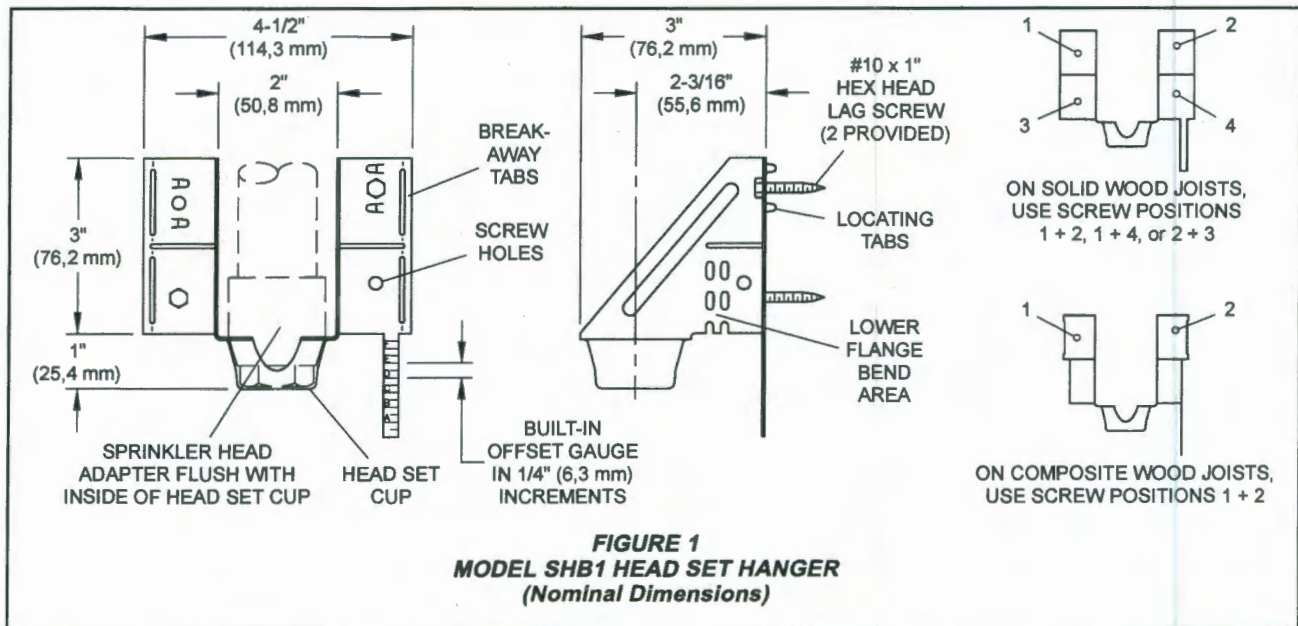
UL Listed for use with CPVC pipe as follows: Side-mount Head Set Hanger (Ref. Figure 2) to provide accurate vertical positioning of a sprinkler.

#### Material

Galvanized aluminum, 20 gauge.

#### Weight

0.2627 lb. (0.119 kg)



## Installation

The following instructions for the Tyco® Model SHB1 Head Set™ Hanger are broken down as follows: "Head Set Hanger — Solid Wood Joist" and "Head Set Hanger — Composite Wood Joist".

### NOTICE

*The Head Set Hanger does not meet the UL requirement for providing vertical restraint that may result from a sprinkler activation. A number of hanger techniques (not inclusive of the use of a Head Set Hanger) as described in Installation Handbook IH-1900 can be used to provide vertical restraint. Failure to provide vertical restraint may result in vertical lift upon sprinkler activation and the inability of a sprinkler to spray effectively in the event of a fire.*

*Installing sprinklers into the sprinkler adapter fittings prior to solvent cementing the adapters to the drop is unacceptable. Failure to allow sprinkler fitting joint to cure before installing sprinklers may result in cement in sprinkler waterway and inability of the sprinkler to properly operate in the event of a fire.*

