

Approval Standard for Insulated Wall Constructions

Class Number 4411

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Foreword

FM Approvals are 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 FM 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 Approval shall demonstrate that they meet the intent of the Approval Standard, and that quality control in manufacturing and/or applications shall ensure a consistently uniform and reliable product or service. FM Approval Standards strive to be performance-oriented and to facilitate technological development.

For examining equipment, materials and services, FM 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 or service/application.

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

TABLE OF CONTENTS

I INTRODUCTION	1
II DESCRIPTION OF HAZARDS	1
2.10 Vertical Fire Spread in the Core	1
2.20 Heat Contribution	2
2.30 Horizontal Flame Spread on Exposed Insulation	2
2.40 Susceptibility to Radiant Heat Damage	2
III TEST PROCEDURES	2
3.10 Vertical Fire Spread-Core	2
3.20 Heat Contribution	3
3.30 Horizontal Flame Spread-Exposed Insulation	3
3.40 Susceptibility to Radiant Heat Damage	4
IV MARKING	4
V FACILITIES AND PROCEDURES INSPECTION	4
VI RE-EXAMINATION	4
VII MANUFACTURER'S RESPONSIBILITY	5
APPENDIX A: TEST PROCEDURE FOR FIRE HAZARD CLASSIFICATION OPERATING PRINCIPLE OF TEST FURNACE	6
I Fire Test Furnace	7
II Test Sample	8
III Calibration of Test Equipment	9
IV Fire Test Procedure	9
V Test Results	9
VI Classification	11
APPENDIX B: TEST PROCEDURE SUSCEPTIBILITY TO HEAT DAMAGE	13
I Description of Test Apparatus	13
II Test Procedure – Wall Insulations	14
III Evaluation of Results	14

I INTRODUCTION

- 1.10 Insulated wall constructions covered by this standard are generally referred to as curtain walls having relatively low fire endurance properties and not intended as hourly rated fire barriers. Recent building fires have shown that fire spread in combustible wall insulations may grow to serious proportions when the insulation exhibits early decomposition and ease-of-ignition.
- 1.20 The insulated wall may consist of sandwich panels, factory made or field assembled with load bearing or non-load bearing capability. The core insulation is usually faced on both sides with a combination of materials, such as metal, gypsum wallboard, concrete, masonry and others. The insulating core materials may be noncombustible or of varying degrees of combustibility and some, such as the cellular plastics, may decompose at relatively low fire temperatures.
- 1.30 Other insulated wall constructions may be other than the sandwich type; in which the insulation is faced on one side only (the exterior) with metal, concrete or masonry. The other side of the insulation is left exposed to the interior of the building and may present a more serious fire hazard than the sandwich panel.
- 1.40 From a fire hazard standpoint, the four important factors to be considered in an unsprinklered building are: 1) vertical fire spread in the core, 2) rate of heat contribution, 3) horizontal flame spread on exposed insulation, and 4) susceptibility to radiant heat damage.
- 1.50 Approval examination will include appropriate fire tests to determine vertical or horizontal fire spread, heat contribution and possible insulative damage requiring replacement; review of manufacturing and erection specifications to assure practical and reliable installation; and inspection of the product manufacturing facility.
- 1.60 An insulated wall assembly which exhibits low fire spread, vertically or horizontally; low rate of heat contribution; minor radiant heat damage; and adequate strength during the Approval examination will qualify as a Class I insulated wall construction not requiring automatic sprinkler protection of itself.
- 1.70 Continued Approval will depend upon satisfactory field experience.

II DESCRIPTION OF HAZARDS

2.10 Vertical Fire Spread in the Core

- 2.11 Situations may arise in which the core insulation will be temporarily exposed to a potential ignition source, e.g., torch cutting through the “sandwich” construction. If the core material is combustible, a rapid spreading fire may result in the cavity, traveling upwards possibly from floor to floor. To evaluate this possibility, the core insulation is subjected to a fire exposure described below under III TEST PROCEDURES, Section 3.10.