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REPORT

on

RESIDENTIAL SPRINKLERS

Viking Corporation
Hastings, MI

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GENERAL

INTRODUCTION:

This Report describes the investigation of residential sprinklers intended to be installed in accordance with the National Fire Protection Association Standard For Installation Of Sprinkler Systems For One- And Two-Family Dwellings And Mobile Homes, NFPA 13D, Installation Of Sprinkler Systems In Residential Occupancies Up To Four Stories In Height, NFPA 13R and Installation Of Sprinkler Systems, NFPA 13.

OBJECT:

* The object of this investigation was to determine compliance of the residential sprinklers with the **Fourth** Edition of the Standard For Residential Sprinklers For Fire Protection Service, UL 1626, the Canadian Standard for Automatic Sprinklers ULC/ORD C1626-03, and The Outline of Investigation for Fire Testing of Residential Sprinklers for Use with Smooth, Flat, Sloped Ceilings Having Pitches Not Exceeding 8/12, Subject 1626A.

PLAN:

The investigation of the residential sprinklers consisted of conducting a design parameter and installation instruction review, construction evaluation and performance testing as described in UL 1626, **4th Edition**, Subject **1626A, Issue No.1**, and the Canadian Standard for Automatic Sprinklers ULC/ORD C1626-03, **1st Edition**.

DESCRIPTION

PRODUCT COVERED:

VK456, concealed pendent style sprinkler, discharge coefficient "K" = 4.9, fusible link heat responsive element, 140°F temperature rated residential type sprinklers with a 135°F round or square coverplate assembly.

VK457, concealed pendent style sprinkler, discharge coefficient "K" = 4.9, fusible link heat responsive element, 165°F temperature rated residential type sprinklers with a 135°F round or square coverplate assembly.

VK474, concealed pendent style sprinkler, discharge coefficient "K" = 5.8, fusible link heat responsive element, 165°F temperature rated residential type sprinklers with a 135°F round or square coverplate assembly.

These sprinklers have a maximum pressure of 175 psig for wet systems only for spacings and flow rates as indicated below:

| FOR INSTALLATION UNDER SMOOTH, FLAT CEILINGS | | | | | | | |
|--|--------------|--------------------------|------------------------|------------------|--------------------------------|-----------------------------|------------------------|
| | SIN | Style | Temperature Rating, °F | Nominal K-Factor | Maximum Sprinkler Spacing, ft. | Minimum Flow, gpm/Sprinkler | Flowing Pressure, psig |
| USL,CNL | VK456 | Concealed Pendent | 140 | 4.9 | 14 by 14 | 13 | 7.0 |
| USL,CNL | VK456 | Concealed Pendent | 140 | 4.9 | 16 by 16 | 14 | 8.2 |
| USL,CNL | VK456 | Concealed Pendent | 140 | 4.9 | 18 by 18 | 17 | 12.0 |
| USL,CNL | VK456 | Concealed Pendent | 140 | 4.9 | 20 by 20 | 23 | 22.0 |
| USL,CNL | VK457 | Concealed Pendent | 165 | 4.9 | 16 by 16 | 13 | 7.0 |
| USL,CNL | VK457 | Concealed Pendent | 165 | 4.9 | 18 by 18 | 18 | 13.5 |
| USL,CNL | VK457 | Concealed Pendent | 165 | 4.9 | 20 by 20 | 20 | 16.7 |
| USL,CNL | VK474 | Concealed Pendent | 165 | 5.8 | 16 by 16 | 16 | 7.6 |
| USL,CNL | VK474 | Concealed Pendent | 165 | 5.8 | 18 by 18 | 19 | 10.7 |
| USL,CNL | VK474 | Concealed Pendent | 165 | 5.8 | 20 by 20 | 23 | 15.7 |

*

| FOR INSTALLATION UNDER SLOPED CEILINGS 2/12 TO 8/12 (IN./IN.) PITCH TESTED PER SUBJECT 1626A, ISSUE NO. 1 | | | | | | | |
|--|-------|-------------------|------------------------|------------------|--------------------------------|-----------------------------|------------------------|
| | SIN | Style | Temperature Rating, °F | Nominal K-Factor | Maximum Sprinkler Spacing, ft. | Minimum Flow, gpm/Sprinkler | Flowing Pressure, psig |
| USL | VK456 | Concealed Pendent | 140 | 4.9 | 16 by 16 | 17 | 12.0 |
| USL | VK456 | Concealed Pendent | 140 | 4.9 | 20 by 20 | 26 | 28.2 |
| USL | VK457 | Concealed Pendent | 165 | 4.9 | 16 by 16 | 26 | 28.2 |
| USL | VK457 | Concealed Pendent | 165 | 4.9 | 20 by 20 | 31 | 40.0 |

All sprinklers utilize a 135°F cover plate.

ENGINEERING CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

USL - indicates Listing to UL1626.

CNL - indicates Listing to Canadian Standard ULC/ORD-C1626-03.

GENERAL CHARACTER:

The SIN VK456, VK457 and VK474 residential sprinklers are automatic sprinklers of the fusible link heat responsive element type consisting of a frame, deflector, pin arms, lever, lever bar, fusible link heat responsive element, screw, button, seat, Teflon coated Belleville spring washer, and a concealed round or square coverplate assembly.

The chart below illustrates the decorative type of paints/finishes to be utilized on the coverplates. The application process for these paint types is to be performed by the Viking Corp.

| Paint Type | Maximum Thickness, Mils (in.) | Paint Color |
|-----------------|-------------------------------|-------------|
| Acrylic Latex | 1.5 (0.0015) | Any |
| Lacquer | 2.0 (0.002) | Any |
| Enamel | 2.0 (0.002) | Any |
| Alkyd Enamel | 3.0 (0.003) | Any |
| Latex | 4.0 (0.004) | Any |
| Urethane | 4.0 (0.004) | Any |
| Catalyzed Epoxy | 5.0 (0.005) | Any |
| Acrylic | 5.0 (0.005) | Any |

USE:

The residential sprinklers are for use in their intended operating position only in accordance with the National Fire Protection Association Standards For Installation Of Sprinkler Systems, NFPA 13D, NFPA 13R, and NFPA 13; and the manufacturer's installation instructions.

CONCLUSION

Samples of the product covered by this Report have been found to comply with the requirements and the products are judged to be eligible for Listing and Follow-Up Service. The manufacturer is authorized to use the UL Mark on such products which comply with the Follow-Up Service Procedure and any other applicable requirements of Underwriters Laboratories Inc. Only those products which properly bear the UL Mark are considered as Listed by Underwriters Laboratories Inc.

Report by:

Steven J. Wisniewski
Lead Engineering Associate

Reviewed by:

Michael G. McCormick
Lead Engineering Associate