



Member of the FM Global Group

Examination Standard for Class 1 Fire Rating of Building Panels or Interior Finish Materials

Class Number 4880

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Foreword

This standard 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 this standard is to present the criteria for examination of various types of products and services.

Examination in accordance with this standard shall demonstrate compliance and verify that quality control in manufacturing shall ensure a consistent and reliable product.

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1 INTRODUCTION

1.1 Purpose

- 1.1.1 This standard states testing and certification requirements for building panels or interior finish materials for use where a Class 1 fire rating is needed for wall and/or ceiling constructions.
- 1.1.2 Testing and certification criteria may include observation of test sample production, performance requirements, marking requirements, examination of manufacturing facility(ies), audit of quality assurance procedures, and a surveillance program.

1.2 Scope

- 1.2.1 This standard applies to the fire performance requirements for a Class 1 fire rating of building panels or interior finish materials. These products shall be certified with specific height installation requirements and combustibility ratings.
 - 1.2.1.1 Building panels or interior finish materials shall be certified for installations:
 - with a maximum height restriction of 30 ft (9.1 m),
 - with a maximum height restriction of 50 ft (15.2 m) or
 - without height restrictions (i.e. unlimited height).
 - 1.2.1.2 The combustibility of a core insulation or interior finish materials shall be identified as combustible or noncombustible.
- 1.2.2 Building panels or interior finish materials include, but are not limited to:
 - insulated or non-insulated wall and/or ceiling panels with an inert or non-inert facer and combustible core or noncombustible core;
 - doors manufactured with the same facers and core as wall panels included in the scope, used to access partition or enclosure assemblies made with wall panels included in the scope; and
 - interior finish materials:
 - thermoplastic panels
 - thermoset panels, and
 - coatings systems and exposed interior insulations.
- 1.2.3 Any component which may be used in the installation of a building panel or interior finish material such as fasteners, adhesives, sealants, flashing, substrates, or any other accessories, are considered part of the scope of the product and must be evaluated in conjunction with the product. At the discretion of the certification agency, any component that may affect the test performance must be included in the test sample construction.
- 1.2.4 This standard evaluates building panels or interior finish materials for an interior installation application only. For exterior installation applications, occupancies with limited smoke requirements (e.g. clean room or food storage), data processing centers, and cavity wall and rainscreen application, the certification requires successful examination in accordance with the following applicable standards:
 - FM 4411- *Examination Standard for Cavity Walls and Rainscreens.*
 - FM 4470 – *Examination Standard for Single-Ply, Polymer-Modified Bitumen Sheet, Built-Up Roof (BUR) and Liquid Applied Roof Assemblies for use in Class 1 and Noncombustible Roof Deck Construction,*
 - FM 4471 – *Examination Standard for Class 1 Panel Roofs*

- FM 4881 – *Examination Standard for Class 1 Exterior Wall Systems*
- FM 4882 – *Examination Standard for Class 1 Interior Wall and Ceiling Materials or Systems for Smoke Sensitive Occupancies*
- FM 4884 – *Examination Standard for Panels Used in Data Processing Center Hot and Cold Aisle Containment Systems*

- 1.2.5 Building panels or interior finish materials, which meet the requirements of this standard, in and of themselves, would not create a need for automatic sprinklers.
- 1.2.6 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 conditions.
- 1.2.7 This standard shall not qualify exterior insulated finish systems (EIFS) or other exterior wall coating systems.

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 national and international organizations. The advice of manufacturers, users, trade associations, and loss control specialists was also considered.
- 1.3.2 Meeting the requirements qualifies the wall/ceiling assemblies as certified Class 1 building panels or interior finish materials. Requirements prohibit component substitutes without prior authorization by the certification agency.
- 1.3.3 The requirements of this standard reflect tests and practices used to examine characteristics of building panels or interior finish materials for the purpose of obtaining certification. Building panels or interior finish materials having characteristics not anticipated by this standard may be certified if performance equal, or superior, to that required by this standard is demonstrated.

1.4 Basis for Certification

Certification 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 are performed to evaluate:
- the suitability of the product for its intended end use as a certified Class 1 building panel or interior finish material;
 - the performance of the product as specified by the manufacturer and required for certification;
 - the durability and reliability of the product when used as a certified Class 1 building panel or interior finish material.
- 1.4.2 An examination of the manufacturing facilities for completed assemblies and components and audit of quality control procedures may be conducted to evaluate the manufacturer's ability to consistently produce the products which are examined and tested, and the marking procedures used to identify the products. Subsequent surveillance may be required by the certification agency in accordance with the certification scheme to ensure ongoing compliance.

1.5 Basis for Continued Certification

The basis for continual certification may include the following based upon the certification scheme and requirements of the certification agency:

- production or availability of the product as currently certified;
- the continued use of acceptable quality assurance procedures;
- satisfactory field experience;
- compliance with the terms stipulated by the certification;
- satisfactory re-examination of production samples for continued conformity to requirements; and
- satisfactory surveillance audits conducted as part of the certification agency's product surveillance program.

1.6 Effective Date

The effective date of this examination standard mandates that all products tested for certification after the effective date shall satisfy the requirements of this standard.

