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# **Approval Standard for Heat and Smoke Vents**

**Class Number 4430**

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# Foreword

The FM Approvals certification mark is intended to verify that the products and services described will meet FM Approvals' stated conditions of performance, safety and quality useful to the ends of property conservation. The purpose of Approval Standards is to present the criteria for FM Approval of various types of products and services, as guidance for FM Approvals personnel, manufacturers, users and authorities having jurisdiction.

Products submitted for certification by FM Approvals shall demonstrate that they meet the intent of the Approval Standard, and that quality control in manufacturing shall ensure a consistently uniform and reliable product. Approval Standards strive to be performance-oriented. They are intended to facilitate technological development.

For examining equipment, materials and services, Approval Standards:

- a) must be useful to the ends of property conservation by preventing, limiting or not causing damage under the conditions stated by the Approval listing; and
- b) must be readily identifiable.

Continuance of Approval and listing depends on compliance with the Approval Agreement, satisfactory performance in the field, on successful re-examinations of equipment, materials, and services as appropriate, and on surveillance audits of the manufacturing facility.

FM Approvals LLC reserves the right in its sole judgment to change or revise its standards, criteria, methods, or procedures.

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## 1. INTRODUCTION

### 1.1 Purpose

- 1.1.1 This standard states Approval requirements for heat and smoke vents.
- 1.1.2 Heat and smoke vents are usually manufactured from plastic or metal and are exposed to a number of hazards, including natural hazards, and must reject wind, hail and other deleterious effects caused from everyday exposure to heat, cold and sunlight.
- 1.1.3 When exposed to a fire from an internal source, automatic operating vents must be provided with a sufficiently rated heat sensing device so that they do not operate prematurely and adversely affect the activation of any sprinklers. Plastic drop-out type vents must maintain their structural integrity for a period of time so that they also won't adversely affect sprinkler operation.
- 1.1.4 Approval criteria shall include, but are not limited to, performance requirements, marking requirements, an examination of manufacturing facility(ies), an audit of quality assurance procedures, and a surveillance program.

### 1.2 Scope

- 1.2.1 This standard sets the performance requirements for heat and smoke vents under simulated laboratory conditions. They shall be examined for their ability to remain in place until such time as sprinklers would have been expected to operate so as not to adversely affect the sprinkler operation. Additionally, this standard also sets their performance requirements when exposed to various natural hazards such as high wind events, the impact of simulated hail and the possible degradation effects of sunlight. The standard also examines their ability to withstand the impact effects of temporary live loads as well as to be able to operate under anticipated roof live (snow) loads.
- 1.2.2 This standard is not intended to be used to determine when or where heat and smoke vents are to be used or how to determine the amount of vented area needed.
- 1.2.3 This standard is not intended to qualify skylights. For the Approval requirements of skylights, see FM Approval Standard 4431, Skylights.
- 1.2.4 This standard is intended to evaluate only those hazards investigated and is not intended to determine suitability for the end use of the product.
- 1.2.5 The results of tests conducted under the controlled conditions required by this standard shall not be used to describe or appraise performance under actual fire or natural hazard conditions as actual fire and natural hazard conditions vary widely.
- 1.2.6 This standard does not examine the product's solar optical values such as transmittance, reflectance or absorbance or other properties such as air leakage, water leakage, solar radiation, insulating properties or other properties related to the resistance of heat flow through the product due to indoor and outdoor temperature differentials.

### 1.3 Basis for Requirements

- 1.3.1 The requirements of this standard are based on experience, research and testing, and/or the standards of other organizations. The advice of manufacturers, users, trade associations, jurisdictions and/or loss control specialists was also considered.
- 1.3.2 The requirements of this standard reflect tests and practices used to examine characteristics of heat and smoke vents for the purpose of obtaining Approval. Heat and smoke vents having characteristics not anticipated by this standard may be FM Approved if performance equal, or superior, to that required by