

Approval Standard

Edge Systems Used With
Low Slope Roofing Systems

Class Number 4435
June 2013



Member of the FM Global Group

Approval Standard for Edge Systems Used with Low Slope Roofing Systems

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Foreword

The FM Approvals certification mark is intended to verify that the products and services described will meet 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 periodic follow-up 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 edge systems used with low slope roofing systems.
- 1.1.2 Approval criteria may include, but are not limited to, performance requirements, marking requirements, examination of manufacturing facility(ies), audit of quality assurance procedures, and a follow-up program.

1.2 Scope

- 1.2.1 This standard sets performance requirements for edge systems installed on low slope roofing according to the limitations and requirements specified for each individually manufactured roof edge system.
- 1.2.2 The requirements of this standard shall be used to measure and describe the wind load resistance of roof edge systems and their securement in response to simulated wind loads under controlled laboratory conditions.
- 1.2.3 The wind resistance performance of a roof edge system depends in part on its ability to resist the wind forces at the building edge and to maintain the securement of the roof cover system.
- 1.2.4 This standard describes the minimum performance requirements for roof edge systems by evaluating their performance as it relates to wind load resistance.
- 1.2.5 This standard is not intended to determine the suitability for all end use conditions of a product. Conditions under which a roof edge system is used vary widely. It is the responsibility of the manufacturer and user to determine the suitability of the roof edge system for the intended location.
- 1.2.6 This standard does not determine a roof edge system's ability to restrict or prevent the infiltration of air or water into or through the edge or underside of the roofing system.

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 FM Approvals and other organizations. The advice of manufacturers, users, trade associations and loss control specialists was also considered.
- 1.3.2 Meeting the requirements qualifies a product as an FM Approved roof edge system. Requirements prohibit component substitution without prior authorization by FM Approvals.
- 1.3.3 The requirements of this standard reflect tests and practices used to examine characteristics of roof edge systems for the purpose of obtaining Approval. These requirements are intended primarily as guides and strict conformity is not always mandatory. Roof edge systems having characteristics not anticipated by this standard may be FM Approved if performance equal or superior to that required by this standard is demonstrated, or if the intent of the standard is met. Alternatively, roof edge systems that meet all the requirements identified in this standard may not be FM Approved if other conditions that adversely affect performance exist or if the intent of this standard is not met.

1.4 Basis for Approval

Approval is based upon satisfactory evaluation of the product and the manufacturer in the following major areas:

- 1.4.1 Examination and tests on production samples shall be performed to evaluate
- the suitability of the product for use as a roof edge system;
 - the performance of the component product as part of a roof edge system as specified by the manufacturer and required by FM Approvals; and, as far as practical,
 - the durability and reliability of the component product when used as part of a roof edge system.
- 1.4.2 An examination of the manufacturing facilities and audit of quality control procedures to evaluate the manufacturer's ability to consistently produce the component product which is examined and tested, and the marking procedures used to identify the product. These examinations may be repeated as part of FM Approvals' product follow-up program.

1.5 Basis for Continued Approval

Continued Approval is based upon:

- production or availability of the component product as currently FM Approved;
- the continued use of acceptable quality control procedures;
- satisfactory field experience;
- compliance with the terms stipulated in the Approval report and Master Agreement;
- satisfactory re-examination of production samples for continued conformity to requirements; and
- satisfactory Surveillance Audits conducted as part of FM Approvals' product follow-up program.

1.6 Effective Date

1.6.1 The effective date of an Approval Standard mandates that all products tested for Approval after the effective date shall satisfy the requirements of that standard. Products FM Approved under a previous edition shall comply with the new version by the effective date or else forfeit Approval. The effective date shall apply to the entire Approval Standard, or, where so indicated, only to specific paragraphs of the standard.

1.6.2 The effective date for this standard is December 31, 2014, for compliance with all requirements.

1.7 System of Units

Units of measurement used in this Standard are United States (U.S.) customary units. These are followed by their arithmetic equivalents in International System (SI) units, enclosed in parentheses. The first value stated shall be regarded as the requirement. The converted equivalent value may be approximate. Appendix A lists the selected units and conversions to SI units for measures appearing in this standard. Conversion of U.S. customary units is in accordance with the American National Standards Institute (ANSI)/Institute of Electrical and Electronics Engineers (IEEE)/American Society for Testing Materials (ASTM) SI 10-97, "Standard for Use of the International System of Units (SI): The Modern Metric System."

1.8 Applicable Documents

The following standards, test methods, and practices are referenced in this standard:

- Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems, ANSI/SPRI/FM 4435/ES-1, 2011
- FM Global Loss Prevention Data Sheet 1- 49, Roof Perimeter Flashing

1.9 Definitions

For purposes of this standard, the following terms apply:

Cleat – a continuous metal strip or angled piece used to secure metal components.

Clip – a non-continuous component or angle piece used to secure two or more components together.

Cold rolled - the process of forming steel, aluminum and copper into sheets, panels, or shapes on a series of rollers at room temperature.

Coping – the covering piece on top of a wall that is exposed to the weather and normally sloped to carry off water.

Dependently Terminated Roof Covers – constructions where the edge of the membrane is structurally dependent on the flashing for securement. For mechanically attached roof cover systems or ribbon adhered systems where the distance from the outside edge of the nailer to the first row of fasteners or adhesive parallel to the edge of the building is greater than 12 in. (305 mm).

Drip edge - a flashing or other overhanging component with an outward projecting lower edge, intended to control the direction of dripping water and help protect underlying building components.

Fascia – the vertical or steeply sloped roof trim located at the perimeter of a building.

Fastener – any of a wide variety of mechanical securement devices and assemblies, including nails, staples, screws, cleats, clips and bolts, which may be used to secure various components of a roof edge system.

Fastener pull-out - a type of failure mode in which a fastener pulls away from a substrate (eg: nailer) under load.

Fastener Pull-through - a type of failure mode in which a fastener head pulls through a substrate (eg: nailer) under load.

Field of Roof Pressure - the wind pressure (generally upwards) imparted on a central area of the roof.