*The Head Set Hanger should not be installed other than side-mount or attached to anything other than the side of a solid wood framing member or structural composite wood joist, with the fasteners provided, without prior*

*review and approval of the Authority Having Jurisdiction. Any other method of installation may not comply with NFPA or local requirements. If the installer attaches the Head Set Hanger to another type of structural member or orients the Head Set Hanger in a position other than side-mount, fasteners and fastener methods shall comply with applicable NFPA and local code requirements.*

### HEAD SET HANGER — SOLID WOOD JOIST

**Step 1.** Position the Head Set Hanger against vertical solid wood joist surface (side-mount).

**Step 2.** Set depth using graduated markings on "offset gauge" (Ref. Figure 2).

**Step 3.** Secure Head Set Hanger to wood surface using two #10 x 1" hex head lag screws provided. (Ref. Figure 1).

**Step 4.** Cut and install CPVC sprinkler drop making sure the face of the sprinkler head adapter is flush with the inside of the "head set cup".

**Step 5.** Insert sprinkler inlet pipe threads through the "head set cup" and thread into CPVC adapters using the instructions provided in the technical data sheet for the sprinkler, as well as Technical Data Sheet TFP700 for the "INSTALLER WARNING".

### HEAD SET HANGER — COMPOSITE WOOD JOIST

**Step 1.** Use pliers to break off tab (Ref. Figure 4).

**Step 2.** Using pliers to bend lower tabs in 90 degree angle (Ref. Figure 4).

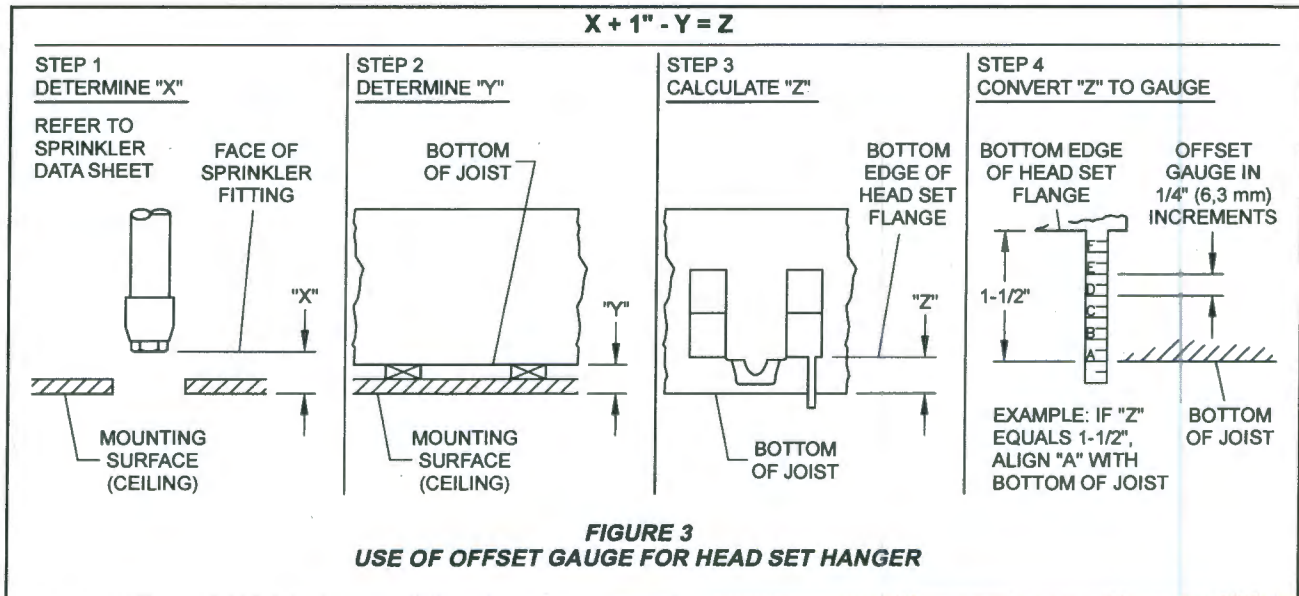
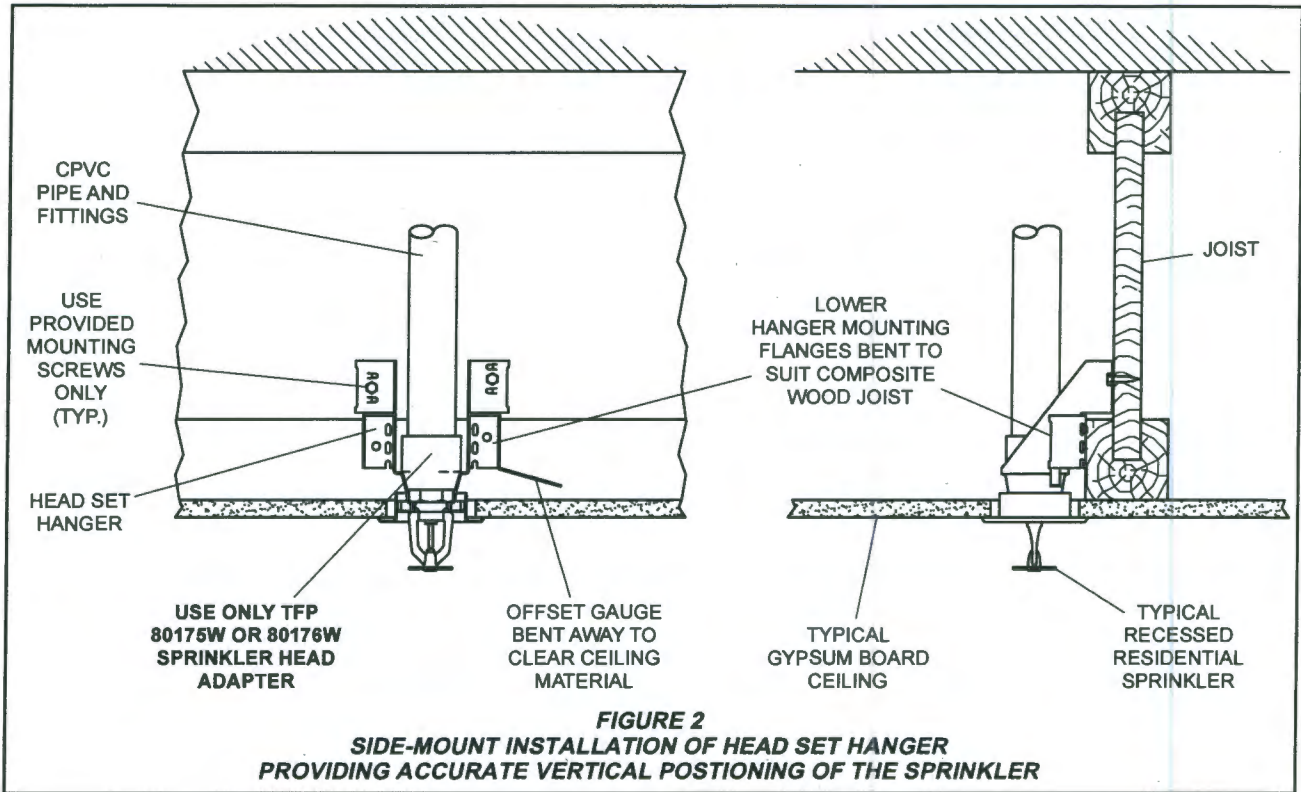
**Step 3.** Position the Head Set hanger against composite wood joist web member (side-mount).