The effective date of this standard is eighteen (18) months after the publication date of the standard 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. Conversion of U.S. customary units is in accordance with ANSI/IEEE/ASTM SI 10.

1.8 Normative References

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the cited edition applies.

American Society for Testing and Materials (ASTM International)

- ANSI/ IEEE/ASTM SI 10 *American National Standard for Metric Practice.*
- ASTM C167, *Standard Test Methods for Thickness and Density of Blanket or Batt Thermal Insulations*
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- ASTM C303, *Standard Test Method for Dimensions and Density of Preformed Block and Broad-Type Thermal Insulation*
- ASTM D482, *Standard Test Method for Ash from Petroleum Products*
- ASTM D792, *Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement, volume 8.01*
- ASTM D1505, *Standard Test Method for Density of Plastics by the Density-Gradient Technique*
- ASTM D1622, *Standard Test Method for Apparent Density of Rigid Cellular Plastics*

- ASTM D1929, *Standard Test Method for Determining Ignition Temperature of Plastics*
- ASTM D4809, *Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter (Precision Method)*
- ASTM E84, *Standard Test Method for Surface Burning Characteristics of Building Materials*
- ASTM E711, *Standard Test Method for Gross Calorific Value of Refuse-Derived Fuel by the Bomb Calorimeter*
- ASTM E2058, *Standard Test Methods for Measurement of Synthetic Polymer Material Flammability Using a Fire Propagation Apparatus (FPA)*

International Organization for Standardization (ISO)

- ISO 871, *Plastics -Determination of Ignition Temperature Using a Hot-Air Furnace*
- ISO 1716, *Reaction-To-Fire Tests for Building Products - Determination of the Heat of Combustion*
- ISO 9705, *Fire Tests - Full-Scale Room Test for Surface Products*
- ISO 12136, *Reaction to Fire Tests - Measurement of Material Properties Using a Fire Propagation Apparatus*

FM Approvals LLC (FM)

- FM 4411, *Examination Standard for Cavity Walls and Rainscreens*
- FM 4470, *Examination Standard for Single-Ply, Polymer-Modified Bitumen Sheet, Built-Up Roof (BUR) and Liquid Applied Roof Assemblies for use in Class 1 and Noncombustible Roof Deck Construction*
- FM 4471, *Examination Standard for Class 1 Panel Roofs*
- FM 4881, *Examination Standard for Class 1 Exterior Wall Systems*
- FM 4882, *Examination Standard for Class 1 Interior Wall and Ceiling Materials or Systems for Smoke Sensitive Occupancies*
- FM 4884, *Examination Standard for Panels Used in Data Processing Center Hot and Cold Aisle Containment Systems*
- ANSI FM 4880, *American National Standard for Evaluating the Fire Performance of Insulated Building Panel Assemblies and Interior Finish Materials*

1.9 Terms and Definitions

For purposes of this standard, the following terms apply:

Caulking

A filler used to seal openings and joints in wall and/or ceiling assemblies. Caulking is typically not intended for fire-resistance and typically does not react with heat from a fire.

Certificate of Analysis

A Certificate of Analysis is a document issued by a manufacturer that confirms that the product meets its product specifications. It usually contains quality control test results for the product.

Combustible Core or Combustible Interior Finish Material

A combustible core or combustible interior finish material is one that has not been tested for or does not pass the requirements listed in Appendix A of this standard for a noncombustible rating.

Combustibility of Core or Interior Finish Material

The combustibility of a core insulation or interior finish material will be identified as “Combustible” or “Noncombustible.” A rating shall only be obtained from successfully completing the requirements listed in Appendix A of this standard.

Component

A component is a part or element of a building panel, interior finish material, foam system, etc., and/or part or element of an assembly of a building panel or interior finish material. Examples of components are, but not limited to, foam systems, ingredients of foam systems (e.g. polyol or isocyanine), noncombustible cores, and/or joint sealants.

Door

A hinged or slide mounted panel on a frame used to access a partition or enclosure that can include components such as latch, sill, inside release, ventilator port, sweep, and gasket. The frame usually includes a hinge jamb, latch jamb, and header. A hinged door frame usually includes a hinge jamb, latch jamb, and header. A slide door frame usually includes a sliding track, bottom guides, top glide rollers, and a header.

Fire-resistant Caulking, Gaskets, or Sealants

Fire-resistant caulking, gaskets, or sealants are made of various components and may be used to seal openings and/or joints in wall and/or ceiling assemblies. Fire-resistant caulking, gaskets, or sealants may react with heat from a fire. Examples include, but are not limited to, firestops and intumescent materials.

EPS

Expanded polystyrene (EPS) is a thermoplastic, rigid cellular plastic or closed-cell foam which can be used as an insulation for insulated wall and/or ceiling panels.

FSP_C

The convective flame spread parameter (FSP_C). The $FSP_C = Q_C / (TRP \cdot a)$ where Q_C is the 5 second average peak convective heat release rate and TRP is the thermal response parameter determined per ASTM E2058 and a is the total surface area of the combustion sample used to determine Q_C .

Gasket

A shaped piece of rubber or other material used to seal openings and/or joints in wall and/or ceiling assemblies. A gasket is typically not intended for fire-resistance and typically does not react with heat from a fire.