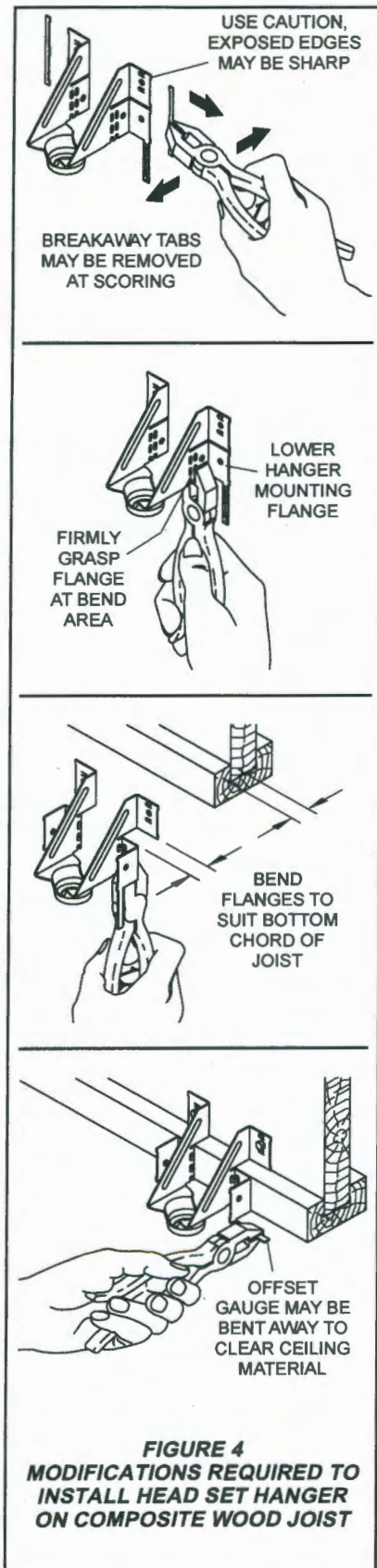
**Step 4.** Set depth using graduated markings on "offset gauge" (Ref. Figure 3).

**Step 5.** Secure Head Set Hanger to wood surface using two #10 x 1" hex head lag screws provided (Ref. Figure 1).

**Step 6.** Cut and install CPVC sprinkler drop making sure the face of the sprinkler head adapter is flush with the inside of the "head set cup".

**Step 7.** Insert sprinkler inlet pipe threads through the "head set cup" and thread into CPVC adapters using the instructions provided in the technical data sheet for the sprinkler, as well as Technical Data Sheet TFP700 for the "INSTALLER WARNING".





## Care and Maintenance

The owner is responsible for the inspection, testing, and maintenance of their fire protection system and devices in compliance with this document, as well as with the applicable standards of the National Fire Protection Association (e.g., NFPA 25), in addition to the standards of any authority having jurisdiction. The installing contractor or product manufacturer should be contacted relative to any questions.

Automatic sprinkler systems should be inspected, tested, and maintained by a qualified Inspection Service in accordance with local requirements and/or national codes.

## Limited Warranty

Products manufactured by Tyco Fire & Building Products (TFBP) are warranted solely to the original Buyer for ten (10) years against defects in material and workmanship when paid for and properly installed and maintained under normal use and service. This warranty will expire ten (10) years from date of shipment by TFBP. No warranty is given for products or components manufactured by companies not affiliated by ownership with TFBP or for products and components which have been subject to misuse, improper installation, corrosion, or which have not been installed, maintained, modified or repaired in accordance with applicable Standards of the National Fire Protection Association, and/or the standards of any other Authorities Having Jurisdiction. Materials found by TFBP to be defective shall be either repaired or replaced, at TFBP's sole option. TFBP neither assumes, nor authorizes any person to assume for it, any other obligation in connection with the sale of products or parts of products. TFBP shall not be responsible for sprinkler system design errors or inaccurate or incomplete information supplied by Buyer or Buyer's representatives.

In no event shall TFBP be liable, in contract, tort, strict liability or under any other legal theory, for incidental, indirect, special or consequential damages, including but not limited to labor charges, regardless of whether TFBP was informed about the possibility of such damages, and in no event shall

TFBP's liability exceed an amount equal to the sales price.

The foregoing warranty is made in lieu of any and all other warranties, express or implied, including warranties of merchantability and fitness for a particular purpose.

This limited warranty sets forth the exclusive remedy for claims based on failure of or defect in products, materials or components, whether the claim is made in contract, tort, strict liability or any other legal theory.

This warranty will apply to the full extent permitted by law. The invalidity, in whole or part, of any portion of this warranty will not affect the remainder.

## Ordering Information

Head Set Hangers are provided in box quantities of 100. Orders placed should be for full box quantities.

### Head Set Hanger:

Specify: Model SHB1 Head Set Hanger, P/N HS1

# FireFighter® GL48

Pre-mixed Antifreeze for Wet Fire Sprinkler Systems

## Installation:

- Evacuate all water from system and drain drops according to NFPA requirements.
- FireFighter GL48 should be tested prior to introduction into the system.
- Do not dilute or add concentrate to FireFighter GL48
- After filling the system, follow NFPA guidelines for testing the antifreeze. Fluid samples should be tested from a minimum of a high point and low point, and should be comparable to both each other and to the sample of the fluid tested prior to introduction into the system.
- NFPA requires a tag to be affixed to the riser indicating the date tested or replaced, the type and concentration by volume of fluid used, system capacity (in volume), contractor name and license number, and a statement indicating if the entire system was drained and replaced with antifreeze. Tags are available free of charge from Noble Company or your local FireFighter distributor.

## System Protection:

**FireFighter GL48**  
Factory Pre-Mix

**FBC**  
SYSTEM COMPATIBLE

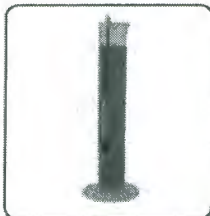
% of FireFighter GL48	Freeze Point	Flow Point	Burst Point	Specific Gravity @77°F / 25°C
100	-15°F	-25°F	-50°F	1.137

Freeze Point is the temperature where the first ice crystal forms in the fluid.  
Burst Point is the temperature where the fluid is solid, expanding and bursting the vessel.

## FireFighter Accessories:



The Palm Abbe refractometer is fast, convenient, and easy to use. Simply place a drop or two of fluid in the titanium well and press a button. The custom-designed microprocessor is temperature compensating and delivers readings for glycerine and propylene glycol for both percentage by volume and freeze point. Accuracy of +/- .10 %.



The Hydrometer measures the specific gravity of propylene glycol and glycerine. Conversion tables allow the user to interpolate readings for percentage of concentration by volume and freeze point. Includes graduated cylinder.

## System Requirements, Limitations & Cautions:

All fire protection sprinkler systems that use FireFighter GL48 should conform to local, state and NFPA requirements. The use of antifreeze within these systems should also conform to NFPA requirements.

Use of antifreeze solutions should also be in conformance with any state or local health codes. Please contact your local health authorities if you have any questions concerning the codes in your area.

Chemicals which compose FireFighter GL48 can break down over time. NFPA 25 requires that the freezing point of the system should be tested at least once a year. Periodic testing of systems is critical to maintaining the proper concentration and freeze point of the fluid. Leaks, pressure surges, and temperature changes to the system can cause antifreeze to flow out of the system or water to flow into the system changing the freeze temperature.

### \*FDA Reference:

FireFighter GL48 is considered "Generally Recognized as Safe" by the Federal Food & Drug Administration.

Non-Toxic is used to describe extremely low chronic and acute toxicity. No maximum safe intake for humans has been established.

### \*Toxicological, Environmental, & Health Information:

FireFighter GL48 is virtually harmless to animals or plants; however, the disposal of these materials should be in conformance with national, state, and local health codes.

FF GL PD 03/11  
Supersedes 08/10

**Noble Company**

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